Scott Road Regional Lift Station Sewer Conveyance Project

Initial Study/Mitigated Negative Declaration Appendices

Lead Agency:

Eastern Municipal Water District

2270 Trumble Road

Perris, CA 92570

October 2026

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Appendix A

CalEEMod Output Files

SRRLS Sewer Conveyance Oct26 Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SRRLS Sewer Conveyance Oct26
Construction Start Date	1/4/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50000
Precipitation (days)	14.0000
Location	33024 Leon Rd, Menifee, CA 92596, USA
County	Riverside-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5545
EDFZ	11
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.46

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
User Defined Industrial	3.00000	User Defined Unit	1.76000	0.00000	0.00000	—	—	—
User Defined Linear	4.12400	Mile	20.0000	0.00000	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.14759	6.52957	32.7612	42.0736	0.10106	1.12730	0.55551	1.61746	1.03711	0.13021	1.15201	—	11,009.6	11,009.6	0.43180	0.10298	1.78717	11,052.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.39387	4.52507	32.7781	41.4656	0.10106	1.12730	1.21645	2.12219	1.03711	0.31334	1.15201	—	11,842.7	11,842.7	0.43262	0.45228	0.16339	11,988.1
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Unmit.	3.11868	2.63180	18.3347	24.1335	0.05835	0.62412	0.38806	1.01218	0.57439	0.09245	0.66684	—	6,521.00	6,521.00	0.25270	0.08162	0.59976	6,552.24
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.56916	0.48030	3.34608	4.40437	0.01065	0.11390	0.07082	0.18472	0.10483	0.01687	0.12170	—	1,079.63	1,079.63	0.04184	0.01351	0.09930	1,084.80

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	7.14759	6.52957	32.7612	42.0736	0.10106	1.12730	0.55551	1.61746	1.03711	0.13021	1.15201	—	11,009.6	11,009.6	0.43180	0.10298	1.78717	11,052.7
2028	3.48048	2.92819	20.1768	29.2704	0.06815	0.66163	0.49016	1.15179	0.60870	0.11489	0.72359	—	7,733.02	7,733.02	0.29927	0.07647	1.41288	7,764.70
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	5.39387	4.52507	32.7781	41.4656	0.10106	1.12730	1.21645	2.12219	1.03711	0.31334	1.15201	—	11,842.7	11,842.7	0.43262	0.45228	0.16339	11,988.1
2028	3.45774	2.91992	20.1937	28.7050	0.06815	0.66163	0.49016	1.15179	0.60870	0.11489	0.72359	—	7,693.09	7,693.09	0.30009	0.07647	0.03674	7,723.42
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.11868	2.63180	18.3347	24.1335	0.05835	0.62412	0.38806	1.01218	0.57439	0.09245	0.66684	—	6,521.00	6,521.00	0.25270	0.08162	0.59976	6,552.24
2028	1.30214	1.09958	7.57717	10.8375	0.02575	0.24780	0.18319	0.43099	0.22797	0.04287	0.27084	—	2,910.37	2,910.37	0.11346	0.02900	0.22964	2,922.08

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.56916	0.48030	3.34608	4.40437	0.01065	0.11390	0.07082	0.18472	0.10483	0.01687	0.12170	—	1,079.63	1,079.63	0.04184	0.01351	0.09930	1,084.80
2028	0.23764	0.20067	1.38283	1.97784	0.00470	0.04522	0.03343	0.07865	0.04161	0.00782	0.04943	—	481.845	481.845	0.01878	0.00480	0.03802	483.783

2.2.2. Onsite Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	6.95598	6.35904	32.6310	39.5827	0.10106	1.12730	0.00000	1.12730	1.03711	0.00000	1.03711	—	10,502.1	10,502.1	0.42601	0.08520	0.00000	10,538.1
2028	3.31720	2.78268	20.0474	26.9490	0.06815	0.66163	0.01060	0.66163	0.60870	0.00160	0.60870	—	7,234.90	7,234.90	0.29348	0.05870	0.00000	7,259.73
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	5.23307	4.38287	32.6310	39.5827	0.10106	1.12730	0.00565	1.12730	1.03711	0.00086	1.03711	—	10,502.1	10,502.1	0.42601	0.08520	0.00000	10,538.1
2028	3.31720	2.78268	20.0474	26.9490	0.06815	0.66163	0.00000	0.66163	0.60870	0.00000	0.60870	—	7,234.90	7,234.90	0.29348	0.05870	0.00000	7,259.73
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	2.99617	2.52617	18.0728	22.6599	0.05748	0.62162	0.00031	0.62193	0.57189	0.00005	0.57194	—	6,051.43	6,051.43	0.24547	0.04909	0.00000	6,072.20
2028	1.24968	1.04838	7.52126	10.1434	0.02574	0.24778	0.00070	0.24847	0.22795	0.00011	0.22806	—	2,735.40	2,735.40	0.11096	0.02219	0.00000	2,744.79
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.54680	0.46103	3.29828	4.13543	0.01049	0.11345	0.00006	0.11350	0.10437	0.00001	0.10438	—	1,001.88	1,001.88	0.04064	0.00813	0.00000	1,005.32
2028	0.22807	0.19133	1.37263	1.85117	0.00470	0.04522	0.00013	0.04535	0.04160	0.00002	0.04162	—	452.877	452.877	0.01837	0.00367	0.00000	454.431

2.2.3. Offsite Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.19161	0.17053	0.14757	2.82307	0.00000	0.00000	0.55551	0.55551	0.00000	0.13021	0.13021	—	575.270	575.270	0.00656	0.02014	1.78717	583.224
2028	0.16328	0.14551	0.12938	2.32147	0.00010	0.00028	0.49016	0.49016	0.00028	0.11489	0.11489	—	498.113	498.113	0.00579	0.01777	1.41288	504.968
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.28928	0.20552	2.78242	2.88513	0.01593	0.04550	1.21080	1.25630	0.04550	0.31248	0.35799	—	2,845.41	2,845.41	0.05192	0.37929	0.16339	2,959.90
2028	0.14054	0.13724	0.14633	1.75598	0.00000	0.00000	0.49016	0.49016	0.00000	0.11489	0.11489	—	458.189	458.189	0.00661	0.01777	0.03674	463.688
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.12250	0.10563	0.26192	1.47366	0.00087	0.00249	0.38775	0.39024	0.00249	0.09241	0.09490	—	469.571	469.571	0.00723	0.03252	0.59976	480.043
2028	0.05246	0.05119	0.05591	0.69411	0.00001	0.00002	0.18249	0.18251	0.00002	0.04276	0.04278	—	174.966	174.966	0.00250	0.00681	0.22964	177.288
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.02236	0.01928	0.04780	0.26894	0.00016	0.00046	0.07076	0.07122	0.00046	0.01686	0.01732	—	77.7429	77.7429	0.00120	0.00538	0.09930	79.4766
2028	0.00957	0.00934	0.01020	0.12668	< 0.000005	< 0.000005	0.03331	0.03331	< 0.000005	0.00780	0.00781	—	28.9677	28.9677	0.00041	0.00113	0.03802	29.3521

3. Construction Emissions Details

3.1. Demolition (2028)

3.1.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74125	0.62285	4.00573	5.88403	0.01631	0.12536	—	0.12536	0.11533	—	0.11533	—	1,765.86	1,765.86	0.07163	0.01433	—	1,771.92
Demolition	—	—	—	—	—	—	0.01060	0.01060	—	0.00160	0.00160	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04874	0.04095	0.26339	0.38690	0.00107	0.00824	—	0.00824	0.00758	—	0.00758	—	116.111	116.111	0.00471	0.00094	—	116.510
Demolition	—	—	—	—	—	—	0.00070	0.00070	—	0.00011	0.00011	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00889	0.00747	0.04807	0.07061	0.00020	0.00150	—	0.00150	0.00138	—	0.00138	—	19.2235	19.2235	0.00078	0.00016	—	19.2895
Demolition	—	—	—	—	—	—	0.00013	0.00013	—	0.00002	0.00002	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03266	0.02910	0.02588	0.46429	0.00000	0.00000	0.09803	0.09803	0.00000	0.02298	0.02298	—	99.6226	99.6226	0.00116	0.00355	0.28258	100.994
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00060	0.00023	0.01467	0.00364	0.00010	0.00028	0.00377	0.00405	0.00028	0.00106	0.00133	—	13.5232	13.5232	0.00027	0.00216	0.02456	14.1991
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00184	0.00179	0.00192	0.02432	0.00000	0.00000	0.00639	0.00639	0.00000	0.00150	0.00150	—	6.10159	6.10159	0.00009	0.00023	0.00802	6.18144
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00004	0.00001	0.00101	0.00024	0.00001	0.00002	0.00025	0.00026	0.00002	0.00007	0.00009	—	0.88941	0.88941	0.00002	0.00014	0.00070	0.93293
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00034	0.00033	0.00035	0.00444	0.00000	0.00000	0.00117	0.00117	0.00000	0.00027	0.00027	—	1.01019	1.01019	0.00001	0.00004	0.00133	1.02341
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00001	< 0.000005	0.00018	0.00004	< 0.000005	< 0.000005	0.00004	0.00005	< 0.000005	0.00001	0.00002	—	0.14725	0.14725	< 0.000005	0.00002	0.00012	0.15446

3.2. Site Preparation (2027)

3.2.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75345	0.63311	4.23489	5.89895	0.01630	0.13730	—	0.13730	0.12632	—	0.12632	—	1,765.13	1,765.13	0.07160	0.01432	—	1,771.18
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02064	0.01735	0.11602	0.16162	0.00045	0.00376	—	0.00376	0.00346	—	0.00346	—	48.3596	48.3596	0.00196	0.00039	—	48.5256
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00377	0.00317	0.02117	0.02949	0.00008	0.00069	—	0.00069	0.00063	—	0.00063	—	8.00649	8.00649	0.00032	0.00006	—	8.03396
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03216	0.02844	0.02943	0.37658	0.00000	0.00000	0.09803	0.09803	0.00000	0.02298	0.02298	—	93.3667	93.3667	0.00132	0.00355	0.00818	94.4674
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.00088	0.00078	0.00089	0.01083	0.00000	0.00000	0.00266	0.00266	0.00000	0.00062	0.00062	—	2.59036	2.59036	0.00004	0.00010	0.00373	2.62402
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00016	0.00014	0.00016	0.00198	0.00000	0.00000	0.00049	0.00049	0.00000	0.00011	0.00011	—	0.42886	0.42886	0.00001	0.00002	0.00062	0.43444
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Grading (2027)

3.3.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75345	0.63311	4.23489	5.89895	0.01630	0.13730	—	0.13730	0.12632	—	0.12632	—	1,765.13	1,765.13	0.07160	0.01432	—	1,771.18
Dust From Material Movement	—	—	—	—	—	—	0.00565	0.00565	—	0.00086	0.00086	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04129	0.03469	0.23205	0.32323	0.00089	0.00752	—	0.00752	0.00692	—	0.00692	—	96.7193	96.7193	0.00392	0.00078	—	97.0512
Dust From Material Movement	—	—	—	—	—	—	0.00031	0.00031	—	0.00005	0.00005	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00753	0.00633	0.04235	0.05899	0.00016	0.00137	—	0.00137	0.00126	—	0.00126	—	16.0130	16.0130	0.00065	0.00013	—	16.0679
Dust From Material Movement	—	—	—	—	—	—	0.00006	0.00006	—	0.00001	0.00001	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03216	0.02844	0.02943	0.37658	0.00000	0.00000	0.09803	0.09803	0.00000	0.02298	0.02298	—	93.3667	93.3667	0.00132	0.00355	0.00818	94.4674
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.09632	0.03489	2.60583	0.62567	0.01593	0.04550	0.62261	0.66811	0.04550	0.17461	0.22012	—	2,285.21	2,285.21	0.04399	0.35796	0.11431	2,393.10
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00176	0.00156	0.00178	0.02166	0.00000	0.00000	0.00532	0.00532	0.00000	0.00125	0.00125	—	5.18072	5.18072	0.00007	0.00019	0.00745	5.24803
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00536	0.00204	0.14357	0.03391	0.00087	0.00249	0.03388	0.03637	0.00249	0.00951	0.01200	—	125.177	125.177	0.00241	0.01957	0.10423	131.174
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00032	0.00028	0.00032	0.00395	0.00000	0.00000	0.00097	0.00097	0.00000	0.00023	0.00023	—	0.85773	0.85773	0.00001	0.00003	0.00123	0.86887
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00098	0.00037	0.02620	0.00619	0.00016	0.00046	0.00618	0.00664	0.00046	0.00174	0.00219	—	20.7244	20.7244	0.00040	0.00324	0.01726	21.7173

3.4. Building Construction (2027)

3.4.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.84136	1.53771	11.5387	12.5838	0.03294	0.40437	—	0.40437	0.37202	—	0.37202	—	3,269.86	3,269.86	0.13264	0.02653	—	3,281.08
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.84136	1.53771	11.5387	12.5838	0.03294	0.40437	—	0.40437	0.37202	—	0.37202	—	3,269.86	3,269.86	0.13264	0.02653	—	3,281.08
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43385	0.36231	2.71870	2.96495	0.00776	0.09528	—	0.09528	0.08765	—	0.08765	—	770.433	770.433	0.03125	0.00625	—	773.077
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07918	0.06612	0.49616	0.54110	0.00142	0.01739	—	0.01739	0.01600	—	0.01600	—	127.554	127.554	0.00517	0.00103	—	127.992
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Paving (2027)

3.5.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31546	0.26508	2.33306	3.05348	0.00422	0.10688	—	0.10688	0.09833	—	0.09833	—	457.148	457.148	0.01854	0.00371	—	458.717
Paving	3.24880	3.24880	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00864	0.00726	0.06392	0.08366	0.00012	0.00293	—	0.00293	0.00269	—	0.00269	—	12.5246	12.5246	0.00051	0.00010	—	12.5676
Paving	0.08901	0.08901	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00158	0.00133	0.01167	0.01527	0.00002	0.00053	—	0.00053	0.00049	—	0.00049	—	2.07359	2.07359	0.00008	0.00002	—	2.08071

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Paving	0.01624	0.01624	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02254	0.02006	0.01736	0.33213	0.00000	0.00000	0.06535	0.06535	0.00000	0.01532	0.01532	—	67.6788	67.6788	0.00077	0.00237	0.21026	68.6146
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00059	0.00052	0.00059	0.00722	0.00000	0.00000	0.00177	0.00177	0.00000	0.00042	0.00042	—	1.72691	1.72691	0.00002	0.00006	0.00248	1.74934
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00011	0.00009	0.00011	0.00132	0.00000	0.00000	0.00032	0.00032	0.00000	0.00008	0.00008	—	0.28591	0.28591	< 0.000005	0.00001	0.00041	0.28962
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6. Pipeline Installation (2027)

3.6.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18485	0.99560	7.68776	9.43993	0.02631	0.26813	—	0.26813	0.24668	—	0.24668	—	2,848.42	2,848.42	0.11554	0.02311	—	2,858.19
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18485	0.99560	7.68776	9.43993	0.02631	0.26813	—	0.26813	0.24668	—	0.24668	—	2,848.42	2,848.42	0.11554	0.02311	—	2,858.19

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83936	0.70530	5.44612	6.68739	0.01864	0.18994	—	0.18994	0.17475	—	0.17475	—	2,017.86	2,017.86	0.08185	0.01637	—	2,024.78
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15318	0.12872	0.99392	1.22045	0.00340	0.03466	—	0.03466	0.03189	—	0.03189	—	334.080	334.080	0.01355	0.00271	—	335.226
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04508	0.04012	0.03472	0.66425	0.00000	0.00000	0.13071	0.13071	0.00000	0.03064	0.03064	—	135.358	135.358	0.00154	0.00474	0.42051	137.229
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04288	0.03792	0.03924	0.50210	0.00000	0.00000	0.13071	0.13071	0.00000	0.03064	0.03064	—	124.489	124.489	0.00176	0.00474	0.01091	125.956
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03038	0.02686	0.03069	0.37335	0.00000	0.00000	0.09176	0.09176	0.00000	0.02150	0.02150	—	89.3057	89.3057	0.00125	0.00336	0.12850	90.4661
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00554	0.00490	0.00560	0.06814	0.00000	0.00000	0.01675	0.01675	0.00000	0.00392	0.00392	—	14.7856	14.7856	0.00021	0.00056	0.02127	14.9777
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Pipeline Installation (2028)

3.7.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.16230	0.97666	7.22137	9.43039	0.02632	0.24926	—	0.24926	0.22932	—	0.22932	—	2,849.49	2,849.49	0.11559	0.02312	—	2,859.27
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.16230	0.97666	7.22137	9.43039	0.02632	0.24926	—	0.24926	0.22932	—	0.22932	—	2,849.49	2,849.49	0.11559	0.02312	—	2,859.27
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.42079	0.35358	2.61439	3.41413	0.00953	0.09024	—	0.09024	0.08302	—	0.08302	—	1,031.62	1,031.62	0.04185	0.00837	—	1,035.16
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07679	0.06453	0.47713	0.62308	0.00174	0.01647	—	0.01647	0.01515	—	0.01515	—	170.796	170.796	0.00693	0.00139	—	171.382
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04354	0.03880	0.03450	0.61906	0.00000	0.00000	0.13071	0.13071	0.00000	0.03064	0.03064	—	132.830	132.830	0.00154	0.00474	0.37677	134.658
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03748	0.03660	0.03902	0.46826	0.00000	0.00000	0.13071	0.13071	0.00000	0.03064	0.03064	—	122.184	122.184	0.00176	0.00474	0.00980	123.650
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01349	0.01317	0.01413	0.17855	0.00000	0.00000	0.04690	0.04690	0.00000	0.01099	0.01099	—	44.7934	44.7934	0.00064	0.00172	0.05891	45.3796
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00246	0.00240	0.00258	0.03258	0.00000	0.00000	0.00856	0.00856	0.00000	0.00200	0.00200	—	7.41606	7.41606	0.00011	0.00028	0.00975	7.51312
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.8. Pipeline Backfilling (2027)

3.8.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82745	0.69426	4.70249	6.15151	0.01708	0.15477	—	0.15477	0.14239	—	0.14239	—	1,826.46	1,826.46	0.07409	0.01482	—	1,832.73
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82745	0.69426	4.70249	6.15151	0.01708	0.15477	—	0.15477	0.14239	—	0.14239	—	1,826.46	1,826.46	0.07409	0.01482	—	1,832.73
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58618	0.49183	3.33131	4.35782	0.01210	0.10964	—	0.10964	0.10087	—	0.10087	—	1,293.89	1,293.89	0.05249	0.01050	—	1,298.33

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10698	0.08976	0.60796	0.79530	0.00221	0.02001	—	0.02001	0.01841	—	0.01841	—	214.219	214.219	0.00869	0.00174	—	214.954
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.8.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04508	0.04012	0.03472	0.66425	0.00000	0.00000	0.13071	0.13071	0.00000	0.03064	0.03064	—	135.358	135.358	0.00154	0.00474	0.42051	137.229
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04288	0.03792	0.03924	0.50210	0.00000	0.00000	0.13071	0.13071	0.00000	0.03064	0.03064	—	124.489	124.489	0.00176	0.00474	0.01091	125.956
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03038	0.02686	0.03069	0.37335	0.00000	0.00000	0.09176	0.09176	0.00000	0.02150	0.02150	—	89.3057	89.3057	0.00125	0.00336	0.12850	90.4661
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00554	0.00490	0.00560	0.06814	0.00000	0.00000	0.01675	0.01675	0.00000	0.00392	0.00392	—	14.7856	14.7856	0.00021	0.00056	0.02127	14.9777
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9. Pipeline Backfilling (2028)

3.9.1. Onsite - Unmitigated

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

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.81527	0.68403	4.47352	6.13669	0.01709	0.14284	—	0.14284	0.13141	—	0.13141	—	1,827.22	1,827.22	0.07412	0.01482	—	1,833.49
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81527	0.68403	4.47352	6.13669	0.01709	0.14284	—	0.14284	0.13141	—	0.13141	—	1,827.22	1,827.22	0.07412	0.01482	—	1,833.49
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29516	0.24764	1.61957	2.22170	0.00619	0.05171	—	0.05171	0.04758	—	0.04758	—	661.518	661.518	0.02683	0.00537	—	663.788
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05387	0.04520	0.29557	0.40546	0.00113	0.00944	—	0.00944	0.00868	—	0.00868	—	109.522	109.522	0.00444	0.00089	—	109.898
Dust From Material Movement	—	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04354	0.03880	0.03450	0.61906	0.00000	0.00000	0.13071	0.13071	0.00000	0.03064	0.03064	—	132.830	132.830	0.00154	0.00474	0.37677	134.658
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03748	0.03660	0.03902	0.46826	0.00000	0.00000	0.13071	0.13071	0.00000	0.03064	0.03064	—	122.184	122.184	0.00176	0.00474	0.00980	123.650
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01349	0.01317	0.01413	0.17855	0.00000	0.00000	0.04690	0.04690	0.00000	0.01099	0.01099	—	44.7934	44.7934	0.00064	0.00172	0.05891	45.3796
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00246	0.00240	0.00258	0.03258	0.00000	0.00000	0.00856	0.00856	0.00000	0.00200	0.00200	—	7.41606	7.41606	0.00011	0.00028	0.00975	7.51312
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.10. Pipeline Paving (2027)

3.10.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35157	0.29542	2.54238	3.43277	0.00449	0.11522	—	0.11522	0.10600	—	0.10600	—	486.827	486.827	0.01975	0.00395	—	488.498
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35157	0.29542	2.54238	3.43277	0.00449	0.11522	—	0.11522	0.10600	—	0.10600	—	486.827	486.827	0.01975	0.00395	—	488.498
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24906	0.20928	1.80106	2.43182	0.00318	0.08162	—	0.08162	0.07509	—	0.07509	—	344.876	344.876	0.01399	0.00280	—	346.059
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04545	0.03819	0.32869	0.44381	0.00058	0.01490	—	0.01490	0.01370	—	0.01370	—	57.0981	57.0981	0.00232	0.00046	—	57.2941
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.10.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02254	0.02006	0.01736	0.33213	0.00000	0.00000	0.06535	0.06535	0.00000	0.01532	0.01532	—	67.6788	67.6788	0.00077	0.00237	0.21026	68.6146

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02144	0.01896	0.01962	0.25105	0.00000	0.00000	0.06535	0.06535	0.00000	0.01532	0.01532	—	62.2445	62.2445	0.00088	0.00237	0.00545	62.9782
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01519	0.01343	0.01534	0.18667	0.00000	0.00000	0.04588	0.04588	0.00000	0.01075	0.01075	—	44.6529	44.6529	0.00062	0.00168	0.06425	45.2331
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00277	0.00245	0.00280	0.03407	0.00000	0.00000	0.00837	0.00837	0.00000	0.00196	0.00196	—	7.39279	7.39279	0.00010	0.00028	0.01064	7.48885
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.11. Pipeline Paving (2028)

3.11.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33394	0.28060	2.45832	3.43037	0.00450	0.10218	—	0.10218	0.09400	—	0.09400	—	486.937	486.937	0.01975	0.00395	—	488.608
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33394	0.28060	2.45832	3.43037	0.00450	0.10218	—	0.10218	0.09400	—	0.09400	—	486.937	486.937	0.01975	0.00395	—	488.608
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12090	0.10159	0.89000	1.24192	0.00163	0.03699	—	0.03699	0.03403	—	0.03403	—	176.288	176.288	0.00715	0.00143	—	176.893
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02206	0.01854	0.16242	0.22665	0.00030	0.00675	—	0.00675	0.00621	—	0.00621	—	29.1865	29.1865	0.00118	0.00024	—	29.2867
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.11.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02177	0.01940	0.01725	0.30953	0.00000	0.00000	0.06535	0.06535	0.00000	0.01532	0.01532	—	66.4151	66.4151	0.00077	0.00237	0.18838	67.3290
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01874	0.01830	0.01951	0.23413	0.00000	0.00000	0.06535	0.06535	0.00000	0.01532	0.01532	—	61.0919	61.0919	0.00088	0.00237	0.00490	61.8251
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00674	0.00658	0.00706	0.08927	0.00000	0.00000	0.02345	0.02345	0.00000	0.00549	0.00549	—	22.3967	22.3967	0.00032	0.00086	0.02946	22.6898
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00123	0.00120	0.00129	0.01629	0.00000	0.00000	0.00428	0.00428	0.00000	0.00100	0.00100	—	3.70803	3.70803	0.00005	0.00014	0.00488	3.75656
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.12. Pipeline Trenching (2027)

3.12.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.02784	0.85988	6.15963	7.97469	0.02024	0.18481	—	0.18481	0.17003	—	0.17003	—	2,070.48	2,070.48	0.08399	0.01680	—	2,077.59
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.02784	0.85988	6.15963	7.97469	0.02024	0.18481	—	0.18481	0.17003	—	0.17003	—	2,070.48	2,070.48	0.08399	0.01680	—	2,077.59
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72814	0.60915	4.36357	5.64939	0.01434	0.13092	—	0.13092	0.12045	—	0.12045	—	1,466.76	1,466.76	0.05950	0.01190	—	1,471.80
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.13289	0.11117	0.79635	1.03101	0.00262	0.02389	—	0.02389	0.02198	—	0.02198	—	242.839	242.839	0.00985	0.00197	—	243.672
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.12.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05636	0.05016	0.04340	0.83032	0.00000	0.00000	0.16339	0.16339	0.00000	0.03830	0.03830	—	169.197	169.197	0.00193	0.00592	0.52564	171.537
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05360	0.04740	0.04905	0.62763	0.00000	0.00000	0.16339	0.16339	0.00000	0.03830	0.03830	—	155.611	155.611	0.00220	0.00592	0.01363	157.446
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03797	0.03358	0.03836	0.46668	0.00000	0.00000	0.11470	0.11470	0.00000	0.02687	0.02687	—	111.632	111.632	0.00156	0.00420	0.16062	113.083
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00693	0.00613	0.00700	0.08517	0.00000	0.00000	0.02093	0.02093	0.00000	0.00490	0.00490	—	18.4820	18.4820	0.00026	0.00069	0.02659	18.7221
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.13. Pipeline Trenching (2028)

3.13.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.00568	0.84140	5.89420	7.95153	0.02024	0.16735	—	0.16735	0.15397	—	0.15397	—	2,071.26	2,071.26	0.08402	0.01680	—	2,078.37
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.00568	0.84140	5.89420	7.95153	0.02024	0.16735	—	0.16735	0.15397	—	0.15397	—	2,071.26	2,071.26	0.08402	0.01680	—	2,078.37
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36409	0.30462	2.13391	2.87873	0.00733	0.06059	—	0.06059	0.05574	—	0.05574	—	749.868	749.868	0.03042	0.00608	—	752.441
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06645	0.05559	0.38944	0.52537	0.00134	0.01106	—	0.01106	0.01017	—	0.01017	—	124.149	124.149	0.00504	0.00101	—	124.575
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.13.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05443	0.04850	0.04313	0.77382	0.00000	0.00000	0.16339	0.16339	0.00000	0.03830	0.03830	—	166.038	166.038	0.00193	0.00592	0.47096	168.323
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04685	0.04575	0.04878	0.58533	0.00000	0.00000	0.16339	0.16339	0.00000	0.03830	0.03830	—	152.730	152.730	0.00220	0.00592	0.01225	154.563

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01686	0.01646	0.01766	0.22318	0.00000	0.00000	0.05862	0.05862	0.00000	0.01373	0.01373	—	55.9917	55.9917	0.00080	0.00215	0.07364	56.7246
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00308	0.00300	0.00322	0.04073	0.00000	0.00000	0.01070	0.01070	0.00000	0.00251	0.00251	—	9.27007	9.27007	0.00013	0.00036	0.01219	9.39140
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	7/4/2028	8/4/2028	5.00000	24.0000	—
Site Preparation	Site Preparation	1/4/2027	1/17/2027	5.00000	10.00000	—
Grading	Grading	1/18/2027	2/14/2027	5.00000	20.0000	—
Building Construction	Building Construction	2/15/2027	6/14/2027	5.00000	86.0000	—
Paving	Paving	6/15/2027	6/28/2027	5.00000	10.00000	—
Pipeline Installation	Linear, Drainage, Utilities, & Sub-Grade	1/4/2027	7/3/2028	5.00000	391.000	—
Pipeline Backfilling	Linear, Drainage, Utilities, & Sub-Grade	1/4/2027	7/3/2028	5.00000	391.000	—

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Pipeline Paving	Linear, Paving	1/4/2027	7/3/2028	5.00000	391.000	—
Pipeline Trenching	Linear, Trenching	1/4/2027	7/3/2028	5.00000	391.000	—

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	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Demolition	Tractors/Loaders/ Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Demolition	Off-Highway Trucks	Diesel	Average	1.000000	8.00000	376.000	0.38000
Site Preparation	Tractors/Loaders/ Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Site Preparation	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Site Preparation	Off-Highway Trucks	Diesel	Average	1.000000	8.00000	376.000	0.38000
Grading	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Grading	Tractors/Loaders/ Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Grading	Off-Highway Trucks	Diesel	Average	1.000000	8.00000	376.000	0.38000
Building Construction	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Building Construction	Forklifts	Diesel	Average	1.000000	8.00000	82.0000	0.20000
Building Construction	Pumps	Diesel	Average	2.00000	8.00000	11.0000	0.74000
Building Construction	Cranes	Diesel	Average	1.000000	8.00000	367.000	0.29000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Off-Highway Trucks	Diesel	Average	1.000000	8.00000	376.000	0.38000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Air Compressors	Diesel	Average	1.000000	8.00000	37.0000	0.48000
Paving	Pavers	Diesel	Average	1.000000	8.00000	81.0000	0.42000
Paving	Rollers	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Pipeline Installation	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Pipeline Installation	Cranes	Diesel	Average	1.000000	8.00000	367.000	0.29000
Pipeline Installation	Bore/Drill Rigs	Diesel	Average	1.000000	8.00000	83.0000	0.50000
Pipeline Installation	Off-Highway Trucks	Diesel	Average	1.000000	8.00000	376.000	0.38000
Pipeline Backfilling	Tractors/Loaders/ Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Pipeline Backfilling	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Pipeline Backfilling	Dumpers/Tenders	Diesel	Average	1.000000	8.00000	16.0000	0.38000
Pipeline Backfilling	Off-Highway Trucks	Diesel	Average	1.000000	8.00000	376.000	0.38000
Pipeline Paving	Pavers	Diesel	Average	1.000000	8.00000	81.0000	0.42000
Pipeline Paving	Sweepers/Scrubbers	Diesel	Average	1.000000	8.00000	36.0000	0.46000
Pipeline Trenching	Tractors/Loaders/ Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Pipeline Trenching	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Pipeline Trenching	Concrete/Industrial Saws	Diesel	Average	1.000000	8.00000	33.0000	0.73000
Pipeline Trenching	Dumpers/Tenders	Diesel	Average	1.000000	8.00000	16.0000	0.38000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Pipeline Trenching	Off-Highway Trucks	Diesel	Average	1.000000	8.00000	376.000	0.38000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	7.50000	18.5000	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2000	HHDT,MHDT
Demolition	Hauling	0.20833	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	7.50000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	7.50000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	34.4000	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	0.00000	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	0.00000	10.2000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	5.00000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Pipeline Installation	Worker	10.00000	18.5000	LDA,LDT1,LDT2
Pipeline Installation	Vendor	0.00000	10.2000	HHDT,MHDT
Pipeline Installation	Hauling	0.00000	20.0000	HHDT
Pipeline Installation	Onsite truck	—	—	HHDT
Pipeline Backfilling	Worker	10.00000	18.5000	LDA,LDT1,LDT2
Pipeline Backfilling	Vendor	0.00000	10.2000	HHDT,MHDT
Pipeline Backfilling	Hauling	0.00000	20.0000	HHDT
Pipeline Backfilling	Onsite truck	—	—	HHDT
Pipeline Paving	Worker	5.00000	18.5000	LDA,LDT1,LDT2
Pipeline Paving	Vendor	0.00000	10.2000	HHDT,MHDT
Pipeline Paving	Hauling	0.00000	20.0000	HHDT
Pipeline Paving	Onsite truck	—	—	HHDT
Pipeline Trenching	Worker	12.5000	18.5000	LDA,LDT1,LDT2
Pipeline Trenching	Vendor	—	10.2000	HHDT,MHDT
Pipeline Trenching	Hauling	0.00000	20.0000	HHDT
Pipeline Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00000	0.00000	0.00000	400.000	0.00000
Site Preparation	—	—	0.00000	0.00000	0.00000
Grading	5,500.00	—	0.00000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	20.5740
Pipeline Installation	—	—	20.0000	0.00000	0.00000
Pipeline Backfilling	—	—	20.0000	0.00000	0.00000

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	User Defined Industrial	0.57400	0%
Paving	User Defined Linear	20.0000	62%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00000	531.983	0.03300	0.00400
2028	0.00000	531.983	0.03300	0.00400

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.8600	annual days of extreme heat
Extreme Precipitation	2.65000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	27.9300	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	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	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	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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

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

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—

Indicator	Result for Project Census Tract
AQ-Ozone	84.5800
AQ-PM	38.8426
AQ-DPM	5.47604
Drinking Water	10.2036
Lead Risk Housing	12.8796
Pesticides	86.4483
Toxic Releases	17.2293
Traffic	20.9125
Effect Indicators	—
CleanUp Sites	0.00000
Groundwater	47.4348
Haz Waste Facilities/Generators	4.93713
Impaired Water Bodies	58.6938
Solid Waste	0.00000
Sensitive Population	—
Asthma	37.0763
Cardio-vascular	71.3983
Low Birth Weights	54.8499
Socioeconomic Factor Indicators	—
Education	49.7722
Housing	33.2066

Indicator	Result for Project Census Tract
Linguistic	11.2735
Poverty	22.2236
Unemployment	48.2561

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	73.36070833
Employed	15.11612986
Median HI	82.34312845
Education	—
Bachelor's or higher	49.0183498
High school enrollment	9.611189529
Preschool enrollment	44.32182728
Transportation	—
Auto Access	92.6344155
Active commuting	1.039394328
Social	—
2-parent households	67.89426408
Voting	50.86616194

Indicator	Result for Project Census Tract
Neighborhood	—
Alcohol availability	97.0101373
Park access	2.194276915
Retail density	3.195175157
Supermarket access	12.42140382
Tree canopy	3.284999358
Housing	—
Homeownership	79.76389067
Housing habitability	86.52636982
Low-inc homeowner severe housing cost burden	61.08045682
Low-inc renter severe housing cost burden	79.71256256
Uncrowded housing	59.34813294
Health Outcomes	—
Insured adults	89.88836135
Arthritis	14.6
Asthma ER Admissions	91.2
High Blood Pressure	23.1
Cancer (excluding skin)	16.1
Asthma	49.0
Coronary Heart Disease	25.9
Chronic Obstructive Pulmonary Disease	35.3

Indicator	Result for Project Census Tract
Diagnosed Diabetes	68.9
Life Expectancy at Birth	59.4
Cognitively Disabled	68.5
Physically Disabled	41.1
Heart Attack ER Admissions	13.8
Mental Health Not Good	60.0
Chronic Kidney Disease	55.3
Obesity	44.9
Pedestrian Injuries	58.6
Physical Health Not Good	57.2
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	15.4
Current Smoker	54.4
No Leisure Time for Physical Activity	70.6
Climate Change Exposures	—
Wildfire Risk	4.5
SLR Inundation Area	0.0
Children	3.5
Elderly	83.1
English Speaking	72.6

Indicator	Result for Project Census Tract
Foreign-born	27.2
Outdoor Workers	51.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	68.6
Traffic Density	14.8
Traffic Access	23.0
Other Indices	—
Hardship	36.3
Other Decision Support	—
2016 Voting	63.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	30.0000
Healthy Places Index Score for Project Location (b)	53.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
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

8.1. Justifications

Screen	Justification
Land Use	Size of three to account for the six pumps in the SRRLS, as one pump equals two fueling positions.
Construction: Construction Phases	Schedule provided by the applicant.
Construction: Off-Road Equipment	Equipment List provided by the applicant
Construction: Paving	Roadways would be returned to pre-construction conditions, and not all the roadways are currently paved.

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Lot Area	acre	0.00000	1.76000
Landscape Area	sq. ft	—	0.00000

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Demolition	Demolition	Start Date	1/4/2027	7/4/2028
Demolition	Demolition	End Date	2/1/2027	8/4/2028
Demolition	Demolition	Work Days per Phase	20.0000	24.0000
Site Preparation	Site Preparation	Start Date	2/2/2027	1/4/2027
Site Preparation	Site Preparation	End Date	2/4/2027	1/17/2027
Site Preparation	Site Preparation	Work Days per Phase	2.00000	10.00000
Grading	Grading	Start Date	2/5/2027	1/18/2027
Grading	Grading	End Date	2/10/2027	2/14/2027
Grading	Grading	Work Days per Phase	4.00000	20.0000
Building Construction	Building Construction	Start Date	2/11/2027	2/15/2027
Building Construction	Building Construction	End Date	11/18/2027	6/14/2027
Building Construction	Building Construction	Work Days per Phase	200.000	86.0000
Paving	Paving	Start Date	11/19/2027	6/15/2027
Paving	Paving	End Date	12/3/2027	6/28/2027

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Demolition	Excavators	Number per Day	3.00000	1.000000
Site Preparation	Tractors/Loaders/Backhoes	Number per Day	4.00000	1.000000

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Site Preparation	Excavators	Hours Per Day	1.000000	8.00000
Grading	Excavators	Number per Day	2.00000	1.000000
Grading	Tractors/Loaders/Backhoes	Number per Day	2.00000	1.000000
Paving	Pavers	Number per Day	2.00000	1.000000
Paving	Rollers	Number per Day	2.00000	1.000000

8.4.9. Paving

Phase Name	Land Use	Model Parameter	Units	Default Value	New Value
Paving	User Defined Industrial	Area Paved	acres	0.00000	0.57400
Paving	User Defined Linear	% Asphalt	%	100.0000	62.0000

Appendix B

Biological Technical Report

Scott Road Regional Lift Station Sewer Conveyance Project

Biological Technical Report

October 2026 | 00244.00023.017

Prepared for:

Eastern Municipal Water District
P.O. Box 8330
Perris, CA 92572

Prepared by:

HELIX Environmental Planning, Inc.
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ACRONYMS AND ABBREVIATIONS

µm	micron
AMSL	above mean sea level
BMP	Best Management Practices
BUOW	burrowing owl
CAGN	Coastal California gnatcatcher
CBB	Crotch's bumble bee
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG Code	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DBESP	Determination of Biologically Equivalent or Superior Preservation
DSFS	dry season fairy shrimp
EMWD	Eastern Municipal Water District
FESA	Federal Endangered Species Act
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HELIX	HELIX Environmental Planning, Inc.
I-	Interstate
LF	linear feet
MBTA	Migratory Bird Treaty Act
MCV	Manual of California Vegetation
MSHCP	Multiple Species Habitat Conservation Plan
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory

ACRONYMS AND ABBREVIATIONS (cont.)

Project	Scott Road Regional Lift Station Sewer Conveyance Project
PSE	Participating Special Entity
PVC	polyvinyl chloride
QCB	Quino checkerspot butterfly
RCA	Regional Conservation Authority
RCHCA	Riverside County Habitat Conservation Agency
ROW	right(s)-of-way
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SKR	Stephens' kangaroo rat
SR	State Route
SRRLS	Scott Road Regional Lift Station
SWPPP	Storm Water Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VCP	vitrified clay pipe
WRLS	Wickerd Road Lift Station
WSFS	wet season fairy shrimp

EXECUTIVE SUMMARY

This biological technical report was prepared to evaluate Eastern Municipal Water District's (EMWD's) proposed Scott Road Regional Lift Station (SRRLS) Sewer Conveyance Project (Project). The approximately 40-acre Project site is located in unincorporated Riverside County, east of the City of Menifee. The Project site includes a parcel proposed for a new expandable lift station (the SRRLS), the parcel where the existing Wickerd Road Lift Station (WRLS) is located, and roadway right-of-way (ROW) where new sewer lines are proposed. Sewer improvements are not expected to impact the entirety of these areas, but the whole lift station parcels and adjacent road ROW are being analyzed as potential impacts. Biological surveys were conducted within an approximately 52-acre Study Area that includes these Project areas and an alternate sewer alignment. The purpose of this report is to document the existing biological conditions within the Study Area, analyze the Project's potential impacts to sensitive biological resources with respect to local, state, and federal policy, and recommend mitigation measures to reduce potential Project impacts to less than significant. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act. EMWD is not a signatory to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) and, as such, is not subject to the requirements of the MSHCP.

The proposed Project involves the construction and operation of a new expandable lift station (the SRRLS), the decommissioning of an existing lift station (the WRLS), and construction of gravity and force main sewers. The northern and southern portions of the Study Area were surveyed for two formerly separate projects that have since been combined into a single project. HELIX started general biological surveys of the Study Area in 2023 and conducted current vegetation mapping and a special-status species habitat assessment in 2024. An aquatic resource delineation and focused surveys for rare plants, burrowing owl, Crotch's bumble bee, and fairy shrimp (wet and dry season) were conducted in 2025. Given Project design changes and Project access, a portion of the Study Area was surveyed for rare plants, Crotch's bumble bee, and fairy shrimp in 2026.

Vegetation communities present within the Study Area were mapped based on the Holland/Oberbauer classification system and cross-referenced to the Manual of California Vegetation (MCV) where feasible. Seven plant alliances, associations, semi-natural stands, or land uses were identified within the Study Area: basin/pool, foxtail barley-brome grass (non-native grassland), non-native vegetation, disturbed habitat, urban/developed, extensive agriculture (fallow agricultural lands), and extensive agriculture (agricultural lands [alfalfa]).

Rare plant surveys were conducted in April, May, and June 2025 and April and June 2026 during the appropriate blooming period for plant species with potential to occur. Two sensitive plant species were observed within the Study Area: California Native Plant Society (CNPS) rank 1B.1 smooth tarplant (*Centromadia pungens* ssp. *laevis*) and CNPS rank 4.2 paniculate tarplant (*Deinandra paniculata*). Neither of the sensitive plants observed are listed as threatened or endangered at the state or federal level; therefore, impacts to listed plant species are not expected. Impacts to smooth tarplant, if they occur, would be mitigated via transplanting to a suitable habitat in close proximity, or by revegetation (seeding) of the impact area with the species. Mitigation is not proposed for any impacts to paniculate tarplant since it is a CNPS rank 4.2 species.

No special-status animal species were observed within or adjacent to the Study Area during biological surveys. Special-status animal species with high potential to occur include orange-throated whiptail

(*Aspidoscelis hyperythra*), coast horned lizard (*Phrynosoma blainvillii*), ferruginous hawk (*Buteo regalis*), California horned lark (*Eremophila alpestris actia*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). Species with a moderate potential to occur include western spadefoot (*Spea hammondii*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), burrowing owl (BUOW; *Athene cunicularia*), and Stephens' kangaroo rat (SKR; *Dipodomys stephensi*). Three of the species with high or moderate potential to occur are listed species, proposed for federal listing, or state candidate for listing: western spadefoot, BUOW, and SKR. Impacts to these species would be reduced to less than significant levels with the implementation of proposed biological mitigation measures. The Project would have no impact on any other animal species due to the lack of suitable habitat on the site and regular disturbance that occurs within the Study Area. Potential non-wetland waters of the U.S. regulated by the U.S. Army Corps of Engineers (USACE) per Section 404 of the Clean Water Act (CWA), non-wetland waters of the State regulated by the Regional Water Quality Control Board (RWQCB; Section 401 of the CWA or State Porter-Cologne Water Quality Control Act), and streambed and riparian habitat subject to California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Sections 1600 *et seq*. of the California Fish and Game Code (CFG Code) are present within the Study Area. The Project would be designed to avoid impacts to jurisdictional aquatic resources under the jurisdiction of the USACE, RWQCB, and CDFW to the extent feasible, through Project design and/or the use of jack-and-bore construction, micro-tunneling, micro-drilling, or similar methods or construction. Standard best management practices (BMPs) would be employed during construction. Regulatory permits would be required if jurisdictional areas cannot be fully avoided by the Project.

1.0 INTRODUCTION

This report describes the results of a biological resources study conducted by HELIX Environmental Planning, Inc. (HELIX) for Eastern Municipal Water District's (EMWD's) proposed Scott Road Regional Lift Station (SRRLS) Sewer Conveyance Project, referred to herein as "Project" or "proposed Project." The proposed Project would increase sewer capacity to meet demand from local development.

The purpose of this report is to document the existing biological conditions within an approximately 52-acre Study Area that includes the approximately 40-acre Project site and an alternate sewer alignment; provide an analysis of the proposed Project's potential impacts to sensitive biological resources with respect to local, state, and federal regulations; and recommend mitigation measures that may be used to avoid, minimize, and mitigate potential impacts. This report provides the biological resources technical documentation necessary for EMWD review under the California Environmental Quality Act (CEQA).

1.1 PROJECT LOCATION

EMWD's Scott Road Regional Lift Station (SRRLS) Sewer Conveyance Project (proposed Project) is located in unincorporated Riverside County, east of the City of Menifee (Figure 1, *Regional Location*). The proposed Project site is located east of Interstate (I-) 215, south of State Route (SR) 74, and west of SR 79. The proposed Project site encompasses a 1.76-acre parcel at the southeastern corner of Scott Road and Leon Road (Assessor's Parcel Number 472-060-001), a parcel where the existing Wickerd Road Lift Station (WRLS) is located and roadway rights-of-way (ROW) on the following segments: Beeler Road north of Scott Road, Scott Road between Leon Road and Beeler Road, Leon Road between Scott Road and Wickerd Road, Wickerd Road between the existing WRLS and Eucalyptus Road, and Eucalyptus Road between Wickerd Road and Craig Avenue (Figure 2, *Aerial Photograph*; Figure 3, *Conceptual Components*). An alternate sewer alignment was also evaluated as part of the Study Area along Leon Road between Wickerd Road and Garbani Road, and Garbani Road between Leon Road and Eucalyptus Road. Surface elevations within the Project site range from 1,410 feet above mean sea level (AMSL) to 1,460 AMSL.

1.2 PROJECT DESCRIPTION

The proposed Project involves the construction and operation of a new expandable lift station (the SRRLS), the decommissioning of an existing lift station (WRLS), and construction of gravity and force main sewers (Figure 3).

The new SRRLS would be constructed on the 1.76-acre parcel located at the southeastern corner of Scott Road and Leon Road. The SRRLS would accommodate influent flow from a new gravity line from the existing WRLS and new gravity lines in Beeler Road and Scott Road associated with planned residential development. Construction of the SRRLS would involve vegetation clearing, grading, installation of facilities, and paving. Once the new SRRLS is operational, the existing WRLS would be decommissioned. This would involve disconnecting utilities, removing equipment, and demolishing the lift station structure and surrounding pavements. The site would then be restored (i.e., graded).

The proposed gravity sewer from the WRLS would be constructed to allow flows to be conveyed south to the new SRRLS once the SRRLS is commissioned. The gravity line would route east from the WRLS site along Wickerd Road to Leon Road, south along Leon Road to Scott Road, and east on Scott Road to the SRRLS site. The gravity line would include 1,550 linear feet (LF) of 15-inch-diameter polyvinyl chloride (PVC) pipe in Wickerd Road, 1,300 LF of 21-inch-diameter vitrified clay pipe (VCP) in Leon Road, and 1,800 LF of 24-inch-diameter VCP in Leon Road and Scott Road up to the SRRLS.

Within Beeler Road, which is an unpaved road in its existing condition, a 675-LF, 12-inch-diameter PVC gravity line would be constructed from the proposed Ardis Ranch development located on the east side of Beeler Road to connect with a proposed gravity sewer in Scott Road, which would ultimately convey flows to the SRRLS. The gravity line in the Scott Road ROW would be 5,200 LF and would be constructed from Beeler Road to the SRRLS. The easternmost 1,380 LF would be 15-inch-diameter VCP pipe. The remaining 3,820 LF would be 18-inch-diameter VCP pipe. This would accommodate flows from the proposed Ardis Ranch development, the proposed Frederick's Ridge development located on the south side of Scott Road between Beeler Road and Christine Street, and other tributary flows from regional development.

Dual force mains, in addition to a segment of gravity sewer, would convey flows from the new SRRLS north to the existing 27-inch-diameter Holland Channel Gravity Sewer at the intersection of Craig Avenue and Eucalyptus Road. The force mains would be 12-inch-diameter PVC pipe and would route from the SRRLS to just north of Garbani Road for a total length of 9,000 LF. From the northern terminus of the force main alignment, a 2,250-LF, 21-inch-diameter gravity line would be constructed within Eucalyptus Road to connect the force mains to the existing Holland Channel Gravity Sewer at the intersection of Craig Avenue and Eucalyptus Road. EMWD initially considered two alignment options for the force mains. Alignment Option 1, which was chosen for the proposed Project, routes west in Scott Road from the SRRLS, north in Leon Road, east in Wickerd Road, and north in Eucalyptus Road up to Craig Avenue. Alignment Option 2 routes west in Scott Road from the SRRLS, north in Leon Road, east in Garbani Road, and north in Eucalyptus Road up to Craig Avenue. Alignment Option 2 is considered as part of the Study Area herein, but it is no longer being considered for the proposed Project.

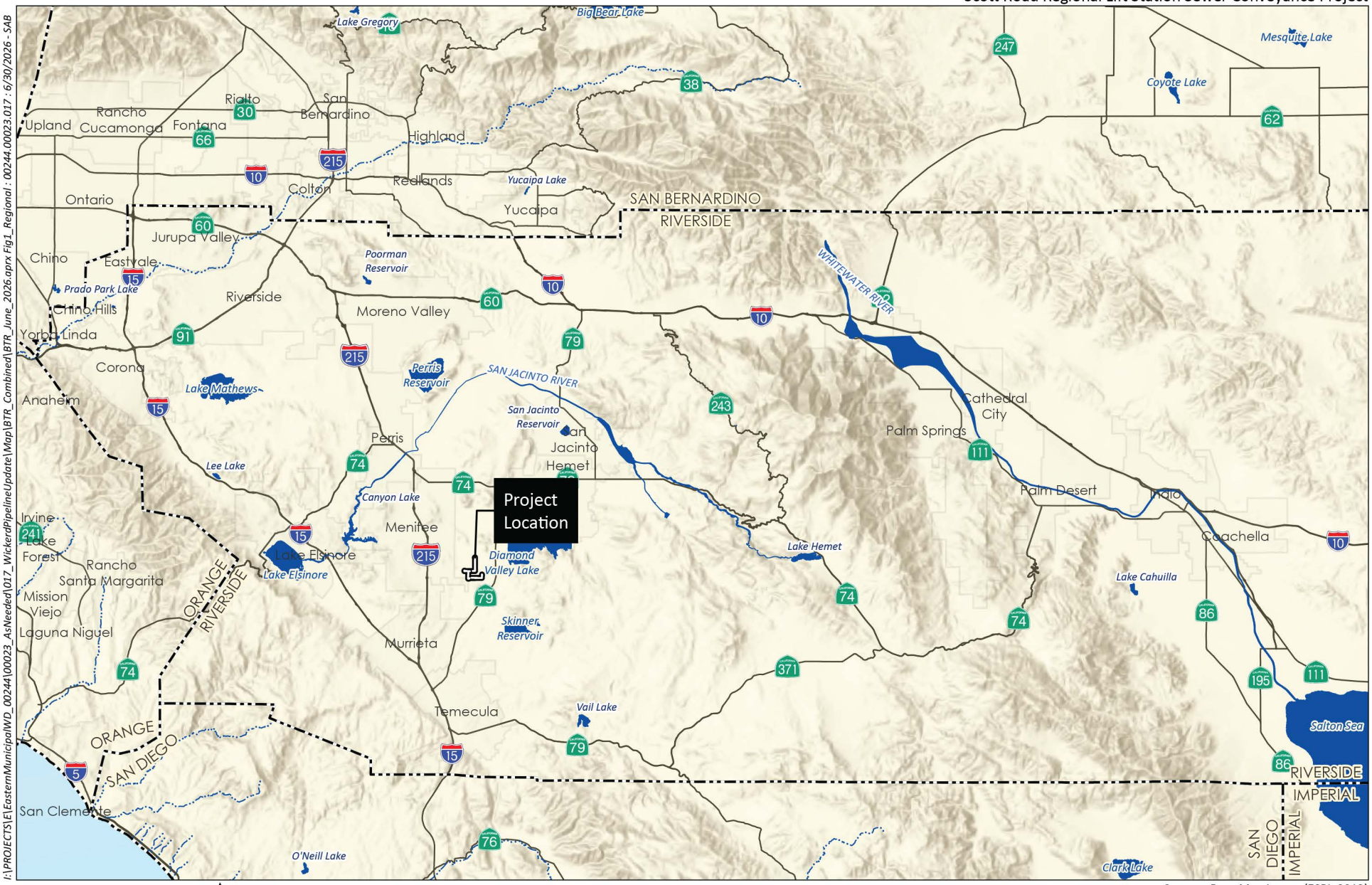
The various pipelines would be constructed within paved and unpaved roadway ROW. Construction would entail open-cut trenching, installing the pipe, backfilling the pipe, recompacting the surface, and repaving, where necessary. Trenchless construction methods, expected to be jack-and-bore, would be used to install the pipelines under select features, including culverts and pipelines.

2.0 METHODS

Project evaluation included a desktop review of existing information and field surveys. The methods used to evaluate the biological resources present within the Study Area and Project site are discussed in this section.

2.1 LITERATURE REVIEW

Prior to conducting biological field surveys, HELIX conducted a thorough review of relevant maps, databases, and literature pertaining to biological resources known to occur within the Study Area. Recent and historical aerial imagery, U.S. Geological Survey (USGS) topographic maps, soils maps (Natural Resources Conservation Service [NRCS] 2019), and other maps of the Project site and vicinity



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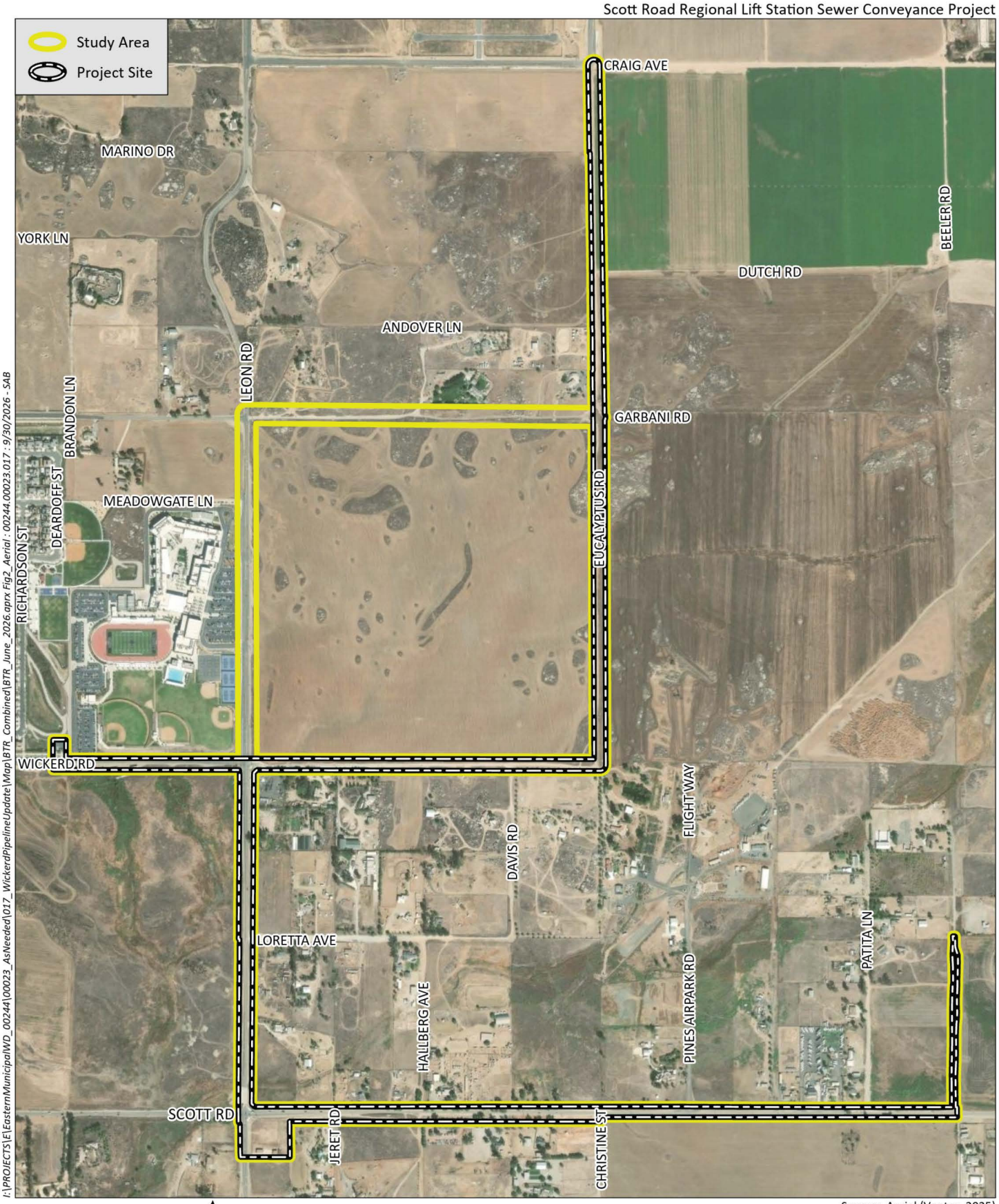
Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1

Scott Road Regional Lift Station Sewer Conveyance Project



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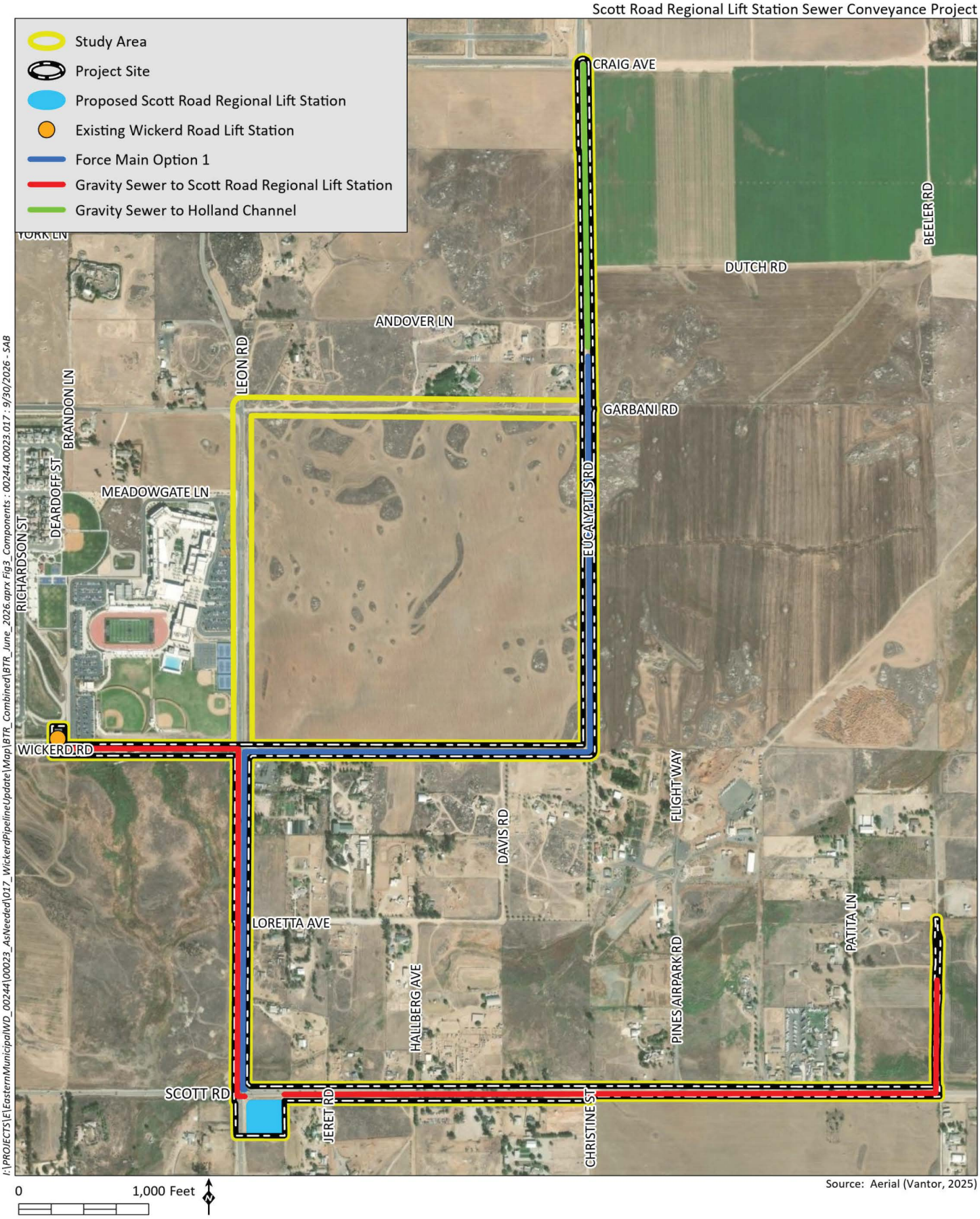
Source: Aerial (Vantor, 2025)

HELIX Environmental Planning

Aerial Photograph

Figure 2

Scott Road Regional Lift Station Sewer Conveyance Project



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Source: Aerial (Vantor, 2025)

HELIX Environmental Planning

Conceptual Components

Figure 3

were acquired and reviewed to obtain updated information on the natural environmental setting (Figure 2).

In addition, a query of special-status species and habitats databases was conducted, including the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) plant database (CDFW 2025a), the Rarefind database (CDFW 2026), the Calflora database (Calflora 2025), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2026). The U.S. Fish and Wildlife Service's (USFWS's) National Wetlands Inventory (NWI; USFWS 2025a) and data pertaining to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) were also reviewed.

2.2 BIOLOGICAL SURVEYS

2.2.1 General Biological Survey

The northern and southern portions of the Study Area were surveyed for two formerly separate projects that have since been combined into a single project (Table 1, *Biological Surveys for the Project*). HELIX biologist Dane van Tamelen conducted a constraints assessment north of and including the proposed lift station on November 22, 2023. Mr. van Tamelen conducted a general biological survey of the proposed lift station on January 29, 2024, which included vegetation mapping and a preliminary aquatic resource delineation. HELIX biologist Amy Mattson conducted an updated habitat assessment, vegetation mapping, and preliminary aquatic resource delineation of the northern portion of the Study Area (i.e., the Study Area within and north of Wickerd Road; refer to Figure 2) on October 28, 2024. Ms. Mattson conducted a habitat assessment and vegetation mapping for the southern portion of the Study Area (i.e., the Study Area south of Wickerd Road; refer to Figure 2) on November 21, 2024.

Vegetation communities within the Study Area were mapped on an aerial photograph (1"=150' scale). Vegetation communities present within the Study Area were mapped based on the Holland (1986)/Oberbauer et al. (2008) classification system and are cross-referenced to the Manual of California Vegetation, 2nd Edition (MCV; CNPS 2025) where feasible. Direct translations between Holland and MCV do not exist for all vegetation types. Additionally, a single vegetation community under Holland may fit the definition of several different alliances or associations described within the MCV. Vegetation communities mapped within the Study Area using Holland were translated to the equivalent classification unit under MCV to determine sensitivity rankings. For communities that do not have direct translations within MCV, professional judgment was used to find the best corresponding association or alliance. A minimum mapping unit size of 0.1 acre was used when mapping upland habitat; 0.01 acre was used when mapping wetland and riparian habitat. A list of all plant and animal species observed or detected within the Study Area was prepared. Plant species were identified in the field. Animals were identified in the field by direct visual observation with the aid of binoculars or indirectly by detection of calls, tracks, burrows, or scat.

Potentially jurisdictional aquatic resources evaluated within the Study Area include Warm Springs Creek, drainage features, depressions, and/or wetland vegetation that crossed or were adjacent to the Study Area and were mapped in the field. A formal aquatic resource delineation was subsequently performed by HELIX to help the Project avoid jurisdictional drainage features (see Section 2.4).

Table 1
BIOLOGICAL SURVEYS FOR THE PROJECT

Survey Date	Personnel	Survey Conducted[1]	Survey Area[2]
11/22/23	Dane van Tamelen	Constraints Assessment and Vegetation Mapping	North and part of South
1/29/24	Dane van Tamelen	Vegetation Mapping, Habitat Assessment, and Preliminary Aquatic Resource Delineation	South (Lift Station)
10/28/24	Amy Mattson	Updated Vegetation Mapping, Habitat Assessment, and Preliminary Aquatic Resource Delineation	North
11/21/24	Amy Mattson	Vegetation Mapping, Habitat Assessment	South
01/28/25	Kacee Morrell	WSFS Ponding Check	North and South
02/03/25	Amy Mattson	WSFS Survey 1 (North)	North
02/10/25	Amy Mattson	WSFS Survey 2 (North), WSFS Survey 1 (South)	North and South
02/17/25	Amy Mattson	WSFS Survey 3	North
02/21/25	Amy Mattson	WSFS Survey 4 (North), WSFS Survey 2 (South)	North and South
02/28/25	Amy Mattson	WSFS Survey 5 (North), WSFS Survey 3 (South)	North and South
03/06/25	Amy Mattson	WSFS Survey 6	North
03/14/25	Amy Mattson	WSFS Survey 4	South
03/15/25	Amy Mattson	WSFS Survey 7	North
03/21/25	Amy Mattson	WSFS Survey 8 (North), WSFS Survey 5 (South)	North and South
03/24/25	Rob Hogenauer	Aquatic Resource Delineation	North (south of Wickerd Road and west of Leon Road), South
03/27/25	Amy Mattson	WSFS Survey 9 (North), WSFS Survey 6 (South)	North and South
04/04/25	Amy Mattson	WSFS Survey 10	North
04/11/25	Amy Mattson	WSFS Survey 11 (North), WSFS Survey 7 (South)	North and South
04/11/25	Kacee Morrell	BUOW Habitat Assessment and Survey 1	South
04/15/25	Amy Mattson	BUOW Habitat Assessment and Survey 1, WSFS Survey 12	North
04/18/25	MNS Engineers[3]	Rare Plant	South (Scott Road)
04/19/25	MNS Engineers[3]	Rare Plant	South (Scott Road)
04/22/25	Kacee Morrell	BUOW – finish mapping potential burrows	North
04/29/25	Jonathan Mercado	Rare Plant	North and part of South
05/01/25	Jonathan Mercado	Rare Plant	Remaining part of South
05/01/25	Angelica Grunloh	CBB Habitat Assessment	North, South
05/05/25	Kacee Morrell	BUOW Survey 2	South
05/08/25	Kacee Morrell	BUOW Survey 2	North
05/14/25	Angelica Grunloh	CBB Site Visit 1	South and part of North
05/22/25	MNS Engineers[3]	Rare Plant	South (Scott Road)
05/27/25	Osprey Environmental[3]	CBB Site Visit 1	South (Scott Road)
05/27/25	Nelly Moreno	CBB Site Visit 1	Remaining part of North

Survey Date	Personnel	Survey Conducted[1]	Survey Area[2]
06/02/25	Kacee Morrell	BUOW Survey 3	North
06/05/25	Nelly Moreno	CBB Site Visit 2	South and part of North
06/05/25	Kacee Morrell	BUOW Survey 3	South
06/10/25	Osprey Environmental[3]	CBB Site Visit 2	South (Scott Road)
06/11/25	MNS Engineers[3]	Rare Plant	South (Scott Road)
06/12/25	Jonathan Mercado	Rare Plant	North
06/13/25	Jonathan Mercado	Rare Plant	South
06/18/25	Nelly Moreno	CBB Site Visit 2	Remaining part of North
06/24/25	Osprey Environmental[3]	CBB Site Visit 3	South (Scott Road)
06/30/25	Nelly Moreno	CBB Site Visit 3	South and part of North
07/02/25	Nelly Moreno	CBB Site Visit 3	Remaining part of North
07/02/25	Kacee Morrell	BUOW Survey 4	South
07/03/25	Rob Hogenauer	Aquatic Resource Delineation	North (north of Wickerd Road)
07/08/25	Kacee Morrell	BUOW Survey 4	North
07/23/25	Amanda Mathews	DSFS Soil Collection	North and South
10/21/25	Nelly Moreno	WSFS Ponding Check (North and South)	Remaining Areas
11/19/25	Nelly Moreno	WSFS Ponding Check (North and South)	Remaining Areas
11/24/25	Amy Mattson	WSFS Survey 1 (North and South)	Remaining Areas
12/01/25	Amy Mattson	WSFS Survey 2 (North and South)	Remaining Areas
12/08/25	Amy Mattson	WSFS Survey 3 (South)	Remaining Areas
12/15/25	Amy Mattson	WSFS Survey 4 (South)	Remaining Areas
01/02/26	Amy Mattson	WSFS Survey 5 (South)	Remaining Areas
01/09/26	Amy Mattson	WSFS Survey 6 (South), WSFS Survey 3 (North)	Remaining Areas
01/15/26	Amy Mattson	WSFS Survey 7 (South)	Remaining Areas
01/23/26	Amy Mattson	WSFS Survey 8 (South)	Remaining Areas
01/30/26	Amy Mattson	WSFS Survey 9 (South)	Remaining Areas
02/12/26	Amy Mattson	WSFS Ponding Check (North and South)	Remaining Areas
02/19/26	Amy Mattson	WSFS Survey 10 (South), Ponding Check (North)	Remaining Areas
02/25/26	Amy Mattson	WSFS Survey 11 (South), WSFS Survey 4 (North)	Remaining Areas
03/04/26	Amy Mattson	WSFS Survey 12 (South)	Remaining Areas
03/12/26	Amy Mattson	WSFS Survey 13 (South)	Remaining Areas
04/06/26	Angelica Grunloh Nelly Moreno	CBB Habitat Assessment and Site Visit 1	Remaining Areas
04/21/26	Jonathan Mercado	Rare Plant	Remaining Areas
04/22/26	Nelly Moreno	CBB Site Visit 2	Remaining Areas
04/23/26	Amanda Mathews	DSFS Soil Collection	Remaining Areas
05/11/26	Angelica Grunloh	CBB Site Visit 3	Remaining Areas
06/17/26	Jonathan Mercado	Rare Plant	Remaining Areas

[1] BUOW = burrowing owl, CBB = Crotch's bumble bee, DSFS = dry season fairy shrimp, WSFS = wet season fairy shrimp

[2] North = the Study Area within and north of Wicked Road (i.e., the roads north of and including Wickerd Road). South = the Study Area south of Wickerd Road (i.e., the proposed SRRLS site, Leon Road to the south of Wickerd Road, Scott Road, and Beeler Road. See discussion in Section 2.8.

[3] MNS Engineers and Osprey Environmental surveyed the Project site along Scott Road for a private development project; the surveys were negative (Dudek 2026).

2.3 RARE PLANT SURVEYS

HELIX biologist Jonathan Mercado conducted spring surveys for special-status plant species on April 29 and May 1, 2025, and April 21, 2026 (Table 1). Summer surveys were conducted on June 12 and 13, 2025, and June 17, 2026. The surveys were conducted on foot and included 100 percent visual coverage of the accessible portions of the Study Area. Plant identifications were made in the field or in the lab through comparison with voucher specimens or photographs. Special-status plant species encountered were mapped using a handheld Global Positioning System (GPS) unit and/or on an aerial photograph. Special-status plant species were also searched for opportunistically during other surveys, and their numbers and locations were recorded when they were encountered. Surveys conducted by HELIX did not include the entire right-of-way along Scott Road. MNS Engineers' biologists conducted (negative) surveys of this area on April 18 and 19, May 22, and June 11, 2025.

2.4 AQUATIC RESOURCE DELINEATION

HELIX biologist Rob Hogenauer conducted an aquatic resource delineation of the Study Area and adjacent lands on March 24 and July 3, 2025 (Table 1; HELIX 2025a, HELIX 2025b). Prior to beginning fieldwork, aerial photographs (1"=20' scale), topographic maps (1'=200' scale), and National Wetlands Inventory maps were reviewed to assist in determining the presence or absence of potential jurisdictional areas. The delineation was conducted to identify and map any water and wetland resources potentially subject to U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA; 33 United States Code [USC] 1344), Regional Water Quality Control Board (RWQCB) jurisdiction pursuant to Section 401 of the CWA and State Porter-Cologne Water Quality Control Act, and streambed and riparian habitat potentially subject to CDFW jurisdiction pursuant to Sections 1600 *et seq.* of the California Fish and Game Code (CFG Code). Areas generally characterized by depressions, drainage features, and riparian and wetland vegetation were evaluated.

2.5 FAIRY SHRIMP SURVEYS

Ms. Mattson and HELIX biologist Amanda Mathews conducted wet and dry season fairy shrimp surveys for the federally listed threatened vernal pool fairy shrimp (*Branchinecta lynchi*) and federally listed endangered Riverside fairy shrimp (*Streptocephalus woottoni*) for the Study Area in accordance with USFWS protocol (HELIX 2026a, 2026b, 2026c, 2025c, 2025d, 2025e, 2025f; USFWS 2017).

A wet season fairy shrimp survey was conducted for part of the Study Area during the 2024-2025 wet season by HELIX permitted biologist Ms. Mattson (Permit ES-778195-15), following a ponding check conducted by HELIX biologist Kacee Morrell. Twelve survey visits were conducted within the northern portion of the Study Area, and seven within the southern portion of the Study Area. Ms. Mattson conducted a wet season fairy shrimp survey for the remaining portions of the Study Area during the 2025-2026 wet season following two ponding checks conducted by HELIX biologist Nelly Moreno. Ms. Mattson conducted additional ponding checks during the season when storms occurred after features dried. Four survey visits were conducted within the northern portion of the Study Area, and thirteen within the southern portion of the Study Area. The water-holding features were sampled using fine mesh aquarium nets. If fairy shrimp were present, an attempt to identify netted fairy shrimp to species occurred in the field. Following identification, individuals identified in the field were immediately returned to their pool of origin. Fairy shrimp that were not able to be identified to species in the field were collected and identified using the key in Eriksen and Belk (1999) with aid of a dissecting scope.

Feature depth, area, water temperature, air temperature, habitat condition, and species present were noted and recorded on USFWS vernal pool data sheets.

Ms. Mathews (supervised individual; Permit ES-778195-15 for wet season surveys) collected soil for the dry season survey on July 23, 2025, for features that ponded for at least a week following rainfall during the 2024-2025 wet season survey. Ms. Mathews collected soil for the dry season survey on April 23, 2026, for features that ponded for at least a week following rainfall during the 2025-2026 wet season survey. Dry season samples were prepared by dissolving the soil samples in water and sequentially sieving the material through 710- and 75-micron (µm) pore size screens to retain eggs from the target fairy shrimp species. The portion of each sample retained in the screen was dispersed in a brine solution to separate the organic from the inorganic material. The organic fraction was decanted, dried, and examined under a microscope by Ms. Mathews, supervised by permitted biologist Ms. Mattson. Eggs were identified to genus level based on surface characteristics. Eggs of each genus were counted within each soil sample, and egg abundance was estimated. Hatching was conducted for one feature sampled during the 2024-2025 wet season by USFWS-permitted biologist Chuck Black (Permit ES835549-9) using the established methods for hatching (USFWS 2017).

2.6 BURROWING OWL SURVEYS

2.6.1 Habitat Assessment and Focused Burrow Survey

Before conducting the habitat assessment, HELIX consulted the CNDDB to determine the nearest burrowing owl (BUOW; *Athene cunicularia*) occurrence(s). Mr. Morrell and Ms. Mattson conducted habitat assessments on April 11 and 15, 2025, to determine whether the Study Area supports suitable BUOW habitat (Table 1). A focused burrow survey was conducted concurrently with the habitat assessment and on April 22, 2025. Suitable burrows (i.e., greater than approximately four inches [11 centimeters] in height and width, and greater than approximately 59 inches [50 centimeters] in depth) were mapped. The habitat assessment and focused burrow survey were conducted before the commencement of the BUOW-focused surveys. The assessment was conducted on the Study Area and included an approximately 500-foot (150-meter) buffer zone around the periphery of the Study Area (BUOW survey area). Inaccessible areas of the BUOW survey area, including private land behind fences, were visually assessed using binoculars. The BUOW survey area was slowly walked and assessed for suitable BUOW habitat. All potential owl burrows were checked for signs of recent owl occupation.

2.6.2 Focused Burrowing Owl Survey

Because suitable habitat and burrows were observed within the BUOW survey area during the habitat assessment, focused BUOW surveys were conducted to determine whether the BUOW survey area supports BUOW (HELIX 2025g, HELIX 2025h). The focused surveys consisted of four breeding season surveys performed by Mr. Morrell between April 11 and July 8, 2025 (Table 1).

The biologist walked transects spaced no greater than approximately 65 feet apart (20 meters) to allow for 100 percent visual coverage of all suitable habitat within the BUOW survey area. The biologist walked slowly and methodically, closely checking suitable habitat within the BUOW survey area for BUOW diagnostic sign (e.g., molted feathers, pellets/castings, or whitewash at or near a burrow entrance) and individual BUOW. If observed, BUOW sign and BUOW observations were recorded with a GPS handheld unit. Inaccessible areas of the BUOW survey area were visually assessed using binoculars.

2.7 CROTCH'S BUMBLE BEE SURVEYS

HELIX conducted Crotch's bumble bee (CBB; *Bombus crotchii*) surveys for most of the Study Area in 2025 (Table 1). HELIX biologist Angelica Grunloh conducted the Crotch's bumble bee habitat assessment of the Study Area on May 1, 2025. The habitat assessment included mapping the vegetation on-site according to the MCV (CNPS 2025), determining the species composition within vegetation alliances, and collecting a list of flowering species (Appendix A, *Crotch's Bumble Bee Results*). HELIX's survey method is based on the CDFW *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* issued June 6, 2023, which calls for an initial Crotch's bumble bee habitat assessment followed by three bumble bee surveys. The three surveys were spaced two to four weeks apart during the Colony Active Period (April through August) and when floral resources were present in 2025. Each survey was conducted over two days or by two biologists to meet the recommended survey rate of three acres per hour. Bumble bee species observed during the survey were identified but were not captured or handled to avoid potential take. If a Crotch's bumble bee was detected or suspected, the location and observation details would have been documented, including photographs. University of California, Riverside bumble bee expert Dr. Douglas Yanega would have confirmed species identification for non-capture photos. Ms. Grunloh and Ms. Moreno conducted the first survey of the Study Area on May 14 and 27, 2025. Ms. Moreno conducted the second survey on June 5 and 18, 2025. Ms. Moreno conducted the third survey on June 30 and July 2, 2025. No suspect bumble bee photos were sent to Dr. Yanega. Surveys conducted by HELIX did not include the entire ROW along Scott Road. Osprey Environmental's biologists conducted (negative) surveys of this area on May 27 and June 10 and 24, 2025. HELIX conducted CBB surveys for the remaining portion of the Study Area in 2026, using the same methodology described above (Table 1). Ms. Grunloh and Ms. Moreno conducted the Crotch's bumble bee habitat assessment of the remaining portions of the Study Area on April 6, 2026, and the Crotch's bumble bee surveys on April 6, April 22, and May 11, 2026.

2.8 SURVEY LIMITATIONS

The northern and southern portions of the Study Area were surveyed for two formerly separate projects that have since been combined into a single project (i.e., the proposed Project). The northern portion of the Study Area includes the existing lift station (WRLS) and roads north of and including Wickerd Road (Figure 3). Not all areas of the northern portion were available to be surveyed on foot during biological surveys due to access restrictions. Permission to walk fenced-off areas associated with private residential and agricultural property was not obtained. Consequently, fenced areas were viewed from the fenceline in 2025 using binoculars as necessary, and via a desktop analysis. Fenced areas include a narrow strip of agricultural development north of Wickerd Road, agricultural development east of Eucalyptus Road and south of Garbani Road, and part of the residential development north of Garbani Road. In person surveys of these remaining areas, consisting of fairy shrimp, rare plant, and Crotch's bumble bee surveys, were completed in 2026. The jurisdictional delineation and surveys for BUOW completed in 2025 included assessment of these areas.

The southern portion of the Study Area includes the proposed lift station (the SRRLS), Leon Road to the south of Wickerd Road, Scott Road, and Beeler Road (Figure 3). The extent of the Project and Study Area changed several times, and off-road portions of the ROW along Leon Road and Scott Road were not directly surveyed for fairy shrimp until the 2025-2026 wet season, with soil collection for dry season fairy shrimp thereafter. Off-road portions of the ROW along Leon Road were not directly surveyed for Crotch's bumble bee in 2025, and surveys for these areas were completed in 2026. The 2025 jurisdictional delineation and surveys for BUOW included assessment of these areas. Rare plant survey

results conducted by another firm for the ROW along Scott Road in 2025 are being included in this report.

Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the lists of species identified are not necessarily comprehensive accounts of all species that utilize the Study Area, as species that are nocturnal, secretive, or seasonally restricted may not have been observed. Those species that are of special status and have potential to occur in the Study Area are addressed in this report. Additionally, as stated above, ground surveys were not conducted for a portion of the Study Area, and additional resources could occur in those areas that were not detectable via a desktop analysis.

2.9 NOMENCLATURE

Nomenclature for this report is taken from the Manual of California Vegetation (CNPS 2025), Holland (1986), and Oberbauer et al. (2008) for vegetation communities; Jepson eFlora (2025) and Baldwin et al. (2012) for plants; North American Butterfly Association (2025) for butterflies; Society for the Study of Amphibians and Reptiles (2025) for reptiles and amphibians; American Ornithological Society (2025) for birds; and Bradley et al. (2014) for mammals. Plant species status is from the CNPS Rare Plant Inventory (2026) and CDFW (2025a). Animal species status is from the CDFW (2025b).

3.0 EXISTING CONDITIONS

3.1 GENERAL LAND USES

The Study Area consists of various types of disturbed and developed land along existing roadways (Figure 4, *Vegetation and Sensitive Resources/Land Use*). Land uses that characterize the Study Area and surrounding area include agricultural fields, transportation infrastructure, rural residential development, commercial land (e.g., nursery, concrete sealant and landscaping firms), a church, and a school.

USFWS-designated critical habitat occurs near the Study Area for three species. Critical habitat for coastal California gnatcatcher (CAGN; *Polioptila californica californica*) occurs approximately 1.5 miles northeast of the Study Area, critical habitat for Quino checkerspot butterfly (QCB; *Euphydryas editha quino*) occurs approximately 2.63 miles southeast of the Study Area, and critical habitat for spreading navarretia (*Navarretia fossalis*) occurs approximately 1.1 miles west of the Study Area (Figure 5, *USFWS Critical Habitat*).

3.2 TOPOGRAPHY AND SOILS

The Study Area is located within the eastern portion of the Perris Block in the Peninsular Ranges Geomorphic Province of Southern California. The Peninsular Ranges Geomorphic Province consists of a series of northwest-trending mountain ranges and valleys bounded on the north by the San Bernardino and San Gabriel Mountains, on the west by the Los Angeles Basin, and on the south by the Pacific Ocean. The Perris Block is a relatively stable structural block bounded by the active Elsinore and San Jacinto fault zones to the west and east, and the Chino and Temecula basins to the north and south.

Topography within the province is generally characterized by broad alluvial valleys separated by linear mountain ranges. This northwest-trending linear fabric was created by the regional faulting within the granitic basement rock of the Southern California Batholith. Broad, linear, alluvial valleys have been formed by erosion of these principally granitic mountain ranges.

The local geology in the Study Area is a complex mixture of hills composed of resistant bedrock and valleys that have been gradually infilled by sediments eroded from nearby and distant mountains. Alluvial units range from young to very old deposits. Bedrock units are exposed at the surface in many places throughout the Study Area and consist of igneous and metamorphic bedrock types.

The Study Area includes 28 soil types belonging to 18 soil series (Figure 6, *Soils;* Appendix B; *Soil Types*).

3.3 VEGETATION COMMUNITIES

Vegetation communities present within the Study Area were mapped based on the Holland/Oberbauer classification system and cross-referenced to the MCV where feasible. Field biologists identified seven plant alliances, associations, semi-natural stands, or land uses within the Study Area as follows: basin/pool, foxtail barley-brome grass (non-native grassland), non-native vegetation, disturbed habitat, urban/developed, extensive agriculture (fallow agricultural lands), and extensive agriculture (agricultural lands [alfalfa]) (Table 2, *Vegetation Communities and Land Covers*; Figure 4). Six of the communities are not described by the MCV and are described using the Holland/Oberbauer code distribution. A brief description of each community within the Study Area is provided below. Coastal and valley freshwater marsh (*Typha* [*angustifolia, domingensis, latifolia*] Herbaceous Alliance) and disturbed wetland occur near but outside of the Study Area.

Table 2
VEGETATION COMMUNITIES AND LAND COVERS[1]

CDFW CA Code	MCV Alliance/Association	MCV Common Name	Holland Code[2]	Holland Classification[2]	Study Area (acres)[3]	Project Site (acres)[3]
Riparian Vegetation						
N/A	N/A	N/A	N/A	Basin/Pool[4]	0.06	0.06
				Subtotal	**0.06**	**0.06**
Upland Vegetation						
N/A	N/A (*Hordeum murinum - Bromus* sp. Semi-Natural Stands)	N/A (Foxtail Barley-Brome Grass)	42200	Non-Native grassland	7.2	4.8
N/A	N/A	N/A (Naturalized trees and shrubs)	11000	Non-Native Vegetation	0.5	0.5
N/A	N/A	N/A	11300	Disturbed habitat	20.2	14.6
N/A	N/A	N/A	12000	Urban/ Developed	17.0	13.3
N/A	N/A	N/A (Fallow Agricultural Lands)	18300	Extensive Agriculture	6.0	5.6

CDFW CA Code	MCV Alliance/Association	MCV Common Name	Holland Code[2]	Holland Classification[2]	Study Area (acres)[3]	Project Site (acres)[3]
N/A	N/A (Agricultural Lands [*Medicago sativa*])	N/A (Agricultural Lands [alfalfa])	18300	Extensive Agriculture	1.5	1.5
				Subtotal	**52.4**	**40.3**
				Total	**52.46**	**40.36**

[1] The MCV does not classify general habitats such as these found in the Oberbauer-updated Holland classification system: non-native grassland, non-native vegetation, disturbed habitat, urban/developed, and agriculture.
[2] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer et al. (2008).
[3] Upland habitats are rounded to the nearest 0.1 acre and wetland/riparian habitats to the nearest 0.01 acre; thus, totals reflect rounding. Includes acres for disturbed version of the specific habitat.
[4] Pool is ephemeral and may be jurisdictional.

3.3.1 Basin/Pool

Basins refer to features that may or may not hold water seasonally and are human-made for storm water retention or water quality purposes. Pools can be naturally occurring depressions or features created by soil compaction or tire ruts. These are also often referred to as ephemeral pools. This habitat can have a wide variety of vegetation depending upon the landscape position and whether natural or artificial in nature. The pool within the Study Area is located between Scott Road, a dirt road, and a gently sloped hill, and it is evident on aerial imagery as early as 2003 (Google Earth 2026). It is not known if this pool was graded or bermed to promote ponding. This pool could be an artificial feature in that the compaction of soil for the adjacent roadways may facilitate or extend its ponding. This pool is dominated by dock (*Rumex* sp.) and slender sunflower (*Helianthus gracilentus*), with non-native grass edging the pool. Other depressions were observed to pond during the 2024-2025 and 2025-2026 wet seasons; however, vegetation in these (when present) was not distinctly different than adjacent areas (Figures 7a-c, *2024-2025 Wet Season Survey Results* and Figures 8a-c, *2025-2026 Wet Season Survey Results*).

3.3.2 Foxtail Barley-Brome Grass (Non-Native Grassland)

Non-native grassland is a dense to sparse cover of annual grasses, often associated with numerous species of showy-flowered native annual forbs. Characteristic species include oats (*Avena* spp.), brome grasses (*Bromus* spp.), ryegrass (*Festuca* spp.), and mustards (*Brassica* spp.). Many of the grasses within the Study Area did not have seed heads and were not identifiable at the time of the first biological assessment. Grass species observed included wild oat (*Avena* spp.), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), foxtail chess (*Bromus madritensis*), Bermuda grass (*Cynodon dactylon*), rattail sixweeks grass (*Festuca myuros*), foxtail barley (*Hordeum murinum*), Italian rye grass (*Festuca perennis*), and common wheat (*Triticum aestivum*). This habitat contained a variety of native and non-native herbs and scattered sparse shrubs, including Russian thistle (*Salsola tragus*), black mustard (*Brassica nigra*), mustard (*Hirschfeldia incana*), London rocket (*Sisymbrium irio*), dock, turkey-mullein (*Croton setiger*), and slender sunflower.

3.3.3 Non-Native Vegetation

Non-native vegetation is a category describing stands of naturalized trees and shrubs (e.g., acacia [*Acacia* sp.], peppertree [*Schinus* sp.], oleander [*Nerium oleander*], olive [*Olea europaea*], and eucalyptus [*Eucalyptus* sp.]), many of which are also used in landscaping. Within the Study Area, this

category describes patches of trees (e.g., Peruvian pepper tree [*Schinus molle*], eucalyptus, olive, and Fremont cottonwood [*Populus fremontii*]) and oleander outside of larger developed areas.

3.3.4 Disturbed Habitat

Disturbed habitat includes land cleared of vegetation (e.g., dirt roads), land containing a preponderance of non-native plant species such as ornamentals or ruderal exotic species that take advantage of disturbance (previously cleared or abandoned landscaping), or land showing signs of past or present animal usage that removes any capability of providing viable habitat.

Within the Study Area, disturbed habitat consisted of dirt roads, roadsides, disturbed lots, and open fields that are not dominated by grasses. Outside of unpaved roads, most disturbed habitat consists of bare ground with scattered non-native grasses and herbaceous weeds, including mustard, black mustard, stinknet (*Oncosiphon piluliferum*), and Russian thistle. Few trees (i.e., eucalyptus, Peruvian pepper tree, palo verde [*Parkinsonia* sp.], and small flower tamarisk [*Tamarix parviflora*]) were also present within these areas. An area at a culvert outfall and Warm Springs Creek were also mapped as this habitat, given their disturbance and/or abundance of non-native plants. These areas also had a variety of more hydrophytic plants, including alkali weed (*Cressa truxillensis*), alkali mallow (*Malvella leprosa*), salt grass (*Distichlis spicata*), salt heliotrope (*Heliotropium curassavicum*), and Italian ryegrass (*Festuca perennis*; USACE 2022).

3.3.5 Urban/Developed

Urban/developed land includes areas that have been constructed upon or otherwise covered with a permanent, unnatural surface and may include, for example, structures, pavement, irrigated landscaping, or hardscape to the extent that no natural land is evident. These areas no longer support native or naturalized vegetation. Developed portions of the Study Area consist of paved and heavily graveled roads, as well as residential or commercial development and associated landscaping.

3.3.6 Agricultural Lands (Extensive Agriculture)

Extensive agriculture is a subcategory of general agriculture (i.e., land used primarily for the production of food and fiber) that consists of fields, pastures, and row crops. Extensive agriculture indicates lands that show evidence of being used to farm an herbaceous crop or provide grazing areas for livestock. On satellite imagery, the chief indications of agricultural activity are distinctive geometric field and road patterns on the landscape and the traces produced by livestock or mechanized equipment. However, pasture and other lands where such equipment is used infrequently may not show as well-defined shapes as other areas. Within the Study Area, this vegetation community retains evidence of discing and, in some places, plants in the field were identifiable as wheat or contained a sign indicating the property was agricultural. Most of the extensive agriculture in the Study Area was mapped as fallow, but one field had active alfalfa (*Medicago sativa*) production.

3.4 PLANTS

A total of 106 plant species were observed within the Study Area during the rare plant and other surveys conducted within and adjacent to the Study Area. Of these, 64 species (60 percent) are non-native species (Appendix C, *Plant Species Observed*). The presence of non-native species is indicative of the

Study Area

Project Site

Vegetation and Land Cover

Basin/Pool

Disturbed Wetland

Coastal and Valley Freshwater Marsh (*Typha* [*angustifolia, domingensis, latifolia*] Herbaceous Alliance)

Non-native Grassland (Foxtail Barley-Brome Grass (*Hordeum murinum - Bromus* sp.) Semi-Natural Stands

Field Croplands (Fallow Agricultural Lands)

Field Croplands (Agricultural Lands [*Medicago sativa*])

Residential/Urban/Exotic (Non-native Vegetation)

Residential/Urban/Exotic (Disturbed Habitat)

Residential/Urban/Exotic (Developed)

Sensitive Species Observations

Paniculate tarplant (*Deinandra paniculata*)

Smooth tarplant (*Centromadia pungens* ssp. *laevis*)

LE GRANDE RD
HOLCOMB RD
EUCALYPTUS RD
CRAIG AVE
BEELER RD
DUTCH RD
YORK LN
ANDOVER LN
LEON RD
GARBANI RD
DEARDOFF ST
BRANDON LN
MEADOWGATE LN
WICKERD RD
Coastal and Valley Freshwater Marsh
Coastal and Valley Freshwater Marsh
DAVIS RD
FLIGHT WAY
LORETTA AVE
PATITA LN
PINES AIRPARK RD
HALLBERG AVE
Disturbed Wetland
SCOTT RD
JERET RD
PERRINE ST
CHRISTINE ST
LOUISE RD
AARON RD

0 750 Feet

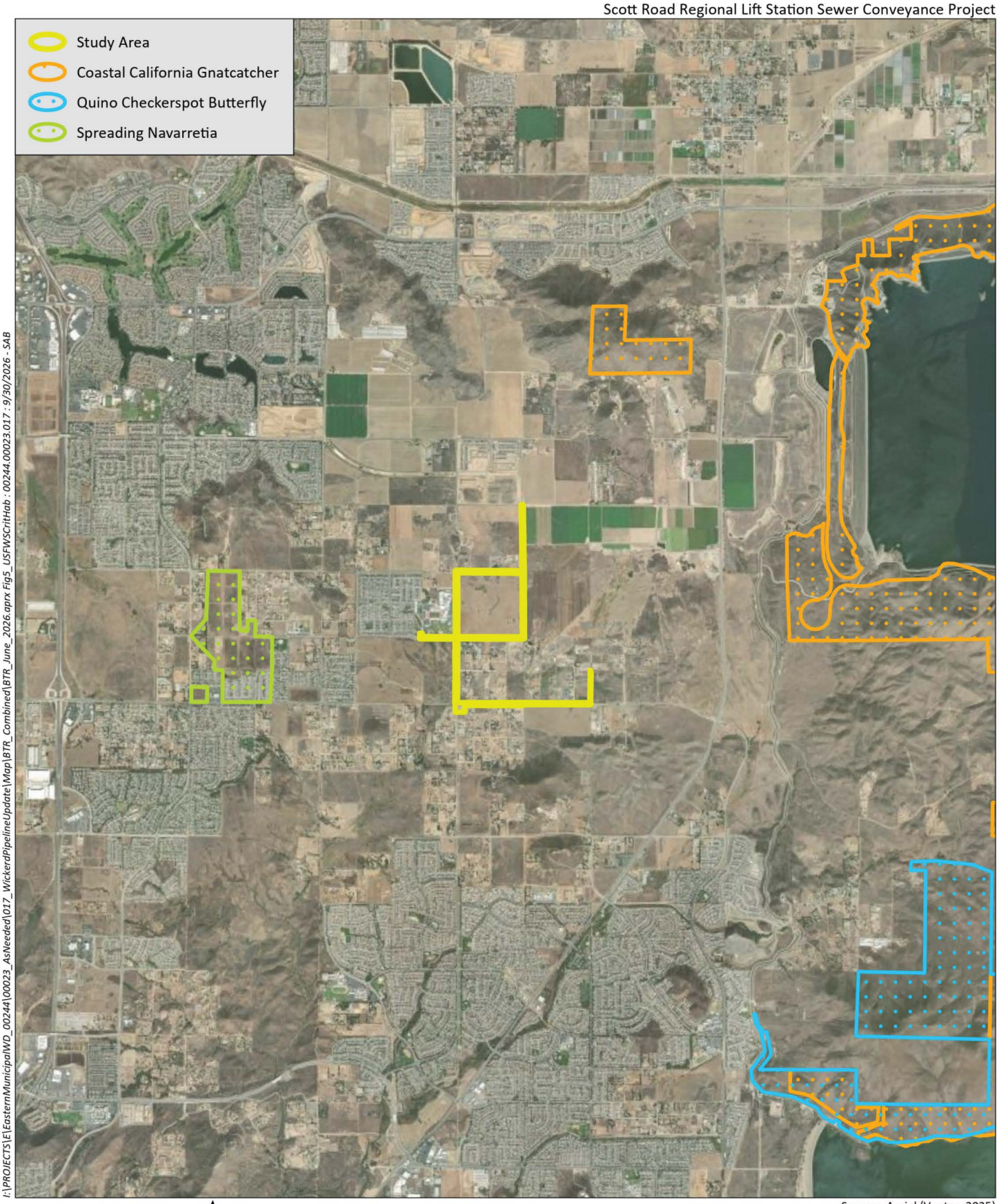
Source: Aerial (Vantor, 2025)

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Vegetation and Sensitive Resources/Land Use

Figure 4



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Source: Aerial (Vantor, 2025)

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USFWS Critical Habitat

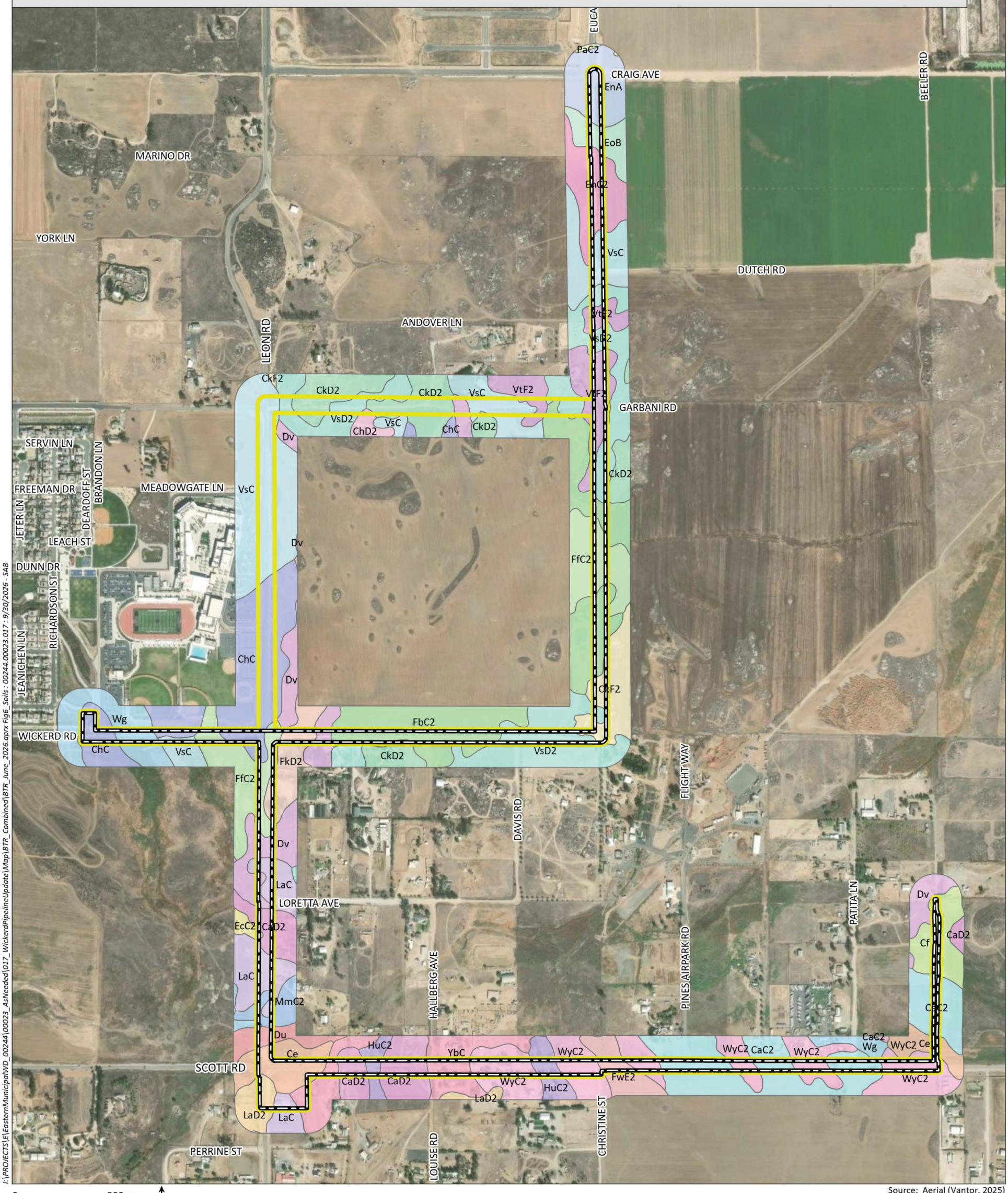
Figure 5

Study Area

Project Site

Soil Types

- CaC2-Cajalco fine sandy loam, 2 to 8 percent slopes, eroded
- CaD2-Cajalco fine sandy loam, 8 to 15 percent slopes, eroded
- Ce-Chino silt loam, drained
- Cf-Chino silt loam, drained, saline-alkali
- ChC-Cieneba sandy loam, 5 to 8 percent slopes
- ChD2-Cieneba sandy loam, 8 to 15 percent slopes, eroded
- CkD2-Cieneba rocky sandy loam, 8 to 15 percent slopes, eroded
- CkF2-Cieneba rocky sandy loam, 15 to 50 percent slopes, erod ed
- Du-Domino silt loam
- Dv-Domino silt loam, saline-alkali
- EcC2-Escondido fine sandy loam, 2 to 8 percent slopes, erode d
- EnA-Exeter sandy loam, 0 to 2 percent slopes
- EnC2-Exeter sandy loam, 2 to 8 percent slopes, eroded
- EoB-Exeter sandy loam, slightly saline-alkali, 0 to 5 perce nt slopes
- FbC2-Fallbrook sandy loam, shallow, 5 to 8 percent slopes, e roded
- FfC2-Fallbrook fine sandy loam, 2 to 8 percent slopes, erode d
- FkD2-Fallbrook fine sandy loam, shallow, 8 to 15 percent slo pes, eroded
- FwE2-Friant fine sandy loam, 5 to 25 percent slopes, eroded
- HuC2-Honcut loam, 2 to 8 percent slopes, eroded
- LaC-Las Posas loam, 2 to 8 percent slopes
- LaD2-Las Posas loam, 8 to 15 percent slopes, eroded
- MmC2-Monserate sandy loam, 5 to 8 percent slopes, eroded
- PaC2-Pachappa fine sandy loam, 2 to 8 percent slopes, eroded
- VsC-Vista coarse sandy loam, 2 to 8 percent slopes
- VsD2-Vista coarse sandy loam, 8 to 15 percent slopes, eroded
- VtF2-Vista rocky coarse sandy loam, 2 to 35 percent slopes, eroded
- Wg-Willows silty clay, saline-alkali
- WyC2-Wyman loam, 2 to 8 percent slopes, eroded
- YbC-Yokohl loam, 2 to 8 percent slopes



0 800 Feet

Source: Aerial (Vantor, 2025)

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Soils

Figure 6



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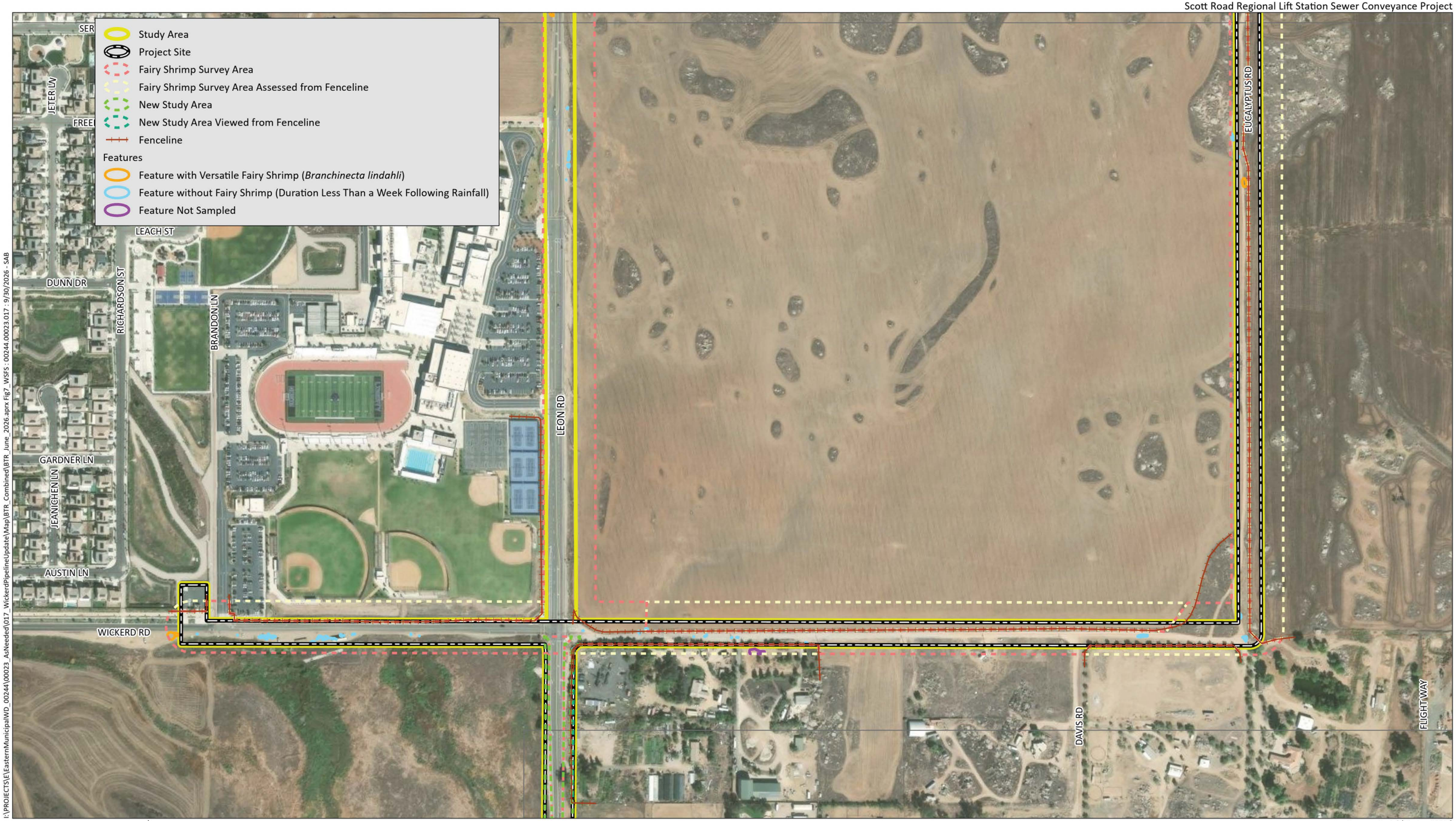
0 350 Feet

Source: Aerial (Vantor, 2025)

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2024-2025 Wet Season Survey Results

Figure 7A



0 350 Feet

Source: Aerial (Vantor, 2025)

HELIX Environmental Planning

2024-2025 Wet Season Survey Results

Figure 7B



Source: Aerial (Vantor, 2025)

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2024-2025 Wet Season Survey Results

Figure 7C

Scott Road Regional Lift Station Sewer Conveyance Project



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0 350 Feet

Source: Aerial (Vantor, 2025)

HELIX Environmental Planning

2025-2026 Wet Season Survey Results

Figure 8A

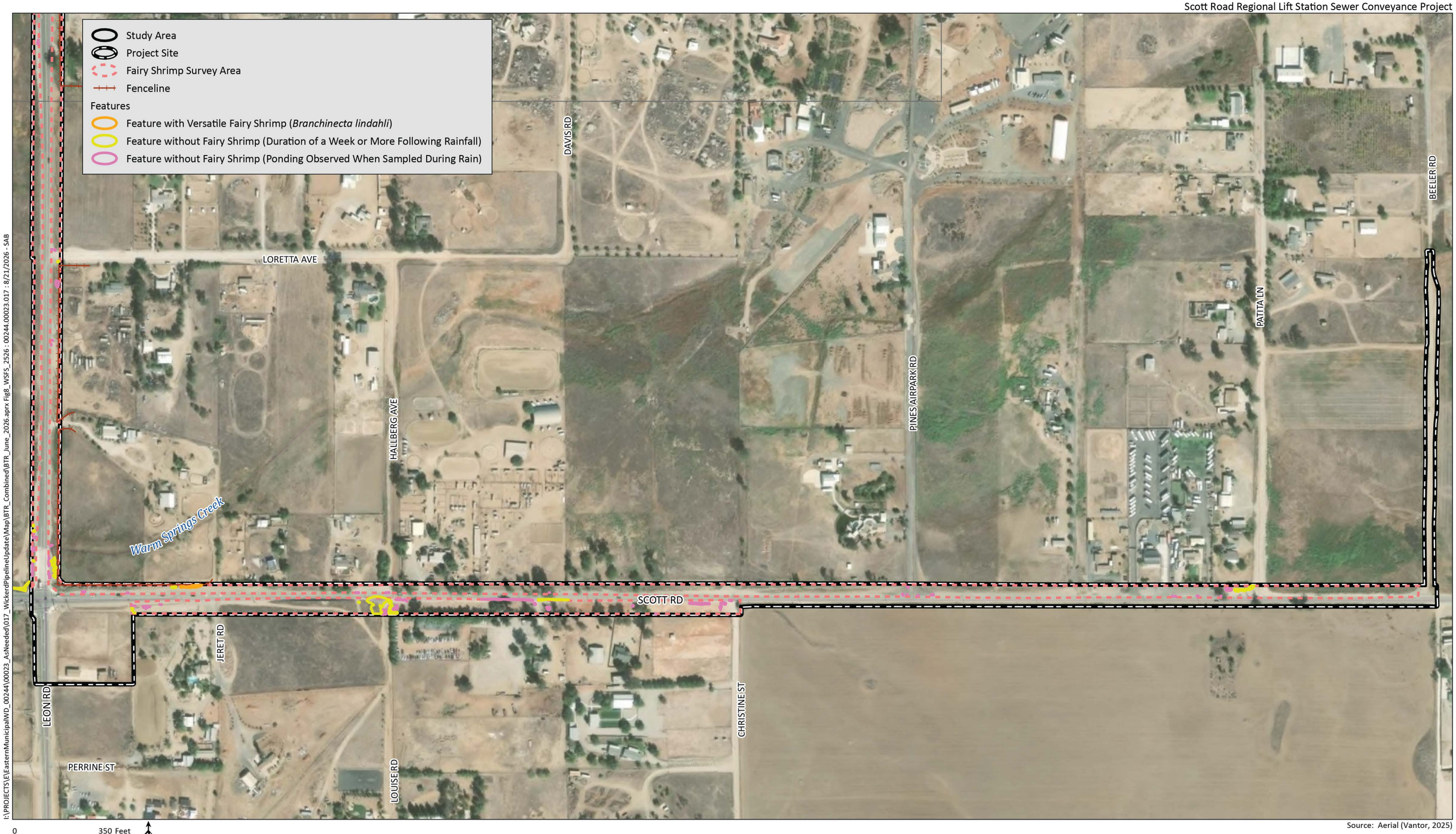


Source: Aerial (Vantor, 2025)

HELIX
Environmental Planning

2025-2026 Wet Season Survey Results

Figure 8B



0 350 Feet

Source: Aerial (Vantor, 2025)

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HELIX Environmental Planning

2025-2026 Wet Season Survey Results

Figure 8C

high degree of disturbance as a result of historical and current uses of the Study Area. Two of the observed plant species were sensitive species: smooth tarplant and paniculate tarplant.

3.5 ANIMALS

A total of 51 animal species were observed/detected within the Study Area during the various biological surveys that were conducted: 16 bird species, five mammal species, two amphibians, and 28 invertebrates (Appendix D, *Animal Species Observed or Detected*). Additional details on sensitive species with potential to occur within or adjacent to the Study Area are provided below in the sensitive resources section.

3.6 SENSITIVE RESOURCES

3.6.1 Sensitive Vegetation Communities/Habitats

Sensitive vegetation communities/habitat types are defined as land that supports unique vegetation communities or the habitats of rare or endangered species or subspecies of animals or plants as defined by Section 15380 of the State CEQA Guidelines.

The CDFW evaluates the rarity of natural communities using the NatureServe's Heritage Methodology (Faber-Langendoen et al. 2012) in which communities are given a G (global) and S (State) rank based on their degree of imperilment (as measured by rarity, trends, and threats). Communities are assigned an overall rank of 1 through 5, with 1 being considered very rare and threatened and 5 being considered demonstrably secure. Communities with a Rarity Ranking of S1 (critically imperiled), S2 (imperiled), S3 (vulnerable), and S4 (secure) are considered sensitive by the CDFW. Additionally, a habitat in which a sensitive species occurs is also considered sensitive.

No sensitive vegetation communities occur within the Study Area. The on-site basin/pool comprised non-native and weedy native vegetation. Non-native grassland, non-native vegetation, disturbed habitat, urban/developed lands, and extensive agriculture also do not meet the definition of sensitive habitat under CEQA.

The coastal and valley freshwater marsh that occurs off-site is considered sensitive. Disturbed wetland, which also occurs off-site, is primarily a non-native habitat and is typically not sensitive. However, these off-site areas with sensitive and sometimes sensitive habitats were assessed to be jurisdictional.

3.6.2 Special-Status Plant Species

Special-status (sensitive) plant species have been afforded special status and/or recognition by the USFWS and/or CDFW. They may also be included in the CNPS Inventory of Rare and Endangered Plants. Their status is often based on one or more of three distributional attributes: geographic range, habitat specificity, and/or population size. Sensitive species are those considered unusual or limited in that they are: (1) only found in the region; (2) a local representative of a species or association of species not otherwise found in the region; or (3) severely depleted within their ranges or within the region. Two sensitive plant species were observed within the Study Area: smooth tarplant and paniculate tarplant (Appendices C and E).

Smooth tarplant (*Centromadia pungens* ssp. *laevis*)
Listing: No federal or state listing status; California Rare Plant Rank (CRPR) 1B.1; MSHCP Covered.
Distribution: Elevations between 295 and 2,624 feet AMSL in Riverside County.
Habitat: Sandy soil on flats and foothills in mixed grassland, coastal sage scrub, and chaparral communities.
Status On-Site: A total of approximately 50 individuals were observed in disturbed habitat along Beeler Road (see Figure 4).

Paniculate tarplant (*Deinandra paniculata*)
Listing: No federal or state listing status; CRPR 4.2.
Distribution: Alameda, Monterey, San Louis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, Western Riverside, San Bernardino, and San Diego counties; Baja California, Mexico. Elevations range from 80 to 3,100 feet AMSL.
Habitat: Grassland, open chaparral and woodland, disturbed areas, often in sandy soil.
Status On-Site: A total of approximately 597 individuals were observed scattered in the non-native grassland, disturbed habitat, and fallow agricultural lands along Garbani Road, Eucalyptus Road, and the eastern side of Wickerd Road (see Figure 4). Approximately 297 of these were in the Project site.

A three-mile search area of the CNDDB (CDFW 2025a) and USFWS databases was conducted to aid in the assessment of sensitive plant species with potential to occur in the Study Area. Sensitive plant species that may have potential to occur within the Study Area are listed in Appendix E, *Rare Plant Species with Potential to Occur*. An explanation of status codes is included as Appendix F, *Explanation of Status Codes for Plant and Animal Species*.

Two species on the list were determined to be present: smooth tarplant and paniculate tarplant. No other special-status plant species were observed during rare plant surveys conducted in spring and summer. Thus, no other special-status plant species were assessed with high or moderate potential to occur.

3.6.3 Special-Status Animal Species

Special-status animal species include those that have been afforded special status and/or recognition by the USFWS and/or CDFW. In general, the principal reason an individual taxon (species or subspecies) is given such recognition is due to the documented or perceived decline or limitations of its population size or geographical extent and/or distribution, resulting in most cases from habitat loss. No special-status animal species were observed within or adjacent to the Study Area during biological surveys. Wet and dry season fairy shrimp surveys (discussed in Section 2.5), BUOW surveys (discussed in Section 2.6), and Crotch's bumble bee surveys (discussed in Section 2.7) were negative.

Special-Status Animal Species with Potential to Occur

A three-mile search area of the CNDDB (CDFW 2025b) database was conducted to aid in the assessment of special-status animal species with potential to occur in the Study Area. Special-status animal species that were not observed or otherwise detected but determined to have potential to occur on-site are included in Appendix G, *Special-Status Animal Species Observed or with Potential to Occur*. The species are grouped into invertebrates and vertebrates (amphibians, reptiles, birds, and mammals) and alphabetized by scientific name. An explanation of status codes is included as Appendix F. Sensitive animal species on the potential to occur list with a high potential to occur based on geographic range,

elevation range, and/or suitable habitat in the Study Area include orange-throated whiptail (*Aspidoscelis hyperythra*), coast horned lizard (*Phrynosoma blainvillii*), ferruginous hawk (*Buteo regalis*), California horned lark (*Eremophila alpestris actia*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*).

Animal species with a moderate potential to occur include western spadefoot (*Spea hammondii*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), BUOW, and Stephens' kangaroo rat (SKR; *Dipodomys stephensi*).

Additionally, there are 10 special-status animal species with low potential to occur. These species are Southwestern pond turtle (*Actinemys pallida*), Southern California legless lizard (*Anniella stebbinsi*), tricolored blackbird (*Agelaius tricolor*), golden eagle (*Aquila chrysaetos*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), loggerhead shrike (*Lanius ludovicianus*), Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), Western mastiff bat (*Eumops perotis californicus*), and Los Angeles pocket mouse (*Perognathus longimembris brevinasus*).

Three of the species with high or moderate potential to occur are listed species, proposed for federal listing, or state candidate for listing: western spadefoot, BUOW, and SKR.

Due to negative Crotch's bumble bee and fairy shrimp focused species surveys, Crotch's bumble bee, vernal pool fairy shrimp, and Riverside fairy shrimp are presumed absent. The host plant for Quino checkerspot butterfly (QCB; *Euphydryas editha quino*) was not observed during the rare plant surveys conducted for the Project, so this species is also presumed absent. Despite negative BUOW surveys, this species has a moderate potential to occur because it is known from the area, is very mobile, and could occupy the Project site in the future.

These species and habitat associations are included in Appendix G. Status codes are defined in Appendix F.

3.6.4 Jurisdictional Waters and Wetlands

In the context of this assessment, jurisdictional waters and wetlands include waters of the U.S., including wetlands regulated by the USACE pursuant to CWA Section 404, waters of the U.S. and State regulated by the RWQCB pursuant to Section 401 of the CWA and/or the Porter-Cologne Water Quality Control Act, and/or streambed and riparian habitat regulated by the CDFW pursuant to Sections 1600 *et seq*. of the CFG Code (Appendix H, *Federal and State Jurisdictional Information*).

Potential non-wetland waters of the U.S. regulated by USACE, non-wetland waters of the State regulated by the RWQCB, and CDFW-jurisdictional features are present within the Study Area (Figure 9, *Observed Aquatic Resources - USACE*; Figure 10, *Observed Aquatic Resources - RWQCB*; Figure 11, *Observed Aquatic Resources - CDFW*). Jurisdictional features total 0.03 acre of non-wetland waters of the U.S., 0.17 acre of non-wetland waters of the State, and 0.23 acre of CDFW-jurisdictional non-wetland (Table 3, *Jurisdictional Waters*). However, the Project would be designed to avoid impacts to waters and riparian habitat under the jurisdiction of USACE, RWQCB, and CDFW to the extent feasible. Freshwater marsh habitat observed off-site is considered potentially jurisdictional wetland to the USACE, RWQCB, and/or CDFW.

Table 3
JURISDICTIONAL WATERS

Jurisdictional Areas	Acres in Study Area
U.S. Army Corps of Engineers (USACE)	
Freshwater Marsh/Wetland Waters of the U.S.	0
Non-Wetland Waters of the U.S.	0.03
USACE TOTAL	**0.03**
Regional Water Quality Control Board (RWQCB)	
Freshwater Marsh/Wetland Waters of the State	0
Non-Wetland Waters of the State	0.17
RWQCB TOTAL	**0.17**
California Department of Fish and Wildlife (CDFW)	
Freshwater Marsh/Wetlands	0
Streambed and Other Jurisdictional Features	0.23
CDFW TOTAL	**0.23**

3.6.5 Wildlife Corridor/Core Wildlife Areas

Wildlife corridors connect otherwise isolated pieces of habitat and allow movement or dispersal of plants and animals. Wildlife corridors can be local or regional in scale and may function in different ways depending on species and time of year. Wildlife corridors represent areas where wildlife movement is concentrated due to natural or manufactured constraints. Local corridors provide access to resources such as food, water, and shelter. Animals can use these corridors, such as hillsides, tributaries, and main drainages, to travel among different habitats (i.e., riparian and upland habitats). Some animals require riparian habitat for breeding and upland habitat for burrowing. Regional corridors provide these functions and also link two or more large areas of open space. Regional corridors also provide avenues for wildlife dispersal, migration, and contact between otherwise distinct populations.

MSHCP-Proposed Constrained Linkage 17 meets the southeastern corner of the Study Area (Figure 12, *MSHCP Cores and Linkages*). The sewer line proposed next to this linkage will not pose permanent impacts, except where access is required for inspection and maintenance of the pipeline. Thus, the Project is not expected to have an adverse effect on the proposed linkage.

4.0 REGULATORY FRAMEWORK

Biological resources in the Project site are subject to regulatory review by federal, State, and local agencies. Under CEQA, impacts associated with a proposed project are assessed with regard to significance criteria determined by the CEQA Lead Agency (in this case, EMWD) pursuant to the CEQA Guidelines, 14 California Code of Regulations § 15000 *et seq*. Biological resource-related laws and regulations that apply to the Project include the Federal Endangered Species Act (FESA), Migratory Bird Treaty Act (MBTA), CWA, CEQA, California Endangered Species Act (CESA), and CFG Code.

Scott Road Regional Lift Station Sewer Conveyance Project

- Study Area
- Project Site

Non-Jurisdictional Features

- Ephemeral Stream
- Non-Jurisdictional Streambed
- Concrete Brow Ditch
- Riprap
- Road Side Ditch
- Culvert

Jurisdictional Features – Non-wetland Waters of the U.S.

- Concrete Culvert
- Streambed
- Jurisdictional Culvert

Jurisdictional Features - Wetland Waters of the U.S.

- Freshwater Marsh

EUCALYPTUS RD
HOLCOMB RD
CRAIG AVE
BEELER RD
DUTCH RD
ANDOVER LN
LEON RD
GARBANI RD
SERVIN LN
DEARDOFF ST
BRANDON LN
MEADOWGATE LN
LEACH ST
RICHARDSON ST
WICKERD RD
Freshwater Marsh
Freshwater Marsh
DAVIS RD
FLIGHT WAY
LORETTA AVE
PATTIA LN
HALLBERG AVE
PINES AIRPARK RD
SCOTT RD
JERET RD
PERRINE ST
CHRISTINE ST
LOUISE RD
AARON RD
FOWLER DR
CURZULLA RD

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0 750 Feet

Source: Aerial (Vantor, 2025)

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Observed Aquatic Resources - USACE

Figure 9

Scott Road Regional Lift Station Sewer Conveyance Project

Study Area
Project Site
Concrete Brow Ditch
Jurisdictional Features- Non-Wetland Waters of the State
Sheetflow
Concrete Culvert
Culvert
Streambed
Ephemeral Pool
Road Side Ditch
Riprap
Jurisdictional Features - Wetland Waters of the State
Freshwater Marsh

EUCALYPTUS RD
HOLCOMB RD
CRAIG AVE
BEELER RD
DUTCH RD
YORK LN
ANDOVER LN
LEON RD
GARBANI RD
SERVIN LN
DEARDOFF ST
BRANDON LN
MEADOWGATE LN
LEACH ST
RICHARDSON ST
WICKERD RD
Freshwater Marsh
Freshwater Marsh
DAVIS RD
FLIGHT WAY
LORETTA AVE
PATITA LN
HALLBERG AVE
PINES AIRPARK RD
Warm Springs Creek
SCOTT RD
JERET RD
PERRINE ST
LOUISE RD
AARON RD
CHRISTINE ST
FOWLER DR
CURZULLA RD

0 750 Feet

Source: Aerial (Vantor, 2025)

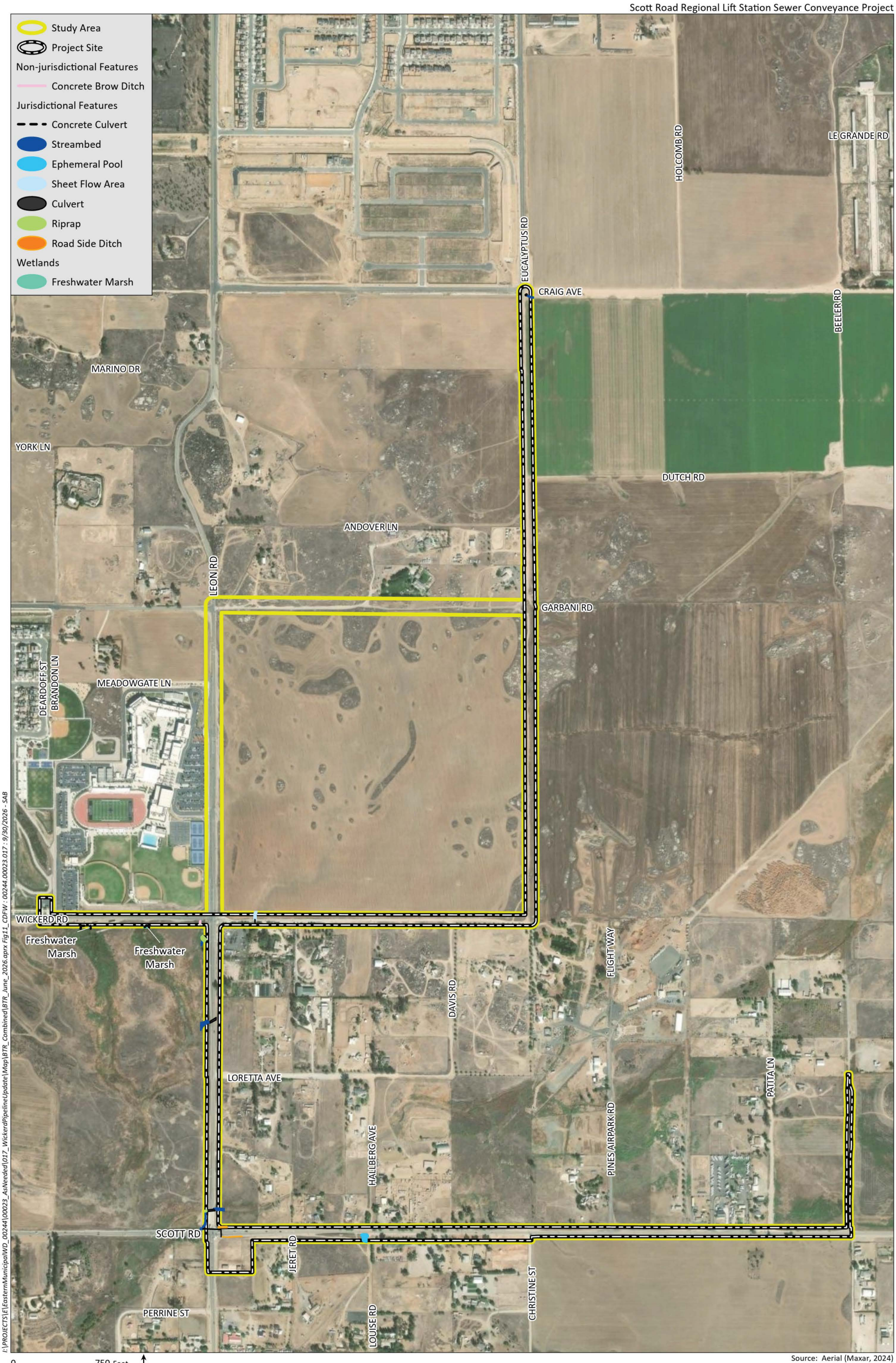
I:\PROJECTS\E\EasternMunicipalWD_00244\00023_AsNeeded\017_WickerdPipelineUpdate\Map\BTR_Combined\BTR_June_2026.aprx Fig10_RWQCB 00244.23.17 9/30/2026 - SAB

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Observed Aquatic Resources - RWQCB

Figure 10

Scott Road Regional Lift Station Sewer Conveyance Project

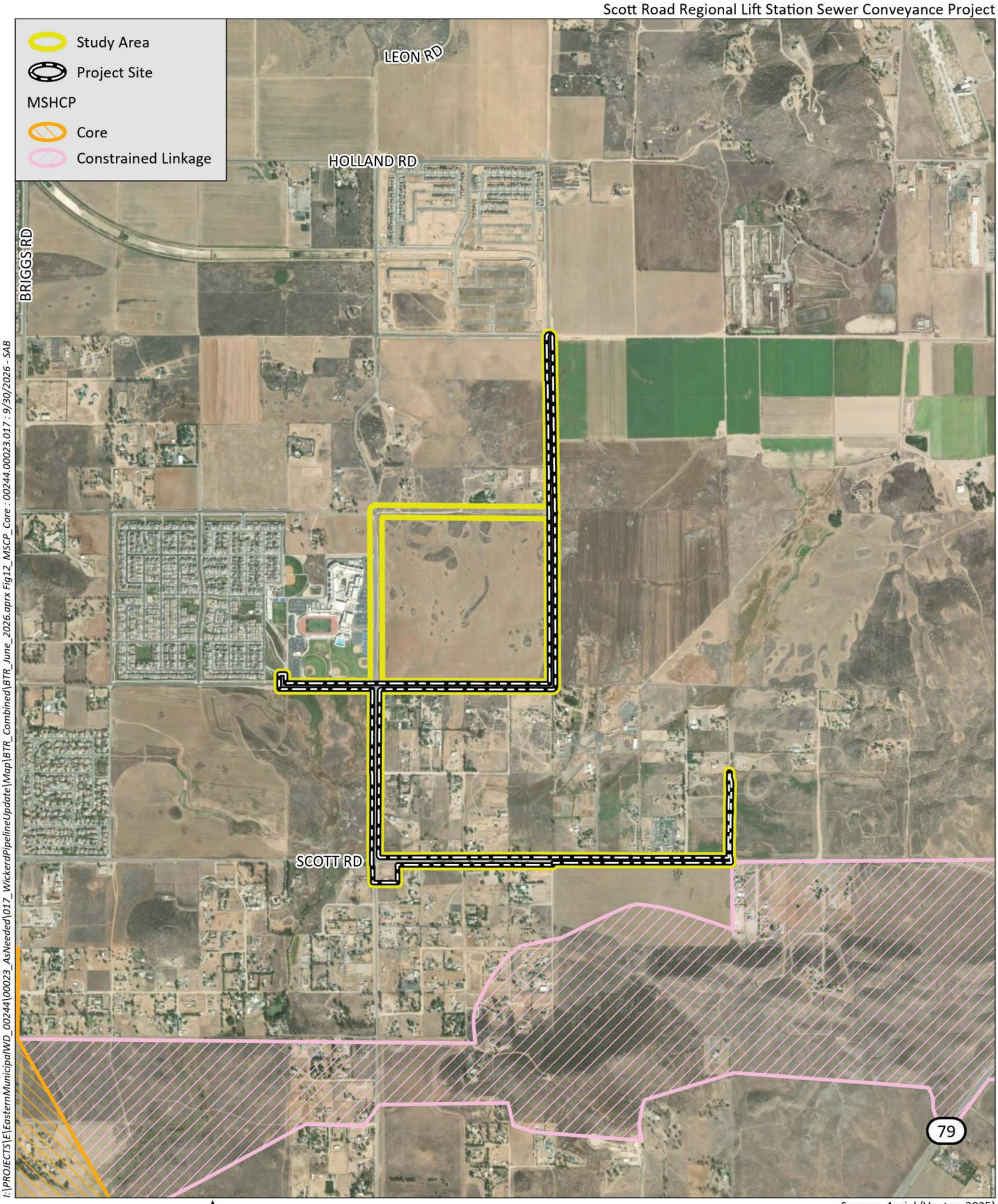


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HELIX Environmental Planning

Observed Aquatic Resources - CDFW

Figure 11



HELIX Environmental Planning

MSHCP Cores and Linkages

Figure 12

4.1 FEDERAL

4.1.1 Federal Endangered Species Act

Administered by the USFWS, FESA provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Section 9 of the FESA prohibits unauthorized "take" and defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Take may also include modification of habitat if it causes injury or death.

Sections 7 and 10(a) of the FESA regulate actions that could jeopardize endangered or threatened species. Section 7 generally describes a process of federal interagency consultation and issuance of a biological opinion and incidental take statement when federal actions may adversely affect listed species. In this case, take can be authorized via a letter of biological opinion issued by the USFWS for non-marine related listed species issues. A Section 7 consultation (formal or informal) is required when there is a nexus between endangered species' use of a site, and there is an associated federal action for a proposed impact (e.g., the USACE would initiate a Section 7 consultation with the USFWS for impacts proposed to USACE jurisdictional areas that may also affect listed species or their critical habitat). Section 10(a) allows issuance of permits for incidental take of endangered or threatened species with preparation of a Habitat Conservation Plan (HCP) when there is no federal nexus. The term "incidental" applies if the taking of a listed species is incidental to, and not the purpose of, an otherwise lawful activity. An HCP demonstrating how the taking would be minimized and how steps taken would ensure the species' survival must be submitted for issuance of Section 10(a) permits. The MSHCP is a 10(a) permit for entities that are signatories or those that are Participating Special Entities (PSE).

Identified by the USFWS, critical habitat is defined as areas of land that are considered necessary for endangered or threatened species to recover. The ultimate goal is to restore healthy populations of listed species within their native habitat, so they can be removed from the list of threatened or endangered species. Once an area is designated as critical habitat pursuant to FESA, federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in destruction or adverse modification of the critical habitat.

4.1.2 Migratory Bird Treaty Act

All migratory bird species that are native to the United States or its territories are protected under the federal MBTA, 16 USC 703 *et seq*. The MBTA prohibits the take (including killing, capturing, selling, trading, and transporting) of protected migratory bird species without prior authorization from USFWS.

4.1.3 Clean Water Act and Rivers and Harbors Act

Federal wetland regulation (non-marine issues) is guided by the Rivers and Harbors Act of 1899 and the CWA. The Rivers and Harbors Act deals primarily with discharges into navigable waters, while the purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all waters of the U.S. Permitting for projects filling waters of the U.S. is overseen by the USACE under Section 404 of the CWA. Most development projects are permitted using Individual Permit or Nationwide Permit instruments. Processing of Nationwide Permits requires compliance with jurisdictional impact thresholds and is generally more streamlined than processing of Individual Permits.

4.2 STATE REGULATIONS

4.2.1 California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (i.e., impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations.

4.2.2 California Endangered Species Act

Under state law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Game Commission. CESA authorizes "take" of listed plant or wildlife species pursuant to an Incidental Take Permit. Species that are candidates for being listed under the CESA are treated as if they were officially listed.

4.2.3 California Fish and Game Code

The CFG Code provides specific protection and listing for several types of biological resources. Section 1600 of the CFG Code requires a Streambed Alteration Agreement (SAA) for any activity that would alter the flow, change, or use any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream, and/or lake. Typical activities that require an SAA include excavation or fill placed within a channel, vegetation clearing, structures for diversion of water, installation of culverts and bridge supports, cofferdams for construction dewatering, and bank reinforcement. Notification is required prior to any such activities.

Pursuant to CFG Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Raptors and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. These regulations could require that construction activities (particularly vegetation removal or construction near nests) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds would not be disturbed, subject to approval by CDFW and/or USFWS.

4.2.4 Native Plant Protection Act

Sections 1900–1913 of the CFG Code (Native Plant Protection Act; [NPPA]) direct the CDFW to carry out the state legislature's intent to "…preserve, protect, and enhance endangered or rare native plants of this state." The NPPA gives the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take.

4.2.5 California Native Plant Society

The CNPS ranks the sensitivity of plants in California. Plants are given ranks of 1A, 1B, 2A, 2B, 3, 4, or no rank, along with additional qualifiers that are explained in detail in Appendix F. The lower the rank number, the higher the species' sensitivity. Sensitive plant species with CNPS California Rare Plant

Rank 1A, 1B, 2A, or 2B are sensitive under CEQA. Plants with a rank of 3 or 4 are considered watch list species and are of the lowest sensitivity, and impacts to these species are less than significant under CEQA. Often the details of CNPS rank 4 species are not fully known, and additional information is required to either remove the rank or grant a higher rank.

4.3 LOCAL REGULATIONS

4.3.1 Multiple Species Habitat Conservation Plan

The MSHCP is a comprehensive multi-jurisdictional effort that includes multiple cities and unincorporated County lands in western Riverside County. Rather than addressing sensitive species on an individual basis, the MSHCP focuses on the conservation of 146 species, proposing a reserve system of approximately 500,000 acres and a mechanism to fund and implement the reserve system (Regional Conservation Authority [RCA] 2003). Most importantly, the MSHCP allows participating entities to issue take permits for listed species so that individual applicants need not seek their own permits from the USFWS and/or CDFW. The MSHCP was adopted on June 17, 2003, by the Riverside County Board of Supervisors. The Incidental Take Permit was issued by both the USFWS and CDFW on June 22, 2004.

EMWD is not a signatory to the MSHCP and, as such, is not subject to the requirements of the MSHCP. EMWD has the option to obtain take authorization for activities by receiving coverage through the PSE process. QCB, vernal pool fairy shrimp, Riverside fairy shrimp, western spadefoot, BUOW, Munz's onion, spreading navarretia, and California Orcutt grass are all covered species under the MSHCP, and if the proposed pre-construction surveys for western spadefoot or BUOW observe any of these species, EMWD may consider pursuing the PSE process under the MSHCP. The details regarding the PSE option are discussed in mitigation measure **BIO-6b**.

4.3.2 Stephens' Kangaroo Rat Habitat Conservation Plan

The Riverside County Habitat Conservation Agency (RCHCA) has a Section 10A permit granted by USFWS for SKR. The SKR HCP is the document for this Section 10A permit. This permit allows for "take" of SKR as part of development activity. "Take" is defined by the FESA as any attempt to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct as it relates to SKR. As individual projects are proposed and approved in the SKR Plan Area, public and private land developers are required to pay a SKR mitigation fee for land that is developed and removes habitat of SKR (RCHCA 2025). The proposed Project occurs within the SKR Plan Area but is not mapped as occupied habitat or located within a SKR core reserve.

5.0 CRITERIA FOR DETERMINING IMPACT SIGNIFICANCE

The significance of impacts to biological resources present or those with potential to occur was determined based upon the sensitivity of the resource and the extent of the anticipated impacts. For certain highly sensitive resources (e.g., a federally-listed species), any impact would be significant. Conversely, other resources that are of low sensitivity (e.g., species with a large, locally stable population in the County but declining elsewhere) could sustain some impact with a less than significant effect.

According to Appendix G of the CEQA Guidelines, Project impacts to biological resources would be considered significant if they would:

(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

(b) Have a substantial adverse effect on any riparian habitat or sensitive natural community identified by local or regional plans, policies, regulations or by CDFW or USFWS.

(c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means.

(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

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

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

6.0 IMPACT ANALYSIS

This section describes potential direct and indirect impacts associated with the proposed Project. Direct impacts immediately alter the affected biological resources such that those resources are eliminated temporarily or permanently. Direct impact areas may include trenching, boring entrances/exits, access routes, staging, and other Project-related activities. Indirect impacts consist of secondary effects of a project, including noise, decreased water quality (e.g., through sedimentation, urban contaminants, or fuel release), fugitive dust, colonization of non-native plant species, animal behavioral changes, and night lighting. The magnitude of an indirect impact can be the same as a direct impact; however, the effect usually takes a longer time to become apparent. The Project has the potential to cause significant impacts to special-status plant and animal species, sensitive natural communities, jurisdictional wetlands and/or riparian habitats as defined by the USACE, RWQCB, and CDFW. In each case, however, the identified significant impact can be mitigated to a less than significant level. Recommended mitigation measures are provided in Section 6.7.

6.1 SPECIAL-STATUS SPECIES

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

6.1.1 Analysis

6.1.1.1 Special-Status Plant Species

Two non-listed sensitive plant species were observed within the Project site: smooth tarplant and paniculate tarplant (Appendix C). Smooth tarplant is a CNPS 1B.1 species and considered a sensitive species under CEQA. Under CEQA Guideline 15380, a plant is considered rare if:

- The species exists in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or

- The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act.

CNPS list 4 species are considered watch list species that more information is required to grant a higher rank to, or be removed from, the CNPS list. Watch list species, those with a CNPS ranking of 4, do not meet the CEQA definition of a rare plant and are, therefore, not a CEQA sensitive species. Paniculate tarplant is a CNPS 4.2 species and, as such, is not considered a CEQA sensitive species; however, it was mapped for informational purposes because it is a watch list species.

No other special-status plant species were assessed with high or moderate potential to occur. Implementation of mitigation measures **BIO-1a, 1b, 7, 8,** and **9** would reduce the impacts to smooth tarplant to less than significant.

6.1.1.2 Special-Status Animal Species

This section discusses the special-status animal species that have potential to occur or those species that were incidentally observed but require focused surveys. Species discussed in this section include nine species with potential to occur.

Burrowing Owl

Burrowing owl is a California candidate for listing as state endangered and, as such, is granted the same protection as a state listed endangered species. Burrowing owls are also a federal bird of conservation concern and a state species of special concern. Suitable habitat and multiple historical records of BUOW occurrences exist in the Project site. Although current BUOW surveys are negative, this species has potential to move into areas in or adjacent to the Project site. Ground disturbance within 500 feet (150 meters) of an active burrow during the breeding season (February 1 through August 31) or within 165 feet (50 meters) of an active burrow outside the breeding season could result in take of BUOW in violation of the CESA, MBTA, and CFG Code. Direct impact could occur from ground disturbance at a burrow. Indirect impacts could occur as a result of construction noise in the immediate vicinity as described above, such that the disturbance results in nest/burrow abandonment or nest failure. Impacts would be considered significant. Implementation of mitigation measures **BIO-2, 4a, 4b, 6a, 6b, 7, 8, and 9** would reduce potentially significant impacts to BUOW to less than significant levels.

Stephens' Kangaroo Rat

The Project has the potential to result in impacts to the federally endangered and state threatened SKR. Impacts to this species would be considered significant. This species' habitat generally comprises annual and perennial grasslands, and it would also use open sage scrub. Portions of the Project site occur within non-native grasslands and disturbed habitat that are similar in species composition to non-native grassland with potential to support SKR. Direct impact could occur from habitat disturbance during construction. Indirect impacts could occur to suitable habitat as a result of construction dust or runoff in the immediate vicinity. Impacts to this species would be reduced to less than significant through the implementation of mitigation measures **BIO-5, 6a, 6b, 7, 8,** and **9**.

Western Spadefoot

Western spadefoot is a federally proposed threatened species. The species would likely have been observed during fairy shrimp surveys if present, but nighttime toad surveys were not conducted. The species could also use habitat associated with Warm Springs Creek and adjacent uplands. Direct impact could occur from habitat disturbance during construction. Indirect impacts could occur to suitable habitat as a result of construction dust or runoff in the immediate vicinity. Thus, the Project has potential to result in impacts to the western spadefoot. Implementation of mitigation measures **BIO-3, 6a, 6b, 7, 8,** and **9** would reduce potentially significant impacts to western spadefoot to less than significant levels.

Coast Horned Lizard

Coast horned lizard is a state species of special concern. This species was not observed during biological surveys, but focused surveys for this species were not conducted. The species could use grassland on sandy soils within the Project site. Direct impact could occur from habitat disturbance during construction. Indirect impacts could occur to suitable habitat as a result of construction dust or runoff in the immediate vicinity. Thus, the Project has the potential to result in impacts to coast horned lizard. Implementation of mitigation measures **BIO-6a, 6b, 7, 8,** and **9** would reduce potentially significant impacts to coast horned lizard to less than significant levels.

State Watch List Species

Orange-throated whiptail, ferruginous hawk, California horned lark, and southern California rufous-crowned sparrow are state watch list species. These species could use grassland and trees within the Project site. Direct impact could occur from habitat disturbance during construction. Indirect impacts could occur to suitable habitat as a result of construction dust or runoff in the immediate vicinity. Thus, the Project has the potential to result in impacts to these species. Implementation of mitigation measures **BIO-2, 6a, 6b, 7, 8,** and **9** would reduce potentially significant impacts to these species to less than significant levels.

San Diego Black-Tailed Jackrabbit

San Diego black-tailed jackrabbit does not currently have federal or state special status but is included for informational purposes because it is MSHCP-covered.

6.1.2 Mitigation Measures

Impacts to smooth tarplant, if they occur, would be mitigated via transplanting to a suitable habitat in close proximity, or by revegetation (seeding) of the impact area with the species (mitigation measure **BIO-1b**). Mitigation for Stephens' kangaroo rat will occur via fee payment (mitigation measure **BIO-5**). Should other sensitive-status animal species occur within the Project alignment, mitigation measures **BIO-4b and/or 6b** would be implemented to mitigate proposed impacts to the animal species. Additional measures that will aid in avoidance of species impacts are **BIO-1a, 2, 3, 4a, 6a, 7, 8, 9,** and **11**.

6.1.3 Conclusion

Project construction could result in potentially significant impacts to species identified as a candidate, sensitive, or special-status, including several plant and animal species. The species include listed species, candidate species, bird of conservation concern, state species of concern, watch list, and nesting birds protected under the federal MBTA and CFG Code; however, the impacts would be reduced to less than significant levels with the implementation of proposed mitigation. The Project would have no impact on any other special-status plant and animal species due to the lack of suitable habitat on the site and regular disturbance.

6.2 RIPARIAN HABITAT AND SENSITIVE NATURAL COMMUNITIES

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?

6.2.1 Analysis

6.2.1.1 Pools and Valley Freshwater Marsh

This Project has the potential to impact the pool located south of Scott Road (or valley freshwater marsh near the Project site; Figures 8, 10, and 11). Impacts to these habitats would be considered significant. Pools have potential to be a jurisdictional resource to one or more agencies, and this feature was assessed as RWQCB and CDFW jurisdictional. The off-site valley freshwater marsh was also assessed as USACE jurisdictional. Implementation of mitigation measures **BIO-7, 8, 9, 10a,** and **10b** would reduce the impacts to less than significant.

6.2.2 Mitigation Measures

Impacts to the sensitive riparian community shall be avoided by having the alignment remain within the limits of existing roadways where feasible, and by limited use of temporary impact areas outside of these habitats. If the alignment must cross these areas, direct impacts would be avoided by use of jack-and-bore construction, micro-tunneling, micro-drilling, or similar methods. If direct impacts are proposed to riparian habitats, the Project would seek permits from the appropriate agencies as outlined in mitigation measures **BIO-10a** and **10b**, which may include one or all of the following: CDFW, RWQCB, and USACE. Permits from the agencies will include mitigation measures such as the purchase of mitigation or in-lieu credits, and/or habitat restoration that includes a habitat mitigation and monitoring plan.

6.2.3 Conclusion

Project construction could result in potential significant impacts to the riparian communities of coastal and valley freshwater marsh and basin/pools; however, the impacts would be reduced to less than significant levels with the implementation of proposed mitigation measures **BIO-7, 8, 9, 10a,** and **10b**.

6.3 JURISDICTIONAL WETLANDS AND WATERWAYS

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

6.3.1 Analysis

Freshwater marsh located next to the Project site was assessed as USACE-jurisdictional wetlands defined by Section 404 of the CWA and was also assessed as RWQCB and CDFW jurisdictional. Potential non-wetland waters of the U.S. regulated by USACE, non-wetland waters of the State regulated by the RWQCB, and CDFW-jurisdictional features were assessed within the Project site.

6.3.2 Mitigation Measures

The proposed Project may have potential indirect and direct impacts to jurisdictional aquatic resources that may represent a potentially significant impact. It is expected that all or most direct impacts to jurisdictional aquatic resources would be avoided through construction methods such as jack-and-bore, micro-drilling, and/or the use of standard Best Management Practices (BMPs) as part of the Project's Storm Water Pollution Prevention Plan (SWPPP), as well as successful implementation of mitigation measures **BIO-7, 8,** and **9**. Jack-and-bore is a method of digging a pit on both sides of a stream or riparian habitat and using a machine that drills under the resources and allows the pipe to be placed without surface impacts. This is a dry drilling method that does not use water or mud that can spill (frack out) and pollute the resource. Micro-drilling is a trenchless boring method that involves drilling holes smaller than three millimeters in diameter using a remote-controlled tunnelling machine. This method provides a high degree of precision as it uses a laser-guided steerable remote-control system. Implementation of a SWPPP and associated BMPs are required under the statewide General Construction Permit (2009-0009-DWQ). BMPs to avoid direct impacts include flagging the limits of the wetland resources, not operating equipment or staging within the limits of wetlands, and educating the workers on the location and significance of resources. Specific BMPs may also include, but would not necessarily be limited to, maintaining the Project work areas free of trash and debris; employing appropriate standard spill prevention practices and clean-up materials; installing and maintaining sediment and erosion control measures; maintaining effective control of fugitive dust; and properly storing, handling, and disposing of toxins and pollutants, including waste materials.

If direct impacts cannot be avoided, permits and approvals from the USACE, RWQCB, and CDFW under CWA sections 404 and 401, and CFG Code section 1600 would be obtained in accordance with mitigation measures **BIO-10a** and **10b**. Additional minimization measures and compensatory mitigation are typically required under these permits. Under the permits, the mitigation may include purchase of mitigation bank credits and/or habitat preservation, enhancement, restoration, or creation.

6.3.3 Conclusion

Project construction could result in potential significant impacts to wetlands (coastal and valley freshwater marsh) and waters (Warm Springs Creek, drainages, basin/pools, and other depressions) along the Project alignment. Impacts to wetland habitats and other waters would be considered a significant impact under CEQA. Implementation of measures **BIO-7, 8, 9, 10a,** and **10b** would reduce the impacts to less than significant.

6.4 WILDLIFE MOVEMENT AND NURSERY SITES

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites?

6.4.1 Analysis

The Project proponent, EMWD, is not a signatory of the MSHCP. As such, EMWD is not subject to compliance with the MSCHP; however, the cores and linkages of the MSHCP are being used as a guide for wildlife movement. Proposed Constrained Linkage 17 (Linkage 17) abuts the southeastern end of the Project site at the intersection of Beeler Road and Scott Road, and is designed to allow for wildlife movement to the south of the Project (Figure 12). Proposed Constrained Linkage 17 is designed to connect conserved habitats to existing conservation at Diamond Valley Lake and Lake Skinner. Linkage 17 is planned as a corridor for QCB, CAGN, and bobcat. At this location, the sewer line proposed for the Project will occur primarily in disturbed and developed areas associated with Scott Road and will not pose permanent impacts except where access is required for inspection and maintenance of the pipeline. Wildlife movement would still be able to occur outside the active construction location (within Proposed Constrained Linkage 17).

6.4.2 Mitigation Measures

Impacts to Proposed Constrained Linkage 17 would be reduced to less than significant via implementation of mitigation measures **BIO-7, 8, 9,** and **11**. Staging areas would not be placed in the linkage. Workers would be advised to avoid Proposed Constrained Linkage 17 while working on the eastern end of the Project site, and temporary construction fencing may be employed as needed. Impacts to wildlife movement would be reduced by not directing lighting into the linkage at night.

6.4.3 Conclusion

The Project site abuts an MSHCP constrained linkage (see Figure 12). Removal of vegetation or interfering with wildlife movement within the constrained linkage could be considered a potentially significant impact but would be reduced to less than significant with implementation of mitigation measures **BIO-7, 8, 9,** and **11**.

6.5 LOCAL POLICIES AND ORDINANCES

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

6.5.1 Analysis

The Project impacts are primarily to occur within the limits of existing roadways. Where the impacts are proposed within undeveloped land, no native trees are proposed to be removed.

6.5.2 Mitigation

No mitigation is required.

6.5.3 Conclusion

The Project would have no impact on local policies and ordinances.

6.6 ADOPTED CONSERVATION PLANS

Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?

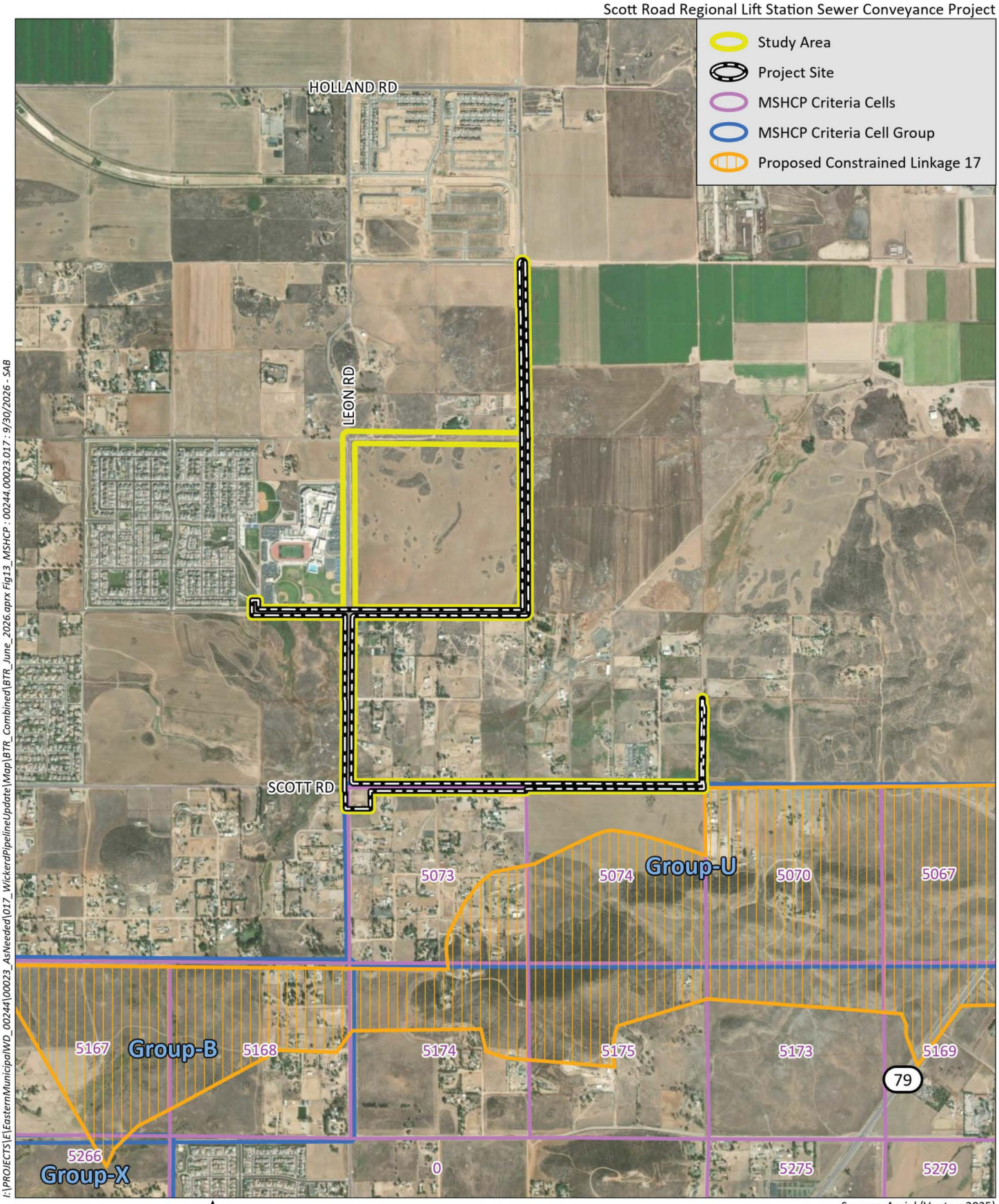
6.6.1 Analysis

The Project proponent, EMWD, is not a signatory of the MSHCP and, as such, is not subject to compliance with the MSHCP; the details here are related to the Project not being in conflict with the MSCHP rather than compliance with the MSHCP. The Project occurs within the limits of the MSHCP. More specifically, the south side of Scott Road and the proposed lift station overlap the northern edge of criteria cells 5073 and 5074 in Cell Group U (Figure 13, *MSHCP Criteria Cells*).

The conservation goals within Cell Group U (criteria cells 5067, 5070, 5073, and 5074) call for the conservation of 65 to 75 percent of the Cell Group, focusing in the eastern portion of the Cell Group (i.e., cell 5067, to the east of the Project). Conservation within this Cell Group will contribute to the assembly of Proposed Constrained Linkage 17. Conservation within this Cell Group will focus on chaparral, grassland, and coastal sage scrub habitat and agricultural land. Areas conserved within this Cell Group will be connected to chaparral habitat proposed for conservation in cell 5174 to the south, to chaparral and grassland habitat proposed for conservation in cell 5169 and cell 5175 both also to the south (and cell 5169 not adjacent to cells in the Project), to chaparral habitat and agricultural land proposed for conservation in cell 5173 also to the south, and to grassland habitat proposed for conservation in Cell Group S to the east (via cell 5067 not in the Project).

The Project occurs along the northern edge of criteria cells 5073 and 5074. Sewer pipeline would be located within the ROW for Scott Road, primarily in disturbed and developed areas. While Cell Group conservation goals include agricultural land and non-native grassland, little of these habitat types occur within the Project site in the ROW along Scott Road. The proposed alignment within the road ROW would impact less of these habitats than an alternate sewer alignment to the north or south of Scott Road. Additionally, Project impacts for the sewer line would primarily be temporary except where necessary for inspection and maintenance of the pipeline. The proposed lift station is located entirely within disturbed and developed land, which is not targeted for conservation, on part of a developed lot. Additionally, the proposed lift station is located in the northwestern corner of the Cell Group, at the farthest part of the Cell Group from the stated conservation goals. Thus, the Project is not expected to have an adverse effect on conservation goals. The Project would not adversely affect this Cell Group's

Scott Road Regional Lift Station Sewer Conveyance Project



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0 2,000 Feet

Source: Aerial (Vantor, 2025)

HELIX Environmental Planning

MSHCP Criteria Cells

Figure 13

goal of focusing conservation on the eastern side of the Cell Group, or goals for focusing conservation on chaparral, grassland, and coastal sage scrub habitat and agricultural land.

Within the Cell Group, criteria cell 5073 is primarily developed as rural residential, with the exception of a few infill lots. The adjacent criteria cell 5074 is undeveloped. Criteria cell 5070 has some rural development but is mostly undeveloped. The eastern criteria cell 5067 is undeveloped except for Scott Road/Washington Street and State Route 79, which cross the criteria cell.

Proposed Constrained Linkage 17 touches the southeastern corner of the Project site at the intersection of Scott Road and Beeler Road. As discussed above for criteria cells, the sewer line proposed in this area will not pose permanent impacts, except where access is required for inspection and maintenance of the pipeline. The Project alignment will occur primarily in disturbed and developed areas associated with Scott Road. Thus, the Project is not expected to have an adverse effect on the proposed linkage.

The MSHCP requires projects with potential direct or indirect impact to riparian and riverine resources (such as pools and valley freshwater marsh) to avoid or mitigate for impacts. The Project occurs adjacent to riparian and riverine habitats. Impacts to these habitats would be considered significant.

The MSHCP also includes measures to protect sensitive plants and animals, such as BUOW, which occur within the MSHCP limits. Impacts to these sensitive plants and animals would be significant.

6.6.2 Mitigation

Mitigation measures **BIO-1a, 1b, 2, 8, 3, 4a, 4b,** and **7 through 10b** would demonstrate that the Project does not conflict with the MSHCP. These mitigation measures include focused animal surveys, riparian/riverine avoidance and minimization measures, and limiting of impacts to wildlife linkages.

6.6.3 Conclusion

Conflicts with the MSHCP would be reduced to less than significant via implementation of the aforementioned mitigation measures.

6.7 MITIGATION MEASURES

The following mitigation measures would ensure that potential significant impacts to sensitive biological resources and special-status plant and animal species are reduced to a level less than significant with implementation of mitigation.

BIO-1a **Rare Plant Avoidance**. To the extent feasible, EMWD shall avoid impacts to the smooth tarplant population (CRPR 1B.1) through Project-level design changes and/or construction methods (e.g., trenchless installation of pipelines, working on the other side of the road).

Prior to initiating construction activities, EMWD shall require that the smooth tarplant locations detected during focused rare plant surveys (Figure 4) are supplied to the contractor and that the locations are demarcated in the field by a qualified biologist. The smooth tarplant locations to be avoided shall be protected-in-place through the installation of temporary construction fencing or alternative means that are approved by the qualified biologist. The temporary construction fencing shall be installed by the contractor, with the initial installation monitored by a qualified biologist. Spot checks of temporary fencing shall be performed by

EMWD. Temporary construction fencing shall be repaired or replaced within three days of any observations of damage, and before any forecast rain of 0.1 inch or more. Temporary construction fencing shall be removed upon completion of construction of the Project. The qualified biologist shall monitor construction activities, as appropriate, to help ensure avoidance of the demarcated areas. A final compliance report shall be prepared by the qualified biologist and submitted to EMWD for their records, verifying that no impacts occurred to the species.

If avoidance is not feasible, mitigation measure **BIO-1b** shall be implemented.

BIO-1b **Sensitive Plant Mitigation.** If, as part of implementation of **BIO-1a**, Project alignment or construction design cannot be modified to avoid impacts to smooth tarplant, mitigation for impacts to this species shall occur at a minimum of a ratio of 1:1, and shall consist of preparation and implementation of a smooth tarplant salvage and relocation plan, to include the following requirements, at a minimum:

a. Evaluation of options for smooth tarplant salvage and relocation, including smooth tarplant mulching, selective soil salvaging, application of plant materials on manufactured slopes, and application/relocation of resources within existing or proposed preserved lands;

b. Seed collection and/or transplantation to a suitable receptor site based on the most reliable methods of successful relocation;

c. Recommendation for the method of salvage and relocation/application based on feasibility of implementation and likelihood of success; and

d. Implementation plan, maintenance and monitoring program, estimated completion time, and any relevant contingency measures.

BIO-2 **Avoidance of Nesting Birds and Raptors.** To prevent direct impacts to nesting birds, including raptors, protected under the MBTA and CFG Code, EMWD shall enforce the following:

Any Project activity that could affect nesting birds shall occur outside of the general bird breeding season of February 15 to August 31 to the extent feasible. If such activities cannot be conducted outside the general bird breeding season, a qualified biologist with experience in conducting bird breeding surveys shall be retained to conduct a pre-activity nesting bird survey within three days prior to the start of activities and at least weekly for project areas that will be cleared within the next seven days to confirm the presence or absence of active bird nests. If an active bird nest is found by the qualified biologist, the buffer should be demarcated by temporary fencing, flagging, and/or staking as deemed appropriate to avoid impacts. Vegetation removal and/or trimming activities within the buffer shall not be allowed to occur until the qualified biologist has determined that the nest is no longer active. Avoidance buffers shall be 300 feet for passerine birds and 500 feet for raptors and may be adjusted by the qualified biologist in their professional opinion based on such factors as the avian species involved, ambient levels of human activity, and screening vegetation.

BIO-3 **Western Spadefoot Avoidance.** Construction shall occur outside of the western spadefoot breeding season of October 1 to April 30 to the extent feasible. If construction cannot be conducted outside of the western spadefoot breeding season, a qualified biologist shall conduct a three-day/three-night pre-construction western spadefoot survey within 30 days before the start of construction, for undeveloped Project areas near vernal pools, freshwater marsh, and Warm Springs Creek (Figure 4). For the remainder of the western spadefoot breeding season, a qualified biologist shall do a daytime and nighttime check for western spadefoot following each rain event of at least one inch within 24 hours. If western spadefoot adults, eggs, tadpoles, or juveniles are observed during the pre-construction survey or subsequent visits, then work shall be halted until western spadefoot are confirmed absent or until the Project proponent implements avoidance buffers and other measures such as toad exclusion fencing and relocation as determined by the qualified biologist in their professional opinion. Western spadefoot avoidance measures will be determined in consultation with either the USFWS or the RCA, if EMWD pursues the PSE process under the MSHCP. The details regarding the PSE option are discussed in mitigation measure **BIO-6b**.

BIO-4a **Burrowing Owl Survey and Pre-Construction Burrowing Owl Survey.** If required by the USFWS or CDFW, EMWD shall have a qualified biologist conduct a current burrowing owl survey in accordance with the current protocol at the time of the survey. At the time of this report, the survey would follow the CDFW 2012 staff report for BUOW mitigation unless the Project has elected to be a PSE under the MSCHP; then the survey would follow the 2006 BUOW instruction for the MSHCP. Both survey guidelines require a minimum of four surveys to occur. The CDFW 2012 guideline requires the first survey to occur between February 15 and April 15, and the final survey to occur between June 15 and July 15. The 2006 MSHCP instructions require the four surveys to occur between March 1 and August 31 and do not specify specific date periods for each survey.

Additionally, 14-day and 24-hour pre-construction surveys for BUOW are required by the CDFW 2012 guidelines (or a single survey 30 days prior if the Project is a PSE) prior to initial ground-disturbing activities (e.g., vegetation clearing, clearing and grubbing, grading, tree removal, site watering, equipment staging) to ensure that no BUOW have colonized the site in the days or weeks preceding the ground-disturbing activities. If BUOW are not detected during the pre-construction survey, no further action is required. If BUOW are detected, the EMWD will follow mitigation measures **BIO-4b, 6a,** and **8.**

BIO-4b **Burrowing Owl Mitigation.** If, as part of implementation of **BIO-4a**, BUOW is observed during the focused surveys or the pre-construction survey, active burrows shall be avoided by the Project in accordance with the CDFW's *Staff Report on BUOW Mitigation* (2012) or CDFW's most recent guidelines. The current avoidance distance in the CDFW 2012 guidelines is 165 feet between October 16 and March 31 and 650 feet from April 1 to October 15. No work shall occur within the buffer zone unless approved by CDFW. The Project proponent shall inform the CDFW of BUOW observations. A Burrowing Owl Protection and Relocation Plan (plan) shall be prepared by a qualified biologist. The qualified biologist and Project proponent shall coordinate with EMWD, CDFW, and USFWS on the plan to be approved by EMWD, CDFW, and USFWS prior to commencing Project activities (including ground disturbance).

The Burrowing Owl Protection and Relocation Plan shall include the number and location of occupied burrow sites and details on proposed buffers, if avoiding the BUOWs, or information

on the adjacent or nearby suitable habitat available to owls for relocation. If no suitable habitat is available nearby for relocation, details regarding the creation and funding of artificial burrows (numbers, location, and type of burrows) and management activities for relocated BUOW shall also be included in the Burrowing Owl Protection and Relocation Plan. Relocation, if necessary, shall only occur outside of the nesting season (September 1 through January 31).

The Burrowing Owl Protection and Relocation Plan shall describe proposed avoidance (setback), shelter in place, relocation, monitoring, minimization, and/or mitigation actions. EMWD shall implement the Burrowing Owl Protection and Relocation Plan following CDFW and USFWS review and approval. Avoidance and minimization measures may include:

Setback: No construction activities shall occur within 500 feet of occupied burrows during the breeding season (February 1 to August 31) or within 250 feet of occupied burrows during the non-breeding season (September 1 to January 31), or as specified in the Burrowing Owl Protection and Relocation Plan. When setback distances are applied to occupied burrows, a monitoring program shall be implemented to ensure that the setback distance applied to the burrow is considered an effective buffer. Once a setback distance is applied to an occupied burrow, the biological monitor will be present during construction activities that occur adjacent to the setback distance to monitor the BUOW's behavior. A setback shall be implemented during the breeding season for occupied burrows located within the Project footprint and off-site occupied burrows located within 300 feet or less, and during the non-breeding season for off-site occupied burrows located within 150 feet or less of the Project footprint.

The biological monitor will have the authority to increase the setback distance if the construction activities are affecting the BUOW. If the buffer is determined to be ineffective, the buffer shall be increased to the maximum recommended distances listed in the revised Staff Report on Burrowing Owl Mitigation (CDFW 2012). Setback distances may be reduced through Shelter in Place methods described below, which would be determined by the biological monitor.

Shelter in Place: If the established buffer is determined to be ineffective or a reduced setback is needed to complete construction, shelter in place can be implemented to minimize impacts while allowing existing burrows to remain intact. The qualified biologist and Project proponent shall coordinate with EMWD, CDFW, and USFWS to approve any modifications to the Burrowing Owl Protection and Relocation Plan for any shelter in place prior to commencing. Where appropriate, the setback buffers may be reduced by screening burrows (i.e., installing hay bales to create a visual and auditory barrier between construction and the burrow) to minimize disturbance. During the breeding season, hay bales (or other similar material) will be stacked up to three bales high and 25 feet on either side of the burrow for a total of 50 feet. During the non-breeding season, hay bales will be stacked up to two bales high and 25 feet on either side of the burrow for a total of 50 feet. Hay bales are generally three feet long and 18 inches tall. A minimum distance of five feet between the hay bales and the occupied burrow will be left, allowing for perches near the burrow to be maintained. The minimum distance may be increased depending on the slope and topography of the area adjacent to the burrows.

If shelter in place is determined feasible, the biological monitor will provide guidance to the construction contractor regarding the location of the hay bales. During and following installation of the hay bales, a biological monitor shall be present daily to evaluate the effectiveness of the hay bales, monitor BUOW behavior for signs of stress or disturbance due to construction, and make adjustments to the buffer and/or hay bales to minimize impacts to the BUOW. If the BUOW continues to appear distressed from construction, the biological monitor will have the authority to halt construction until EMWD and CDFW can be contacted to determine the best course of action. Following installation of the hay bales, the biological monitor shall provide a report to EMWD and CDFW describing the installation time frame, a map of the area, photographs of hay bales and construction activities, and a description of site conditions (e.g., surrounding vegetation, topography, observed species, BUOW line-of-sight conditions).

If BUOW are observed within survey area(s) during Project implementation and construction, EMWD shall notify CDFW immediately in writing within 48 hours of detection. A Burrowing Owl Protection and Relocation Plan shall be submitted to CDFW for review and approval within two weeks of detection, and no Project activity shall continue within 500 feet of the active BUOW burrows during the breeding season of February 1 to August 31 or if young are present, or within 250 feet during the non-breeding season, until CDFW approves the Burrowing Owl Protection and Relocation Plan. EMWD shall be responsible for implementing appropriate avoidance and mitigation measures, including burrow avoidance, setbacks, shelter in place, passive or active relocation, or other appropriate mitigation measures as identified in the Burrowing Owl Protection and Relocation Plan and discussed above.

If ground-disturbing activities occur but the site is left undisturbed for more than 14 days (30 days if a PSE under MSHCP), a pre-construction survey for BUOW shall be conducted and reported to CDFW as described above. If a BUOW is found, the same coordination described above shall be necessary.

A final letter report shall be prepared by the qualified biologist documenting the results of the passive relocation. The letter shall be submitted to CDFW prior to the start of Project activities.

BIO-5 **Stephens' Kangaroo Rat HCP Mitigation Fee.** The Project is within the limits of the Stephens' kangaroo rat HCP Plan Area. Prior to issuance of a grading permit, EMWD shall pay the SKR Mitigation fee of $500 per acre of impact to the Riverside County Habitat Conservation Agency.

BIO-6a **Special-Status Wildlife Species Surveys and Avoidance.** If special-status wildlife species are identified within a Project impact area as part of mitigation measures **BIO-2, 3**, and **4a**, EMWD shall avoid impacts to species and their habitat through Project-level design changes and/or construction methods (e.g., trenchless installation of pipelines) per mitigation measures **BIO-2, 3**, and **4a**. If impacts to the species and their habitat cannot be avoided, mitigation measure **BIO-6b** shall be implemented.

BIO-6b **Special-Status Wildlife Species Mitigation.** If, as determined as part of mitigation measure **BIO-6a**, impacts to special-status wildlife cannot be avoided, EMWD shall seek incidental take authorization by one of two methods:

(1) Participating Special Entity process under the MSHCP. To obtain MSHCP coverage as a PSE, the Project is required to demonstrate MSHCP compliance through specific habitat assessments, applicable biological surveys, the provision of an MSHCP consistency analysis, and payment of impact fees. Additionally, impacts to certain species under the MSHCP will require a Determination of Biologically Equivalent or Superior Preservation (DBESP). A DBESP will be prepared as appropriate and will be used to demonstrate avoidance and mitigation related to impacts.

(2) Under the federal or state endangered species acts. EMWD may elect to seek incidental take authorization from USFWS pursuant to FESA Sections 7 or 10 and/or CDFW under CFG Code Sections 2080.1 and 2081(b), as applicable.

a. Where species protected under Federal law may be impacted, EMWD shall either consult directly with the USFWS to develop and implement a habitat conservation plan and obtain an Incidental Take Permit pursuant to the Federal Endangered Species Act Section 10(a) or, in the case of Projects with a federal action agency, EMWD shall adhere to the requirements of Federal Endangered Species Act Section 7, which requires the federal action agency to consult with the USFWS to obtain a Biological Opinion and Incidental Take Statement for the Project; and/or

b. Where species protected under state law may be impacted, EMWD shall either consult with the CDFW pursuant to Sections 2081 or 2080.1 of the California Endangered Species Act. For projects with direct or indirect impacts to species that are only State-listed and not federally listed as endangered or threatened, EMWD shall obtain a California Endangered Species Act Section Incidental Take Permit from CDFW. For projects with impacts to species that are both state and federally listed as endangered or threatened, EMWD shall obtain a California Endangered Species Act Section 2080.1 Consistency Determination from the CDFW, unless otherwise required by the CDFW.

c. For non-listed species (i.e., special-status species) that are protected under state and/or federal law, EMWD shall consult with the USFWS and CDFW as appropriate and implement appropriate avoidance and mitigation plans such as those discussed in measures **BIO-4a** and **4b.**

EMWD shall compensate for the loss of occupied habitat through one or a combination of the following, at a minimum ratio of 1:1, as determined by EMWD in consultation with USFWS and/or CDFW, as applicable:

a. Purchase of credits from a conservation bank approved by USFWS and/or CDFW; and/or

b. Acquisition and preservation of off-site mitigation land containing occupied habitat.

BIO-7 **Construction Staging Areas.** If it is confirmed through the implementation of mitigation measures **BIO-2, 3, 4a,** or **6a** that the Project would occur adjacent to sensitive habitat areas and/or habitat potentially suitable for special-status species, EMWD shall design the final Project construction staging areas such that no staging areas shall be located within sensitive

habitat areas. The construction contractor shall receive approval by EMWD prior to mobilization and staging of equipment outside of the Project boundaries.

BIO-8 **Biological Construction Monitoring and Temporary Construction Fencing.** If it is confirmed through the implementation of mitigation measures **BIO-2, 3, 4a,** or **6a** that the Project would occur immediately adjacent to sensitive habitat areas (including waters) and/or habitat potentially suitable for special-status species, then EMWD shall retain a qualified biologist to conduct occasional monitoring of identified sensitive habitat areas during construction activities and supervise the installation of temporary construction fencing, which clearly delineates the edge of the approved limits of grading and clearing, and the edges of environmentally sensitive areas that occur beyond the approved limits. This fencing shall be installed by the contractor prior to construction and maintained by the contractor for the duration of construction activity adjacent to the sensitive habitat. Fencing shall be installed in a manner that does not impact habitats to be avoided, as determined by the qualified biologist. Once the fencing is installed, EMWD and the qualified biologist shall determine the need for additional inspections and monitoring activities throughout the duration of construction, not to be less than once per week. If determined necessary by EMWD and the qualified biologist, the monitoring shall include the inspection of construction work areas, including staging and storage areas, to confirm that activities are kept within the approved limits and that Best Management Practices are in place to prevent incidental animal entrapment and burrow and nest establishment within equipment and staged materials. If work occurs beyond the fenced or demarcated limits of impact, or if a trapped animal or burrow or nest is found, work in the affected areas shall cease until the problem has been remedied and mitigation identified by EMWD and a qualified biologist. Temporary construction fencing shall be repaired or replaced within three days of any biologist observations of damage, and before any forecast rain of 0.1 inch or more. Temporary construction fencing shall be removed upon completion of construction of the Project. EMWD shall verify the implementation of this measure prior to and concurrently with construction.

BIO-9 **Worker Environmental Awareness Program.** If it is confirmed through the implementation of **BIO-2, 3, 4a,** and **6a** that the Project would occur adjacent to sensitive habitat areas and/or habitat potentially suitable for special-status species, EMWD shall retain a qualified biologist to prepare a presentation and attend pre-construction meetings to inform construction crews of the sensitive resources and associated avoidance and/or minimization requirements. Copies of this presentation shall be kept on-site at all times and shared with new crews.

BIO-10a **Acquire Permits for Impacts to Jurisdictional Features.** Prior to construction or ground-disturbing activities occurring within jurisdictional aquatic resources for any component of the Project, the EMWD shall apply for and obtain the following regulatory permits and approvals from the USACE, RWQCB, and/or CDFW, as applicable:

- Clean Water Act Section 404 Permit;
- Clean Water Act Section 401 Water Quality Certification;
- Clean Water Act Section 401 Waste Discharge Requirements; and/or
- California Fish and Game Code Section 1602 Streambed Alteration Agreement.

If EMWD elects to seek incidental take authorization through the MSHCP PSE process, EMWD shall also prepare for approval by the Regional Conservation Authority (RCA), USFWS, and CDFW a DBESP for impacts to MSHCP Section 6.1.2 Riparian and Riverine Areas.

BIO-10b **Mitigation for Jurisdictional Impacts.** EMWD shall mitigate impacts to jurisdictional aquatic resources off-site at a minimum 1:1 ratio. Temporary impacts are to be restored in place and permanent impacts to include a minimum 1:1 establishment/re-establishment component, unless otherwise negotiated by EWMD with the regulatory agencies.

BIO-11 **Night Lighting.** The Project shall avoid night construction next to undeveloped land if feasible. If working at night next to undeveloped land is unavoidable, lighting shall avoid illuminating habitat outside the work area to limit indirect impacts to nocturnal species. The qualified biologist monitoring construction activities shall observe night lighting, if applicable, to help prevent adjacent habitat illumination.

7.0 CERTIFICATIONS/QUALIFICATIONS

The following individuals contributed to the fieldwork and/or preparation of this report.

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2025e. 2025 Dry Season Survey Report for the Wickerd Road Sewer Pipeline Project. November 17.

2025f. 2025 Dry Season Survey Report for the Scott Road Lift Station Project October 30.

2025g. 2025 Burrowing Owl (*Athene cunicularia*) Survey Report for the Scott Road Lift Station Project. October 24.

2025h. 2025 Burrowing Owl (*Athene cunicularia*) Survey Report for the Wickerd Road Sewer Pipeline Project. September 18.

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Appendix A

Crotch's Bumble Bee Results

Study Area
2026 Study Area
Project Site
Fenceline

Vegetation Communities*

Typha (*angustifolia, domingensis, latifolia*) Herbaceous Alliance
Foxtail Barley-Brome Grass (*Hordeum murinum - Bromus* sp.) Semi-Natural Stands
Fallow Agricultural Lands
Agricultural Lands (*Medicago sativa*)
Disturbed Habitat
Urban/Developed

**No Crotch's bumble bee observed.*



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0 550 Feet

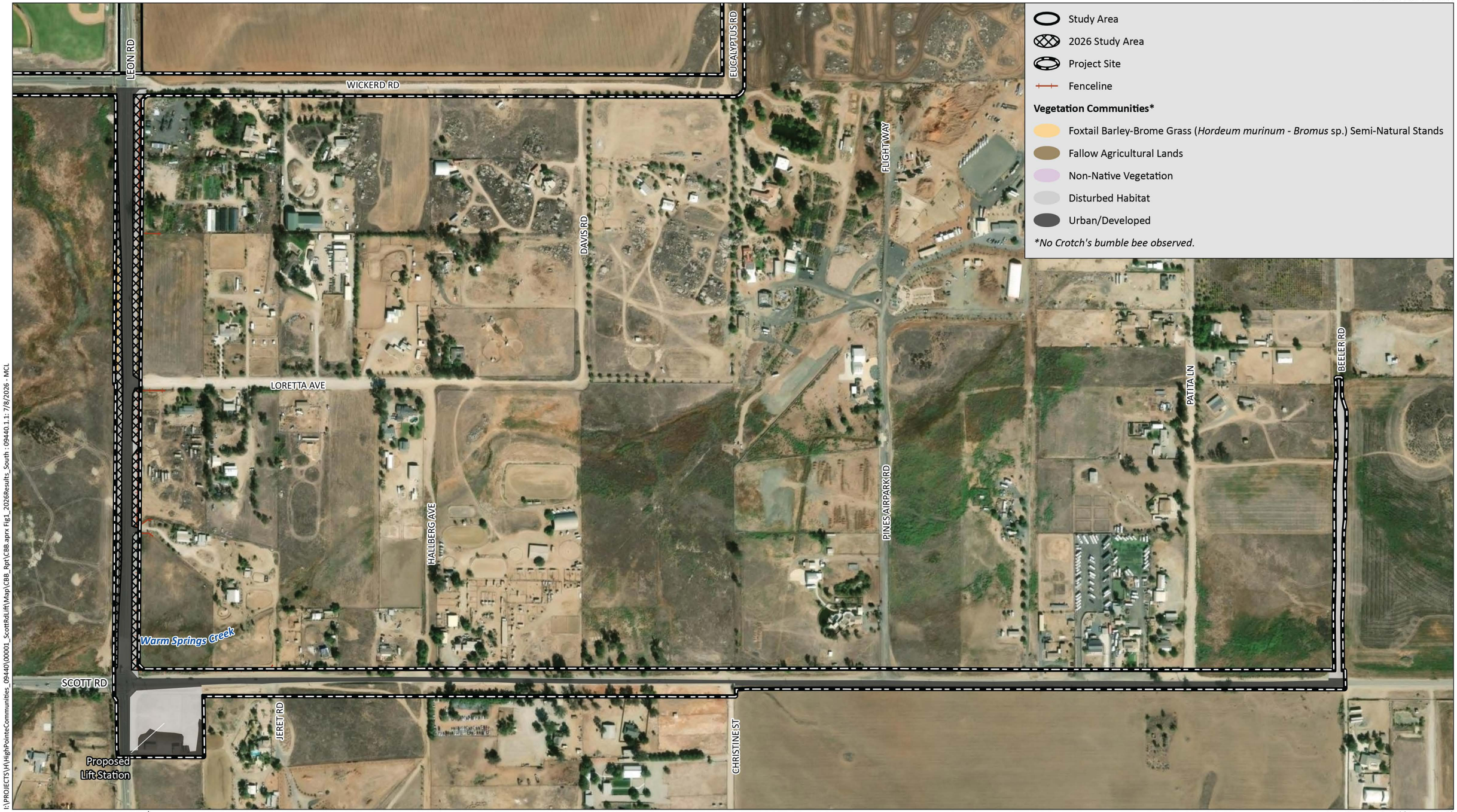
Source: Aerial (Maxar, 2024)

HELIX Environmental Planning

2025 and 2026 Crotch's Bumble Bee Survey Results

Figure 1

Scott Road Lift Station



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Source: Aerial (Maxar, 2024)

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2025 and 2026 Crotch's Bumble Bee Survey Results

Figure 1

Scientific Name[1,2]	Common Name	Percent Cover (%)[1]	Flowering Status
FALLOW AGRICULTURAL LANDS	**(CA Code N/A)**		
*Hordeum murinum**	foxtail barley	30	Vegetative
*Bromus diandrus**	ripgut brome	14	Vegetative
*Bromus madritensis**	foxtail chess	14	Vegetative
Avena ssp.*	oat	10	Vegetative
Amsinckia tessellata	devil's lettuce	5	Flowering
*Oncosiphon pilulifer**	stinknet	5	Flowering
*Hirschfeldia incana**	short-pod mustard	4	Flowering
*Triticum aestivum**	common wheat	4	Vegetative
*Festuca perennis**	Italian rye grass	3	Vegetative
Bare Ground		28	-
AGRICULTURAL LANDS (*Medicago sativa*) (CA Code N/A)			
*Medicago sativa**	alfalfa	94	Vegetative
*Hirschfeldia incana**	short-pod mustard	2	Flowering
*Hordeum murinum**	foxtail barley	2	Vegetative
Bare Ground		2	-
FOXTAIL BARLEY-BROME GRASS (*Hordeum murinum-Bromus* ssp.) SEMI-NATURAL STANDS (CA Code N/A)			
*Hordeum murinum**	foxtail barley	30	Vegetative
*Bromus diandrus**	ripgut brome	14	Vegetative
*Bromus madritensis**	foxtail chess	14	Vegetative
Avena sp.*	oat	10	Vegetative
Amsinckia tessellata	devil's lettuce	5	Flowering
*Oncosiphon pilulifer**	stinknet	5	Flowering
*Triticum aestivum**	common wheat	5	Vegetative
*Hirschfeldia incana**	short-pod mustard	3	Flowering
*Brassica nigra**	black mustard	2	Flowering
*Erodium cicutarium**	coastal heron's bill	2	Flowering
***Phacelia* sp.**	**phacelia**	**2**	**Flowering**
*Sisymbrium irio**	London rocket	2	Flowering
Vulpia sp.	fescue sp.	2	Vegetative
Bare Ground		4	-
DISTURBED HABITAT	**(CA Code N/A)**		
*Hordeum murinum**	foxtail barley	18	Vegetative
*Oncosiphon pilulifer**	stinknet	18	Flowering
*Bromus madritensis**	foxtail chess	10	Vegetative
*Hirschfeldia incana**	short-pod mustard	10	Flowering
Amsinckia tessellata	devil's lettuce	4	Flowering
*Brassica nigra**	black mustard	3	Flowering
*Erodium cicutarium**	coastal heron's bill	2	Flowering
*Melilotus indicus**	annual yellow sweetclover	2	Flowering
***Phacelia* sp.**	**phacelia**	**2**	**Flowering**
*Raphanus sativus**	wild radish	2	Flowering
*Salsola tragus**	Russian thistle	2	Flowering
*Sisymbrium irio**	London rocket	2	Flowering
Bare Ground		25	-
UBRAN/DEVELOPED	**(CA Code N/A)**		
Lantana camara*	**lantana**	**10**	**Flowering**
*Lactuca serriola**	prickly lettuce	3	Flowering
*Sonchus oleraceus**	sow thistle	3	Flowering
*Cirsium vulgare**	bullthistle	2	Vegetative
*Galinsoga parviflora**	gallant soldier	2	Flowering

Scientific Name[1,2]	Common Name	Percent Cover (%)[1]	Flowering Status
Stellaria longifolia	long-leaved starwort	2	Flowering
*Oncosiphon pilulifer**	stinknet	2	Flowering
*Ornamental baccharis**	baccharis sp.	2	Vegetative
*Rosmarinus officinalis**	rosemary	2	Flowering
*Sisymbrium irio**	London rocket	2	Flowering
Bare Ground		70	-

* Non-native species

[1] Additional species observed at less than 2 percent cover are not included in table. Species previously documented on the project site but not observed during the habitat assessment are also not included in table.

[2] **Bold text** indicates nectar species commonly used by Crotch's bumble bee (genera *Acmispon, Antirrhinum, Asclepias, Cirsium, Clarkia, Cordylanthus, Dendromecon, Ehrendorferia, Eriogonum, Eschscholzia, Euthamia, Hypericum, Keckiella, Lantana, Lupinus, Monardella, Phacelia, Salvia, Trichostema,* and *Vicia*).

[3] CDFW CA Code from the California Natural Community List, dated February 27, 2005. Available online at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline.

Family	Scientific Name	Common Name	Survey Effort[1]
ANGIOSPERMS – EUDICOTS[2]			
Amaranthaceae	*Salsola tragus**	Russian thistle	HA
Apocynaceae	*Nerium oleander**	oleander	2
Asteraceae	*Deinandra kelloggii*	Kellogg's tarweed	1, 2, 3
	*Galinsoga parviflora**	gallant soldier	HA
	Helianthus annuus	hairy leaved sunflower	2, 3
	*Lactuca serriola**	prickly lettuce	HA
	*Oncosiphon pilulifer**	stinknet	HA,1, 2
	Stephanomeria exigua	small wirelettuce	1, 2, 3
	*Sonchus oleraceus**	sow thistle	HA
Boraginaceae	*Amsinckia tessellata*	devil's lettuce	HA
	Heliotropium curassavicum	salt heliotrope	1,2,3
Brassicaceae	*Brassica nigra**	black mustard	HA
	*Hirschfeldia incana**	short-pod mustard	HA, 1, 2, 3
	*Raphanus sativus**	wild radish	HA
	*Sisymbrium irio**	London rocket	HA, 2
Caryophyllaceae	*Stellaria longifolia*	long-leaved starwort	HA
Fabaceae	*Melilotus indicus**	annual yellow sweetclover	HA
	*Melilotus officinalis**	yellow sweetclover	1, 2, 3
Geraniaceae	*Erodium cicutarium**	coastal heron's bill	HA, 1, 2, 3
Hydrophyllaceae	***Phacelia ramosissima***	**south coast branching phacelia**	**1**
	***Phacelia* sp.**	**phacelia**	**HA**
Lamiaceae	*Rosmarinus officinalis**	rosemary	HA
Polygonaceae	***Eriogonum fasciculatum***	**California buckwheat**	**1,2,3**
	Rumex salicifolius	willow leaved dock	1
Solanaceae	*Datura wrightii*	jimsonweed	3
	Solanum parishii	Parish's purple nightshade	1
Verbenaceae	***Lantana camara****	**lantana**	**HA, 1, 2, 3**

* Non-native species

[1] Species observed flowering during a given survey: HA=habitat assessment; 1=Survey 1; 2=Survey 2; 3=Survey 3

[2] **Bold text** indicates nectar species commonly used by Crotch's bumble bee (genera *Acmispon, Antirrhinum, Asclepias, Cirsium, Clarkia, Cordylanthus, Dendromecon, Ehrendorferia, Eriogonum, Eschscholzia, Euthamia, Hypericum, Keckiella, Lantana, Lupinus, Monardella, Phacelia, Salvia, Trichostema,* and *Vicia*).

Scientific Name[1,2]	Common Name	Percent Cover (%)[1]	Flowering Status
FALLOW AGRICULTURAL LANDS	**(CA Code[3] N/A)**		
*Hordeum murinum**	foxtail barley	75	Vegetative
*Malva parviflora**	cheeseweed	7	Flowering
*Oncosiphon pilulifer**	stinknet	4	Flowering
*Hirschfeldia incana**	short-pod mustard	3	Flowering
Amsinckia tessellata	devil's lettuce	2	Flowering
*Sisymbrium irio**	London rocket	2	Flowering
*Salsola tragus**	Russian thistle	2	Flowering
Bare Ground		5	-
FOXTAIL BARLEY-BROME GRASS (*Hordeum murinum – Bromus* sp.) SEMI-NATURAL STANDS (CA Code N/A)			
*Bromus diandrus**	bromegrass	32	Vegetative
*Hordeum murinum**	foxtail barley	30	Vegetative
*Bromus madritensis**	foxtail brome	13	Vegetative
Avena sp.*	oat	6	Vegetative
Amsinckia tessellata	devil's lettuce	3	Flowering
*Festuca perennis**	Italian rye grass	2	Vegetative
*Hirschfeldia incana**	short-pod mustard	2	Flowering
*Medicago polymorpha**	California burclover	2	Flowering
*Sisymbrium irio**	London rocket	2	Flowering
Bare ground		2	-
DISTURBED HABITAT	**(CA Code N/A)**		
*Hordeum murinum**	farmer's foxtail	25	Vegetative
*Bromus diandrus**	great brome	5	Vegetative
*Oncosiphon pilulifer**	stinknet	5	Vegetative
Avena sp.*	oat	4	Vegetative
*Triticum aestivum**	common wheat	4	Vegetative
*Bromus madritensis**	foxtail chess	3	Flowering
*Hirschfeldia incana**	short-pod mustard	3	Flowering
Amsinckia tessellata	devil's lettuce	2	Flowering
*Bassia scoparia**	burning bush	2	Flowering
*Brassica nigra**	black mustard	2	Flowering
*Cressa truxillensis**	alkali weed	2	Vegetative
*Cynodon dactylon**	bermuda grass	2	Vegetative
Datura wrightii	jimsonweed	2	Flowering
*Erodium cicutarium**	coastal heron's bill	2	Flowering
Extriplex californica	California orach	2	Vegetative
Heliotropium curassavicum	salt heliotrope	2	Flowering
*Lactuca serriola**	prickly lettuce	2	Flowering
*Malva parviflora**	cheeseweed	2	Vegetative
*Medicago polymorpha**	California burclover	2	Flowering
*Polygonum aviculare**	prostrate knotweed	2	Vegetative
*Rumex crispus**	curly dock	2	Vegetative
*Salsola tragus**	Russian thistle	2	Flowering
*Sisymbrium irio**	London rocket	2	Flowering
Bare ground		17	-

* Non-native species

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[2] **Bold text** indicates nectar species commonly used by Crotch's bumble bee (genera *Acmispon, Antirrhinum, Asclepias, Cirsium, Clarkia, Cordylanthus, Dendromecon, Ehrendorferia, Eriogonum, Eschscholzia, Euthamia, Hypericum, Keckiella, Lantana, Lupinus, Monardella, Phacelia, Salvia, Trichostema,* and *Vicia*).

[3] CDFW CA Code from the California Natural Community List, dated February 27, 2005. Available online at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline.

Family	Scientific Name[1]	Common Name[1]	Survey Effort[2]
ANGIOSPERMS – EUDICOTS			
Amaranthaceae	*Salsola tragus**	Russian thistle	HA, 1
Apocynaceae	*Nerium oleander**	oleander	2, 3
Asteraceae	*Carduus pycnocephalus**	Italian thistle	2
	Helianthus annuus	hairy leaved sunflower	3
	*Lactuca serriola**	prickly lettuce	1
	*Oncosiphon pilulifer**	stinknet	2, 3
	*Sonchus oleraceus**	sow thistle	2, 3
Boraginaceae	*Amsinckia tessellata*	devil's lettuce	HA, 1
	Heliotropium curassavicum	salt heliotrope	1, 2, 3
Brassicaceae	*Brassica nigra**	black mustard	HA,1
	*Hirschfeldia incana**	short-pod mustard	HA, 1, 2, 3
	*Sisymbrium irio**	London rocket	HA, 1
Chenopodiaceae	*Bassia scoparia**	burning bush	HA, 1
Fabaceae	*Medicago polymorpha**	California burclover	HA, 1
	*Parkinsonia aculeata**	Mexican palo verde	2
Geraniaceae	*Erodium cicutarium**	coastal heron's bill	HA, 1
Malvaceae	*Malva parviflora**	cheeseweed	1
Solanaceae	*Datura wrightii*	jimsonweed	1, 2, 3
	*Nicotiana glauca**	tree tobacco	HA, 1
Verbenaceae	***Lantana camara****	**lantana**	**3**

* Non-native species

[1] **Bold text** indicates nectar species commonly used by Crotch's bumble bee (genera *Acmispon, Antirrhinum, Asclepias, Cirsium, Clarkia, Cordylanthus, Dendromecon, Ehrendorferia, Eriogonum, Eschscholzia, Euthamia, Hypericum, Keckiella, Lantana, Lupinus, Monardella, Phacelia, Salvia, Trichostema,* and *Vicia*).

[2] Species observed flowering during a given survey: HA = habitat assessment; 1 = Survey 1; 2 = Survey 2; 3 = Survey 3

Scientific Name[1,2]	Common Name	Percent Cover (%)[1]	Flowering Status
FALLOW AGRICULTURAL LANDS	**(CA Code N/A)**		
*Triticum aestivum**	common wheat	55	Flowering/Seeding
*Hordeum murinum**	foxtail barley	22	Flowering/Seeding
*Festuca perennis**	Italian rye grass	7	Flowering
*Bromus madritensis**	foxtail chess	6	Flowering/Seeding
Avena ssp.*	oat	5	Flowering/Seeding
*Bromus diandrus**	Ripgut brome	5	Flowering/Seeding
*Oncosiphon pilulifer**	stinknet	4	Flowering
Amsinckia menziesii	rancher's fiddleneck	2	Flowering/Seeding
*Hirschfeldia incana**	short-pod mustard	2	Flowering
Bare Ground		2	-
FOXTAIL BARLEY-BROME GRASS (*Hordeum murinum-Bromus* ssp.) SEMI-NATURAL STANDS (CA Code N/A)			
*Bromus diandrus**	ripgut brome	24	Flowering/Seeding
*Oncosiphon pilulifer**	stinknet	18	Flowering
*Bromus madritensis**	foxtail chess	14	Flowering/Seeding
*Hordeum murinum**	foxtail barley	11	Flowering/Seeding
Amsinckia menziesii	Rancher's fiddleneck	3	Flowering/Seeding
*Centaurea melitensis**	tocalote	3	Flowering
*Erodium cicutarium**	coastal heron's bill	3	Flowering
*Hirschfeldia incana**	short-pod mustard	3	Flowering
Avena sp.*	oat	2	Flowering/Seeding
*Bromus hordeaceus**	soft brome	2	Flowering
*Melilotus indicus**	annual yellow sweetclover	2	Flowering
Plagiobothrys canescens	valley popcorn flower	2	Flowering
Bare Ground		5	-
DISTURBED HABITAT	**(CA Code N/A)**		
*Hordeum murinum**	foxtail barley	17	Flowering/Seeding
*Hirschfeldia incana**	short-pod mustard	13	Flowering
*Oncosiphon pilulifer**	stinknet	12	Flowering
*Bromus madritensis**	foxtail chess	10	Vegetative
*Erodium cicutarium**	coastal heron's bill	4	Flowering
Avena ssp.*	oat	3	Flowering/Seeding
*Bromus diandrus**	ripgut brome	3	Flowering/Seeding
Amsinckia menziesii	Rancher's fiddleneck	2	Flowering/Seeding
*Matricaria discoidea**	pineapple weed	2	Flowering
*Melilotus indicus**	annual yellow sweetclover	2	Flowering
Plagiobothrys canescens	valley popcorn flower	2	Flowering
Bare Ground		30	-

* Non-native species

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[2] **Bold text** indicates nectar species commonly used by Crotch's bumble bee (genera *Acmispon, Antirrhinum, Asclepias, Cirsium, Clarkia, Cordylanthus, Dendromecon, Ehrendorferia, Eriodictyon, Eriogonum, Eschscholzia, Euthamia, Hypericum, Keckiella, Lantana, Lupinus, Monardella, Phacelia, Salvia, Trichostema,* and *Vicia*).

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Family	Scientific Name	Common Name	Survey Effort[1]
ANGIOSPERMS – EUDICOTS[2]			
Apiaceae	*Daucus pusillus*	wild carrot	HA, 1
Apocynaceae	*Nerium oleander**	oleander	2, 3
Asteraceae	*Anthemis cotula**	dog fennel	HA, 1, 3
	*Centaurea melitensis**	tocalote	HA, 1, 2, 3
	Deinandra fasciculata	clustered tarweed	HA, 1, 2, 3
	Deinandra paniculata†	paniculate tarplant	3
	*Logfia gallica**	narrowleaf cottonrose	HA, 1
	*Matricaria discoidea**	pineapple weed	HA, 1
	*Oncosiphon pilulifer**	stinknet	HA,1, 2, 3
	Pseudognaphalium stramineum	cottonbatting plant	HA, 1
	Stephanomeria exigua	small wirelettuce	2
	*Sonchus oleraceus**	sow thistle	HA, 1
	Uropappus lindleyi	silver puffs	2
Boraginaceae	*Amsinckia menziesii*	rancher's fiddleneck	HA, 1, 2, 3
	Cryptantha intermedia	common cryptanth	2
	Heliotropium curassavicum	salt heliotrope	HA, 1,2,3
	Plagiobothrys canescens	valley popcorn flower	HA, 1
Brassicaceae	*Hirschfeldia incana**	short-pod mustard	HA, 1, 2, 3
	*Sisymbrium irio**	London rocket	HA, 1, 2
Euphorbiaceae	*Euphorbia albomarginata*	rattlesnake sandmat	HA, 1
Fabaceae	*Melilotus indicus**	annual yellow sweetclover	HA, 1
	Vicia villosa*	**hairy vetch**	**HA, 1**
Geraniaceae	*Erodium botrys**	big heron bill	3
	*Erodium cicutarium**	coastal heron's bill	HA, 1, 2
Lamiaceae	*Marrubium vulgare**	white horehound	3
Polygonaceae	***Eriogonum fasciculatum***	**California buckwheat**	**HA, 1, 3**
	*Polygonum aviculare**	prostrate knotweed	HA, 1
Verbenaceae	***Lantana camara****	**lantana**	**2**

† Sensitive species

* Non-native species

[1] Species observed flowering during a given survey: HA=habitat assessment; 1=Survey 1; 2=Survey 2; 3=Survey 3

[2] **Bold text** indicates nectar species commonly used by Crotch's bumble bee (genera *Acmispon, Antirrhinum, Asclepias, Cirsium, Clarkia, Cordylanthus, Dendromecon, Ehrendorferia, Eriodictyon, Eriogonum, Eschscholzia, Euthamia, Hypericum, Keckiella, Lantana, Lupinus, Monardella, Phacelia, Salvia, Trichostema,* and *Vicia*).

Scientific Name[1,2]	Common Name	Percent Cover (%)[1]	Flowering Status
FALLOW AGRICULTURAL LANDS	**(CA Code N/A)**		
*Triticum aestivum**	common wheat	60	Flowering/Seeding
*Hordeum murinum**	foxtail barley	30	Flowering/Seeding
*Oncosiphon pilulifer**	stinknet	8	Flowering
Bare Ground		2	-
FOXTAIL BARLEY-BROME GRASS (*Hordeum murinum-Bromus* ssp.) SEMI-NATURAL STANDS (CA Code N/A)			
*Bromus madritensis**	foxtail chess	34	Flowering/Seeding
*Hordeum murinum**	foxtail barley	30	Flowering/Seeding
*Erodium cicutarium**	coastal heron's bill	6	Flowering
*Hirschfeldia incana**	short-pod mustard	5	Flowering
*Oncosiphon pilulifer**	stinknet	5	Flowering
Corethrogyne filaginifolia	common sandaster	4	Vegetative
*Centaurea melitensis**	tocalote	3	Flowering
Plagiobothrys canescens	valley popcorn flower	3	Flowering
Amsinckia menziesii	Rancher's fiddleneck	2	Flowering/Seeding
*Bromus diandrus**	ripgut brome	2	Flowering/Seeding
*Hypochaeris glabra**	smooth cat's ear	2	Flowering
Bare Ground		4	-
DISTURBED HABITAT	**(CA Code N/A)**		
*Bromus madritensis**	foxtail chess	17	Vegetative
*Hordeum murinum**	foxtail barley	17	Flowering/Seeding
*Hirschfeldia incana**	short-pod mustard	8	Flowering
*Oncosiphon pilulifer**	stinknet	8	Flowering
*Bromus diandrus**	ripgut brome	5	Flowering/Seeding
*Avena barbata**	slender oat	4	Flowering/Seeding
Amsinckia menziesii	Rancher's fiddleneck	3	Flowering/Seeding
*Erodium cicutarium**	coastal heron's bill	3	Flowering
Ambrosia psilostachya	ragweed	2	Vegetative
Cressa truxillensis	alkali weed	2	Flowering
*Festuca myuros**	rattail sixweeks grass	2	Flowering/Seeding
*Hypochaeris glabra**	smooth cat's ear	2	Flowering
*Phalaris aquatica**	bulbous canarygrass	2	Flowering/Seeding
Bare Ground		25	-

* Non-native species

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[2] **Bold text** indicates nectar species commonly used by Crotch's bumble bee (genera *Acmispon, Antirrhinum, Asclepias, Cirsium, Clarkia, Cordylanthus, Dendromecon, Ehrendorferia, Eriodictyon, Eriogonum, Eschscholzia, Euthamia, Hypericum, Keckiella, Lantana, Lupinus, Monardella, Phacelia, Salvia, Trichostema,* and *Vicia*).

[3] CDFW CA Code from the California Natural Community List, dated February 27, 2005. Available online at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline.

Family	Scientific Name[1]	Common Name[1]	Survey Effort[2]
ANGIOSPERMS – EUDICOTS			
Asteraceae	*Centaurea melitensis**	tocalote	HA, 1, 3
	Deinandra fasciculata	clustered tarweed	2, 3
	*Matricaria discoidea**	pineapple weed	HA, 1
	*Oncosiphon pilulifer**	stinknet	HA, 1, 2, 3
	*Sonchus oleraceus**	sow thistle	2
Boraginaceae	*Amsinckia menziesii*	rancher's fiddleneck	HA, 1
	Plagiobothrys canescens	valley popcorn flower	HA, 1
Brassicaceae	*Brassica nigra**	black mustard	3
	*Hirschfeldia incana**	short-pod mustard	HA, 1, 2, 3
	*Sisymbrium irio**	London rocket	HA, 1, 3
Convolvulaceae	*Convolvulus arvensis**	field bindweed	3
	Cressa truxillensis	alkali weed	3
Fabaceae	***Lupinus bicolor***	**lupine**	**HA, 1**
	*Medicago sativa**	alfalfa	HA, 1, 2, 3
	*Melilotus indicus**	annual yellow sweetclover	HA, 1, 3
	Vicia villosa*	**hairy vetch**	**3**
Geraniaceae	*Erodium cicutarium**	coastal heron's bill	HA, 1, 2
Malvaceae	*Malva parviflora**	cheeseweed	3
Myrtaceae	*Eucalyptus* sp.*	eucalyptus	3
Polygonaceae	***Eriogonum fasciculatum***	**California buckwheat**	**2**

* Non-native species

[1] **Bold text** indicates nectar species commonly used by Crotch's bumble bee (genera *Acmispon, Antirrhinum, Asclepias, Cirsium, Clarkia, Cordylanthus, Dendromecon, Ehrendorferia, Eriodictyon, Eriogonum, Eschscholzia, Euthamia, Hypericum, Keckiella, Lantana, Lupinus, Monardella, Phacelia, Salvia, Trichostema,* and *Vicia*).

[2] Species observed flowering during a given survey: HA = habitat assessment; 1 = Survey 1; 2 = Survey 2; 3 = Survey 3

Appendix B

Soil Types

Soil Series	Percent Slopes (%)	Soil Type/Characteristic
Cajalco fine sandy loam	2-8	eroded
	8-15	eroded
Chino silt loam	n/a	drained
	n/a	drained, saline-alkali
Cieneba rocky sandy loam	8-15	eroded
	15-50	eroded
Cieneba sandy loam	5-8	n/a
	8-15	eroded
Domino silt loam	n/a	saline-alkali
	n/a	n/a
Escondido fine sandy loam	2-8	eroded
Exeter sandy loam	0-2	n/a
	2-8	eroded
	0-5	slightly saline-alkali
Fallbrook sandy loam	5-8	shallow, eroded
Fallbrook fine sandy loam	2-8	eroded
	8-15	shallow, eroded
Friant fine sandy loam	5-25	eroded
Honcut loam	2-8	eroded
Los Posas loam	2-8	n/a
	8-15	eroded
Monserate sandy loam	5-8	eroded
Vista course sandy loam	2-8	n/a
	8-15	eroded
Vista rocky course sandy loam	2-35	eroded
Willows silty clay	n/a	saline-alkali
Wyman loam	2-8	eroded
Yohohl loam	2-8	n/a

Appendix C

Plant Species Observed

Family	Scientific Name	Common Name
ANGIOSPERMS – EUDICOTS		
Amaranthaceae	*Amaranthus albus**	tumbleweed
Anacardiaceae	*Schinus molle**	Peruvian pepper tree
	Daucus pusillus	wild carrot
Apocynaceae	*Nerium oleander**	oleander
Asteraceae	*Ambrosia psilostachya*	ragweed
	*Anthemis cotula**	dog fennel
	Baccharis salicifolia	mule fat
	Baccharis sp.*	ornamental baccharis
	*Carduus pycnocephalus**	Italian thistle
	*Centaurea melitensis**	tocalote
	Centromadia pungens ssp. *laevis*†	smooth tarplant
	Cirsium sp.*	thistle
	*Cirsium vulgare**	bullthistle
	Corethrogyne filaginifolia	common sandaster
	Deinandra fasciculata	clustered tarweed
	Deinandra kelloggii	Kellogg's tarweed
	Deinandra paniculata†	paniculate tarplant
	*Dittrichia graveolens**	stinkwort
	Erigeron canadensis	Canada horseweed
	*Galinsoga parviflora**	gallant soldier
	Helianthus annuus	hairy leaved sunflower
	Helianthus gracilentus	slender sunflower
	*Hypochaeris glabra**	smooth cat's ear
	*Lactuca serriola**	prickly lettuce
	*Logfia gallica**	narrowleaf cottonrose
	*Matricaria discoidea**	pineapple weed
	*Oncosiphon pilulifer**	stinknet
	*Pseudognaphalium luteoalbum**	Jersey cudweed
	Pseudognaphalium stramineum	cottonbatting plant
	*Senecio vulgaris**	common groundsel
	*Sonchus asper**	spiny sowthistle
	*Sonchus oleraceus**	sow thistle
	Stephanomeria exigua	small wirelettuce
	Stephanomeria virgata	twiggy wreath plant
	Uropappus lindleyi	silver puffs
Betulaceae	*Alnus* sp.	alder
Boraginaceae	*Amsinckia menziesii*	rancher's fiddleneck
	Amsinckia tessellata	devil's lettuce
	Cryptantha intermedia	common cryptanth
	Heliotropium curassavicum	salt heliotrope
	Plagiobothrys canescens	valley popcorn flower
Brassicaceae	*Brassica nigra**	black mustard
	*Hirschfeldia incana**	mustard
	*Lepidium draba**	whitetop
	*Raphanus sativus**	wild radish
	*Sisymbrium irio**	London rocket
Caprifoliaceae	*Lonicera japonica**	Japanese honeysuckle

Family	Scientific Name	Common Name
Caryophyllaceae	*Stellaria longifolia*	long-leaved starwort
	Atriplex lentiformis	big saltbush
Chenopodiaceae	*Bassia scoparia**	burning bush
	*Chenopodium murale**	nettle leaf goosefoot
	Extriplex californica	California orach
	*Salsola tragus**	Russian thistle
Convolvulaceae	*Convolvulus arvensis**	field bindweed
	Cressa truxillensis	alkali weed
	Ipomea sp.*	morning glory
Euphorbiaceae	*Croton setiger*	turkey-mullein
	Euphorbia albomarginata	rattlesnake sandmat
	Euphorbia polycarpa	smallseed sandmat
	*Ricinus communis**	castor bean
Fabaceae	*Acmispon americanus*	American bird's foot trefoil
	Lupinus bicolor	miniature lupine
	*Melilotus indicus**	annual yellow sweetclover
	*Medicago polymorpha**	California burclover
	*Medicago sativa**	alfalfa
	*Parkinsonia aculeata**	Mexican palo verde
	Parkinsonia sp.*	palo verde
	*Vicia villosa**	hairy vetch
Geraniaceae	*Erodium botrys**	big heron bill
	*Erodium cicutarium**	coastal heron's bill
Hydrophyllaceae	*Phacelia ramosissima*	south coast branching phacelia
	Phacelia sp.	phacelia
Lamiaceae	*Marrubium vulgare**	white horehound
	*Rosmarinus officinalis**	rosemary
	Trichostema lanceolatum	vinegarweed
Lythraceae	*Lythrum hyssopifolia**	hysoop loosestrife
Malvaceae	*Malvella leprosa*	alkali mallow
	*Malva parviflora**	cheeseweed
Myrtaceae	*Eucalyptus* sp.*	eucalyptus
Oleaceae	*Olea europaea**	olive
Onagraceae	*Epilobium ciliatum*	slender willow herb
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat
	*Polygonum aviculare**	prostrate knotweed
	*Rumex crispus**	curly dock
	Rumex salicifolius	willow leaved dock
	Rumex sp.*	dock
Portulacaceae	*Portulaca* sp.*	purslane
Rubiaceae	*Galium* sp.	bedstraw
Salicaceae	*Populus fremontii*	Fremont cottonwood
	Salix gooddingii	Goodding's willow
	Salix lasiolepis	arroyo willow
Solanaceae	*Datura wrightii*	jimsonweed
	*Nicotiana glauca**	tree tobacco
	Solanum parishii	Parish's purple nightshade
	Solanum sp.	nightshade

Family	Scientific Name	Common Name
Tamaricaceae	*Tamarix parviflora* *	small flower tamarisk
Verbenaceae	*Lantana camara**	lantana
ANGIOSPERMS – MONOCOTS		
Asparagaceae	*Hesperaloe parviflora**	red yucca
Poaceae	*Avena* sp.*	oat
	*Avena barbata**	slender oat
	*Avena fatua**	wild oat
	*Bromus diandrus**	ripgut brome
	*Bromus madritensis**	foxtail chess
	*Cynodon dactylon**	Bermuda grass
	*Festuca myuros**	rattail sixweeks grass
	*Festuca perennis**	Italian rye grass
	*Hordeum murinum**	foxtail barley
	*Hordeum vulgare**	common barley
	*Phalaris aquatica**	bulbous canarygrass
	*Schismus barbatus**	old han schismus
	*Triticum aestivum**	common wheat

* Non-native species
† Sensitive species

Appendix D

Animal Species Observed or Detected

Taxon Order	Taxon Family	Scientific Name	Common Name
INVERTEBRATES			
Anostraca	Branchinectidae	*Branchinecta lindahli*	Versatile Fairy Shrimp
Araneae	Salticidae	*Phidippus johnsoni*	Johnson's Jumping Spider
Coleoptera	Coccinellidae	--	Lady Beetles
	Scarabaeidae	*Paracotalpa ursina*	Little-bear Scarab Beetle
	Tenebrionidae	--	Darkling Beetle
(Class Collembola)	--	--	Springtails
(Class Ostracoda)	--	--	Ostracods
Decapoda	--	--	Crawfish
Hemiptera	Pentatomidae	*Chlorochroa sayi*	Say's Stink Bug
Hymenoptera	Apidae	*Apis mellifera*	Western Honey Bee
	Apidae	*Xylocopa* sp.	Carpenter Bee
	Formicidae	*Pogonomyrmex* spp.	Harvester Ant
	Pompilidae	*Pepsis* sp.	Tarantula Hawk
Insecta	Acrididae	*Schistocerca nitens*	Gray Bird Grasshopper
	Corixidae	--	Water Boatman
	Culicidae	--	Mosquito
	Hymenoptera	*Xylocopa* sp.	Carpenter Bee
	Muscidae	*Musca domestica*	House Fly
Lepidoptera	Lycaenidae	*Brephidium exilis*	Western Pygmy-Blue Butterfly
	Lycaenidae	*Euphilotes bernardino bernardino*	Bernardino Blue Butterfly
	Lycaenidae	*Icaricia acmon*	Acmon Blue Butterfly
	Nymphalidae	*Junonia coenia*	Common Buckeye Butterfly
	Nymphalidae	*Vanessa annabella*	West Coast Lady Butterfly
	Nymphalidae	*Vanessa cardui*	Painted Lady Butterfly
	Pieridae	*Pieris protodice*	Checkered (Common) White Butterfly
	Pieridae	*Pieris rapae*	Cabbage White Butterfly
	Pieridae	*Pontia sisymbrii*	Spring White Butterfly
	--	--	Unidentified Sulphur Butterfly
VERTEBRATES			
Amphibians			
Anura	Hylidae	*Pseudacris hypochondriaca*	Baja California Treefrog
	Hylidae	*Pseudacris regilla*	Pacific Treefrog
Birds			
Accipitriformes	Accipitridae	*Buteo jamaicensis*	Red-tailed Hawk
Anseriformes	Anatidae	*Anas platyrhynchos*	Mallard
Columbiformes	Columbidae	*Zenaida macroura*	Mourning Dove
Cuculiformes	Cuculidae	*Geococcyx californianus*	Greater Roadrunner
Falconiformes	Falconidae	*Falco sparverius*	American Kestrel
Passeriformes	Aegithalidae	*Psaltriparus minimus*	Bushtit
	Corvidae	*Corvus brachyrhynchos*	American Crow
	Fringillidae	*Spinus psaltria*	Lesser Goldfinch
	Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird
	Icteridae	*Sturnella neglecta*	Western Meadowlark
	Mimidae	*Mimus polyglottos*	Northern Mockingbird
	Passerellidae	*Melospiza melodia*	Song Sparrow
	Passerellidae	*Zonotrichia leucophrys*	White-crowned Sparrow

Taxon Order	Taxon Family	Scientific Name	Common Name
	Troglodytidae	*Thryomanes bewickii*	Bewick's Wren
	Tyrannidae	*Tyrannus vociferans*	Cassin's Kingbird
Pelecaniformes	Ardeidae	*Ardea alba*	Great Egret
Mammals			
Carnivora	Mustelidae	*Mustela frenata*	Long-tailed Weasel
Lagomorpha	Leporidae	*Sylvilagus audubonii*	Desert Cottontail
Perissodactyla	Equidae	*Equus ferus caballus*	Domestic Horse
Rodentia	Geomyidae	*Thomomys bottae*	Botta's Pocket Gopher
	Sciuridae	*Otospermophilus beecheyi*	California Ground Squirrel

† Sensitive

Appendix E

Rare Plant Species with Potential to Occur

Species Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Allium munzii	Munz's onion	FE/ST CRPR 1B.1 Narrow Endemic Covered	Perennial herb. Grows in mesic areas on clay soils within grassland, coastal scrub, chaparral, cismontane woodland, and pinyon-juniper woodland. Found within Riverside County. Flowering period: March to May. Elevation: 974 to 3,510 feet (297 to 1,070 meters).	**Presumed Absent.** Not observed during focused surveys in 2025 and 2026. Clay soils are mapped along Wickerd Road by the western potential aquatic resource, as well as outside the Project site along Scott Road. This species is recorded within 3 miles. .
Atriplex parishii	Parish's brittlescale	--/-- CNPS 1B.1	Annual herb. Occurs in alkaline soil in chenopod scrub, playas and vernal pools. Flowering period: June to October. Elevation: 80 to 6,235 feet (25 to 1,900 meters).	**Low Potential to Occur.** Not observed during focused surveys in 2025 and 2026. Playas and chenopod scrub are not known in the Project site. Some road ruts were observed along roadways during the 2024 survey, and Domino and Willows soils, which are associated with vernal pools, were mapped in the Project site. Domino soils are mapped where Warm Springs Creek crosses the Project site and other places along Leon and Beeler Roads. Willows soils are mapped along Wickerd Road by the western potential aquatic resource, as well as outside the Project site along Scott Road. This species is recorded within 5 miles.
Calochortus weedii var. *intermedius*	intermediate mariposa lily	--/-- CRPR 1B.2 Covered	Perennial herb. Found on dry, rocky, and open slopes within chaparral, coastal sage scrub, and grasslands. Found within Los Angeles, Orange, Riverside, and San Bernardino counties. Flowering period: May to July. Elevation: 340 to 2,805 feet (105 and 855 meters).	**Presumed Absent.** Not observed during focused surveys in 2025 and 2026. Grassland habitat occurs in the Project site. This species is recorded within 5 miles.

Species Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Caulanthus simulans	Payson's jewelflower	--/-- CRPR 4.2 Covered	Annual herb. Occurs within coastal sage scrub, chaparral, and pinyon-juniper woodlands on sandy and granitic soils. Found in Riverside and San Diego counties. Flowering period: February to June. Elevation: 295 to 7,220 feet (90 to 2,200 meters).	**Not Likely to Occur.** Not observed during focused surveys in 2025 and 2026. Coastal scrub, chaparral, and woodland habitats do not occur in the Project site. This species is recorded within 5 miles.
Centromadia pungens ssp. *laevis*	smooth tarplant	--/-- CRPR 1B.1 Covered	Annual herb. Occurs on alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland. Found in San Bernardino, Los Angeles, Riverside, and San Diego Counties. Flowering Period: April to September. Elevation: below 2,100 feet (640 meters).	**Species Present.** This species was recorded along Beeler Road during rare plant surveys in 2025.
Chorizanthe parryi var. *parryi*	Parry's spineflower	--/-- CRPR 1B.1 Covered	Annual herb. Occurs in sandy soil on flats and foothills in mixed grassland, coastal sage scrub, and chaparral communities. Found in the San Gabriel and San Bernardino Mountains and western Transverse Ranges within Los Angles, San Bernardino, and Riverside County. Flowering Period: April to June. Elevation: 900 to 4,005 feet (275 to 1,220 meters).	**Low Potential to Occur.** Not observed during focused surveys in 2025 and 2026. Grassland habitat on sandy soils occurs in the Project site. This species is recorded within 3 miles.
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	--/-- CRPR 1B.2 Covered	Annual herb. Occurs in chaparral, coastal scrub, and native grassland, often on clay soils. Found within Orange, Riverside, San Bernardino, and San Diego Counties. Flowering period: April to July. Elevation: 95 to 5,020 feet (30 to 1,530 meters).	**Low Potential to Occur.** Not observed during focused surveys in 2025 and 2026. Grassland habitat occurs in the Project site but does not overlap with mapped clay soils. This species is recorded within 3 miles.

Species Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Deinandra paniculata	Paniculate tarplant	--/-- CNPS 4.2	Annual herb. Grows in sandy and vernally mesic soil in coastal scrub, valley and foothill grasslands and vernal pools. Flowering period: March/April to November. Elevation: 80 to 3,085 feet (25 to 940 meters).	**Species Present:** The species was observed at several locations along Garbani Road, Eucalyptus Road, and Wickerd Road during general rare plant surveys in 2025 and 2026.
Harpagonella palmeri	Palmer's grapplinghook	--/-- CRPR 4.2 Covered	Annual herb. Found in clay soils in annual grasslands and coastal sage scrub. Flowering Period: March to May. Elevation: 65 to 3,100 feet (20 to 955 meters).	**Low Potential to Occur.** Not observed during focused surveys in 2025 and 2026. Grassland habitat occurs in the Project site but does not overlap with mapped clay soils. This species is recorded within 3 miles..
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	--/-- CRPR 1B.1 Covered	Annual herb. Grows in vernal pools, playas, and saline habitats within alkali sinks, coastal salt marshes, and wetland communities. Found along the Coast, Sierra Nevada, and Peninsular Ranges; Sacramento and San Joaquin Valleys; central and southern coasts; Mojave Desert, and north Channel Islands. Flowering period: April to May. Elevation: below 4,005 feet (1,220 meters).	**Low Potential to Occur.** Not observed during focused surveys in 2025 and 2026. Road ruts could potentially be suitable given the Domino and Willows soils mapped in the Project site, which are associated with vernal pools. Domino soils are mapped where Warm Springs Creek crosses the Project site and other places along Leon and Beeler Roads. Willows soils are mapped along Wickerd Road by the western potential aquatic resource, as well as outside the Project site along Scott Road. This species is recorded within 3 miles.

Species Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	--/-- CRPR 4.3	Annual herb. Grows in openings of sage scrub and chaparral at the coastal and foothill elevations throughout California. Typically observed in relatively dry, exposed locales rather than beneath a shrub canopy. Also, found in disturbed areas. Flowering period: March to June. Elevation: below 9,186 feet (2,800 meters).	**Low Potential to Occur.** Not observed during focused surveys in 2025 and 2026. Disturbed areas occur in the Project site. This species is recorded within 3 miles.
Myosurus minimus ssp. *apus*	little mousetail	--/-- CRPR 3.1 Covered	Annual herb. Occurs in alkaline vernal pools within native grassland. Flowering period: March to June. Found within San Joaquin Valley south to San Diego County and east to western Riverside and San Bernardino Counties. Elevation: 65 to 2,100 feet (20 to 640 meters).	**Low Potential to Occur.** Not observed during focused surveys in 2025 and 2026. Some road ruts were observed along roadways during the 2024 survey, and Domino and Willows soils, which are associated with vernal pools, were mapped in the Project site. Domino soils are mapped where Warm Springs Creek crosses the Project site and other places along Leon and Beeler Roads. Willows soils are mapped along Wickerd Road by the western potential aquatic resource, as well as outside the Project site along Scott Road.

Species Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Navarretia fossalis	spreading navarretia	FT/-- CRPR 1B.1 Narrow Endemic Covered	Annual herb. Occurs in vernal pools, vernal swales, roadside depressions, playas, marshes and swamps, and chenopod scrub. Population size is strongly correlated with rainfall. Depth of pool appears to be a significant factor as this species is rarely found in shallow pools. Found in the Mojave Desert, desert mountains, Channel Islands, and the Transverse and Peninsular Ranges. Flowering period: April to June. Elevation: 98 to 4,265 feet (30 to 1,300 meters).	**Low Potential to Occur.** Not observed during focused surveys in 2025 and 2026. Marshes occur within the Project site. Additionally, road ruts were observed along roadways during the 2024 survey, and Domino and Willows soils, which are associated with vernal pools, were mapped in the Project site. Domino soils are mapped where Warm Springs Creek crosses the Project site and other places along Leon and Beeler Roads. Willows soils are mapped along Wickerd Road by the western potential aquatic resource, as well as outside the Project site along Scott Road. This species is recorded within 3 miles.

Species Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Orcuttia californica	California Orcutt grass	FE/SE CRPR 1B.1 Narrow Endemic Covered	Annual herb. Occurs in vernal pools. Tends to grow in wetter portions of the vernal pool basins but does not show much growth until the basins become somewhat desiccated. Found in the coastal regions of southern California from Ventura County south to San Diego county and in western Riverside County. Flowering period: April to August. Elevation: 45 to 2,165 feet (15 to 660 meters).	**Low Potential to Occur.** Not observed during focused surveys in 2025 and 2026. Some road ruts were observed along roadways during the 2024 survey, and Domino and Willows soils, which are associated with vernal pools, were mapped in the Project site. Domino soils are mapped where Warm Springs Creek crosses the Project site and other places along Leon and Beeler Roads. Willows soils are mapped along Wickerd Road by the western potential aquatic resource, as well as outside the Project site along Scott Road. This species is recorded within 3 miles.

[1] Listing codes as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; C = Candidate for listing; R = Rare.
CRPR = California Native Plant Society California Rare Plant Rank: 1A – presumed extirpated in California and either rare or extinct elsewhere; 1B – rare, threatened, or endangered in California and elsewhere; 2A – presumed extirpated in California, but more common elsewhere; 2B – rare, threatened, or endangered in California, but more common elsewhere; 3 – plants for which more information needed (review list); 4 – watch list for species of limited distribution. Extension codes: .1 – seriously endangered; .2 – moderately endangered; .3 – not very endangered.
Covered = Covered Species under MSHCP
Narrow Endemic = MSHCP Narrow Endemic Species

[2] Potential to Occur is assessed as follows:
Not Likely to Occur: Habitat suitable for species survival does not occur in the Project site, the Project site is not within geographic range of the species, and/or the Project site is not within the elevation range of the species.
Low Potential to Occur: Suitable habitat is present on the Project site but of low quality and/or small extent. The species has not been recorded recently in the immediate vicinity of the Project site (within 3 miles). Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty.
Moderate Potential to Occur: Suitable habitat is present on the Project site and the species was recorded in the immediate vicinity of the Project site (within 3 miles) however, the habitat is of moderate quality and/or small extent. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty.
High Potential to Occur: Suitable habitat of sufficient extent is present on the Project site and the species has been recorded recently in the immediate vicinity of the Project site (within 3 miles) but was not observed during surveys for the current project. However, focused/protocol surveys are not required or have not been completed.
Species Present: The species was observed during focused surveys for the current project and is assumed to occupy the Project site.
Presumed Absent: Suitable habitat is present on the Project site but focused surveys for the species were negative.

Appendix F

Explanation of Status Codes for Plant and Animal Species

FEDERAL AND STATE CODES

U.S. Fish and Wildlife Service (USFWS)

BCC	Bird of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
FC	Federal candidate species
FE	Federally listed endangered
FPD	Federally proposed for delisting
FPE	Federally proposed endangered
FPT	Federally proposed threatened
FT	Federally listed threatened

USFWS Birds of Conservation Concern (BCC)

The primary legal authority for Birds of Conservation Concern (2008) is the Fish and Wildlife Conservation Act of 1980 (FWCA), as amended. Other authorities include the Endangered Species Act, Fish and Wildlife Act (1956) and 16 United States Code (USC) §701. A FWCA 1988 amendment (Public Law 100-653, Title VIII) requires the Secretary of the Interior through the U.S. Fish and Wildlife Service (USFWS) to "identify species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." The 2008 BCC report is the most recent effort by the USFWS to carry out this proactive conservation mandate.

The BCC report aims to identify accurately the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the USFWS's highest conservation priorities and draw attention to species in need of conservation action. The USFWS hopes that by focusing attention on these highest priority species, the report will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby ensuring the future of healthy avian populations and communities. Birds of Conservation Concern 2008 lists are available online at https://www.fws.gov/media/birds-conservation-concern-2021.

USFWS Federal Candidate (FC) Species

Federal candidate species are those for which the USFWS has on file "sufficient information on biological vulnerability and threats to support a proposal to list as endangered or threatened, but for which preparation and publication of a proposal is precluded by higher-priority listing actions. [The USFWS] maintain[s] this list for a variety of reasons: to notify the public that these species are facing threats to their survival; to provide advance knowledge of potential listings that could affect decisions of environmental planners and developers; to provide information that may stimulate conservation efforts that will remove or reduce threats to these species; to solicit input from interested parties to help us identify those candidate species that may not require protection under the [Endangered Species Act] or additional species that may require the Act's protections; and to solicit necessary information for setting priorities for preparing listing proposals" (Federal Register 70:90 [May 11, 2005]).

USFWS Federal Proposed Endangered (FPE) Species

Any species the Service has determined is in danger of extinction throughout all or a significant portion of its range and the Service has proposed a draft rule to list as endangered. Proposed endangered species are not protected by the take prohibitions of section 9 of the Endangered Species Act (ESA) until the rule to list is finalized. Under section 7(a)(4) of the ESA, federal agencies must confer with the Service if their action will jeopardize the continued existence of a proposed species.

USFWS Federal Proposed Threatened (FPT) Species

Any species the Service has determined is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and the Service has proposed a draft rule to list as threatened. Proposed threatened species are not protected by the take prohibitions of section 9, consistent with any protective regulations finalized under section 4(d) of the ESA, until the rule to list is finalized. Under section 7(a)(4) of the ESA, federal agencies must confer with the Service if their action will jeopardize the continued existence of a proposed species.

USFWS Bald and Golden Eagle Protection Act (BGEPA)

In 1782, Continental Congress adopted the bald eagle as a national symbol. During the next one and a half centuries, the bald eagle was heavily hunted by sportsmen, taxidermists, fisherman, and farmers. To prevent the species from becoming extinct, Congress passed the Bald Eagle Protection Act in 1940. The Act was extremely comprehensive, prohibiting the take, possession, sale, purchase, barter, or offer to sell, purchase, or barter, export or import of the bald eagle "at any time or in any manner."

In 1962, Congress amended the Eagle Act to cover golden eagles, a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. The golden eagle, however, is accorded somewhat lighter protection under the Act than the bald eagle. Another 1962 amendment authorizes the Secretary of the Interior to grant permits to Native Americans for traditional religious use of eagles and eagle parts and feathers.

California Department of Fish and Wildlife (CDFW)

SCE	State candidate for listing as endangered
SCT	State candidate for listing as threatened
SE	State listed endangered
SR	State listed rare
ST	State listed threatened
SSC	State species of special concern
WL	Watch List
FP	Fully Protected species refers to all vertebrate and invertebrate taxa of concern to the Natural Diversity Data Base regardless of legal or protection status. These species may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFW.
Special Animal	Refers to all vertebrate and invertebrate taxa of concern to the Natural Diversity Database regardless of legal or protection status.

California Environmental Quality Act (CEQA)

For plants with no current federal or state legal standing, "CEQA" refers to the fact that under the Act, impacts to species may be found significant under certain circumstances (e.g., the species are regionally sensitive and/or are protected by a local policy, ordinance, or habitat conservation plan; or the impact involves interference with certain movements or migrations, with wildlife corridors or with nursery sites).

OTHER CODES AND ABBREVIATIONS

California Native Plant Society California Rare Plant Rank (CRPR) Codes

Lists

1A = Presumed extirpated in California and either rare or extinct elsewhere. Eligible for state listing.

1B = Rare, threatened, or endangered in California and elsewhere. Eligible for state listing.

2A = Presumed extirpated in California but common elsewhere. Eligible for state listing.

2B = Rare, threatened, or endangered in California but more common elsewhere. Eligible for state listing.

3 = Review List: Plants about which more information is needed. Some eligible for state listing.

4 = Watch List: Plants of limited distribution. Needs monitoring for changes in population status. Few (if any) eligible for state listing.

List/Threat Code Extensions

.1 = Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)

.2 = Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

A "CA Endemic" entry corresponds to those taxa that only occur in California.

All List 1A (presumed extinct in California) and some List 3 (need more information; a review list) plants lacking threat information receive no extension. Threat Code guidelines represent only a starting point in threat level assessment. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Code.

County of Riverside

Multiple Species Habitat Conservation Plan (MSHCP) Covered

MSHCP Covered Species indicates that the species is part of a proposed list of species (146 total) considered at this time to be adequately conserved by the Western Riverside County MSHCP, provided

that participants meet all conditions listed in the Final MSHCP. These species are discussed in Section 2.1.4 and 9.2 of the MSHCP, Volume 1.

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Group Designation

Group 1 – Take coverage is warranted based upon regional or landscape level considerations, such as healthy population levels, widespread distribution throughout the MSHCP Plan Area, and life history characteristics that respond to habitat-scale conservation and management actions.

Group 2 – Take coverage is warranted based upon regional or landscape level considerations with the addition of site-specific conservation and management requirements that area clearly identified in the MSHCP for species that are generally well distributed but that have core habitats that require conservation.

Group 3 – Take coverage is warranted based upon site-specific considerations and the identification of specific conservation and management conditions for species within a narrowly defined habitat or limited geographic area within the MSHCP Plan Area.

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Special Species Acronyms/Abbreviations

NEPSSA	Narrow Endemic Plant Species Survey Area species – Designated Area where focused surveys are required for plant species that are highly restricted by their habitat affinities, edaphic requirements, or other ecological factors, and for which specific conservation measures have been identified in Section 6.1.3 of the MSHCP, Volume I.
CASSA	Criteria Area Species Survey Area – Designated areas where focused surveys for specific species are required. These are species for which existing available information is not sufficient, and for which specific conservation measures have been identified in Section 6.3.2 of the MSHCP, Volume I.
Planning Species	Subsets of Covered Species that are intended to provide guidance for MSHCP Reserve assembly in Cores, Linkages, and Area Plans.

Appendix G

Special-Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
INVERTEBRATES			
Insects			
Crotch's bumble bee (*Bombus crotchii*)	--/SCE	Found throughout southwestern California from the Central Valley south to the U.S./Mexico border. Inhabits open grasslands and scrub habitats. Primarily nests underground, often in abandoned rodent dens, and forages on a wide variety of flowers, but a short tongue renders it best suited to open flowers with short corollas. Most commonly observed on flowering species in the Fabaceae, Asteraceae, and Lamiaceae families. Occurrence has also been linked to habitats containing *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia* genera.	**Presumed Absent:** Not observed during 2025 and 2026 focused species surveys conducted for the Project site. Non-native grassland is present in the Project site, and California ground squirrel that would create places to nest were observed, but limited nectaring resources. No recent records of this species occur in the vicinity; one record of this species from 1981 occurs approximately 3.9 miles to the southeast.
Monarch butterfly (*Danaus plexippus*)	PT/-- (Pop. 1 - California overwintering population)	Population west of the Rocky Mountains migrates to, and overwinters, along the coast of central and southern California. Inhabits a wide variety of open habitats including fields, meadows, marshes, and roadsides and roosting on wind-protected tree groves (such as eucalyptus [*Eucalyptus* spp.], Monterey pine [*Pinus radiata*], and cypress [*Hesperocyparis* sp.]), with nectar and water sources nearby. Breeds in areas that have a suitable abundance of the species' larval host plant, milkweed (*Asclepias* sp.).	**Overwintering Population Not Likely to occur.** The species' overwintering population is not recorded in the County. Open habitats occur in Project site but milkweed was not observed during focused plant surveys conducted for most of the Project site. Not observed during biological surveys.
Quino checkerspot butterfly (*Euphydryas editha quino*)	FE/SCE Covered	Occurs in California from western Riverside County southwards to southern San Diego County. Inhabits open and sparsely vegetated areas that contain larval host plant species (principally dot-seed plantain [*Plantago erecta*], woolly plantain [*Plantago patagonia*] but also Coulter's snapdragon [*Antirrhinum coulterianum*], Chinese houses [*Collinsia* spp.], and rigid bird's beak [*Cordylanthus rigidus*]) and nectar sources. Often found on rounded hilltops, ridgelines, and occasionally rocky outcrops. Occurs within a wide range of open-canopied habitats including vernal pools, sage scrub, chaparral, grassland, and open oak and juniper woodland communities.	**Not Likely to Occur:** Host plants were not observed in the Project site during biological surveys. The species has been recorded within 3 miles of the Project site, although the species was not observed during biological surveys.

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Crustaceans			
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT/-- Covered	Restricted to cool water vernal pools or other ephemeral basins (occasionally in ditches and road ruts that support suitable conditions) from Tehama County in northern California south to the Central Valley. Disjunct populations also found within Riverside County and the Coastal Ranges. Though found over a large geographical range, has a sporadic distribution and is seldom abundant where found, especially where it co-occurs with other large branchiopod species.	**Presumed Absent.** Species not observed during 2024-2025 and 2025-2026 wet season fairy shrimp surveys conducted for the Project site. Suitable habitat (road ruts, shallow depressions, and an ephemeral pond) occur within the Project site, as well as Domino and Willows soils, which are associated with vernal pools. Domino soils are mapped where Warm Springs Creek crosses the Study Area and other places along Leon and Beeler Roads. Willows soils are mapped along Wickerd Road by the western potential aquatic resource, as well as outside the Project area along Scott Road. The nearest record is approximately 1.4 mile to the west.
Riverside fairy shrimp (*Streptocephalus woottoni*)	FE/-- Covered	In California, occurs from Los Angeles County south to coastal San Diego County, and east to western Riverside County. Found in deep seasonal vernal pools, ephemeral ponds, stock ponds, and other human modified depressions at least 30 centimeters deep. Associated with grasslands, which may be interspersed through chaparral or coastal sage scrub vegetation.	**Presumed Absent.** Species not observed during 2024-2025 and 2025-2026 wet season fairy shrimp surveys conducted for the Project site. Extended ponding has been observed at the ephemeral pond along Scott Road and the depression southwest of the intersection of Leon Road and Garbani Road. Species not observed in the latter feature during 2024-2025 wet season fairy shrimp surveys. Species recorded within 3 miles.

Species	Status[1]	Habitat Associations	Potential to Occur[2]
VERTEBRATES			
Amphibians			
Western spadefoot (*Spea hammondii*)	PT/SSC Covered	Occurs from northern California southward to San Diego County, west of the Sierra Nevada at elevations below 4,500 feet. Terrestrial species requiring temporary pools for breeding. Typically breeds October through May. Suitable upland habitats include coastal sage scrub, chaparral, and grasslands. Most common in grasslands with vernal pools or mixed grassland-coastal sage scrub areas. Breeds in temporary pools formed by heavy rains but may also be found in riparian habitats with suitable water resources. Breeding pools must lack exotic predators such fish, bullfrogs, and crayfish for the species to successfully reproduce. Estivates in burrows within upland habitats adjacent to potential breeding sites.	**Moderate Potential to Occur.** Freshwater marsh bordered by undeveloped land was observed immediately outside of the Project site. Although enough water had been present for establishment of marsh, drainages did not have flowing water. Limited undeveloped land occurs within the Project site by the marsh, and it is heavily disturbed by parking for Liberty High School. This species is recorded within 3 miles, including 1.3 miles downstream along Warm Springs Creek. Not observed during biological surveys. Species would likely have been observed during fairy shrimp surveys if present; however, nighttime surveys were not conducted.
Reptiles			
Southwestern [western] pond turtle (*Actinemys* [*Emys marmorata*] *pallida*)	PT/SSC Covered	In California, occurs in most major coast-facing drainages below 4,700 feet from the San Francisco Bay area south to San Diego County, including the Mojave River (San Bernardino County) and Andreas Canyon (Riverside County). Habitat generalist that occurs within many types of aquatic habitats from freshwater to brackish environments and permanent to intermittent waterbodies. Inhabits creeks, slow moving rivers, marshes, ponds, lakes, reservoirs, vernal pools, canals and even sewage treatment plants. Prefers habitats with slow flowing water, particularly where basking sites (such as rocks, downed logs, or emergent vegetation), deep water retreats, and egg laying areas are readily available. Leaves water and travels to surrounding upland habitats to nest, over-winter, and aestivate.	**Low Potential to Occur.** Limited freshwater marsh was observed next to the Project site and Warm Springs Creek crosses the Project site; however, these features did not have flowing water. The nearest record is 4 miles to the south. Not observed during biological surveys.
Southern California legless lizard (*Anniella stebbinsi*)	--/SSC	Occurs in areas with sandy or loose organic soils or where there is plenty of leaf litter; moisture is essential. Common in several habitats but especially in coastal dunes, coastal scrub, chaparral, and valley-foothills. Found primarily in areas with sandy or loose organic soils or where there is plenty of leaf litter.	**Low Potential to Occur.** Sandy soils are associated with some of the drainages along the Project site, but these are not consistently moist. The nearest record is 4.4 miles to the southeast. Not observed during biological surveys.

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Orange-throated whiptail (*Aspidoscelis hyperythra* [*Cnemidophorus hyperthrus*])	--/WL Covered	Found within the southwestern portion of California in southern San Bernardino, western Riverside, Orange, and San Diego Counties on the western slopes of the Peninsular ranges below 3,500 feet. Suitable habitat includes coastal sage scrub, chaparral, juniper woodland, oak woodland, and grasslands along with alluvial fan scrub and riparian areas. Occurrence of the species correlated with the presence perennial plants (such as California buckwheat, California sagebrush, black sage, or chaparral) to provide a food base for its major food source, termites.	**High Potential to Occur.** Grassland habitat occurs in the Project site. The nearest record from 1997 is approximately 2 miles to the north. Not observed during biological surveys.
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)	--/SSC Covered	Occurs along coastal southern California from Santa Barbara to San Diego Counties and south into Baja California. Occurs in open coastal sage scrub, chaparral, riparian areas, woodlands, and rocky areas. Prefers sand- and/or gravel-bottomed habitats and brush areas associated with washes. Preys on insects, spiders, scorpions, or other small arthropods.	**Not Likely to Occur.** Suitable habitat is not present. The nearest record from 1997 is approximately 2 miles to the north.
Red-diamond rattlesnake (*Crotalus ruber*)	--/SSC Covered	Occurs in southwestern California from San Bernardino County south to San Diego County at elevations below 5,000 feet. Has a wide tolerance for varying environments including the desert, dense foothill chaparral, warm inland mesas and valleys, and cool coastal zones. Most commonly found near heavy brush with large rocky microhabitats. Chamise and red shank chaparral associations may offer better structural habitat for refuges and food resources.	**Not Likely to Occur.** Shrub habitat does not occur in the Project site. Nearest record from 1997 is approximately 2.3 mile to the northeast. Not observed during biological surveys.
Coast horned lizard (*Phrynosoma* [*coronatum*] *blainvillii*)	--/SSC Covered	In California, predominately occurs from Kern County south to San Diego County, west of the desert at elevations below 8,000 feet. Inhabits a wide variety of vegetation types including sagebrush scrub, chaparral, grasslands, forests, and woodlands but is restricted to areas with suitable sandy, loose soils with open areas for basking. Diet primarily composed of native harvester ants (*Pogonomyrmex* spp.) and are generally excluded from areas invaded by Argentine ants (*Linepithema humile*).	**High Potential to Occur.** Grassland occurs on sandy soils in Project site. The nearest record is approximately 1.8 miles to the southwest. Not observed during biological surveys.

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Birds			
Tricolored blackbird (*Agelaius tricolor*)	BCC/ST, SSC Covered	Highly colonial, nomadic species occurring as a year-round resident of California from Sonoma County to San Diego. Common locally in the Central Valley and sporadically throughout the State. Breeds in dense colonies. Breeding habitat typically characterized by emergent freshwater marsh dominated by tall, dense cattails (*Typha* spp.) and bulrush (*Schoenoplectus* spp.), though the species also utilizes willows (*Salix* spp.), blackberries (*Rubus* spp.), thistles (*Cirsium* and *Centaurea* spp.), nettles (*Urtica* sp.), and agricultural crops. Forages in grasslands and cropland habitats adjacent to breeding areas.	**Low Potential to Occur.** Limited freshwater marsh is present next to the Project site but is not of sufficient size to support a colony. The nearest record is 2.5 miles to the south. Not observed during biological surveys.
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	--/WL Covered	Occurs in coastal sage scrub and sparse mixed chaparral on rocky hillsides and in canyons; also found in open sage scrub/grassy areas of successional growth.	**Moderate Potential to Occur.** Grassland within the Project site is generally flat or gently sloping. The nearest record is 1.7 miles to the south. Not observed during biological surveys.
Golden eagle (*Aquila chrysaetos*)	--/WL, FP Covered	Uncommon permanent resident and migrant throughout California, except the center of the Central Valley. More common in southern California than in northern regions. Inhabits a variety of habitats, nesting in cliffs or trees and rugged terrain and foraging over plains, grasslands, or low and open shrublands including chaparral and coastal sage scrub. Typically absent from heavily forested areas or on the immediate coast and are almost never detected in urbanized environments.	**Low Potential to Occur.** Project site occurs along roadways and development. The closest record is from 1974 approximately 4.2 miles to the northwest. Not observed during biological surveys.
Bell's sage sparrow (*Artemisiospiza belli belli*)	--/WL Covered	Non-migratory resident on the coastal ranges of California and western slopes of the central Sierra Nevada mountains. Occurs year-round in southern California. Breeds in dry coastal sage scrub and chaparral, desert scrub, and similar other open, scrubby habitats. In foothill chaparral, they tend toward younger, less dense stands that are recovering from recent fires; less common in older, taller stands that have remained unburned.	**Not Likely to Occur.** Scrub habitat does not occur within the Project site. The nearest record is approximately 1.7 miles to the south. Not observed during biological surveys.

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Burrowing owl (*Athene cunicularia*)	BCC/SCE, SSC Covered	Found from central California east to the Mojave Desert and south to coastal San Diego County. Primarily a grassland species that prefers areas with level to gentle topography and well-drained soils. Species can also occupy agricultural areas, vacant lots, and pastures. Requires underground burrows for nesting and roosting that are typically dug by other species such as California ground squirrel (*Spermophilus beecheyi*). Also utilizes natural rock cavities, debris piles, culverts, and pipes for nesting and roosting.	**Moderate Potential to Occur.** Open habitat occurs in Project site, and California ground squirrel are present. Focused surveys in 2025 were negative, although a record from 2006 with a non-specific area is mapped over the Project site.
Ferruginous hawk (*Buteo regalis*)	--/WL Covered	Found only as wintering individual in California. Typically occupies flat and rolling terrain in grasslands, shrub habitats, and deserts.	**High Potential to Occur.** Open habitat with trees occurs in Project site, in proximity to Warm Springs Creek and potential aquatic resources. Nearest record approximately 1.1 miles to the northwest. Not observed during biological surveys.
Northern harrier (*Circus hudsonius*)	BCC/SSC Covered	Occurs as a year-round resident in California. Inhabits open areas including wetlands, marshes, marshy meadows, grasslands, riparian woodlands, desert scrub, and pastures and agricultural areas. Breeding populations in southern California from Ventura County to San Diego County are highly fragmented with many local populations extirpated mostly likely as a result of habitat loss and degradation. Nests on the ground in wetlands and uplands within patches of dense, often tall, vegetation in undisturbed areas.	**Low Potential to Occur.** Limited freshwater marsh was observed immediately downstream of two culverts within the Project site (outside of the site), but there is abundant open habitat for foraging. The nearest record is approximately 4.3 miles to the northeast by Diamond Valley Lake. Not observed during biological surveys.
White-tailed kite *(Elanus leucurus*)	--/FP Covered	Year-round resident of California residing along the coasts and valleys west of the Sierra Nevada foothills and southeast deserts; has also been documented breeding in arid regions east of the Sierra Nevada and within Imperial County. Inhabits low elevation grasslands, wetlands, oak woodlands, open woodlands, and is often associated with agricultural areas. Breeds in riparian areas adjacent to open spaces nesting in isolated trees or relatively large stands.	**Low Potential to Occur.** Woody riparian habitat is lacking, and freshwater marsh was limited to the vicinity of two culverts next to the Project site. Isolated trees occur along the roadside, but there is abundant open habitat for foraging. The nearest record is approximately 4.5 miles to the northeast. Not observed during biological surveys.

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Southwestern willow flycatcher (*Empidonax traillii extimus*)	FE/SE Covered	Breeds in southern California, Arizona, New Mexico, southwestern Colorado, and extreme southern portions of Nevada and Utah. Riparian obligates that breed in relatively dense riparian habitats along rivers, streams, or other wetlands where surface water is present, or soils are very saturated. Breeding habitat can consist of monotypic stands of willows (*Salix* ssp.), a mixture of native broadleaf trees and shrubs, monotypic stands of exotics such as tamarisk (*Tamarix* spp.) or Russian olive (*Elaeagnus angustifolia*), or mixture of native broadleaf trees and shrubs with exotics. Restricted in San Diego County to two modest colonies at San Luis Rey River and Santa Margarita River, with a few scattered pairs.	**Not Likely to Occur.** Wooded riparian habitat is not present. A few willows are located next to the Project site within the marshland at the culvert outflows along Wickerd Road, where there is abundant vehicle traffic. This species was recorded in 1989 within 5 miles. Not observed during biological surveys.
California horned lark (*Eremophila alpestris actia*)	--/WL Covered	In California, occurs along the coastal ranges of from San Joaquin Valley south to U.S./Mexico border. Inhabits a wide variety of open habitats with low, sparse vegetation where trees and large shrubs are generally absent. Suitable habitats include grasslands along the coast, deserts within the inland regions, shrub habitat at higher elevations, and agricultural areas.	**High Potential to Occur.** Suitable grassland habitat occurs in the Project site. Nearest record is approximately 2.6 miles to the north. Not observed during biological surveys.
Bald eagle (*Haliaeetus leucocephalus*)	Delisted/ SE, FP Covered	Occurs as a permanent resident or uncommon winter migrant within California. Breeds primarily in northern California (Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties) but also nests in scattered locations in the Sierra Nevada mountains and foothills, in several locations from the central coast to inland southern California, and on Santa Catalina Island. Associated with large bodies of waters including estuaries, rivers, lakes, and reservoirs. Nests in the upper canopy of the tallest trees in the area.	**Not Likely to Occur.** Extensive forests and water sources do not occur in the Project site. Warm Springs Creek is seasonally dry. Nearest record from 1997 is approximately 4.5 miles to the southeast by Lake Skinner. Not observed during biological surveys.

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Loggerhead shrike (*Lanius ludovicianus*)	--/SSC Covered	In California, found year-round throughout the foothills and lowlands with winter migrants found coastally north of Mendocino County. Inhabits a variety of habitats seen foraging over open ground within areas of short vegetation, pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral and beach with scattered shrubs. Individuals forage by perching to search for prey (such as large insects, small mammals, amphibians, reptiles, and fish) and using impaling as a means of handling prey.	**Low Potential to Occur.** Open habitat with trees occurs in Project site. Nearest record is approximately 3.7 miles to the northeast by Diamond Valley Lake. Not observed during biological surveys.
Coastal California gnatcatcher (*Polioptila californica californica*)	FT/SSC	Year-round resident of California occurring from Ventura County south to San Diego County, and east to the western portions of San Bernardino and Riverside Counties. Typically occurs in arid, open sage scrub habitats on gently sloped hillsides to relatively flat areas at elevations below 3,000 feet. Composition of sage scrub in which gnatcatchers are found varies though California sagebrush (*Artemisia californica*) present as dominant or co-dominant species. Mostly absent from areas dominated by black sage (*Salvia mellifera*), white sage (*Salvia apiana*), or lemonade berry (*Rhus integrifolia*), though may occur more regularly in inland regions dominated by black sage.	**Not Likely to Occur.** Suitable shrub habitat is not present in the Project site. Nearest record is approximately 0.1 mile to the east. Not observed during biological surveys.
Least Bell's Vireo (*Vireo bellii pusillus*)	FE/SE Covered	In California, breeds along the coast and western edge of the Mojave Desert from Santa Barbara County south to San Diego County, and east to Inyo, San Bernardino, and Riverside Counties. Breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging. Dominant species within breeding habitat includes cottonwood (*Populus* spp.) and willows (*Salix* spp.) with mule fat (*Baccharis salicifolia*), oaks (*Quercus* ssp.), and sycamore (*Platanus racemosa*), and mesquite (*Prosopis* spp.) and arrowweed (*Pluchea sericea*) within desert habitats. Can be tolerant of the presence of non-native species such as tamarisk (*Tamarix* spp.).	**Not Likely to Occur.** Wooded riparian habitat is not present in the Project site. There are few willows located next to the Project site within the freshwater marsh at the culvert outflows along Wickerd Road, where there is abundant vehicle traffic. Nearest record is 5.0 miles to the southwest. Not observed during biological surveys.

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Mammals			
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	--/-- Covered	Occurs throughout southwestern California from western Riverside County to northern Baja California at elevations below 6,000 feet. Inhabits coastal sage scrub, grasslands, and chaparral communities, and generally exhibits a strong microhabitat affinity for moderately gravelly and rocky substrates. Forages for seeds from California sagebrush, California buckwheat, lemonade berry, and grasses under shrub and tree canopies, or around rock crevices.	**Low Potential to Occur.** While grassland habitat occurs in the Project site, soils are sandy or clayey rather than gravelly or rocky. Nearest record from 1994 is approximately 1.9 miles to the east, across State Route 79. Not observed during biological surveys.
San Bernardino kangaroo rat (*Dipodomys merriami parvus*)	FE/SE, SSC, Covered	Occurs in southern California within the San Jacinto Valley, western Riverside County, and southwestern San Bernardino County, and northwestern San Diego County. Within the MSHCP, known from historic flood plains of the San Jacinto River and Bautista Creek and their tributaries. Inhabits native to open grasslands and sparse coastal sage scrub (less than 30 percent cover) on relatively flat or gently sloping ground. Dominant species include native and non-native herbaceous species such as filaree (*Erodium* sp.), non-native grasses (*Bromus* ssp.), California sagebrush, and California buckwheat.	**Not Likely to Occur**: The Project site is not located in the known area of this species within the MSHCP although the species has been recorded historically on or near the Project site. Suitable habitat occurs in portions of the Project site. Not observed during biological surveys.
Stephens' kangaroo rat (*Dipodomys stephensi*)	FE/ST Covered	Present day range in San Bernardino and Riverside counties. Prefers alluvial scrub/ coastal sage scrub habitats on gravelly and sandy soils adjoining river and stream terraces, and on alluvial fans; and rarely occurs in dense vegetation or rocky washes.	**Moderate Potential to Occur**: The Project site is not mapped as occupied habitat or located within a SKR core reserve. Suitable habitat occurs in portions of the Project site; the species has been recorded recently on or near the Project site but was not observed during biological surveys.
Western mastiff bat (*Eumops perotis californicus*)	--/SSC	In California, occurs from Monterey County to San Diego County from the coast eastward to the Colorado Desert. Found in open, semi-arid to arid habitats including coastal and desert scrub, grasslands, woodlands, and palm oases. Prefers to roost in high situations above the ground on vertical cliffs, rock quarries, outcrops of fractured boulders, and occasionally tall buildings.	**Low Potential to Occur.** Suitable roosting habitat not present but may forage in grassland habitat that occurs in the Project site. Nearest record from 1990 approximately 5.1 miles to the northwest. Not observed during biological surveys.

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Western yellow bat (*Lasiurus xanthinus*)	--/SSC	Ranges from southern Santa Barbara County south (on the coastal slope) to the vicinity of San Quintin, Baja California. Occurs in wooded areas and desert scrub. Roosts in trees, in palms and other desert riparian habitats. Uncommon in California, known only in Los Angeles and San Bernardino Counties south to the Mexican border.	**Not Likely to Occur.** Suitable woodland and scrub habitat not present. Nearest record from 1990 is approximately 5.2 miles to the northwest. Not observed during biological surveys.
San Diego black tailed jackrabbit (*Lepus californicus bennettii*)	--/-- Covered	Occurs along the coastal regions of southern California. Found in arid regions preferring grasslands, agricultural fields, and sparse scrub. Typically absent from areas with high-grass or dense brush, such as closed-canopy chaparral, primarily occupying short-grass and open scrub habitats.	**High Potential to Occur.** Suitable grassland occurs in the Project site. Nearest record from 1997 approximately 2.3 miles to the northeast. Not observed during biological surveys.
Southern grasshopper mouse (*Onychomys torridus ramona*)	--/SSC	Occurs from northern Los Angeles County along the coastal slope to extreme northwestern Baja California, Mexico. Found in desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	**Not Likely to Occur.** Suitable desert and scrub habitat not present. Nearest record from 1932 approximately 4.7 miles to the north. Not observed during biological surveys.
Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)	--/SSC Covered	Historically occurred from the San Fernando Valley of Los Angeles County east to Cabazon in the San Gorgonio Pass and southeast to north-central San Diego County. Possibly intergrades with the Palm Springs pocket mouse in San Felipe Valley. Found in sandy washes, grasslands, disturbed sage scrub, and oak woodland habitats.	**Low Potential to Occur.** Suitable sandy soils occur in the Project site, but the closest record 5.0 miles to the northwest is from 1993. Not observed during biological surveys.

1 Listing codes are as follows: FE = Federally Endangered; FT = Federally Threatened; FC= Federal Candidate species; BCC = Bird of Conservation Concern; SE = State of California Endangered; ST = State of California Threatened; SC= State of California Candidate species; FP = State of California Fully Protected; WL = State of California Watch List; SSC = State of California Species of Special Concern; Covered = Covered Species under MSHCP.

2 Potential to Occur is assessed as follows:

Not Likely to Occur: Habitat suitable for species survival does not occur in the Project site, the Project site is not within geographic range of the species, and/or the Project site is not within the elevation range of the species.

Low Potential to Occur: Suitable habitat is present on the Project site but of low quality and/or small extent. The species has not been recorded recently in the immediate vicinity of the Project site (within 3 miles). Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty.

Moderate Potential to Occur: Suitable habitat is present on the Project site and the species was recorded in the immediate vicinity of the Project site (within 3 miles) however, the habitat is of moderate quality and/or small extent. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty.

High Potential to Occur: Suitable habitat of sufficient extent is present on the Project site and the species has been recorded recently in the immediate vicinity of the Project site (within 3 miles) but was not observed during surveys for the current project. However, focused/protocol surveys are not required or have not been completed.

Species Present: The species was observed during focused surveys for the current project and is assumed to occupy the Project site.

Presumed Absent: Suitable habitat is present on the Project site but focused surveys for the species were negative.

Appendix H

Federal and State Jurisdictional Information

U.S. Army Corps of Engineers

The USACE regulates impacts to waters of the U.S. through Section 404 of the Clean Water Act. The definition of waters of the U.S. was revised by the Environmental Protection Agency (EPA) on August 28, 2023, with the new definition interpreted consistent with the *Sackett* decision, also known as the Conforming Rule.[1] The updated definition of waters of U.S. removes the significant nexus standard from determining if a watercourse is a water of the U.S., as well as requiring tributaries, adjacent wetlands, and intrastate lakes and ponds to be relatively permanent standing or continuously flowing bodies of water with a continuous surface connection to a(1) or a(2) waters.[2] Thus, ephemeral drainages that were once considered waters of the U.S. solely because of a downstream connection are no longer considered jurisdictional under the Conforming Rule. Additionally, wetlands now need to have a continuous surface connection to be waters of the U.S. A relatively permanent stream or wetland that enters a culvert to flow under a road is still considered to have a continuous surface connection.

To be classified as a wetland waters of the U.S. the habitat must meet the three criteria (vegetation, hydrology, and soils) established for wetland delineations as described within the Wetlands Delineation Manual[3] and Arid West Supplement.[4]

Boundaries of potential non-wetland waters of the U.S. are delineated by their relation to an ordinary high-water mark (OHWM). The OHWM is defined in 33 Code of Federal Regulations (CFR) Section 329.11 as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas." The USACE has issued further guidance on the OHWM.[5]

Regional Water Quality Control Board

The Regional Water Quality Control Board (RWQCB) asserts regulatory jurisdiction over activities affecting wetland and non-wetland waters of the State pursuant to Section 401 of the Clean Water Act (CWA) and the State Porter-Cologne Water Quality Control Act (Porter-Cologne Act). In cases where CWA Section 404 waters are present, the RWQCB asserts jurisdiction over the same waters under CWA

[1] Environmental Protection Agency (EPA). 2023. https://www.epa.gov/system/files/documents/2023-08/FINAL_WOTUSPublicFactSheet08292023.pdf. August 2023.

[2] Waters of the U.S. a(1) waters include waters which are (i) currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (ii) the territorial seas; or (iii) interstate waters. Waters of the U.S. a(2) waters consist of impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of intrastate lakes and ponds (which are described in the definition of a[5] waters).

[3] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y 87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. with Appendices.

[4] USACE 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Eds. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center. September 2008.

[5] Riley, D.T. 2005. Ordinary High Water Mark Identification. RGL No. 05-05. December 5. 4pp.
USACE 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. R.W. Lichvar and S.M. McColley. ERDC/EL TR-08-12. Hanover, NH. U.S. Army Engineer Research and Development Center. August 2008.

Section 401. When the waters present are not jurisdictional under CWA Section 404, the RWQCB then can assert jurisdiction of those waters under the State Porter-Cologne Act. Impacts under the Porter-Cologne Act are permitted via Waste Discharge Requirements (WDR). The State Water Resources Control Board's (SWRCB's) State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), adopted on April 2, 2019,[6] and implemented as of May 28, 2020, was used to identify potential RWQCB wetland waters of the State within the aquatic resource review area. The boundaries of non-wetland waters of the State stream channels are delineated to the OHWM. Vegetation rooted within the limits of the waters are also included within the limits of the RWQCB jurisdiction.

California Department of Fish and Wildlife

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game Code (CFG Code), the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife. CDFW does not have a specific definition of what constitutes a stream as it relates to regulation under Sections 1600-1603 of the CFG Code. In practice, CDFW defines a stream channel as that area where water uniformly or habitually flows over a given course, and where the width of the water course can reasonably be identified by physical or biological indicators (streambeds are typically considered areas that include a bed and bank). CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." CDFW jurisdictional boundaries are determined based on the presence of riparian vegetation or regular surface flow. Delineation of CDFW streambed width is measured to the top of bank. Riparian habitat extending outside the limits of stream channels is delineated as CDFW jurisdiction to the outermost edge.

[6] State Water Resources Control Board (SWRCB). 2019. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Adopted April 2, 2019.

Appendix C

Cultural Resources Survey

HELIX Environmental Planning

Eastern Municipal Water District Scott Road Regional Lift Station Sewer Conveyance Project

Cultural Resources Survey

October 2026 | 00244.00023.017

Prepared for:

Eastern Municipal Water District
P.O. Box 8300
Perris, CA 92572-8300

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
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National Archaeological Database Information

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Firm:	HELIX Environmental Planning, Inc.
Client/Project:	Eastern Municipal Water District/Scott Road Regional Lift Station Sewer Conveyance Project
Report Date:	October 2026
Report Title:	Cultural Resources Survey for the Eastern Municipal Water District Scott Road Regional Lift Station Sewer Conveyance Project, Riverside County, California
Submitted to:	Eastern Municipal Water District P.O. Box 8300 Perris, CA 92572-8300
Type of Study:	Cultural Resources Survey
New Sites:	GRD-S-008, BMF-Wickerd-1, BMF-Wickerd-2
Previously Recorded Sites:	CA-RIV-2305
USGS Quad:	*Winchester* 7.5' USGS quadrangle
Acreage:	
Key Words:	Riverside County; Community of Winchester; Eastern Municipal Water District; Luiseño; positive archaeological survey; cultural resources study; bedrock milling; San Diego Aqueduct; Township 6 South, Range 2 West; Scott Road Regional Lift Station; Wickerd Road Lift Station

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AMSL	above mean sea level
BP	before present
cal	calibrated
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
CRHR	California Register of Historical Resources
District	Eastern Municipal Water District
EMWD	Eastern Municipal Water District
ESA	Environmentally Sensitive Area
GPS	Global Positioning System
HELIX	HELIX Environmental Planning, Inc.
I-	Interstate
LF	linear feet
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
Pechanga	Pechanga Band of Indians
PRC	Public Resources Code
Project	Scott Road Regional Lift Station Sewer Conveyance Project
PVC	polyvinyl chloride
ROW	right-of-way

ACRONYMS AND ABBREVIATIONS (cont.)

Santa Fe	Atchison, Topeka and Santa Fe Railway
SCIC	South Coastal Information Center
SLR	San Luis Rey
Soboba	Soboba Band of Luiseño Indians
SR	State Route
SRRLS	Scott Road Regional Lift Station
TCP	Traditional Cultural Place
TCR	Tribal Cultural Resource
UCSB	University of California, Santa Barbara
USDA	United States Department of Agriculture
USGS	U.S. Geological Survey
VCP	vitrified clay pipe
WRLS	Wickerd Road Lift Station

EXECUTIVE SUMMARY

HELIX Environmental Planning, Inc. (HELIX) was contracted by Eastern Municipal Water District (EMWD) to conduct a cultural resources survey for the proposed Scott Road Regional Lift Station (SRRLS) Sewer Conveyance Project (Project) in western Riverside County, California. The Project Site is located east of Interstate 215, south of State Route (SR) 74, and west of SR 79. The site encompasses a 1.76-acre parcel at the southeastern corner of Scott Road and Leon Road, where the proposed SRRLS would be constructed, a 0.23-acre parcel where the existing Wickerd Road Lift Station (WRLS) is located, and roadway right-of-way (ROW) on the following segments: Beeler Road north of Scott Road; Scott Road between Leon Road and Beeler Road; Leon Road between Scott Road and Wickerd Road; Wickerd Road between the existing WRLS and Eucalyptus Road; and Eucalyptus Road between Wickerd Road and Craig Avenue. The proposed Project involves the construction and operation of a new expandable lift station (the SRRLS), the decommissioning of an existing lift station (WRLS), and the construction of gravity and force main sewers.

HELIX conducted a cultural resources survey for the project including a records search, Sacred Lands File search, Native American outreach, a review of historic aerial photographs and maps, and a pedestrian survey. This report details the methods and results of the cultural resources survey and has been prepared to comply with the California Environmental Quality Act (CEQA).

A records search conducted at the South Coastal Information Center (SCIC) in July 2025, indicated that approximately 61 previous cultural resources studies have been conducted within a one-mile radius of the Project, 11 of which overlap the Project Area to some extent. The records search results also indicated that 188 cultural resources have been previously recorded within a one-mile radius of the Project Area, one of which is within the Project Area. Several resources have recently been recorded in proximity to the Project Area that are not yet on file at SCIC, one of which is within the Project Area; these have also been included in the report. In addition, the San Diego Aqueduct crosses beneath a segment of the Project.

The Project Area was surveyed for cultural resources by a HELIX archaeologist and a Native American monitor from the Pechanga Band of Indians (Pechanga) in July 2025. Additional right-of-way areas were surveyed by HELIX archaeologists with representatives from Pechanga and a Native American monitor from the Soboba Band of Luiseño Indians (Soboba) in June 2026.

The field surveys resulted in the identification of two previously recorded resources (P-33-002305 [CA-RIV-2305] and GRD-S-008), as well as two newly recorded resources (BMF-Wickerd 1 and BMF-Wickerd 2). In addition, the San Diego Aqueduct crosses beneath Scott Road, east of Leon Road; due to its depth, it was not observed during the field survey. The four archaeological resources identified within the Project Area all consist of bedrock milling features with no associated above-ground artifacts observed.

The project has been designed to avoid impacts to the four archaeological resources by routing the pipeline alignments at least 10 meters (32.8 feet) from the edge of each resource. The resources have not been evaluated for California Register of Historical Resources (CRHR) eligibility. Pechanga and Soboba indicated they consider all the resources significant/CRHR eligible, as all are considered part of a larger village complex. Because the resources will be avoided through Project design, there will be no impacts to cultural resources in the form of archaeological sites. The San Diego Aqueduct has previously

been evaluated as eligible for the National Register of Historic Places (NRHP) and the CRHR; however, the Project would not affect this pipeline, as it is being avoided by the Project.

The Project has been designed to avoid impacts to archaeological cultural resources; however, numerous cultural resources are known in proximity to the Project Area, and Pechanga and Soboba have identified the area as part of a larger village site. Thus, the general area is sensitive for cultural resources. Based on the presence of cultural resources within and in proximity to the Project Area, it is recommended that an archaeological and Native American monitoring program be implemented, as detailed in this report.

1.0 INTRODUCTION

HELIX Environmental Planning, Inc. (HELIX) was contracted by the Eastern Municipal Water District (EMWD) to provide cultural resources services for the Scott Road Regional Lift Station (SRRLS) Sewer Conveyance Project (Project) in western Riverside County, California. HELIX conducted a cultural resources survey including a records search, Sacred Lands File search, Native American outreach, a review of historic aerial photographs and maps, and a pedestrian survey. This report details the methods and results of the cultural resources study and has been prepared to comply with the California Environmental Quality Act (CEQA).

1.1 PROJECT LOCATION

The project is located in unincorporated Riverside County, east of the City of Menifee (Figure 1, *Regional Location*). The site is located east of Interstate (I-) 215, south of State Route (SR) 74, and west of SR 79. The site encompasses a 1.76-acre parcel at the southeastern corner of Scott Road and Leon Road (Assessor's Parcel Number 472-060-001), where the proposed SRRLS would be constructed, a 0.23-acre parcel where the existing Wickerd Road Lift Station (WRLS) is located, and roadway right-of-way (ROW) on the following segments: Beeler Road north of Scott Road; Scott Road between Leon Road and Beeler Road; Leon Road between Scott Road and Wickerd Road; Wickerd Road between the existing WRLS and Eucalyptus Road; and Eucalyptus Road between Wickerd Road and Craig Avenue (Figure 2, *USGS Topography*; Figure 3, *Aerial Photograph*). The proposed project is located within Township 6 South, Range 2 West, Sections 8, 17, and 18, on the U.S. Geological Survey (USGS) 7.5-minute *Winchester* quadrangle topographic map (Figure 2).

The proposed project involves the construction and operation of a new expandable lift station (the SRRLS), the decommissioning of an existing lift station (WRLS), and the construction of gravity and force main sewers (Figure 4, *Conceptual Components*).

1.2 PROJECT DESCRIPTION

The new expandable SRRLS would be constructed on the 1.76-acre parcel located at the southeastern corner of Scott Road and Leon Road. The SRRLS would include wet wells that would accommodate influent flow from a new gravity line from the existing WRLS and new gravity lines in Beeler Road and Scott Road associated with planned residential development. Construction of the SRRLS would involve vegetation clearing, grading, installation of facilities, and paving. Once the new SRRLS is operational, the existing WRLS would be decommissioned. This would involve disconnecting utilities, removing equipment, and demolishing the lift station structure and surrounding pavements. The site would then be restored (i.e., graded).

The proposed gravity sewer from the WRLS would be constructed to allow flows to be conveyed south to the new SRRLS once the existing SRRLS is commissioned. The gravity line would route east from the WRLS site along Wickerd Road to Leon Road, south along Leon Road to Scott Road, and east on Scott Road to the SRRLS site. The gravity line would include 1,550 linear feet (LF) of 15-inch-diameter polyvinyl chloride (PVC) pipe in Wickerd Road; 1,300 LF of 21-inch-diameter vitrified clay pipe (VCP) in Leon Road; and 1,800 LF of 24-inch-diameter VCP in Leon Road and Scott Road up to the SRRLS.

Within Beeler Road, which is an unpaved road in the existing condition, a 675-LF, 12-inch-diameter PVC gravity line would be constructed from the proposed Ardis Ranch development located on the east side of Beeler Road to connect with a proposed gravity sewer in Scott Road, which would ultimately convey flows to the SRRLS. The gravity line in the Scott Road ROW would be 5,200 LF and would be constructed from Beeler Road to the SRRLS. The easternmost 1,380 LF would be 15-inch-diameter VCP pipe. The remaining 3,820 LF would be 18-inch-diameter VCP pipe. This would accommodate flows from the proposed Ardis Ranch development, the proposed Frederick's Ridge development located on the south side of Scott Road between Beeler Road and Christine Street, and other tributary flows from regional development.

Dual force mains, in addition to a segment of gravity sewer, would convey flows from the new SRRLS north to the existing 27-inch-diameter Holland Channel Gravity Sewer at the intersection of Craig Avenue and Eucalyptus Road. The force mains would be 12-inch-diameter PVC pipe and would route from the SRRLS north in Leon Road, east in Wickerd Road, and north in Eucalyptus Road to just north of Garbani Road for a total length of 9,000 LF. From the northern terminus of the force main alignment, a 2,250-LF, 21-inch-diameter gravity line would be constructed within Eucalyptus Road to connect the force mains to the existing Holland Channel Gravity Sewer at the intersection of Craig Avenue and Eucalyptus Road.

The various pipelines would be constructed within paved and unpaved roadway ROW. Construction would entail open-cut trenching, installing the pipe, backfilling the pipe, recompacting the surface, and repaving, where necessary. Trenchless construction methods, expected to be jack-and-bore, would be used to install the pipelines under select features, including culverts and pipelines.

The Project Area for the purposes of the cultural resources survey includes the ROW for the pipeline alignments, as well as the existing WRLS and the SRRLS location (Figure 3). Specific staging areas have not yet been identified; staging areas would be within the Project Area addressed in this report or within developed locations.

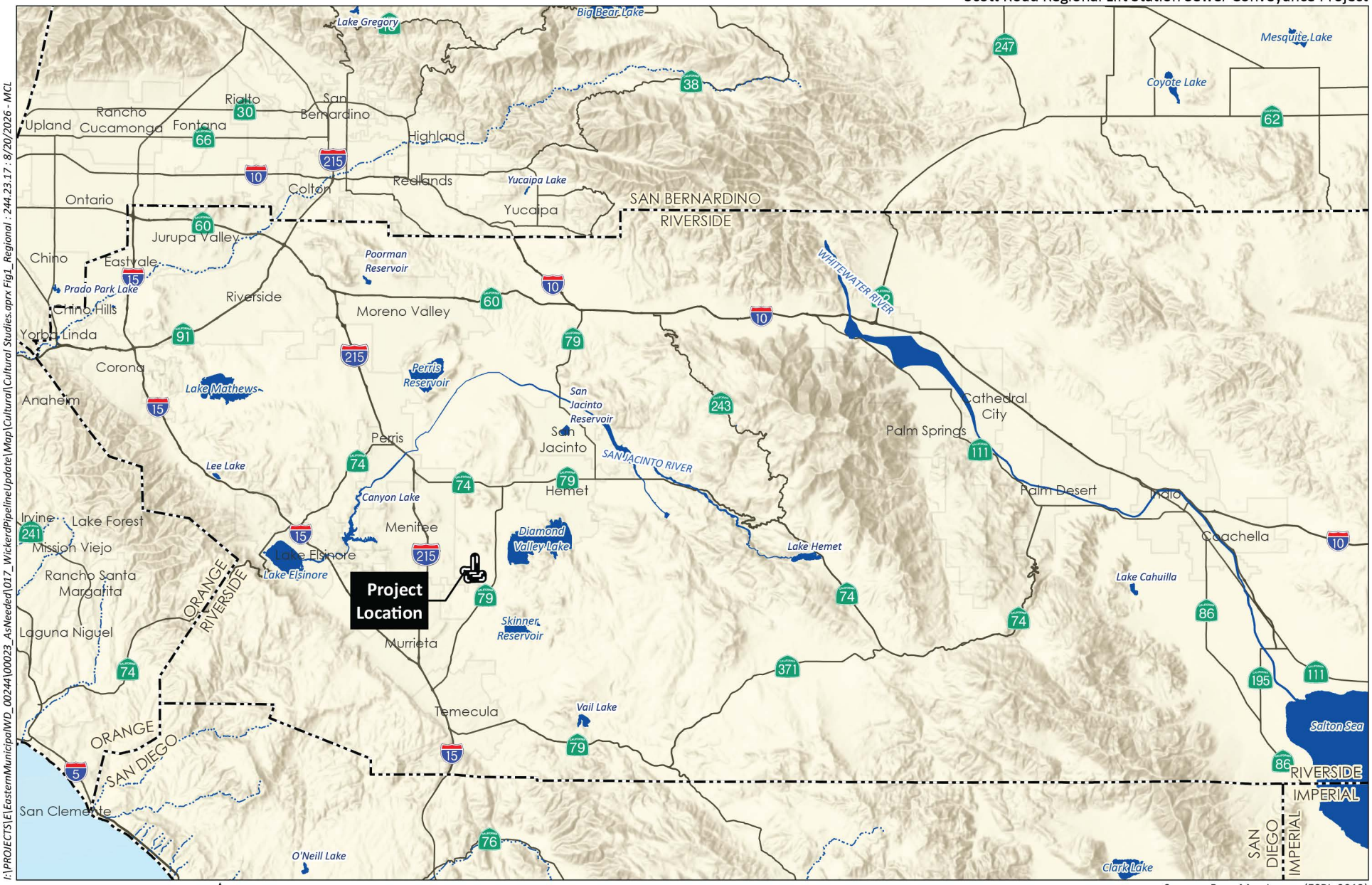
1.3 REGULATORY FRAMEWORK

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, and/or scientific importance. Significant resources are those resources that have been found eligible for listing in the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP; National Register), as applicable.

1.3.1 National Historic Preservation Act

Federal regulations that would be applicable to the project if there is a federal nexus (e.g., permitting or funding from a federal agency) consist of the National Historic Preservation Act (NHPA) and its implementing regulations (16 United States Code 470 et seq., 36 Code of Federal Regulations [CFR] Part 800). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on "historic properties," that is, properties that are eligible for the NRHP. To be eligible for the NRHP, a historic property must be significant at the local, state, or national level under one or more of the following four criteria:

A. Associated with events that have made a significant contribution to the broad patterns of our history;



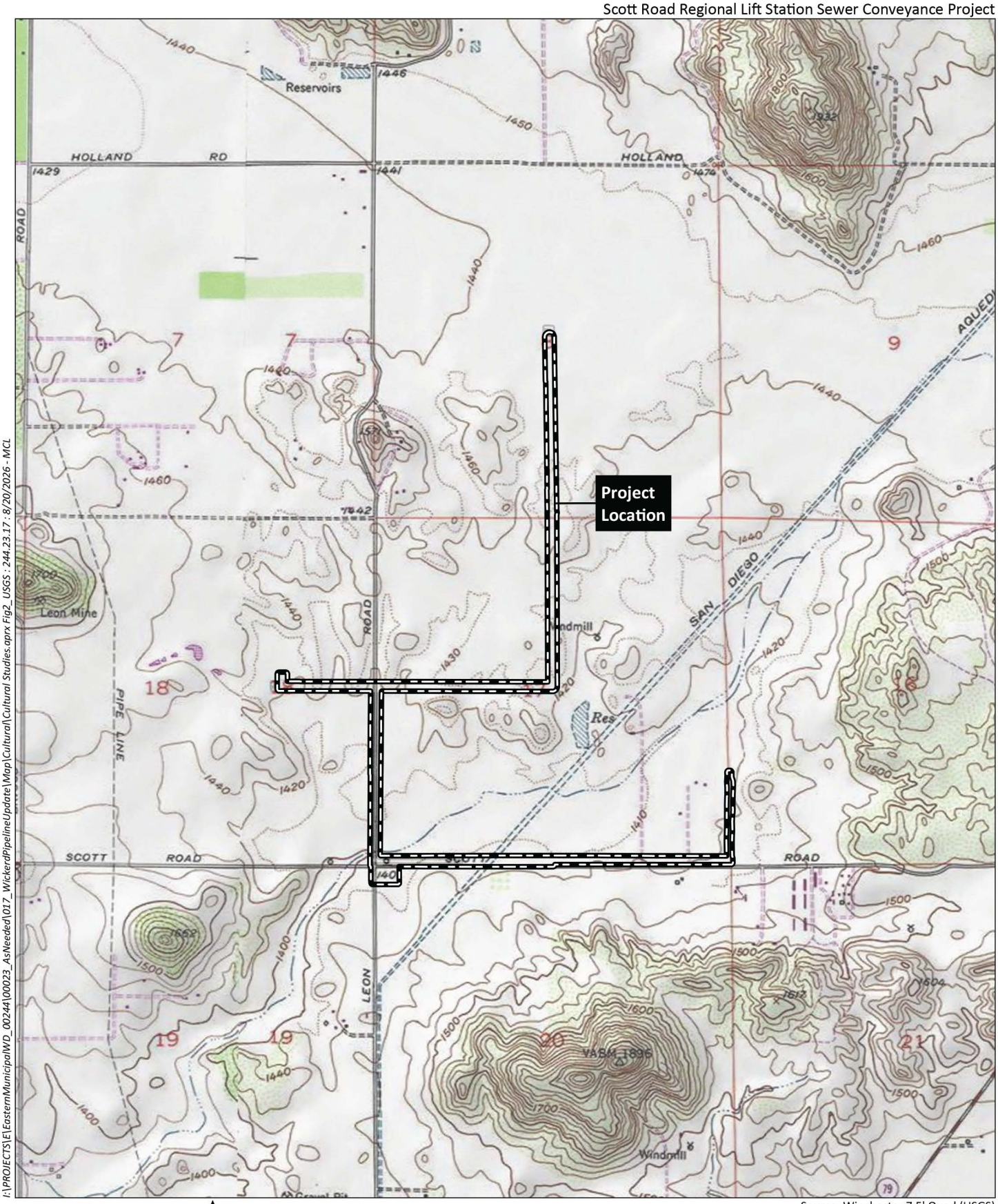
Source: Base Map Layers (ESRI, 2013)

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HELIX
Environmental Planning

Regional Location

Figure 1



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0 2,000 Feet

Source: Winchester 7.5' Quad (USGS)
Sections: 8, 16, 17, 18, 19 & 20
Township 6S, Range: 2W

HELIX Environmental Planning

USGS Topography

Figure 2



Source: Aerial (Vantor, 2025)

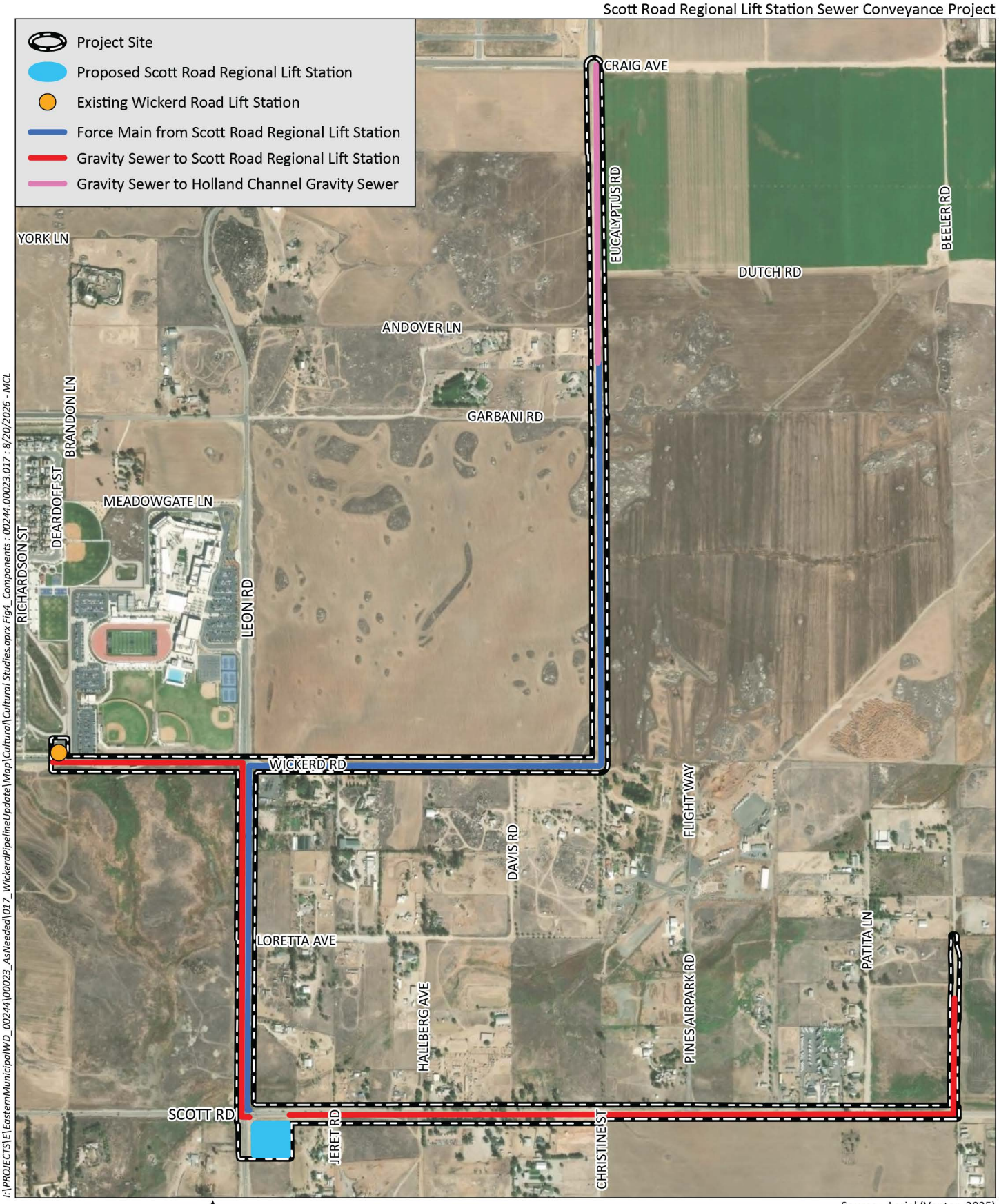
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HELIX Environmental Planning

Aerial Photograph

Figure 3

Scott Road Regional Lift Station Sewer Conveyance Project



Source: Aerial (Vantor, 2025)

HELIX Environmental Planning

Conceptual Components

Figure 4

B. Associated with the lives of persons significant in our past;

C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or

D. Has yielded or may be likely to yield, information important in prehistory or history.

1.3.2 California Environmental Quality Act

CEQA, Public Resources Code (PRC) 21084.1 and CEQA Guidelines, California Code of Regulations (CCR) Title 14 Section 15064.5 discuss significant cultural resources as "historical resources," and define them as:

- Resource(s) listed in or determined eligible by the State Historical Resources Commission for listing in the CRHR (14 CCR Section 15064.5[a][1]);
- Resource(s) either listed in the NRHP or in a "local register of historical resources" or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (14 CCR Section 15064.5[a][2]);
- Resources determined by the Lead Agency to meet the criteria for listing in the CRHR (14 CCR Section 15064.5[a][3]).

For listing in the CRHR, a historical resource must be significant at the local, state, or national level under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values;
4. It has yielded or has the potential to yield information important to the prehistory or history of the local area, California, or the nation.

Under 14 CCR Section 15064.5(a)(4), a resource may also be considered a "historical resource" for the purposes of CEQA at the discretion of the lead agency.

1.3.3 Integrity

All resources that are eligible for listing in the NRHP or CRHR must have integrity, which is the authenticity of a historic property/historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historic properties/ historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to

the retention of location, design, setting, materials, workmanship, feeling, and association. In an archaeological deposit, integrity is assessed with reference to the preservation of material constituents and their culturally and historically meaningful spatial relationships. A resource must also be judged with reference to the particular criteria under which it is proposed for nomination. Under Section 106 of the NHPA, actions that alter any of the characteristics that qualify a property for eligibility for listing in the NRHP "in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" (36 CFR 800.5[a]) constitute an adverse effect to the historic property.

1.3.4 Native American Heritage Values

Federal and state laws mandate that consideration be given to the concerns of contemporary Native Americans with regard to potentially ancestral human remains, associated funerary objects, and items of cultural patrimony. Consequently, an important element in assessing the significance of the Project Area has been to evaluate the likelihood that these classes of items are present in areas that would be affected by the proposed project.

Potentially relevant to Native American archaeological sites is the category termed Traditional Cultural Places (TCPs) in discussions of cultural resource management performed under federal auspices. A TCP "is defined as a building, structure, object, site, or district that may be listed in (or determined eligible for listing in) the National Register for its significance to a living community because of its association with cultural beliefs, customs, or practices that are rooted in the community's history and that are important in maintaining the community's cultural identity" (National Park Service [NPS] 2024:1). In the past, the term "traditional cultural properties" was used, in keeping with the NHPA's use of the term "historic properties." The updated guidance (NPS 2024) uses the term "traditional cultural *places*" to avoid any implication of commodification of cultural heritage and to be in keeping with the National Register of Historic *Places*. While some TCPs may be readily identifiable, others may be difficult to recognize for someone outside the community. "The existence and significance of culturally significant places can be understood first and foremost by learning from the people who live in, use, or value the area, or did so historically" (NPS 2024:13). Native American tribes are not the only living communities who may hold TCPs, although tribal TCPs tend to be more prevalent than those of other communities.

"Tradition" implies the passage over time of beliefs, customs, practices, language, and other intangible aspects of culture. Traditional group identify may be expressed in Indigenous knowledge, religious beliefs, ceremonial practices, dress (daily or ceremonial), or language. Cultural resources can include TCPs, such as gathering areas, landmarks, and ethnographic locations, in addition to archaeological districts. Generally, a TCP may consist of a single site, or group of associated archaeological sites (district or traditional cultural landscape), or an area of cultural/ethnographic importance.

In California, the Traditional Tribal Cultural Places Bill of 2004 requires local governments to consult with Native American Tribes during the project planning process, specifically before adopting or amending a General Plan or a Specific Plan, or when designating land as open space for the purpose of protecting Native American cultural places. The intent of this legislation is to encourage consultation and assist in the preservation of Native American places of prehistoric, archaeological, cultural, spiritual, and ceremonial importance. State Assembly Bill (AB) 52, effective July 1, 2015, introduced the Tribal Cultural Resource (TCR) as a class of cultural resource and additional considerations relating to Native American consultation into CEQA. As a general concept, a TCR is similar to the federally defined TCP; however, it incorporates consideration of local and state significance and required mitigation measures under CEQA.

A TCR may be considered significant if included in a local or state register of historical resources; or determined by the lead agency to be significant pursuant to criteria set forth in PRC §5024.1; or is a geographically defined cultural landscape that meets one or more of these criteria; or is a historical resource described in PRC §21084.1; or is a unique archaeological resource described in PRC §21083.2; or is a non-unique archaeological resource if it conforms with the above criteria.

1.4 PROJECT PERSONNEL

HELIX conducted a cultural resources survey to assess whether the project would have effects on cultural resources. Mary Robbins-Wade, M.A., RPA, served as Principal Investigator and senior report author. Kassie Sugimoto, M.A.; Theodore G. Cooley, M.A., RPA; and James Turner, M.A., RPA, are report co-authors. HELIX archaeologist Julie Roy, B.A., conducted the field survey with a Native American monitor from Pechanga Cultural Resources, representing the Pechanga Band of Indians (Pechanga); a later field survey of additional ROW included a Native American monitor representing the Soboba Band of Luiseño Indians (Soboba), as well as Pechanga representatives. Resumes for key HELIX personnel are presented in Appendix A.

2.0 PROJECT SETTING

2.1 NATURAL SETTING

The Project Area is located along the transition between the floodplain of the lower San Jacinto River and the adjacent mountain foothills of the rocky Lakeview Mountains immediately to the north and San Jacinto Mountains adjacent to the east, in western Riverside County, California. In the project vicinity, the floodplain is dissected by several named and unnamed tributary drainages to the San Jacinto River including Warm Springs Creek transecting the southern part of the Project Area. Diamond Valley Lake lies approximately 2.6 miles to the east of the Project Area, and Skinner Reservoir lies approximately 4.3 miles to the southeast; neither of these is a natural lake. Elevations in the Project Area range from approximately 1,458 feet above mean sea level (AMSL) in the northern project extent to approximately 1,403 feet AMSL in the southern portion of the Project Area. Land uses within and surrounding the Project Area include agricultural fields, dairy and livestock facilities, transportation infrastructure, water conveyance infrastructure, and intermittent areas of residential development.

Geologically, the area of the project alignment extending south from Craig Avenue along Eucalyptus Road to Wickerd Road is mapped as Cretaceous era granitic bedrock consisting of granodiorite grading into tonalite. The northernmost end of this segment, however, also extends slightly into an area containing old alluvial fan deposits (late to middle Pleistocene) consisting of indurated, commonly slightly dissected reddish brown, gravel and sand alluvial fan deposits. Thin alluvial fan deposits of Holocene age are also present in this area in places. The eastern two-thirds of the alignment segment extending west from Eucalyptus Road along Wickerd Road to Leon Road also lies within an area mapped as Cretaceous era granitic bedrock consisting of granodiorite grading into tonalite. In the western one-third of this segment, however, near the intersection with Leon Road, and beyond to the existing WRLS location, areas are present containing either Cretaceous era, dark, granitic bedrock consisting of gabbro, or very old, mostly well-dissected, well-indurated, reddish-brown alluvial fan deposits of middle to early Pleistocene age. In the project alignment segment extending south along Leon Road from the intersection with Wickerd Road to the intersection with Scott Road and the proposed location of the SRRLS, several geologic formations occur intermittently, including Cretaceous era granitic bedrock

consisting of gabbro; old alluvial fan deposits (late to middle Pleistocene) consisting of reddish brown, gravel and sand alluvial fan deposits, indurated, commonly slightly dissected; and Mesozoic age metamorphic bedrock consisting, principally, of quartzite. Also crossing this segment and Scott Road near the intersection of Leon Road and Scott Road is the old Warm Springs Creek channel containing Holocene age stream deposits (Morton n.d.). While the older alluvial fan deposits (Pleistocene) predate human occupation, there are small areas of younger (Holocene) alluvial deposits, which have the potential for buried cultural resources, as the soils would cover living surfaces of the Indigenous people during flooding events, then these would become the new living surfaces, as the cycle repeats itself over time and continues to bury artifacts and features.

Eleven soil series are variously mapped within the Project Area: the Cajalco series, the Chino series, the Cieneba series, the Domino series, the Escondido series, the Exeter series, the Fallbrook series, the Las Posas series, the Monserate series, the Vista series and the Willows series. The Cajalco series consists of fine sandy loam, eroded (8 to 15 percent slopes); the Chino series consists of silt loam, drained. The Cieneba series soils include sandy loam (5 to 8 percent slopes); sandy loam, eroded (8 to 15 percent slopes); and rocky sandy loam, eroded (15 to 50 percent slopes). The Exeter series includes sandy loam (0 to 2 percent slopes); sandy loam, eroded (2 to 8 percent slopes); and sandy loam, slightly saline-alkali (0 to 5 percent slopes). The Domino series consists of silt loam and silt loam saline-alkali soils; the Escondido series consists of fine sandy loam (2 to 8 percent slopes), eroded. The Fallbrook series includes fine sandy loam (2 to 8 percent slopes), eroded; fine sandy loam, eroded (8 to 15 percent slopes), sandy loam, shallow (5 to 8 percent slopes); and fine sandy loam, shallow, eroded (8 to 15 percent slopes). The Las Posas series includes loam (2 to 8 percent slopes) and loam (8 to 15 percent slopes), eroded; the Monserate soils consist of sandy loam (5 to 8 percent slopes), eroded. The Vista series soils include coarse sandy loam, shallow (2 to 8 percent slopes); coarse sandy loam, eroded (8 to 15 percent slopes); and coarse sandy loam, shallow, eroded (2 to 35 percent slopes); and the Willows soils consist of silty clay saline-alkali. Soils of the Cieneba series, the Domino series, the Exeter series, the Fallbrook series, and the Vista series occur along the portion of the Project Area extending from Craig Avenue south along Eucalyptus Road to Wickerd Road and west from Eucalyptus Road along Wickerd Road to Leon Road and the existing WRLS location. In the remaining portion of the Project Area, extending from Wickerd Road along Leon Road south to Scott Road and the proposed location of the SRRLS, soils of the Cieneba series, the Cajalco series, the Chino series, the Domino series, the Escondido series, the Fallbrook series, the Las Posas series, the Monserate series, and the Willows series occur (United States Department of Agriculture [USDA] 2026). These soil types support a variety of plant species, as addressed below, but for the most part are not indicative of alluvial or colluvial deposition in which buried cultural resources would be anticipated.

While the bedrock-exposed hill areas within and along the margins of the Project Area currently contain mostly non-native grassland and weeds with intermittent areas of sage scrub vegetation, it seems probable that before European contact, sage scrub vegetation predominated in these areas, with intermittent areas of native grassland. It also seems likely that in the alluvial floodplain areas of the San Jacinto River and the alluvial fan deposits in the Project Area, prior to tilling in historic and modern times, the vegetation also consisted of a mixture of native grassland and sage scrub vegetation. Riparian woodland plants may have been present along several of the more well-watered tributary drainages to the San Jacinto River, such as Warm Springs Creek, as well as along the San Jacinto River, approximately eight miles to the west. Prior to European contact, the natural vegetation of the sage scrub community included plants such as California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), flat-top buckwheat (*Eriogonum fasciculatum*), broom baccharis (*Baccharis sarothroides*), wild onion (*Allium haematochiton*), laurel sumac (*Malosma laurina*), San Diego sunflower (*Viguiera laciniata*), golden-

yarrow (*Eriophyllum confertiflorum*), sawtooth goldenbush (*Hazardia squarrosa*), yucca (*Yucca schidigera*, Y. *whipplei*), prickly pear cactus (*Opuntia occidentalis*), and scrub oak (*Quercus dumosa*), which would have covered most of the adjacent hill and mountain areas, with interspersed areas of native grasslands (*Stipa*, *Elymus*, *Poa*, and *Muhlenbergia*). The likely stands of riparian and riparian woodland communities along the San Jacinto River and some of its well-watered tributaries would have included plants such as sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), coast live oak (*Quercus agrifolia*), and willow (*Salix* sp.) (Munz 1974). Major wildlife species found in this environment during the precontact period were coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), grizzly bear (*Ursus arctos*), mountain lion (*Felis concolor*), rabbit (*Sylvilagus audubonii*), jackrabbit (*Lepus californicus*), and various rodents, the most notable of which are the valley pocket gopher (*Thomomys bottae*), California ground squirrel (*Otospermophilus beecheyi*), and dusky footed woodrat (*Neotoma fuscipes*) (Head 1972). Rabbits, jackrabbits, and rodents were very important to the Indigenous precontact diet; deer were somewhat less significant for food, but were an important source of leather, bone, and antler. Many of the native plant species found in these vegetation communities and those found in the project vicinity are known to have been used by Native populations for food, medicine, tools, and ceremonial and other uses (Bean 1978; Bean and Saubel 1972; Bean and Shipek 1978; Hedges and Beresford 1986; Oxendine 1983). Many of the animal species living within these communities such as rabbits, deer, small mammals, and birds would have been used by Native inhabitants as well.

2.2 CULTURAL SETTING

The Native American people indigenous to the Project Area, the Luiseño or *ʻAtáaxum*, do not necessarily recognize temporal distinctions made by archaeologists and linguists/linguistic anthropologists. Generally, traditional knowledge holds that the Native people have been here since time immemorial. The discussion below represents archaeological knowledge and is not fully reflective of traditional tribal knowledge.

2.2.1 Precontact Period

2.2.1.1 Introduction

Precontact resources are places that contain the material remains of activities carried out by the Native population of the area (Native Americans) prior to the arrival of Europeans in California. The term "prehistory" originated in academia to mean the time before there were written records, but it is widely understood that the term does not mean "before history." Native American occupation is known to extend back at least 10,000 years, representing a Native American "history" that long predates the arrival of Europeans. Because it is a nearly universal term used in cultural resources management and in academia to refer to Native American sites that predate European contact, the usage of "prehistoric" and "prehistory" is retained in some places in this report; however, where possible, the term "precontact" has replaced "prehistoric."

Moratto (1984) has previously defined eight archaeological regions and 16 subregions for California. The location of the project places it within the boundary of the San Diego subregion of the Southern Coast Region, but it is also located adjacent to the boundary with the Colorado River subregion of the Desert Region (Moratto 1984:148, Figure 4.13). The following culture history outlines and briefly describes the known precontact cultural Traditions and chronology of archaeological sites in the vicinity of the project. The approximately 10,000 years of documented prehistory of the region has often been divided into

three periods: Early Prehistoric Period (San Dieguito Tradition [Warren 1968]), Archaic Period (Milling Stone Horizon [Wallace 1955], Encinitas Tradition [Warren 1968]), and Late Prehistoric Period.

Prior to 1984, when Moratto defined the San Diego subregion, little archaeological investigation had occurred in the westernmost Riverside and San Bernardino counties portion of this subregion. This paucity of archaeological information limited the ability of early researchers to assess the cultural and temporal associations for the archaeological resources in this part of the subregion. One of the few early studies to occur in this area prior to 1984 was conducted near Temecula in the early 1950s at a site identified as the ethnohistoric village of *Temeku* (McCown 1955). The investigation produced a substantial, primarily Late Prehistoric Period, artifact assemblage, but with some possible late Archaic materials as well. Another study, conducted in the 1970s for the construction of the Perris Reservoir (O'Connell et al. 1974, eds.), consisted of investigations at several sites and was, perhaps, the most extensive study conducted in the area prior to 1984. The results, which included several radiocarbon dates, indicated a predominance of occupation at the sites during the Late Prehistoric Period, after A.D. 1500, but with some limited evidence for occupation as early 380 B.C. (Bettinger 1974:159-162). Since 1984, a number of archaeological studies have occurred in western Riverside County that have served to substantially augment the archaeological record for the area (e.g., Applied EarthWorks, Inc. 2001; Grenda 1997; Keller and McCarthy 1989; McCarthy 1986, 1987). Based on the information provided by these and other subsequent studies in the area, Sutton and Gardner (2010) and others have more recently begun to define the early prehistory of this area of the San Diego subregion and how it fits in with the previously better-known areas of the subregion. The three chronological periods defined for the prehistory of the San Diego subregion are described below.

2.2.1.2 Early Prehistoric Period

The Early Prehistoric Period represents the earliest archaeological evidence of the first known human inhabitants in California. In some areas of California, it is referred to as the Paleo-Indian period, and it is associated with the Big-Game-Hunting activities of the peoples of the last Ice Age, occurring during the Terminal Pleistocene and the Early Holocene, beginning circa 11,000 to 15,000 years ago (Erlandson et al. 2007). In the western United States, the most substantial evidence for the Paleo-Indian or Big-Game-Hunting peoples derives from finds of large, fluted spear and projectile points (Fluted-Point Tradition) at sites in places such as Clovis and Folsom in the Great Basin and the Desert Southwest (Moratto 1984:79-88). In California, most of the evidence for the Fluted-Point Tradition derives principally from areas along the western margins of the Great Basin including the eastern Sierras and the Mojave Desert, and in the southern Central Valley (Dillon 2002; Rondeau et al. 2007). Elsewhere in California, with the exception of a site in the north coast ranges in northwestern California, CA-LAK-36, only isolated occurrences of fluted spear points have occurred, scattered around the state (Dillon 2002; Rondeau et al. 2007). These isolated occurrences have, however, included two fluted points or fluted point fragments discovered in, or in close proximity to, the San Diego subregion; one in the mountainous northeastern area of San Diego County approximately 37 miles to the southeast of the Project Area (Kline and Kline 2007) and another along the coast approximately 40 miles to the west of the Project Area, in adjacent Orange County (Fitzgerald and Rondeau 2012). Two examples have also been discovered to the south in Baja California (Des Lauriers 2008; Hyland and Gutierrez 1995). Despite these isolated occurrences of fluted points in the San Diego subregion and Baja California, none have been found, to date, in the western Riverside or San Bernardino counties area (Dillon 2002; Rondeau et al. 2007).

The earliest sites in the San Diego subregion, documented to be circa 10,000 years old, belong to the San Dieguito Tradition (Warren et al 2008; Warren and Ore 2011). The San Dieguito Tradition, with an artifact assemblage distinct from that of the Fluted Point Tradition, has been documented mostly in the coastal and near coastal areas in San Diego County (Carrico et al. 1993; Rogers 1966; True and Bouey 1990; Warren 1966; Warren and True 1961), with possible evidence for it also recently found in the eastern mountains of San Diego County (Pigniolo 2005), as well as in the southeastern California deserts (Rogers 1939, 1966; Warren 1967). The content of the earliest component of the C.W. Harris Site (CA-SDI-149/316/4935B), located along the San Dieguito River, approximately 43 miles to the south of the project, formed the basis upon which Warren and others (Rogers 1966; Warren 1966, 1967; Warren and True 1961) identified the "San Dieguito complex," which Warren later reclassified as the San Dieguito Tradition (1968). This Tradition is characterized by an artifact inventory consisting almost entirely of flaked stone biface and scraping tools but lacking the fluted points associated with the Fluted-Point Tradition. Diagnostic artifact types and categories associated with the San Dieguito Tradition include elongated bifacial knives, scraping tools, crescentics, and, in the desert areas, Silver Lake, Lake Mojave, and leaf-shaped projectile points (Knell and Becker 2017; Rogers 1939; Vaughan 1982; Warren 1967). Some researchers interpret the San Dieguito Tradition/complex as having a primarily, but not exclusively, hunting subsistence orientation, but sufficiently hunting-oriented as to be distinct from the more gathering-oriented complexes of traits that were to follow in the Archaic Period (Warren 1968; Warren et al. 2008). Other researchers see the San Dieguito subsistence system as less focused on hunting and more diversified, and, therefore, possibly ancestral to, or a developmental stage for, the subsequent, predominantly gathering-oriented, Encinitas Tradition, denoted in the San Diego area as the "La Jolla/Pauma complex" (True 1958, 1980) during the Archaic Period (cf. Bull 1983; Ezell 1987; Gallegos 1985, 1987, 1991; Koerper et al. 1991). While little definite evidence for the San Dieguito Tradition has been discovered in other coastal and near-coastal areas of southern California outside of San Diego County, some evidence has recently been attributed to it in a coastal area to the north in Los Angeles County (Sutton and Grenda 2012).

2.2.1.3 Archaic Period

During the subsequent Archaic Period, artifact assemblages of the Milling Stone Horizon/Encinitas Tradition occur at a range of coastal and adjacent inland sites, and, in contrast to those of the previous Early Prehistoric Period, are relatively common in the Project Area region. These assemblages appear to indicate that a relatively stable, sedentary, predominantly gathering complex, possibly associated with one people, was present in the coastal and immediately inland areas of southern California for more than 7,000 years (Grenda 1997; Sutton and Gardner 2010; Warren 1968; Warren et al. 2008).

Warren has proposed that during the Archaic Period in the south coastal region, the Encinitas Tradition began circa 8,500 years ago and extended essentially unchanged until circa 1,500 years ago (Warren 1968:2; Warren et al. 2008). Also, during the Archaic Period in the coastal region, beginning somewhere north of San Diego and extending to Santa Barbara, a fourth cultural assemblage, variously described as the Intermediate Horizon (Wallace 1955) or Campbell Tradition (Warren 1968), has been delineated and distinguished, following the Milling Stone Horizon/Encinitas Tradition. This assemblage is distinguished from earlier Archaic assemblages by the presence of large projectile points and milling tools such as the mortar and pestle. The time period of this assemblage is viewed as beginning circa 4,800 years ago and continuing to as late as 1,300 years ago (Warren 1968). While still a matter of some debate, in the southernmost coastal region, Warren and others (2008) have subsequently divided the Archaic Period into a Middle Archaic Period and the time period encompassing the extent of the Intermediate/ Campbell cultural assemblage, termed the Final Archaic Period.

In the vicinity of the study area, archaeological investigations conducted at several sites in Perris Valley for the Perris Reservoir project, approximately 13 miles to the northwest of the Project Area, produced a single radiocarbon date within the Archaic Period of circa 2,200 years before present (BP), as well as a few diagnostic artifacts, as the only evidence for a late Archaic Period occupation at the sites (Bettinger 1974:159-162). Investigations at another site, CA-RIV-1806, in the mountains northwest of Temecula, also produced a radiocarbon date for the late Archaic Period of circa 2775 BP (McCarthy 1986:73). More recently, large-scale archaeological investigations have been conducted for the Eastside Reservoir (since renamed as Diamond Valley Lake) Project, located approximately one mile east of the Project Area. This project involved reservoir construction within the adjacent Domenigoni and Diamond valleys (Goldberg 2001; Robinson 2001). Based on the results from this project, the researchers developed a local chronology specific to the Domenigoni and Diamond valleys based on projectile point style changes and associated radiocarbon dates (Robinson 2001). The terminology in this chronology resembles that already presented above, with the period from 9,500 to 7,000 years ago designated as the Early Archaic period, the period from 7,000 to 4,000 years ago as the Middle Archaic, and the period from 4,000 to 1,500 years ago as the Late Archaic. Only two components could be firmly dated to the Early Archaic at the reservoir sites, but sparse evidence of Early Archaic activity was noted in six other localities. One site did, however, produce two radiocarbon dates of 9190±50 and 9310±60 BP (McDougall 2001). For the Middle Archaic, firm evidence was documented in 14 locations, with traces at four other sites. During the Late Archaic, a profusion of activity and occupation was evident, with 23 firmly dated site components and sparse evidence at eight other localities (Goldberg 2001:524).

Two other archaeological investigations conducted in relative proximity to the Project Area have also produced evidence for precontact occupation in the area during the earliest part of the Archaic Period. One investigation occurred at Lake Elsinore, located approximately 12 miles to the west of the Project Area (Grenda 1997). This natural lake is situated in a fault-created basin whose principal source of water in precontact times was the San Jacinto River (Grenda 1997:3). Archaeological investigations conducted at a site located along the old lake shoreline indicated occupation as early as 8,500 years ago (Grenda 1997). The other archaeological investigation was conducted in the San Jacinto Valley at site CA-RIV-6069 approximately 13 miles to the north of the Project Area. This investigation produced an early Archaic Period assemblage and occupation as early as 9,400 years ago (Horne and McDougall 2008:91). Thus, precontact occupation during the Archaic Period in areas of western Riverside County in the Project Area vicinity is documented to have occurred, beginning possibly as early as 9,400 years ago, and remained present to the end of the period, approximately 1,500 years ago. While this temporal extent correlates with Warren's original proposed extent of the Encinitas Tradition, refinement of his characterization of the Tradition as being a relatively stable, sedentary, predominantly gathering complex, possibly associated with one people, and with an extent mostly restricted to the San Diego County area, may now, based on more recent information available, be subject to some revision (cf. Sutton and Gardner 2010).

2.2.1.4 Late Prehistoric Period

The beginning of the Late Prehistoric Period, circa 1,500 years ago, is seen as a time marked by a number of rather abrupt changes. The magnitude of these changes and the short period of time within which they took place are reflected in significant alteration of previous subsistence practices and the adoption of significant new technologies. As discussed further below, some of this change may have been as a result of significant variations in climatic conditions. Subsistence and technological changes that occurred include a shift from hunting using atlatl and dart to the bow and arrow; a de-emphasizing of shellfish gathering along some areas of the coast (possibly due to silting-in of the coastal lagoons);

and an increase in the storage of crops, such as acorns and pinyon nuts. Other new traits introduced during the Late Prehistoric Period include the production of pottery and cremation of the dead, and, locally, in the western Riverside County area, a shift in settlement pattern is apparent (cf. Wilke 1974).

This shift in settlement is first noted during the early part of the period from 1,500 to 750 years ago and is evidenced locally in the results from the Eastside Reservoir (Diamond Valley Lake) Project by a rather sudden decline in occupation in the local area during the initial part of the period. This 750-year period was termed by the Eastside Reservoir researchers as the Saratoga Springs Period, following Warren's (1984) desert terminology. This period can also be seen to partially coincide with a warm and arid period known as the Medieval Warm Period, documented to have occurred between approximately 1,100 and 600 years ago (Jones et al. 1999; Kennett and Kennett 2000; Stine 1994). During this period, at least two episodes of severe drought have also been demonstrated, the first between 1060 and 840 calibrated (cal) BP and the second between 740 and 650 cal BP (Goldberg 2001; Stine 1994). While sites dating to this period are not absent in western Riverside County (e.g., Keller and McCarthy 1989; McCarthy 1987:34), Goldberg (2001) hypothesized that the Medieval Warm Period could account for the decline in sites occurring in the Eastside Reservoir Project area during the Saratoga Springs Period (1500 to 750 BP), claiming that desert and inland areas of western Riverside County, such as where the Eastside Reservoir Project and the current Project Area are located, would no longer be suitable to support residential bases. Goldberg (2001) further hypothesized that settlements would possibly be clustered at more suitable water sources during this time, such as at the coast, Lake Cahuilla, or Lake Elsinore (cf. Wilke 1974, 1978). While a decline was noted during the initial part of the Saratoga Springs Period, subsequently, during the latter part of the period, during the time of the Medieval Warm Period, a reoccupation began to occur (Goldberg 2001:578). According to Goldberg, "When components dating to the Medieval Warm segment of the Saratoga Springs Period are segregated and combined with Medieval Warm components from the Late Prehistoric Period, it shows that the frequency of refuse deposits and artifact and toolstone caches during the Medieval Warm is slightly higher than during the Late Archaic and much higher than during the later portion of the Late Prehistoric Period" (2001:578).

In the Eastside Reservoir [Diamond Valley Lake] Project, the Late Prehistoric Period was defined as extending from the end of the Saratoga Springs Period (750 BP) to 410 BP. A subsequent Protohistoric Period was also defined as extending from 410 to 150 BP. The Late Prehistoric (750–410 BP) was characterized by the presence of Cottonwood points, although research indicated that Cottonwood points had actually begun to appear in the Eastside Reservoir Project study area as early as 950 BP. Ceramics and abundant obsidian began to appear around the time of the Cabrillo exploration in A.D. 1542; so, this date (i.e., circa 410 BP), until the establishment of the mission system in the late 1700s, was defined as the Protohistoric Period (Robinson 2001). It should also be noted that the end of the Saratoga Springs Period and the beginning of the Late Prehistoric Period, 750 BP, also coincides with the onset of the Little Ice Age, generally dated from 750 to 150 BP (Goldberg 2001; Sutton et al. 2007). During this period, the climate was cooler and moister, and the sites identified within the Eastside Reservoir Project study area reflected a substantial increase in number and diversity, longer occupation periods, and more sedentary land use. Similar intensification of land use also occurred during this time in neighboring San Gorgonio Pass (Bean et al. 1991) and Perris Valley (Wilke 1974).

Differing from the terminology used in the Eastside Reservoir study, the Late Prehistoric Period has been more commonly described archaeologically in northern San Diego County and the western portion of Riverside County as the San Luis Rey (SLR) complex. As originally defined by Meighan (1954), the SLR complex is associated with the ethnohistoric Luiseño people (or *'Atáaxum*, meaning "the People"), who were present in the area at the time of first contact with Europeans. Meighan saw the complex as

occurring in two phases: SLR I and SLR II, with the principal archaeological element distinguishing the two phases being the absence of pottery in SLR I sites and its presence in SLR II assemblages. The introduction of pottery was seen as having disseminated to the precontact Luiseño from their neighbors, the Kumeyaay, to the south (Rogers 1936; Meighan 1954:221). Elements of the SLR I phase include small, triangular, pressure-flaked projectile points (generally Cottonwood series, with Desert Side-notched series points rarely occurring); milling implements: mortars and pestles, manos and metates, and bedrock milling features; bone awls; Olivella shell beads; other stone and shell ornaments; and cremations (Meighan 1954; Moratto 1984; Pigniolo 2004; True et al. 1974). In addition to pottery, the later SLR II assemblages include several other elements not found in SLR I assemblages: "cremation urns, red and black pictographs, and such nonaboriginal items as metal knives and glass beads" (Meighan 1954:223). SLR I was originally thought by Meighan to date from A.D. 1400 to A.D. 1750, with SLR II dating between A.D. 1750 and A.D. 1850 (Meighan 1954:223). This chronology was subsequently revised, however, by True and others, who suggested that, while "some pottery probably filtered across from Diegueño [Kumeyaay] territory perhaps as early as A.D. 1200-1300 under some circumstances, … the introduction of pottery as a regular and important element in the San Luis Rey lifeway probably did not take place until a century or two before the arrival of the Spanish (perhaps A.D. 1500-1600)" (True et al. 1974:97).

2.2.2 Ethnohistory

While ethnographers do not entirely agree with one another regarding traditional use areas, the project location is generally considered to lie within the traditional territory of the Luiseño people. The name Luiseño derives from Mission San Luis Rey de Francia and has been used to refer to the Native people associated with the mission. While it is recognized that the name *'Atáaxum* may be preferred by some, as it does not reflect the Spanish colonial designation for the people, some bands/tribes continue to use Luiseño in their designations for themselves; thus, that name is used in this report. A number of ethnographic and ethnohistoric studies of the Luiseño have occurred, including Bean and Shipek (1978), Boscana (1947 [1846]), DuBois (1908), Jones (1992), Kroeber (1925), Masiel-Zamora (2013), Oxendine (1983), Shipek (1977), Sparkman (1908), Talley (1982), and White (1963). Some ethnographers place the area of the project within or adjacent to a "transitional" area between the Luiseño and the linguistically related Cahuilla people to the east (Bean 1972, 1978; Bean and Shipek 1978), but Kroeber (1925) places it firmly within the traditional territory of the Luiseño people (see Kroeber 1925:Plate 57). The Luiseño and Cahuilla are both Takic-speaking people of the Uto-Aztecan linguistic family (Shipley 1978). The Luiseño language belongs to the Cupan group of the Takic subfamily and is part of the widespread Uto-Aztecan language family (Bean and Shipek 1978; Sparkman 1908; White 1963). The Cahuilla and another neighbor to the east, the Cupeño, also speak Cupan languages. The ethnographic uncertainty of the boundary between the Luiseño and the Cahuilla likely indicates that it has varied through time. In relative proximity to the Project Area, in the northern portion of San Diego County, Luiseño territory is bordered by the linguistically distinct Hokan-based, Yuman-speaking, Kumeyaay, also known as Ipai-Tipai, or Diegueño (named for Mission San Diego de Alcalá).

Before disruption of their traditional lifeways by Spanish and Mexican contact, the Luiseño followed a seasonal gathering cycle, with bands occupying a series of temporary habitations or campsites within their territory (Bean and Shipek 1978; White 1963). The Luiseño lived in semi-sedentary villages usually located along major drainages, in valley bottoms, and also on the coastal strand, with each family controlling gathering areas (Bean and Shipek 1978; Sparkman 1908; White 1963). True (1990) indicated that the predominant determining factor for placement of villages and campsites was locations where water was readily available, preferably on a year-round basis. While most of the major Luiseño villages

known ethnographically were located closer to the coast along the Santa Margarita River Valley and the San Luis Rey River Valley (Bean and Shipek 1978; Kroeber 1925; White 1963), Kroeber (1925) does indicate general locations for three Luiseño villages in more inland areas. He places the village of *Panache* in proximity to Lake Elsinore and the confluence of the San Jacinto River and Temescal Creek, approximately 12 miles to the west of the project, and the villages of *Temeku* and *Meha* in the vicinity of the confluence of the upper Santa Margarita River and Temecula Creek, approximately 12 miles to the south of the Project Area (Kroeber 1925:Plate 57; McCown 1955:1). Kroeber also indicates another Luiseño village, *Sovovo* (*Soboba*, *Sovovatum*), located in proximity to the Project Area, to the southeast, along the upper San Jacinto River (Kroeber 1925:Plate 57).

As previously noted, interpretations by ethnographers and linguistic anthropologists may differ from the traditional knowledge of the Luiseño people (*'Atáaxum)*. Traditional stories and songs of the Native people also describe the extent of traditional use areas. Luiseño creation stories indicate that the Luiseño people have always been here, and did not migrate from elsewhere. The creation story of the Pechanga Band says that the world was created at Temeku. "The *Káamalam* [first people] moved to a place called *Nachíivo Pomíisavo*, but it was too small, so they moved to a place called '*exva Teméeku,'* this place you now know as Temeku. Here they settled while everything was still in darkness (DuBois 1908)" (Masiel-Zamora 2013:2). The website of the Soboba Band of Luiseño Indians states, "Since time immemorial the descendants of the Soboba people are those whom [sic] have lived on and occupied the land that is presently known as the cities of San Jacinto, Hemet, Valle Vista and Winchester" (Soboba n.d.). A traditional Luiseño story tells of a great flood, and the people went to higher ground, where they were saved. The San Luis Rey Band of Mission Indians say that this higher ground where the people were saved is Morro Hill in northern San Diego County. Some Luiseño informants indicated the place in this story is a hill in the San Luis Rey River Valley (Cupples and Hedges 1977).

Prior to contact, the Cahuilla territory was topographically diverse, occupying elevations from 11,000 feet in the San Bernardino and San Jacinto mountains to below sea level at the Salton Sea (Bean 1978). The Cahuilla term *?ivi?lyu?atum* (or *īvīatim*) refers to those who speak the Cahuilla language and is also a recognition of a commonly shared cultural tradition (Bean 1972; Strong 1929). The Cahuilla are thought to have been in part distinguished from other Uto-Aztecan-speaking groups (the Luiseño, Serrano, and Gabrielino) by mountain ranges and plains, but they are known to have interacted regularly with these and other groups through trade, intermarriage, ritual, and war. Cahuilla villages were commonly situated within canyons extending into mountain ranges or on nearby alluvial fans, typically near sources of water and food (Bean 1978; Bean et al. 1991). The diverse habitat of the Cahuilla people enabled a wide variety of plant and animal species to be used for food, goods manufacture, and medicine (Bean 1978).

2.2.3 Historic Background

2.2.3.1 Spanish Period

The beginning of the historic period in the San Diego/Riverside area is generally given as 1769, although Juan Rodríguez Cabrillo visited San Diego briefly in 1542. In the mid-eighteenth century, Spain had escalated its involvement in California from exploration to colonization (Weber 1992) and, in that year, a Spanish expedition headed by Gaspar de Portolá and Junípero Serra established the Royal Presidio of San Diego. Portolá then traveled north from San Diego seeking suitable locations to establish military presidios and religious missions in order to extend the Spanish Empire into Alta California.

The first documented Spanish contact in what is now Riverside County was by Spanish military captain Juan Bautista de Anza who led expeditions in 1774 and 1775 from Sonora to Monterey (Bolton 1930). Anza embarked on the initial expedition to explore a land route northward through California from Sonora, with the second expedition bringing settlers across the land route to strengthen the colonization of San Francisco (Rolle 1963). Anza's route led from the San Jacinto Mountains northwest through the San Jacinto Valley, which was named "San José" by Anza. Little documentation exists of Anza's route being used after the two expeditions, although it was likely used to bring Spanish supplies into the newly colonized Alta California (Lech 2004). In 1781, the Spanish government closed the route, due to uprisings by the Yuman Indians. However, by that time, the missions were established and self-sufficient; thus, the need for Spanish supplies from Sonora had begun to diminish.

Although Riverside County proved to be too far inland to include any missions within its limits, Missions San Juan Capistrano and San Luis Rey de Francia, established in 1776 and 1798 respectively, claimed a large part of southwestern Riverside County. Due to the inland geographical location of the Cahuilla territory, the Spanish missions did not have as direct an effect on them as they did on the Luiseño people who lived along the coast (Bean 1978). On the coast, the Luiseño were forced into the Mission environment, where living conditions and Spanish diseases promoted the decline of the Luiseño population (Bean and Shipek 1978). Throughout the Spanish Period, the influence of the Spanish progressively spread further from the coast and into the inland areas of southern California as Missions San Luis Rey and San Gabriel extended their influence into the surrounding regions and used the lands for grazing cattle and other animals.

In the 1810s, ranchos and mission outposts called *asistencias* were established, increasing the amount of Spanish contact in the region. An *asistencia* was established in Pala in 1818 and in San Bernardino in 1819. Additionally, Rancho San Jacinto was established for cattle grazing in the San Jacinto Valley (Bean and Vane 1980; Brigandi 1999). In 1820, Father Payeras, a senior mission official, promoted the idea that the San Bernardino and Pala *asistencias* be developed into full missions in order to establish an inland mission system (Lech 2004). However, Mexico won its independence from Spain in 1821, bringing an end to the Spanish Period in California.

2.2.3.2 Mexican Period

Although Mexico gained its independence from Spain in 1821, Spanish patterns of culture and influence remained for a time. The missions continued to operate as they had in the past, and laws governing the distribution of land were also retained in the 1820s. Following the secularization of the missions in 1834, large ranchos were granted to prominent and well-connected individuals, ushering in the Rancho Era, with the society making a transition from one dominated by the church and the military to a more civilian population, with people living on ranchos or in pueblos. With the numerous new ranchos in private hands, cattle ranching expanded and prevailed over agricultural activities.

To obtain a rancho, an applicant submitted a petition containing personal information and a land description and map (*diseño*). In 1835, Jose Antonio Estudillo of San Diego submitted a petition for the San Jacinto Rancho, which is approximately six miles northeast of the Project Area. Although Estudillo's petition was for four square leagues (approximately 30,000 acres), in 1842 he was granted close to the maximum size allowed of 11 square leagues (Lech 2004; State Lands Commission 1982). In 1845, Estudillo's son-in-law, Miguel de Pedrorena filed a petition for half of the San Jacinto Viejo Rancho and a small additional portion of land two miles to the northeast in the hills east of Lamb Canyon (Lech 2004).

This portion, the northern half of the San Jacinto Viejo Rancho, became known as the San Jacinto Nuevo y Potrero Rancho.

Around this same time, Governor Manuel Micheltorena granted Rancho Temecula, located approximately six miles southwest of the project, to Felix Valdez, a Mexican army officer (Hoffman 1862). This rancho was later sold to Frenchman Jean-Louis Vignes, who sought to grow grapes in the area. Vincente Moraga and Luis Arenas were granted the 26,568-acre Pauba Rancho located east of Rancho Temecula and south of the Project Area (Hoffman 1862). In 1848, Jean-Louis Vignes purchased Rancho Pauba and merged it with Rancho Temecula.

Following the secularization of the missions in 1834, the political instability led to Indian revolts and uprisings against the Mexican rancheros who, not uncommonly, treated Indians as serfs. Many Indians left the missions and ranchos and sought refuge among inland inhabitants. Some Luiseño people even acquired land grants and eventually entered into mainstream Mexican culture (Bean and Shipek 1978). During the Mexican period, the Cahuilla people were likewise increasingly influenced by Mexican culture. Some of the Cahuilla acquired Spanish names, learned Spanish, and adopted forms of Spanish subsistence, such as raising cattle, agriculture, and wage labor (Bean 1978; Ward 1967). Many Cahuilla worked seasonally for the Mexicans, traveling to and from their villages (Bean 1978).

2.2.3.3 American Period

American governance began in 1848, when Mexico signed the Treaty of Guadalupe Hidalgo, ceding California to the United States at the conclusion of the Mexican–American War.

California's acquisition by the United States substantially increased the growth of the population in California. The California gold rush, the end of the Civil War, and the passage of the Homestead Act implementing the United States' perceived "manifest destiny" to occupy and exploit the North American continent brought many people to California after 1848. While the American system required that the newly acquired land be surveyed prior to settlement, the Treaty of Guadalupe Hidalgo bound the United States to honor the land claims of Mexican citizens who were granted ownership of ranchos by the Mexican government (Lech 2004). The Land Act of 1851 established a board of commissioners to review land grant claims, and land patents for the land grants were issued from 1876 to 1893. The San Jacinto Nuevo y Potrero Rancho land grant was patented to Miguel Pedrorena, Maria Antonia Estudillo Pedrorena, Isabel Pedrorena, and Helena Pedrorena in 1883. Both the Pauba and Temecula land grants were patented in 1860 to Jean-Louis Vignes, despite the efforts of squatters David Kline and William Moody, who started a ranch in the Temecula Rancho in an attempt to claim the land as their own (Lech 2012).

Initially, southern California was divided into only two counties: Los Angeles and San Diego. In 1853, San Bernardino County was added. Riverside County was formed in 1893 from a small portion of San Bernardino County and a larger part of San Diego County.

Southern California was developed by Americans and other immigrants who migrated to the western frontier in pursuit of gold and other mining, agriculture, trade, and land speculation (Lech 2004). During the latter part of the nineteenth century, "boom and bust" cycles brought thousands of people into southern California. While many eventually left, some remained to later form the foundations of small communities based on farming, orchards, dairies, and livestock ranching. The population growth of southern California during these early years of the American Period brought a need for mail and freight

travel. In 1857, John Butterfield was awarded a six-year contract to transport mail twice a week between St. Louis, Missouri, and San Francisco, California (Helmich 2008). The Butterfield Stage Route used the same trail as the Sonora (or Southern Emigrant) Trail from Yuma through Warner Springs and Temecula, and then up through Temescal Valley to Chino, and then to Los Angeles. By the mid-nineteenth century, the Southern Emigrant Trail ran through western Riverside County in a similar alignment to the current I-15 freeway. The Butterfield Overland Stage route went through the ranch that Kline and Moody created, now called "Alamos," the Spanish word for cottonwoods, in Murrieta. Another branch of the Southern Emigrant Trail veered northward from Temecula to Box Springs near present-day Moreno Valley, roughly following the present-day route of I-215 (Lech 2004).

Local mail routes within southern California were also developed beginning in the 1850s, such as the line begun in 1852 by Phineas Banning between Los Angeles and San Diego (Stott 1968). In 1868, Tomlinson & Co. briefly operated a daily mail route from Tucson, Arizona, to Los Angeles via San Diego and San Bernardino (Stott 1968), although after only four months the company had lost $12,000 and discontinued service (Mills 1957). In 1867, the U.S. Mail Company sent weekly stages that ran between San Diego and San Bernardino.

The community of Winchester, named for Mrs. Amy Winchester, the widow of Horace Winchester, was founded in 1886. The mail route passed through Winchester, and the town's first post office opened in 1887 (Frickstad 1955). The next year, a post office opened in the small mining town of Leon within the French Valley, located in the immediate vicinity of the Project Area. The French Valley, so named because of the large number of French grain farmers and sheepherders in the area, became a farming and ranching hub (Hunneman 2008).

While stagecoaches were successful at transporting gold, people, and mail, the need for a railroad to California was imperative. In the 1850s, surveys were initiated by the federal government to determine a railroad route to the Pacific coast (Lech 2004). Although the first transcontinental railroad was completed in 1869 to northern California, in the 1870s, the Southern Pacific Railroad Company, incorporated in 1865 and consolidated in 1870, began to construct a southern route that would traverse the state (Fickewirth 1992). In the early 1880s, the California Southern Railway, a subsidiary of the Atchison, Topeka and Santa Fe Railway (Santa Fe), was completed and allowed for travel through the Cajon Pass to Barstow to a junction of the Atlantic and Pacific Railroad and down to San Diego through western Riverside County. In 1887, Santa Fe officials consolidated their family of railroads in southern California, forming the California Central Railway. Although the California Southern remained an individual subsidiary at that time, it consolidated with the California Central Railway and the Redondo Beach Railway two years later, in 1889. The resulting corporation was the Southern California Railway Company, wholly owned by Santa Fe (Price 1988). In 1906, all of the lines of the Southern California Railway Company were deeded to the Atchison, Topeka and Santa Fe Railway Company.

In 1885, a group of local investors and residents approached the California Southern Railroad to abandon its Pinacante station in exchange for several town lots, a well to supply steam trains, and a depot. In return, the railroad would designate the new town as an official stop along the route from San Diego to San Bernardino. Fred Perris worked with the developers to survey the land and they named the town (Perris) after him, with the City of Perris incorporating later, in 1911.

By 1880, Henry Hewitt had bought approximately 8,000 acres of land in the San Jacinto Valley and was running a store and a hotel. In the early 1880s, the San Jacinto Land Association bought more than 10,000 acres of land and developed the town of New San Jacinto, which grew rapidly and, by 1886, had

250 residents, 150 houses, two hotels, a brickyard, lumberyards, a blacksmith, and a newspaper (Lech 2004). By 1887, the Estudillo Land and Water Company had been incorporated in order to subdivide and market the last remaining 1,100 acres of the Estudillo land grant. The Estudillo Land and Water Company offered the San Jacinto Valley Railway, purchased by the California Central Railway that same year, 27 acres of land for a railroad right-of-way and depot. As such, the railroad to the San Jacinto Valley ended on the Estudillo tract approximately 0.5 mile west of San Jacinto (Lech 2004).

With the completion of the California Southern Railway, settlers flocked to the Perris and San Jacinto valleys in even greater numbers. By the early 1890s, San Jacinto had a population of 1,500, three hotels, 24 stores, a bank, and was a thriving civic center for the region (Lech 2004). When Riverside County was formed in the early 1890s, San Jacinto boasted that it exported more than it imported and that it was the second largest city in "size and importance" in the newly formed county (Bynon 1893).

The Project Area and surrounding region developed along with the railroad. The trains were used to transport settlers into the area, creating a period of agricultural and land development, ultimately resulting in the establishment of Riverside County in 1893, formed from portions of San Bernardino and San Diego counties. Although the railroad had been the impetus for founding the town, agriculture was also important to the future development of the area. Within the San Jacinto Valley, farms stretched for a 20-mile area, and farm products ranging from hay to fruits were brought to San Jacinto for shipment on the railroad (Lech 2004).

Along with much of southern California, the San Jacinto and Perris valleys were plagued by water scarcity in the late nineteenth and early twentieth centuries (Bean and Vane 1980). In 1922, California reached an agreement with the other states in the Colorado River watershed basin allowing the allotment of water needed to construct the Colorado River Aqueduct, which runs through the San Jacinto Valley north of the Project Area (Gruen 1998). The construction of the Colorado River Aqueduct by the Metropolitan Water District of Southern California occurred along various points simultaneously between 1934 and 1941, helping to fuel a torpid economy in the midst of the Great Depression. This massive undertaking allowed the Metropolitan Water District to employ up to 10,500 people at any given time, with a total employment of 35,648 over an eight-year period, making it southern California's single-largest work opportunity during the Great Depression (Gruen 1998). At its completion, the Colorado River Aqueduct was a huge American engineering achievement stretching for 242 miles.

The San Diego Aqueduct, which runs to the east and then south of the Project Area after crossing under Scott Road, was built in the 1940s as a response to the looming water crisis brought on by the explosive population growth of the San Diego area during World War II (Autobee n.d.). A 1944 Bureau of Reclamation report determined that San Diego's water supply would be depleted by July 1947. This alarming revelation prompted the Bureau to begin construction on the Aqueduct in 1945; two years later, in 1947, the aqueduct's first pipeline, which runs from the Colorado River Aqueduct near San Jacinto to San Diego's San Vicente Reservoir, was completed. In the 1950s, due to an increase in population combined with below-average rainfall, a second pipeline was built paralleling the first. This second pipeline was completed in 1954 (Autobee n.d.). In the 1950s, the Metropolitan Water District, in conjunction with the San Diego County Water Authority, constructed the Second San Diego Aqueduct, running from the Colorado River Aqueduct near Hemet to San Diego's Lower Otay Reservoir.

Due to construction of the Colorado River and San Diego Aqueducts and other efforts to bring water to the region by the Eastern Municipal Water District in the 1950s, agriculture in the area shifted from dry farming crops to a more diverse collection of crops; irrigation allowed alfalfa, the King potato, and sugar

beets to be grown in the Perris valley (City of Perris n.d.). The State Water Project was approved by the California Legislature in 1951, with construction beginning in 1957; the terminus of this approximately 600-mile long water delivery and storage system is Lake Perris, which was constructed in the latter part of the 1960s and early 1970s. In addition to being an important water resource, Lake Perris afforded the area with recreational activities.

As mentioned above, the French Valley maintained its focus on agriculture through the 1960s, when the Metropolitan Water District of Southern California purchased more than 6,000 acres of land to construct the Skinner Reservoir (Hunneman 2008). Named for Robert A. Skinner, the general manager of the Metropolitan Water District from 1962 to 1967, the reservoir was formed by the construction of a dam on Tucalota Creek south of Bachelor Mountain. The reservoir was finished in the mid to late 1970s, submerging the ranches on the land in the new lake (Hunneman 2008). The following decades saw more development in the region; in the late 1980s, the French Valley Airport was constructed, and the Southwest Justice Center opened in the early 1990s.

3.0 ARCHIVAL RESEARCH AND NATIVE AMERICAN CONTACT PROGRAM

3.1 RECORDS SEARCH

HELIX staff conducted a records search of the California Historical Resources Information System (CHRIS) at the South Coastal Information Center (SCIC) on July 2, 2025. The records search covered the project alignments and a one-mile buffer on either side of the alignments and included a review of archaeological and historical resource data, locations and citations for previous cultural resources studies, and a review of the State Office of Historic Preservation's (OHP's) historic properties directory. Records search summaries and maps are included as Appendix B (Confidential Appendices, bound separately).

3.1.1 Previous Studies

The records search identified 61 previous cultural resource studies within the one-mile-buffer records search limits, 11 of which overlap the Project Area to some extent; these are summarized in Table 1, *Previous Studies Overlapping the Project Area*. The majority of the reports on file at SCIC within the records search limits were reports of surveys or assessments, with the remainder including reports from literature searches, site evaluations, site data recovery programs, cultural resources monitoring, resource evaluations, and management planning documents.

Table 1
PREVIOUS STUDIES OVERLAPPING THE PROJECT AREA

Report No. (RI-)	Report Title	Author, Date
00130	Field Notes for the Archaeological Survey of PL 984 Water Systems Additions	Clough, 1974
00186	Archaeological Impact Report: Eastern Municipal Water District, Riverside County, California: PL 984 Water Systems Addition	Wells, 1975
00758	Archaeological Assessment of TP 16335	Baldwin, 1980

Report No. (RI-)	Report Title	Author, Date
01439	Archaeological/Historical Survey and Assessment Report on TPM 18607 Located Near Sun City, Riverside County, California	Scientific Resource Surveys, Inc., 1982
02332	An Archaeological Assessment of TPM # 23025, Riverside County, California	Keller, 1988
02770	A Cultural Resource Assessment Boulder Creek Near Winchester, Riverside County, California	Drover, 1990
04404	Final Cultural Resources Inventory Report for the Williams Communications, Inc., Fiber Optic Cable Installation Project, Riverside to San Diego, California, Vol I-IV	Jones and Stokes Associates, Inc., 2000
08745	Historic Property Survey Report: Leon Road Improvement Project: Scott Road to Keller Road: Adjust the Vertical Profile of Leon Road between Scott and Keller Roads, in and near the City of Menifee, Riverside County, California	Smallwood and Mirro, 2012
08816	Archaeological Survey Report for Leon Road Improvement Project, between Scott and Keller Roads, in and near the City of Menifee, Riverside County, California HSIPL-5956(191)	Mirro and Smallwood, 2012
08955	Cultural Resources Survey Report for the Proposed Southern California Edison Valley South 117 KV Subtransmission Project, Riverside County, California	Wilson, et al., 2015
11234	Historic Resource Report CA-8536-A/Briggs 29875 Scott Road Menifee, Riverside County, California	Gordon and Metzler, 2004

3.1.2 Previously Recorded Resources

The SCIC has a record of 188 previously recorded cultural resources within one mile of the Project Area, 59 of them within a half mile, as summarized in Table 2, *Previously Recorded Resources Within One-Half Mile of the Project Area*. The resources within the vicinity of the Project Area consist overwhelmingly of bedrock milling sites, most of which have no associated artifacts observed. A pictograph site and a habitation site are also recorded within one-half mile of the Project Area, as well as several isolated artifacts. Historic-era resources include a farmstead complex, a chicken wire structure, and an isolate consisting of three assorted cans.

The San Diego Aqueduct does not appear in the records search, because the segment officially recorded is outside the records search radius. However, the aqueduct as a whole has been assessed as eligible for the NRHP. It crosses beneath a segment of the proposed Project Area and is included in Table 2 and described below.

In addition to the resources on file at SCIC, several resources (nine sites and three isolates) were recently recorded in conjunction with an archaeological survey of an adjacent property; although these resources are not yet on file at SCIC, they are included in Table 2. One previously recorded resource on file at SCIC is within the Project Area: P-33-002305 (CA-RIV-2305), and one of recently recorded resources is also within the Project Area: GRD-S-008. These two resources are briefly described below, following Table 2.

Table 2
PREVIOUSLY RECORDED RESOURCES WITHIN ONE-HALF MILE OF THE PROJECT AREA

Resource Number (P-33-)	Resource Number (CA-RIV-)	Age and Resource Type	Description	Recorder, Date
001104	1104	Precontact Site	An undisclosed number of pictographs.	Haenszel, 1965
001207	1207	Precontact Isolate	An isolated deep basin metate.	Henriksen, 1982; Ballester, 2014
001303	1303	Precontact Site	Artifact scatter consisting of ground stone, lithics, ceramics, and a scraper.	Desautels, 1982
002007	2007	Precontact Site	Precontact milling site with ground stone and lithic artifacts and 28 bedrock milling features containing a total of 50 milling surfaces.	Salpas, 1980; Desautels and Henrikson, 1982; Goodman and Ballester, 2014; Goodwin, 2015
002039	2039	Precontact Site	Two bedrock milling features containing a total of seven slicks, and one mano fragment.	Salpas, 1980; Desautels and Henriksen, 1982; Goodman and Ballester, 2014
002296	2296	Precontact Site	A single bedrock milling feature containing one slick.	Baldwin, 1980
002297	2297	Precontact Site	A single bedrock milling feature containing one slick.	Baldwin, 1980
002298	2298	Precontact Site	Bedrock milling feature(s) with an undisclosed number of slicks.	Baldwin, 1980
002299	2299	Precontact Site	A single bedrock milling feature containing one slick.	Baldwin, 1980
002300	2300	Precontact Site	A single bedrock milling feature containing one slick.	Baldwin, 1980; Johnson, 1999
002301	2301	Precontact Site	A single bedrock milling feature containing one slick.	Baldwin, 1980
002302	2302	Precontact Site	A single bedrock milling feature containing two slicks.	Baldwin, 1980; Johnson, 1999
002303	2303	Precontact Site	Three bedrock milling features containing one slick each.	Baldwin, 1980
002304	2304	Precontact Site	A single bedrock milling feature containing four slicks.	Baldwin, 1980
002305*	2305	Precontact Site	A single bedrock milling feature containing four slicks.	Baldwin, 1980; Johnson, 1999
002306	2306	Precontact Site	Six bedrock milling features containing a total of eight milling elements including slicks, mortars, and basin metates.	Baldwin, 1980; Johnson, 1999
002307	2307	Precontact Site	Bedrock milling features containing a total of seven slicks and one basin metate.	Baldwin, 1980; Johnson, 1999
002308	2308	Precontact Site	Bedrock milling feature(s) containing an undisclosed number of slicks.	Baldwin, 1980

Resource Number (P-33-)	Resource Number (CA-RIV-)	Age and Resource Type	Description	Recorder, Date
002309	2309	Precontact Site	Bedrock milling features containing an undisclosed number of slicks.	Baldwin, 1980
002310	2310	Precontact Site	A single bedrock milling feature containing one slick.	Baldwin, 1980; Johnson, 1999
002311	2311	Precontact Site	A single bedrock milling feature containing one slick.	Baldwin, 1980
002312	2312	Precontact Site	Three bedrock milling features containing a total of three slicks.	Baldwin, 1980
002313	2313	Precontact Site	A single bedrock milling feature containing one slick.	Baldwin, 1980
002314	2314	Precontact Site	Three bedrock milling features containing a total of four slicks.	Baldwin, 1980.
002756	2756	Precontact Site	Two bedrock milling features containing a total of four metates.	Salpas, 1983
003058	3058	Precontact Site	Two bedrock milling features containing a total of five slicks.	Parr, 1986
003059	3059	Precontact Site	A single bedrock milling feature containing five slicks.	Parr, 1986
003940	3940	Precontact Site	One bedrock milling feature containing three milling elements, one boulder with three cupules, and two possible rockshelters.	Drover and Smith, 1990
003941	3941	Precontact Site	Habitation site with bedrock milling and ceramic and lithic scatters.	Drover and Smith, 1990; Hogan, 1990
006316	---	Historic Complex	The Nicolas/Pourroy farmstead, consisting of a farmhouse, barn, water tower, windmill, and four ancillary buildings. The farmhouse and barn were built in 1913, with additional structures built in 1910s-1960s.	Warner, 1983; Smallwood, 2011
007798	---	Historic Building	A single-story, wood-frame homestead cabin with corrugated sheet metal gable roof. Age unknown.	Warner, 1983
008864	6294	Precontact Site	Two bedrock milling features containing a total of three slicks.	Johnson, 1999
008865	6295	Precontact Site	Two bedrock milling features containing one slick each.	Johnson, 1999
008866	6296	Precontact Site	A single bedrock milling feature containing one slick.	Johnson, 1999
008867	6297	Precontact Site	Ten bedrock milling features containing a total of 25 milling surfaces and an artifact scatter consisting of ground stone and a single flake.	Hogan, 1999
008868	6298	Precontact Site	A single bedrock milling feature containing one slick.	Hogan, 1999

Resource Number (P-33-)	Resource Number (CA-RIV-)	Age and Resource Type	Description	Recorder, Date
009658	6458	Precontact Site	Five bedrock milling features containing a total of six slicks.	Hogan, 1999
009659	6459	Precontact Site	Three bedrock milling features containing one slick each.	Hogan, 1999
009660	6460	Precontact Site	A single bedrock milling feature containing four slicks, one basin metate, and one mortar.	Hogan, 1999
011123	6688	Precontact Site	Two bedrock milling features containing one slick each.	Robinson, 2001
011774	---	Precontact Isolate	Isolated broken basin metate.	Parr, 1986
012297	---	Precontact Isolate	Isolated fragment of a metate.	Ahmet, 2001; Tsunoda, 2007
015734*	8195	Historic structure	San Diego Aqueduct and Canal, with segments built in 1947, 1951, 1958, and 1959.	Easter and Beedle, 2005; Craft, 2007
015755	8215	Precontact Site	A single bedrock milling feature containing one slick.	White, 2007
015756	8216	Precontact Site	A single bedrock milling feature containing one slick.	White, 2007
015757	8217	Precontact Site	A single bedrock milling feature containing one slick.	White, 2007
015758	8218	Precontact Site	A single bedrock milling feature containing one slick.	White, 2007
015759	8219	Precontact Site	A single bedrock milling feature containing one slick.	White, 2007
017222	---	Precontact Site	A single bedrock milling feature containing one slick.	Keller, 1988
017223	---	Precontact Site	A single bedrock milling feature containing one slick.	Keller, 1988
021024	10889	Precontact Site	A single bedrock milling feature containing a saucer mortar and a conical mortar.	AECOM, 2012
021026	10891	Precontact Site	A single bedrock milling feature containing a saucer mortar and a conical mortar.	AECOM, 2012
021029	10894	Precontact Site	Two bedrock milling features, each containing a single milling element.	AECOM, 2012
021030	---	Precontact Isolate	Isolated quartz debitage fragment.	AECOM, 2012
023948	---	Precontact Isolate	Isolated unifacial mano.	Goodman and Ballester, 2014
023949	---	Precontact Isolate	Isolated bifacial mano.	Goodman and Ballester, 2014
023950	---	Precontact Isolate	Isolated metate fragment.	Goodman and Ballester, 2014
023951	---	Precontact Isolate	Isolated bifacial mano fragment.	Goodman and Ballester, 2014

Resource Number (P-33-)	Resource Number (CA-RIV-)	Age and Resource Type	Description	Recorder, Date
023952	11771	Precontact Site	A single bedrock milling feature containing one slick.	Goodman and Ballester, 2014
026650	---	Historic Isolate	An isolated flip-top tobacco can, church key opened beverage can, and cone top can.	Thomson and Maier, 2011
GRD-S-001		Precontact Site	A low-lying bedrock milling feature with a single conical mortar.	Roy, et al. 2025
GRD-S-002		Precontact Site	A single milling slick.	Roy, et al. 2025
GRD-S-003		Precontact Site	A single bedrock milling slick on a surface-level granite boulder.	Roy, et al. 2025
GRD-S-005		Precontact Site	A ground level boulder with a single milling slick.	Roy, et al. 2025
GRD-S-006		Precontact Site	A ground level boulder with a single milling slick.	Roy, et al. 2025
GRD-S-007		Precontact Site	A low-lying boulder with a single milling slick.	Roy, et al. 2025
GRD-S-008*		Precontact Site	A single milling slick in a group of boulders.	Roy, et al. 2025
GRD-S-009		Precontact Site	A single milling slick on a boulder within a large boulder outcrop.	Roy, et al. 2025
GRD-S-010		Precontact Site	A single milling slick.	Roy, et al. 2025
GRD-ISO-001		Precontact Isolate	A metate fragment and a mano or hammerstone fragment.	Roy, et al. 2025
GRD-ISO-003		Precontact Isolate	A single piece of obsidian debitage.	Roy, et al. 2025
GRD-ISO-004		Precontact Isolate	An edge-modified quartz tool.	Roy, et al. 2025

* Within Project Area

P-33-002305 (CA-RIV-2305) was originally recorded in 1980 as “two rocks side by side with a total of five slicks” (Baldwin 1980). A 1999 update described the site as four slicks on a single, broken boulder (Johnson 1999). Five milling slicks were noted at this site during a 2025 archaeological survey (Roy 2025). Site GRD-S-008 consists of a single milling slick on a boulder within a large group of boulders.

P-33-015734 (CA-RIV-8195) is the San Diego Aqueduct and Canal, built in the 1940s and 1950s. The Aqueduct and Canal were built in the mid-twentieth century to bring water from the Colorado River Aqueduct to San Diego County and consist of two separate conveyance features: the First San Diego Aqueduct, built in 1947 and 1951, consists of two precast concrete pipes and travels from the Colorado River Aqueduct near San Jacinto to San Diego’s San Vicente Reservoir; the Second San Diego Aqueduct, built in 1958 and 1959, consists of an underground pipeline and an above-ground canal, and runs from the Colorado River Aqueduct near Hemet to San Diego’s Lower Otay Reservoir (Easter and Beedle 2005).

3.2 OTHER ARCHIVAL RESEARCH

HELIX consulted various additional archival sources, including historic topographic maps and aerial imagery. These include aerials from 1938, 1953, 1961, 1967, 1978, 1980, 1985, 1996, and 2002 (NETR Online 2026; University of California, Santa Barbara [UCSB] Digital Library 2026) and several historic

USGS topographic maps, including the 1901 *Elsinore* (1:125,000), the 1942 *Murrieta* (1:62,500), and the 1953 and 1973 *Winchester* (1:24,000) topographic maps. The purpose of this research was to identify historic structures and to review the changes in land use, as well as disturbance and changes to the environment, throughout the twentieth century and into the twenty-first.

The 1901 *Elsinore* (1:125,000) map depicts the both Scott and Leon Roads, as well as Garbani and Wickerd Roads in their present alignments—Leon Mine is recorded to the west, and Diamond and French Valleys are recorded to the east. The 1942 *Murrieta* (1:62,500) map depicts Warm Springs Creek crossing Leon Road; additionally, the area is labeled as "Domenigoni Valley." At this time, Scott and Leon Roads are recorded in their present alignments. By the time the 1953 *Winchester* (1:24,000) map was prepared, the San Diego Aqueduct had been constructed, and is mapped as an aqueduct tunnel passing beneath Scott Road. No changes to the project alignment or immediate vicinity are present on the 1973 *Winchester* (1:24,000) map.

The earliest available aerial photograph, from 1938, depicts Leon and Scott Roads as a pair of dirt roads; portions of the landscape appear to be cleared or disced, and Warm Springs Creek is visible crossing both Leon and Scott Roads (NETR Online 2026; UCSB Digital Library 2026). The 1953 aerial photograph depicts the construction of the San Diego Aqueduct to the east of the project alignment; the aqueduct appears to cross the project alignment just east of the intersection of modern-day Louise Road and Scott Road (UCSB Digital Library 2026). Early alignments of both Eucalyptus Road and Craig Avenue are visible on this aerial photograph as well. The subsequent photographs from 1961 and 1962 show this portion of the San Diego Aqueduct as having been completed as an underground pipeline – while not present along the entire alignment, the land within the mapped location of portions of the aqueduct shows signs of alteration (NETR Online 2026; UCSB Digital Library 2026). The area remains relatively unchanged through the remainder of the twentieth century; the majority of the residential development that occurred in the general vicinity of the project first appears on the aerial photographs from the early 2000s (NETR Online 2026; UCSB Digital Library 2026).

3.3 NATIVE AMERICAN CONTACT PROGRAM

HELIX contacted the Native American Heritage Commission (NAHC) on July 24, 2025, for a Sacred Lands File search and list of Native American contacts for the Project Area. The NAHC indicated in a response dated August 5, 2025 that the Sacred Lands File search was negative but noted that a Sacred Lands File search is not a substitute for outreach to the tribes traditionally and culturally affiliated with the project's geographic area. Letters were sent via email on February 10, 2026, to the 33 Native American representatives and interested parties identified by the NAHC, representing 15 tribal entities. One tribal contact did not provide an email address; their outreach letter was sent via certified mail. Two responses have been received to date, as summarized in Table 3, *Native American Contact Program Responses*. The Augustine Band of Cahuilla Indians was not aware of specific cultural resources that would be affected and did not wish to engage in formal consultation but recommended contacting the NAHC if cultural resources are identified. The Ft. Yuma Quechan Indian Tribe deferred to the local tribes.

The District is in the process of conducting tribal outreach and consultation for the project, which includes providing current project plans and details to the tribes who request consultation. The District and HELIX have conducted field visits to the Project with representatives from Pechanga and Soboba.

Table 3
NATIVE AMERICAN CONTACT PROGRAM RESPONSES

Contact/Tribe	Response
Augustine Band of Cahuilla Indians	Responded in a letter sent via email, February 11, 2026; At this time, we are not aware of any specific cultural resources within the Project Area that would be affected by the proposed development. Therefore, we do not believe that formal consultation is necessary at this stage. If any cultural resources are discovered during the project, we ask that you contact the California Native American Heritage Commission immediately to take appropriate steps to evaluate and protect them.
Ft. Yuma Quechan Indian Tribe	Responded via email, February 11, 2026; the Historic Preservation Office of the Ft. Yuma Quechan Tribe does not wish to provide comments on this project. We defer to the local Tribes and support their determinations on this matter.

4.0 SURVEY

4.1 SURVEY METHODS

The Project Area was surveyed for cultural resources on August 7, 2025, and August 12, 2025, by HELIX Senior Field Director Julie Roy, with tribal monitor George Vargas from Pechanga. They walked parallel transects spaced approximately 10 meters apart. Existing fencelines on the east side of Eucalyptus Road and the north side of Garbani Road were thought to be the extent of the Project Area. Subsequently, it was determined that the full Project Area extended east of the fenceline along Eucalyptus Road and north of the fenceline along Garbani Road. These additional areas of the Project Area were surveyed on June 15, 2026, by Ms. Roy and Mary Robbins-Wade of HELIX, with Paul Macarro, Ebru Ozdil, and Evelyn Hildebrand of Pechanga and tribal monitor Kenny Phillip of Soboba. Parallel transects of approximately 5-meter intervals were walked on this survey. HELIX mapped the resources identified within the Project Area using Global Positioning System (GPS) equipment; Mr. Macarro of Pechanga mapped the resources with sub-meter accuracy using GPS equipment.

4.2 SURVEY RESULTS

The field surveys resulted in the identification of two previously recorded resources (P-33-002305 [CA-RIV-2305] and GRD-S-008), as well as two newly recorded resources (BMF-Wickerd 1 and BMF-Wickerd 2) (Figure 5, *Locations of Cultural Resources*, Appendix D, confidential, bound separately). In addition, the San Diego Aqueduct crosses beneath Scott Road, east of Leon Road; due to its depth, it was not observed during the field survey. As summarized in Table 4, *Cultural Resources Within the Project Area*, the four archaeological resources identified within the Project Area all consist of bedrock milling features with no associated artifacts observed; the fifth resource (a built environment resource) is the San Diego Aqueduct.

Table 4
CULTURAL RESOURCES WITHIN THE PROJECT AREA

Resource Number (P-33-)	Resource Number (CA-RIV-)	Temporary Number	Description
002305	2305	--	Bedrock milling features consisting of five slicks on two boulders
--	--	GRD-S-008	One milling slick within a group of boulders
--	--	BMF-Wickerd 1	Remnants of one milling slick on a low boulder
--	--	BMF-Wickerd 2	One milling slick on a low boulder
015734	8195	--	San Diego Aqueduct

4.2.1 P-33-002305 (CA-RIV-2305)

This resource, P-33-002305, was initially recorded by J. Baldwin in 1980 as two bedrock milling features with five slicks. In 1999, CRM Tech revisited the resource and noted four slicks on a single broken granitic boulder. During the pedestrian survey by HELIX for the SRRLS Sewer Conveyance Project, five milling slicks were observed (MS1-MS5). It was determined following a review of the site records that four of the slicks (MS1-MS4) were those identified by CRM Tech in 1999. The fifth, MS5, is likely the fifth milling slick identified by Baldwin in 1980.

In general, the resource is part of a very weathered and exfoliated large outcrop of boulders. MS1 and MS2 have a large water stain over them; high spots remain, and both are in poor to fair condition. MS3 and MS4 are positioned on the east side of the boulder and are in fair condition. MS5 is in poor condition with high spots remaining.

4.2.2 GRD-S-008

This resource was identified during a pedestrian survey of an adjacent property conducted by HELIX in July 2025 but was found to be within the Project Area. The feature consists of one milling slick on a highly eroded and exfoliated boulder; the slick is in poor condition with only high spots remaining and measures 10 centimeters by 17 centimeters. A number of fractured boulders surround the boulder containing the slick.

4.2.3 BMF-Wickerd 1

This resource was identified during the field survey on June 15, 2026, and consists of a bedrock milling feature on a small granitic boulder containing high spot remnants of a single milling slick. The boulder, measuring 1.3 meters by 0.8 meter by 0.4 meter tall, is extremely eroded and exfoliated from weathering, and all edges are covered by weeds. The milling surface remnants were observed partially covered in soil and debris.

4.2.4 BMF-Wickerd 2

This resource was initially noted during the field visit by EMWD staff and HELIX with Pechanga and Soboba on June 2, 2026 and recorded during the June 15, 2026 field survey. The resource is a single

milling slick on a low boulder; the feature measures 3.5 by 2.15 meters by 0.4 meter tall and is highly eroded and exfoliated from weathering. The slick measures 22 by 10 centimeters with no depth, and a few high spots of the element were observed to be in fair condition.

4.2.5 P-33-015734 (CA-RIV-8195)

P-33-015734 (CA-RIV-8195) is the San Diego Aqueduct and Canal, built in in the 1940s and 1950s. The Aqueduct and Canal were built in the mid-twentieth century to bring water from the Colorado River Aqueduct to San Diego County and consist of two separate conveyance features: the First San Diego Aqueduct, built in 1947 and 1951, consists of two precast concrete pipes and travels from the Colorado River Aqueduct near San Jacinto to San Diego's San Vicente Reservoir; the Second San Diego Aqueduct, built in 1958 and 1959, consists of an underground pipeline and an above-ground canal, and runs from the Colorado River Aqueduct near Hemet to San Diego's Lower Otay Reservoir (Easter and Beedle 2005).

Segments of the aqueducts and canal were recorded by Applied Earthworks in 2005 and updated in 2007 by Jones & Stokes in conjunction with undertakings proposed by other applicants at that time. At the time of the 2005 recordation, Applied Earthworks indicated that both the First and Second Aqueducts are eligible under Criterion A/1 of the NRHP and CRHR due to their significance as a driving and enabling force in the economic development of San Diego (Easter and Beedle 2005). Separately, the First San Diego Aqueduct was evaluated as eligible for listing in the NRHP under Criterion A, for local significance as the first water infrastructure project that provided a permanent, reliable supply of freshwater to San Diego (Cook et al. 2012). The period of significance for this resource is 1945, which marks the commencement of construction of the First San Diego Aqueduct, to 1960, which marks the completion of construction on the Second San Diego Aqueduct. The Aqueduct was evaluated as not eligible under criteria B, C, and D of the NRHP (Cook et al. 2012).

5.0 IMPACTS AND MANAGEMENT RECOMMENDATIONS

5.1 SUMMARY OF CULTURAL RESOURCES WITHIN THE AREA

As discussed throughout the report, four archaeological resources, all consisting of bedrock milling features, and one built environment resource have been identified within the Project Area. Three of the resources each consist of a single milling slick, while CA-RIV-2305 includes five slicks within a very weathered and exfoliated large outcrop of boulders. The built environment resource is the San Diego Aqueduct, which crosses diagonally beneath the project alignment.

5.2 PROJECT IMPACTS AND SIGNIFICANCE

The project has been designed to avoid impacts to the four archaeological resources by routing the pipeline alignments at least 10 meters (32.8 feet) from the edge of each resource. The resources have not been evaluated for CRHR eligibility. Pechanga and Soboba indicated they consider all the resources significant/CRHR eligible, as all are considered part of a larger village complex. Because the resources will be avoided through project design, there will be no impacts to cultural resources in the form of archaeological sites.

The San Diego Aqueduct has previously been evaluated as eligible for the NRHP and the CRHR; however, the Project would not affect this pipeline.

5.3 MANAGEMENT RECOMMENDATIONS

The Project has been designed to avoid impacts to archaeological cultural resources; however, numerous cultural resources are known in proximity to the Project Area, and Pechanga and Soboba have identified the area as part of a larger village site. Thus, the general area is sensitive for cultural resources.

Based on the presence of cultural resources within and in proximity to the Project Area, it is recommended that an archaeological and Native American monitoring program be implemented, as detailed below.

MM-CUL-1: Tribal Monitoring.

Tribal Monitoring Agreement: At least 30 days prior to the start of ground-disturbing activities, EMWD shall contact the Consulting Tribe to develop a Cultural Resources Treatment Monitoring Agreement (Agreement). The Agreement shall address the treatment of archaeological resources inadvertently discovered within the Project Area; project grading; ground disturbance and development scheduling; the designation, responsibilities, and participation of tribal monitor(s) during grading, excavation, and ground-disturbing activities; and compensation for the tribal monitors, including overtime, weekend rates, and mileage reimbursement.

Tribal Monitoring: A tribal monitor shall be present for ground-disturbing activities associated with the project, including but not limited to, vegetation removal, grading, and excavation. At least seven business days prior to ground-disturbing activities, EMWD shall notify the Tribe(s) of the grading/excavation and monitoring program/schedule, to coordinate the tribal monitoring schedule. The tribal monitor shall have the authority to stop and redirect grading activities to evaluate the nature and significance of any archaeological resources discovered within the project limits. Such evaluation shall include culturally appropriate temporary and permanent treatment pursuant to the Cultural Resources Treatment and Monitoring Agreement, which may include avoidance of cultural resources, in-place preservation, data recovery, and/or reburial so the resources are not subject to further disturbance in perpetuity. Any reburial shall occur at a location determined between EMWD and the Consulting Tribes, details of which shall be addressed in the Cultural Resources Treatment and Monitoring Agreement. Treatment may also include curation of the cultural resources at a tribal curation facility, as determined in discussion among EMWD, the project archaeologist and tribal representatives as addressed in the Cultural Resources Treatment and Monitoring Agreement.

MM-CUL-2: Establish ESA for Tribal Cultural Resources. An Environmentally Sensitive Area (ESA) shall be established for the known boundaries of GRD-S-008, CA-RIV-2305, BMF-Wickerd 1, and BMF-Wickerd 2, including an additional 15-foot buffer, by contractor under direct guidance of Tribal Monitor[s] and qualified archaeologist. This ESA shall be flagged with stakes and flagging tape prior to the start of permitted construction

activities. The ESA demarcation shall prevent encroachment or disturbance in the protected areas. Repairs to the ESA demarcation shall be made by the contractor under direct supervision of the Tribal Monitor and qualified archaeologist.

If a potentially significant cultural resource(s) is discovered, work shall stop within a 15-foot perimeter of the discovery and an ESA physical demarcation/barrier shall be established. All work shall be diverted away from the vicinity of the find(s), so that it/they can be evaluated by the qualified archaeologist and Tribal Monitor[s] in accordance with MM-CUL-5 and MM-CUL-6.

MM-CUL-3: **Controlled Grading.** Controlled grading shall be implemented within 100 feet of known resources. The controlled grading would consist of trenching using an excavator with a small bucket, with speed and depth of each removal directed by the monitors, providing the monitors adequate time to examine excavated soil and trench sidewalls.

MM-CUL-4: **Worker Environmental Awareness Program.** A qualified archaeologist and Consulting Tribe(s) tribal monitor shall attend a pre-grade meeting with EMWD staff, the contractor, and appropriate subcontractors to discuss the monitoring program, including protocols to be followed if cultural material is encountered.

MM-CUL-5: **Evaluation of Discovered Artifacts.** Artifacts discovered during monitoring shall be inventoried and analyzed by the project archaeologist and tribal monitor. A monitoring report will be prepared detailing the methods and results of monitoring, as well as the disposition of cultural material encountered. If no cultural material is encountered, a brief letter report will be sufficient to document monitoring activities.

MM-CUL-6: **Disposition of Inadvertent Discoveries.** If Native American cultural resources are recovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries with the tribe(s). EMWD shall relinquish ownership of all cultural resources, including sacred items, burial goods, and all archaeological artifacts and non-human remains as part of the required mitigation for impacts to cultural resources, and adhere to the following:

1) Preservation-in-place is the preferred option; preservation-in-place means avoiding the resources and leaving them in the place where they were found with no development affecting the integrity of the resource.

2) If preservation-in-place is not feasible, on-site reburial of the discovered items as detailed in the plan required pursuant to mitigation measure CUL-1 is the next preferable treatment measure. This shall include measures and provisions to protect the future reburial area from further impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items shall be permitted without the written consent of all Consulting Native American Tribal Governments.

3) In the event that on-site reburial is not feasible, EMWD will enter into a curation agreement with an appropriate qualified repository within Riverside County that meets federal standards per 36 Code of Federal Regulations 800 Part 79 and therefore would be curated and made available to other archaeologists/

researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within Riverside County, to be accompanied by payment of the fees necessary for permanent curation.

MM-CUL-7: Non-Disclosure of Reburial Locations. It is understood by all parties that unless otherwise required by law, the site of any reburial of culturally sensitive resources shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The coroner, pursuant to the specific exemption set forth in California Government Code 6254(r), parties, and Lead Agencies will be asked to withhold public disclosure information related to such reburial.

MM-CUL-8: Procedure for Discovery of Human Remains. If Native American human remains are encountered, Public Resources Code Section 5097.98 and California Health and Safety Code Section 7050.5 will be followed. If human remains are encountered, no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to the origin. Further, pursuant to California Public Resources Code Section 5097.98(b), the remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the coroner shall contact the Native American Heritage Commission within 24 hours. Subsequently, the Native American Heritage Commission shall identify the person or persons it believes to be the "most likely descendant." The most likely descendant shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in Public Resources Code Section 5097.98.

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Appendix A

Resumes of Key Personnel

MARY ROBBINS-WADE, RPA

Cultural Resources Group Manager



Ms. Robbins-Wade is HELIX's Cultural Resources Group Manager and Principal Archaeologist. With 43 years of experience, she manages and oversees archaeological, historic, and interpretive studies and programs, including contract management; design and implementation of survey, research, data recovery, and construction monitoring programs; preservation plans and report preparation. Ms. Robbins-Wade has experience with a broad range of project types, including private developments and public infrastructure. She manages the preparation of cultural resources studies both as stand-alone reports and also in support of CEQA and NEPA compliance efforts. Ms. Robbins-Wade has a strong working knowledge of local, state, and federal laws addressing the protection of archaeological and historical resources. Her Native American consultation experience includes coordinating Native American tribal consultations conducted pursuant to CEQA as revised by Assembly Bill 52 (2014 Session), as well as providing support for federal agency government-to-government consultations with federally recognized tribes pursuant to Section 106 of the National Historic Preservation Act (NHPA). Ms. Robbins-Wade is a Registered Professional Archaeologist (RPA) and meets the U.S. Secretary of the Interior's Professional Qualifications for prehistoric and historic archaeology.

Lake Elsinore Honda (Archaeological Services). Project Manager/Principal Investigator for a cultural resources survey of a proposed auto dealership project in the City of Lake Elsinore. Oversaw background research and field survey; responsible for Native American coordination and report preparation. Work performed for David Evans Associates, with the City of Lake Elsinore as the lead agency.

Diaz Road Expansion, PW17-25. Principal Investigator/Cultural Resources Task Lead for cultural resources survey in support of an IS/MND for proposed city infrastructure improvements associated with the widening and construction of Diaz Road in the City of Temecula. The cultural resources study included tribal outreach and coordination to address the cultural sensitivity of the project area. Oversaw cultural resources study; responsible for tribal outreach and senior oversight on technical report. Work performed for David Evans and Associates, with the City of Temecula as the lead agency.

Windsong/Skylar Place Residential Project (TTM 38123). Principal Cultural Resources Specialist for a proposed residential development in the City of Moreno Valley. The project includes construction of 177 single-family residential lots, a 2.2-acre park, water quality retention basins, open space areas, underground utilities, and internal streets/sidewalks. Responsibilities include providing senior technical oversight and quality control for cultural resources survey and technical report. Work performed for DR Horton with the City of Moreno Valley as lead agency.

Judson Potable Water Storage Tank and Transmission Pipeline IS/MND. Cultural Resources Task Lead for this project in the City of Moreno Valley. Eastern Municipal

EDUCATION

Master of Arts, Anthropology, San Diego State University, 1990

Bachelor of Arts, Anthropology, University of California, Santa Barbara, 1981

REGISTRATIONS/ CERTIFICATIONS

Registered Professional Archaeologist No. 10294

Caltrans, Professionally Qualified Staff-Equivalent Principal Investigator for Prehistoric Archaeology

Bureau of Land Management Statewide Cultural Resource Use Permit (California), FLPMA Permit No. CA-18-35

County of San Diego, Approved CEQA Consultant for Archaeological Resources

Orange County Approved Archaeologist

Riverside County Approved Cultural Resources Consultant

PROFESSIONAL AFFILIATIONS

Society for American Archaeology

Society for California Archaeology

San Diego Archaeological Center

San Diego History Center

San Diego Museum of Us

San Diego County Archaeological Society

Water District is proposing the construction and operation of a steel, 2.2-million-gallon (MG) potable water storage tank, approximately 2,300 linear feet of 18-inch-diameter transmission pipeline, a paved access road, a detention basin, and other appurtenances to support tank operations. Oversaw background research and field survey. Responsible for Native American outreach for cultural resources survey and co-authored technical report. Assisted District with Native American outreach and consultation under AB 52. Work performed under an as-needed contract for Eastern Municipal Water District.

EMWD Fox Tank Replacement IS/MND. Cultural Resources Task Lead for this project in the Mead Valley community of unincorporated Riverside County. Eastern Municipal Water District proposed to construct and operate a new 1.0-million-gallon (MG) welded steel water tank and 0.15-MG detention basin, install a new 12-inch-diameter pipeline within Fox Street and Ellis Road to connect the new tank to the existing water distribution network, and demolish the existing 0.15-MG Orange Tank. Oversaw background research, field survey, and report preparation. Responsible for Native American outreach for cultural resources survey. Assisted District with Native American outreach and consultation under AB 52. Work performed under an as-needed contract for Eastern Municipal Water District.

Cactus II Feeder Transmission Pipeline IS/MND. Cultural Resources Task Lead for this project in the City of Moreno Valley. Eastern Municipal Water District proposed to construct approximately five miles of new 30-inch to 42 inch-diameter pipeline; the project would address existing system deficiencies within the City and provide supply for developing areas. Oversaw background research, field survey, and report preparation. Responsible for Native American outreach for cultural resources survey. Assisted District with Native American outreach and consultation under AB 52. Work performed under an as-needed contract for Eastern Municipal Water District.

Sky Canyon Sewer Environmental Consulting. Cultural Resources Task Lead for this project adjacent to the City of Murrieta in southwestern Riverside County. Eastern Municipal Water District (District) proposed to implement the Sky Canyon Sewer Main Extension Project to construct approximately 6,700 linear feet of new gravity-fed 36-inch-diameter sewer main to provide additional sewer capacity for planned development. The proposed 36-inch-diameter sewer main would extend the existing 36-inch-diameter French Valley Sewer at Winchester Road further downstream to Murrieta Hot Springs Road. Oversaw background research and field survey for the cultural resources study in support of the IS/MND. Responsible for Native American outreach for cultural resources survey and co-authored technical report. Assisted District with Native American outreach and consultation under AB 52. Work performed under an as-needed contract for Eastern Municipal Water District.

Dale 2199C Pressure Zone Looping Pipeline Project. Cultural Resources Task Lead for this project in Moreno Valley. Eastern Municipal Water District proposed construction of a new pipeline to connect two existing pipelines in the District's 2199C Pressure Zone. The pipeline would consist of an 18-inch-diameter pipeline between Kitching Street and Alta Vista Drive that would connect to an existing 12-inch-diameter pipeline in the northern end of Kitching Street and to an existing 18-inch-diameter pipeline at the eastern end of Alta Vista Drive. The project will improve reliability and boost the Dale Pressure Zone's baseline pressure and fire flow availabilities. Four potential alignments were under consideration; three of these bisect undeveloped land to varying degrees, while the other is entirely situated within developed roadways. Oversaw background research and field survey. Responsible for Native American outreach for cultural resources survey and co-authored technical report. Work performed under an as-needed contract for Eastern Municipal Water District.

Purified Water Replenishment Environmental Impact Report. Cultural Resources Task Lead for a project that would replenish the San Jacinto Upper Pressure Groundwater Management Zone aquifer with advanced treated water. New facilities are proposed to include advanced water treatment facilities and brine ponds near Eastern Municipal Water District's (EMWD) existing San Jacinto Valley Regional Water Reclamation Facility, a blending facility at the existing Alessandro Ponds, and water conveyance pipelines. Oversaw background research, field

survey, and report preparation and was responsible for Native American outreach and coordination. Work performed for EMWD.

Warm Springs Lift Station Replacement. Cultural Resources Task Lead/Principal Investigator for a cultural resources survey of this lift station replacement project in Temecula. The project is adjacent to Murrieta Creek, in an area that is of cultural significance to the Luiseño people. Oversaw background research, field survey, and report preparation. Responsible for Native American outreach and coordination; coordinated with Pechanga Cultural Resources on Native American concerns. Work performed for Eastern Municipal Water District.

Seraphina Project. Principal Investigator/Cultural Resources Task Lead for a cultural resources study in conjunction with biological permitting for a proposed residential development and associated drainage improvements along Santa Gertrudis Creek in the City of Temecula, Riverside County. The cultural resources study includes a records search and background research, Native American coordination and contacting the Native American Heritage Commission, field survey, coordination with U.S. Army Corps of Engineers, and preparation of a report addressing the National Historic Preservation Act Section 106 compliance. Work was performed for Hillcrest Homes, with the City of Temecula as the lead agency.

Downtown Riverside Metrolink Station Track & Platform Project. Cultural Resources Task Lead for this project involving changes to and expansion of the Downtown Metrolink Station in Riverside. Oversaw records search and background information, archaeological survey, and report preparation; served as primary report author. Responsible for coordination with Native American Heritage Commission, Riverside County Transportation Commission (RCTC), and Federal Transportation Authority (FTA) on Native American outreach. Work performed for Riverside County Transportation Commission as a subconsultant to HNTB Corporation.

Eastern Municipal Water District Well 59 Wellhead Treatment Facilities IS/MND. Senior Archaeologist providing quality control and oversight for cultural resources survey and report for this project, in the City of Moreno Valley, which includes a background research, field survey, report preparation, and Native American outreach. HELIX is performing an environmental review and CEQA document preparation, including assisting EMWD with Native American consultation in accordance with Assembly Bill 52. The project consists of the evaluation and design of wellhead treatment facilities to remove perfluorinated compounds from the existing Well 59. The approximately 0.68-acre project site is located within the 1627 zone, at the intersection of Nance Street and Indian Avenue. Work performed for Kennedy Jenks Consultants with EMWD as the lead agency.

EVMWD Near Term Water Supply Program, On-call Professional Environmental Services. Cultural Resources Task Lead/Principal Investigator for an on-call services contract to provide environmental services for water supply projects. Work performed for Elsinore Valley Municipal Water District. Diamond Regional Lift Station and Pipeline Project (2016 - 2018). Cultural Resources Task Lead/Principal Investigator for a cultural resources survey of the proposed Diamond Regional Lift Station project in the City of Lake Elsinore, located at the confluence of the San Jacinto River at the eastern shoreline of Lake Elsinore. Oversaw background research, field survey, site record updates, Native American coordination, and report preparation. Coordinated with Pechanga Cultural Resources on Native American concerns and development of mitigation measures for the project. Work performed for Elsinore Valley Municipal Water District (EVMWD). Regional Agricultural Pipeline Conversion Project (2016 - 2018). Cultural Resources Task Lead for the cultural resources study and archaeological monitoring for the proposed Ag Pipeline Conversion project, a three-agency partnership between Elsinore Valley Municipal Water District (EVMWD), the City of Lake Elsinore, and the Riverside County Flood Control and Water Conservation District (RCFCWCD). In conjunction with the cultural resources study, met with Pechanga Cultural Resources staff several times to discuss Native American concerns and alternative project approaches, due to the presence of extremely sensitive cultural resources. Assisted EVMWD with AB 52 consultation. Worked closely with tribal cultural monitors from two Tribes during construction monitoring. Work performed EVMWD.

Rady Murrieta Project. Principal Investigator/Cultural Resources Task Lead for a medical office building project in the City of Murrieta, Riverside County. The cultural resources survey included a records search at the Eastern Information Center, Sacred Lands File search from the Native American Heritage Commission (NAHC), tribal outreach and coordination, a field survey, and preparation of a report per CEQA and City requirements. Work was performed for Rady Children's, with the City of Murrieta as the lead agency.

Murrieta Hot Springs Road Improvements Project. Principal Investigator/Cultural Resources Task Lead for cultural resources survey in support of an IS/MND for the widening of Murrieta Hot Springs Road in the City of Murrieta. The project would widen/restripe Murrieta Hot Springs Road between Winchester Road and Margarita Road from four to six lanes, to improve traffic flow and provide bike lanes, a raised median, light poles, signage, stormwater catch basins, retaining walls, and sidewalks. The cultural resources study included tribal outreach and coordination to address the cultural sensitivity of the project vicinity. Oversaw cultural resources study; responsible for tribal outreach and senior oversight on technical report. Work performed for SB&O, Inc., with the City of Murrieta as the lead agency.

12 Oaks Winery Resort. Project Manager/ Principal Investigator for a cultural resources survey of approximately 650 acres for a proposed project in the County of Riverside. Oversaw background research, field survey, site record updates, Native American coordination, and report preparation. Met with Pechanga Cultural Resources staff to discuss Native American concerns. Worked with applicant and Pechanga to design the project to avoid impacts to cultural resources. Work performed for Standard Portfolio Temecula, LLC, with the County of Riverside as lead agency.

Oak Valley Town Center. Principal Cultural Resources Specialist/Cultural Resources Task Lead for a mixed-use project in the City of Calimesa, Riverside County. Proposed uses would include approximately 2,250,000 square feet of warehouses and approximately 751,800 square feet of commercial retail uses. Serving as lead for the cultural resources survey and historic resources evaluation, as well as cultural resources monitoring program (upcoming). Work performed for Terra Verde Group, with the City of Calimesa as the lead agency.

EMWD Quail Valley III Regional Water Tank Environmental Consulting. Cultural Resources Task Lead for a cultural resources survey for a proposed 1.63-million-gallon potable water storage tank in the City of Menifee. Overseeing background research, field survey, and report preparation. Responsible for Native American outreach and coordination. Work performed for Pulte Group, with Eastern Municipal Water District as the CEQA lead agency.

French Valley South Tract 30837 Project. Principal Investigator for a 153-acre residential project in the unincorporated community of French Valley, Riverside County. Oversaw background research, field survey, site record updates, Native American coordination, and preparation of a cultural resources report update in support of wetland permitting. The project proposes construction of 312 single-family residences.

Moreno Valley Tentative Tract Map 36760 Project. Principal Investigator for a cultural resources survey of a 53-acre site in the City of Moreno Valley, Riverside County. Oversaw background research, field survey, site record updates, Native American coordination, and preparation of a cultural resources report. Project proposed construction of 221 single-family residences, including the installation of necessary utilities and new connecting roadways.

Wildomar Crossings Retail Development Project. Principal Investigator for a cultural resources survey for a proposed retail development project in the City of Wildomar in Riverside County. The cultural resources survey included a records search, Sacred Lands File search and Native American outreach, review of historic maps and

aerial photographs, an intensive field survey, and report preparation. Work performed for Mann Property Company, with the City of Wildomar as the lead agency.

Roripaugh Ranch Phase 2. Principal Investigator/Cultural Resources Task Lead for a cultural resources study in conjunction with biological permitting for roadway and drainage improvements along Santa Gertrudis Creek in the City of Temecula, Riverside County. The cultural resources study includes a records search and background research, Native American coordination and contacting the Native American Heritage Commission, field survey, coordination with U.S. Army Corps of Engineers, and preparation of a report addressing the National Historic Preservation Act Section 106 compliance. Work performed for Roripaugh Valley Restoration, LLC.

Lake Elsinore MEBO Resort Project. Cultural Resources Task Lead/Principal Investigator for a cultural resources survey of off-site parcels for a proposed resort development in the City of Lake Elsinore. Met with client and Pechanga to discuss the significance of cultural resources within and adjacent to the project site. Oversaw background research and field survey, responsible for Native American coordination and report preparation. Work performed for LK Investment Group, with the City of Lake Elsinore as the lead agency.

Yum Donuts Moreno Valley Project. Cultural Resources Lead and Project Manager for a project in the City of Moreno Valley that proposed to develop a vacant lot for a 5,515-square foot Yum Donuts restaurant and convenience store with car wash and gas station. HELIX provided technical reports (cultural resources and air quality/greenhouse gas analysis) and the Initial Study/Mitigated Negative Declaration. Oversaw cultural resources study and provided senior technical review. Work performed for A&S Engineering with City of Moreno Valley as the lead agency.

Ramona E-Commerce Warehouse Park EIR. Principal Cultural Resources Specialist/Cultural Resources Task Lead for a Specific Plan Amendment in the City of Perris, Riverside County to allow for 247,884 square feet of small-scale warehousing with 39 dock positions for delivery trucks, 415 parking stalls, a groundwater basin, and landscaping improvements. Led the cultural resources survey and technical report. Responsible for Native American outreach and coordination, served as primary report author, and oversaw archaeological fieldwork. Work performed for JM Realty Group, with the City of Perris as lead agency.

EDUCATION

Bachelor of Arts, Anthropological Archaeology, University of California, San Diego, 2002

Associate of Science, Psychology, San Diego City College, 2000

REGISTRATIONS/ CERTIFICATIONS

Bureau of Land Management Statewide Cultural Resource Use Permit, California No. CA-18-35

Technical Safety Institute, HAZWOPER 40 Hour, Issue No. F183291: Hazardous Waste Operations and Emergency Response

PROFESSIONAL AFFILIATIONS

Society for California Archaeology

Society for American Archaeology

Association of Environmental Professionals

JULIE ROY

Archaeological Field Director



Ms. Roy has 23 years of experience as an archaeologist, field lead, and supervisor on more than 130 projects throughout California, Nevada, Arizona, and Guam. Conducted archaeological studies for a wide variety of development and resource management projects including work on military installations, energy and transmission projects, commercial and residential developments, historic archaeology projects, and water projects. Competent in all areas of archaeology and efficient in report preparation for a range of cultural resource studies including monitoring projects and archaeological Phase I, II, and III studies. Ms. Roy is proficient in laboratory activities including artifact preparation, cataloging, identification, and illustration. Accomplished in the initiation, coordination and completion of field assignments including survey, site testing, dry and wet screening, and data recovery projects. She is also knowledgeable in the preparation of proposals and report writing and research, client, contractor and subcontractor correspondence, laboratory, computer software including Microsoft, Adobe, GIS/ArcView, CADD, GPS and total-station operations, as well as in the illustration of archaeological features, artifacts, and burials.

Ms. Roy is established as a qualified archaeological monitor for the City and the County of San Diego. Her experience includes working closely with representatives of San Diego County Parks and Recreation for the past 11 years and she has received accolades from numerous county representatives for her work at park facilities. For the past five years, she has served as the monitoring coordinator for the San Diego Gas & Electric Company (SDG&E) Fire Resource Mitigation Initiative (FiRM) project, where she regularly provided effective communication between field monitors, construction managers/foremen, and Principal Investigators for construction projects and assisted in scheduling and tracking of project progress.

Elsinore Valley MWD Lee Lake Dam Upgrades (2019 -). Field Director for an intensive pedestrian survey for the Lee Lake Dam Upgrade Project (project) located off Temescal Canyon Road in Corona, California, in southwest Riverside County. The purpose of the proposed project was to perform a geotechnical investigation to collect subsurface soil data for design and construction of the proposed Lee Lake Dam improvements. The project was initiated by the Elsinore Valley Municipal Water District to bring the dam into compliance with Division of Safety of Dams (DSOD) standards.

Membrane Filtration Reverse Osmosis Facility Environmental Consulting (2019 - 2019). Field Director for the Membrane Filtration Reverse Osmosis Facility (MFRO) Environmental Consulting Project (project) in the City of Escondido for a pedestrian survey of a 10.32-acre parcel APE. Work was performed to comply with the California Environmental Quality Act (CEQA) and the Section 106 of the National Historic Preservation Act (NHPA). Activities included the survey and preparation of the cultural resource survey report. Work performed for the City of Escondido.

Escondido Brine Line Project (2018 - 2019). Field Director for the Escondido Brine Line project, a pipeline construction project, in the City of Escondido. Responsibilities included communications with contractors, project managers and supervisors; survey; spot checks; monitoring; and communications with the HELIX PM for coordination of archaeological and Native American monitors and daily field activities; and sensitivity awareness training for contracted employees. Work was performed under contract to the City of Escondido.

Water Group Job 939 (2018 - 2019). Field Director of a monitoring effort for the City of San Diego Public Works Department Water Group Job project in the Sorrento Valley area in the City of San Diego. Responsibilities included communications with on-site contractors, project managers and supervisors; monitoring of construction activities; communication with HELIX project manager; coordination of Tribal monitors and daily field activities; site visits; and sensitively awareness training for contracted employees; assisted in the completion of a Cultural Resource Monitoring report. Work performed for the City of San Diego.

Balboa & I-15 Canyon Long Term Access Project (2018 - 2018). Field Director for the Balboa & I-15 Canyon Long Term Access Project. Assisted the project manager in researching the project area and writing a technical report. Work performed for the City of San Diego Public Utilities Department.

Jefferson Street Emergency (2019 -). Field Director for the Jefferson Street Emergency Project (project) that entailed the excavation of a water main line for repairs within the Old Town area in the City of San Diego. Activities included a site visit and monitoring of construction, communications with the HELIX Project Manager and on-site City employees, and the completion of an impact results memo. Work performed for the City of San Diego.

Sycamore Canyon/Goodan Ranch Public Access Plan IS/MND (2019 - 2019). Field Director for a large-scale cultural resources survey and assessment in support of the IS/MND for the proposed Public Access Plan for the Sycamore Canyon/Goodan Ranch Preserve. The Public Access Plan proposes the creation of a non-motorized multi-use trail system within the approximately 2,711-acre Preserve, located in unincorporated San Diego County. Responsibilities included direct communications with the HELIX project manager and the completion of intensive pedestrian field survey for 35 trail segments totaling approximately 22 miles. Duties consisted of survey; recording of new and updating previously recorded resources; coordination of archaeological staff and Tribal monitors; communication and coordination with Preserve rangers; oversight of an archaeological testing program at three prehistoric archaeological sites; the completion of DPR site records; and assisting with the methods and the results section of a technical report for the completion of the project.

Sycamore Canyon/Goodan Ranch Surveys (2019 - 2019). Field Director for a large scale intensive pedestrian survey for the County of San Diego Department of Parks and Recreation for the Sycamore Canyon/Goodan Ranch Survey project in Poway. Responsibilities consisted of direct communications with the HELIX project manager and the completion of a trail survey consisting of over 20 miles of formal and informal trails, as well as areas of possible impacts during construction activities of new trail systems within areas of the preserve. Duties consisted of survey; recording of new and updating previously recorded resources; coordination of archaeological staff and Tribal monitors; communication with county employees; the completion of DPR site records; and assisted in the methods and the results section of a technical report for the completion of the project. Work performed for the County of San Diego.

Santa Ysabel Nature Center Monitoring (2018 - 2019). Field Director for an intensive pedestrian survey for the Santa Ysabel Nature Center Project (project). The project was initiated by the California Department of Parks and Recreation (DPR) which proposed to construct the Santa Ysabel Nature Center (project) on the southern portion of an approximately 105-acre parcel (APN 2471601400) on Santa Ysabel Open Space Preserve East. The purpose of the proposed project is to provide a regional nature education center that can showcase, capture

and promote stewardship of the unique environment. Activities included monitoring for geotechnical studies; field survey and the completion of DPR site forms and report; Archaeological testing; assisting in the monitoring effort during the construction phase of the project; coordination with Native American monitors; communications with the project manager, county representatives, and the on-site construction supervisor; assisting in the preparation of bi-weekly activity memos for the county; and completion of a final impact report. Work performed for the County of San Diego.

Sycuan/Sloane Canyon Trail IS/MND (2019 - 2019). Field Director for an intensive pedestrian survey for the County of San Diego Department of Parks and Recreation for the Sycuan/Sloane Canyon Survey project in San Diego County. Responsibilities included direct communications with the HELIX project manager and the completion of an 80 acre survey along Dehesa Road and Sloane Canyon Road. Duties consisted of survey, recording new and updating previously recorded cultural resources, coordination of Native American monitors, the completion of DPR site records, and assisting in the methods and the results section of a technical report for the completion of the project. Work performed for the County of San Diego.

Oceanpointe Project (2019 - 2019). Field Director for the proposed residential development on an approximately 36-acre property in the City of Oceanside. Activities included a testing program of a newly recorded site; DPR site records; coordination with Tribal monitors; and assisted in the preparation of a results report. The work was performed for Hallmark Communities, Inc. (in compliance with Section 106 of the NHPA), with the City of Oceanside as the lead agency.

R.M. Levy Water Treatment Plant Sewer Replacement (2019 -). Field Director for the R.M. Levy Water Treatment Plant Sewer Replacement Project (project) that will replace an existing 8-inch sewer line with a similarly sized sewer line located at the R.M. Levy Water Treatment Plant. Activities included a pedestrian survey and assisting in the completion of an impact report. Work performed for the Helix Water District.

Bouquet Canyon Road Project (2018 - 2018). Field director for cultural resources Phase I survey of for the Bouquet Canyon Road Project (project) in the City of Santa Clarita. Responsibilities included an intensive pedestrian survey, supervision of field crew members, coordination efforts of a Native American monitor, completion of DPR site forms and updates, and assistance in the preparation of a technical report. The study was prepared to comply with City of Santa Clarita guidelines and the California Environmental Quality Act (CEQA). Work performed for Integral Communities.

Alliant University Project (2019 - 2019). Field Director for cultural resources survey of the Alliant University project. Duties included conducting a pedestrian survey, coordination with a Native American monitor, completion of site forms, and assistance in the preparation of a technical report. The work was done for KB Home Coastal Inc.

Hiser Property Project (2019 -). Field Director for cultural resources survey for the Hiser Property Project (project), in the City of Santee. Activities included a cultural survey; coordination with Tribal monitors; and preparation and completion of a constraints report for the project. Work performed for KB Homes.

Padre Dam Municipal Water District East County Advanced Water Purification Program Year 2 (2018 - 2018). Field Director for cultural resources survey of the East County Advanced Water Purification project, which proposes to increase the region's supply of potable water. Duties included conducting a pedestrian survey, coordination with a Native American monitor, completion of DPR site forms, and assisted in the preparation of a technical report. Work performed for Kennedy/Jenks Consultants, Inc., with Padre Dam Municipal Water District as the lead agency and Helix Water District, the County of San Diego, and the City of El Cajon as participating agencies.

EDUCATION
Bachelor of Arts, Anthropology, California State College, Long Beach, 1970

Master of Arts, Anthropology, California State University, Los Angeles, 1982

REGISTRATIONS/ CERTIFICATIONS Register of Professional Archaeologists No. 10621

City of San Diego, Certified Principal Investigator for Monitoring Projects

County of San Diego, Approved Consultant for Archaeological Resources

County or Riverside, Certified Cultural Resources Consultant Principal Investigator

County of Orange, Certified Cultural Resources Consultant Principal Investigator

Los Angeles, Ventura, San Luis Obispo, and Santa Barbara Approved Consultant

PROFESSIONAL AFFILIATIONS
Society for California Archaeology

Society for American Archaeology

THEODORE COOLEY, RPA

Senior Archaeologist

Mr. Cooley has 50 years of experience in archaeological resource management. He has directed test and data recovery investigations, monitoring programs, and archaeological site surveys of large and small tracts, and has prepared reports for various cultural resource management projects. He is well-versed in National Historic Preservation Act, National Environmental Policy Act (NEPA), and California Environmental Quality Act (CEQA) regulations and processes. Mr. Cooley's experience also includes Native American consultation for monitoring of archaeological field projects, including some with human remains and reburial-related compliance issues.

Sycamore Canyon/Goodan Ranch Public Access Plan IS/MND. Senior Archaeologist for Phase I pedestrian survey and cultural resource inventory in support of the preparation by the County of San Diego County Parks Department of a Public Access Plan for the Sycamore Canyon/Goodan Ranch Preserve located in coastal foothills of unincorporated west-central San Diego County. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for the County of San Diego.

Sycuan/Sloane Canyon Trail IS/MND. Senior Archaeologist for Phase I pedestrian survey and cultural resource inventory in support of the preparation by the County of San Diego County Department of a Parks and Recreation for the Sycuan/Sloane Canyon Trail project located in the coastal foothills of unincorporated southwestern San Diego County. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for the County of San Diego.

R.M. Levy Water Treatment Plant Sewer Replacement. Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory and assessment program in support of a water treatment plant, sewer pipeline, replacement project, located in the community of Lakeside, San Diego County. Involvement included participation in the analysis of the results from the survey program and preparation of the technical report. Work performed for HELIX Water District.

Hiser Property Project. Senior Archaeologist for a due diligence study prepared to summarize potential cultural resources constraints to the 9.2-acre Hiser Property development project, located in the Mission Gorge area of the City of Santee, San Diego County. The study consisted of background research including a record search and limited archival study, a field survey, and a review of the Sacred Lands File from the Native American Heritage Commission (NAHC). Involvement included participation in the analysis of the results and preparation of a summary letter report of the potential cultural resources-related constraints to the planned development. Work performed for KB Home.

San Elijo Joint Powers Authority Roadway and Trail Addendum and Permitting. Senior Archaeologist for Phase I cultural resource inventory, pedestrian survey, and resource testing at the San Elijo Water Reclamation Facility adjacent to San Elijo

lagoon, in San Diego County, in support of the preparation by the San Elijo Joint Powers Authority of a Roadway and Trail Addendum for upgrades to the facility requiring verification of Nationwide Permit authorization from the U.S. Army Corps of Engineers (USACE). Involvement included participation in the analysis of the results from the survey and testing program and co-authorship of the technical report. Work performed as a subconsultant to Kimley-Horn & Associates, with the San Elijo Joint Powers Authority as lead agency.

Cubic Redevelopment Environmental Consulting. Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory and assessment program in support of a 20-acre redevelopment project, located in the community of Kearny Mesa, City of San Diego. Involvement included participation in the analysis of the results from the survey program and preparation of the technical report. Work performed for Cubic Redevelopment Environmental Consulting, with the City of San Diego as lead agency.

The Enclave at Delpy's Corner Project. Senior Archaeologist for a cultural resources monitoring and data recovery program in support of a proposed 124-unit townhome development project, in the City of Vista, San Diego County. Involvement included participation in the analysis of the prehistoric lithic artifacts and preparation of technical report sections containing the results of these analyses. Work performed for CalAtlantic Homes.

Sycamore & Watson Project. Senior Archaeologist for an archaeological construction monitoring program for the Sycamore & Watson residential development project, located in City of Vista, San Diego County. Involvement included participation in the analysis of the results from the monitoring program and preparation of the technical report. Work performed for Meritage Homes.

French Valley 303 Project. Senior Archaeologist for an archaeological construction monitoring program for the French Valley 303 Site residential development project, located in the French Valley area of unincorporated Riverside County. Involvement included participation in the analysis of the results from the monitoring program and co-authorship of the technical report. Work performed for Pulte Home Co., LLC.

Brown Field and Montgomery-Gibbs Executive Airport Master Plans. Senior Archaeologist for Phase I cultural resource inventory and pedestrian survey programs at the Brown Field Municipal Airport and the Montgomery-Gibbs Executive Airport, in the City of San Diego, in support of updating of the Airport Master Plan and its Programmatic Environmental Impact Report. Involvement included participation in the analysis of the results from the survey programs and co-authorship of the technical reports. Work performed as a subconsultant to C&S Companies, with the City of San Diego as the lead agency.

Newage Carlsbad Luxury Resort Technical Studies. Senior Archaeologist for a cultural resources assessment study for the Ponto Hotel development project in the City of Carlsbad, San Diego County, California. Involvement included participation in the analysis of the results from the assessment program and preparation of the technical report. Work performed for Kam Sang Company, with the City of Carlsbad as the lead agency.

Salt Bay Design District Specific Plan EIR. Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory program in support of the 46.6-acre Salt Bay Design District Specific Plan mixed-use wholesale/retail shopping and light industrial development project, in the cities of San Diego and Chula Vista. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for M. & A. Gabaee, with the City of San Diego as lead agency.

Riverside Views and Briggs Road Development Project. Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory program of the Briggs Road Residential project located in Riverside County. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for the Walton International Group, LLC.

San Jacinto Property Project. Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory program of the 214 residential project located in Riverside County. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for the Walton International Group, LLC.

8016 Broadway Self Storage Project. Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory program of the Lemon Grove Self-Storage project located in the City of Lemon Grove, San Diego County. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for the Summit Environmental Group, Inc.

EDUCATION
Master of Arts, Anthropology, San Diego State University, 2018

Bachelor of Arts, Biology and Anthropology, San Diego State University, 2015

REGISTRATIONS/ CERTIFICATIONS
Registered Professional Archaeologist No. 17338

PROFESSIONAL AFFILIATIONS
Society for Historical Archaeology

Society for California Archaeology

JAMES TURNER

Senior Archaeologist I



Mr. Turner is a Registered Professional Archaeologist (RPA) with a Master's degree in Anthropology and field and college-level teaching experience in archaeology. He has five years of experience in Section 106, the Native American Graves Protection and Repatriation Act (NAGPRA), and writing detailed reports. Mr. Turner has archaeological research and fieldwork expertise throughout southern California. He has also received training in identifying and analyzing animal remains in archaeological contexts, historic artifact identification, and technical writing. Mr. Turner's experience meets the Secretary of the Interior's Professional Qualification Standards for archaeology.

East County Advanced Water Purification Package 1-4 Project Level CEQA Coordination and Support (2022 - Present). Archaeologist for the Padre Dam Municipal Water District East County Advanced Water Purification (AWP) Project. Provided as-needed support to the East County AWP Joint Powers Authority (JPA), which is implementing the East County AWP project, in completing reviews of design documents, including review of available plans and other documents for accuracy, consistency, and adherence to the project's mitigation measures and permit conditions in regard to cultural resources. Conducted background and archival research and a pedestrian survey, and prepared a project-specific cultural resources inventory and assessment in support of project-specific Supplemental IS/MND tiered from the Facilities Master Plan Program EIR. Additionally, assisted in the development of a project-specific cultural resources field recordation program to be used during the cultural resources monitoring, and conducted cultural resources monitoring of construction activities. Work performed as a subconsultant, with Padre Dam Municipal Water District as the lead agency and Helix Water District, the County of San Diego, and the City of El Cajon as participating agencies and the East County AWP Joint Powers Authority (JPA).

Metropolitan Pure Water Southern California Program (2022 - 2025). Archaeologist for the technical analysis conducted in support of an EIR. The proposed Pure Water Southern California Program is a partnership between Metropolitan and the Los Angeles County Sanitation Districts to beneficially reuse water currently discharged to the Pacific Ocean. The proposed facilities would be located in Los Angeles County, spanning from approximately two miles north of the Port of Los Angeles to the foot of the San Gabriel Mountains. Conducted records searches and archival research, participated in intensive pedestrian surveys, prepared the Cultural Resources Technical Report, and assisted in the preparation of the Cultural Resources chapter of the Draft EIR.

EMWD Purified Water Replenishment Environmental Impact Report (2020 - 2021). Archaeologist for a pedestrian survey in the City of San Jacinto, CA. Conducted background research and prepared the technical report. Work performed for Eastern Municipal Water District.

EMWD Lake Skinner Regional Water Transmission System (EM-11) Program EIR (2022 - Present). Archaeologist for a project that includes a new service connection (turnout) to receive treated water deliveries from Metropolitan's Robert A. Skinner Water Treatment Plant; a new pump station that would connect to the turnout to supply water to the Eastern Municipal Water District's service area; and a new transmission pipeline. The project is in an area that is sensitive for cultural resources and Tribal Cultural Resources. Conducted archaeological records search, background research, and constraints analysis, and prepared the Cultural Resources Technical Report. Work performed for Eastern Municipal Water District.

EMWD Ridgecrest Road Tank Site EIR (2023 - Present). Archaeologist for the construction of an above-ground water tank, connecting pipeline, and access road located within unincorporated land in Riverside County. Conducted archaeological records search and background research and prepared an initial cultural resources constraints analysis report that assessed seven alternative locations for the water tank, as well as the field survey of the preferred alternative. Work performed for Eastern Municipal Water District.

Water Infrastructure Finance and Innovation Act Application State Historic Preservation Officer Response (2022). Archaeologist for the preparation of an archaeological sensitivity assessment to support Helix Water District's Water Infrastructure Finance and Innovation Act application and the U.S. Environmental Protection Agency's consultation with the California State Historic Preservation Officer for six pipeline improvement projects located within the cities of La Mesa and El Cajon and the community of Lakeside. Conducted archival research and assessed pipeline improvement projects for archaeological and historical sensitivity.

Dam Maintenance Program (2020 - 2022). Archaeologist for the City of San Diego Public Utilities Department Dam Maintenance Program, which covers routine maintenance activities of 13 dams and spillways, associated infrastructure, and the approximately 13-mile Dulzura Conduit, located in San Diego County. Conducted archival research and assisted in the preparation of the Cultural Resources Technical Report.

EMWD Warm Springs Lift Station Replacement (2020). Archaeologist for a cultural resources survey of this lift station replacement project in Temecula. The project is adjacent to Murrieta Creek, in an area that is of cultural significance to the Luiseño people. Conducted background research and prepared the draft technical report. Work performed for Eastern Municipal Water District.

EMWD Sky Canyon Sewer Main Extension (2021 - 2023). Archaeologist for a cultural resources study for a proposed sewer pipeline project in the County of Riverside. Responsibilities included cultural resource monitoring, identification of cultural material and features, photographs, and field notes. Work performed for Eastern Municipal Water District.

EVMWD Lee Lake Dam Upgrades (2020 - 2021). Archaeologist for cultural resources monitoring during geotechnical investigations for proposed upgrades to this historic dam in the culturally sensitive Temescal Valley. The project is within an area identified as a Traditional Cultural Property/Tribal Cultural Resource. Conducted cultural resources monitoring. Work performed for Eastern Municipal Water District.

EVMWD Near Term Water Supply Program, On-call Professional Environmental Services (2020 - 2025). Archaeological Monitor for the Agricultural Pipeline Conversion project, a three-agency partnership between the Elsinore Valley Municipal Water District (EVMWD), the City of Lake Elsinore, and the Riverside County Flood Control and Water Conservation District. The cultural resources monitoring program entailed working closely with tribal cultural monitors from two tribes, as well as coordination with construction crews and the construction management firm. Work performed for an on-call services contract to provide environmental services for water supply projects for the Elsinore Valley Municipal Water District.

EVMWD On-Call Environmental Support Services (2020 - 2024). Archaeologist for an on-call services contract to provide environmental services for water supply projects. Conducted archaeological records search. Work performed for the Elsinore Valley Municipal Water District

RCTC Downtown Riverside Metrolink Station Track & Platform Project (2020 - 2023). Archaeologist for the construction of an additional rail platform and tracks and extension of an existing pedestrian bridge at the existing Riverside-Downtown Station, Riverside. Assisted with report preparation. Work performed for the Riverside County Transportation Commission.

Painted Hills (2020). Archaeologist for a proposed bridge repair program in the Temescal Valley area in Riverside County. Prepared the Phase IV cultural resources monitoring report. Work performed for KB Home.

Temescal Canyon - TR 37153 (2020). Archaeologist for a due diligence constraints assessment related to cultural resources for an approximately 14.8-acre property located in an unincorporated area of Riverside County, California. Performed constraints assessment and produced a due diligence report. Work performed for KB Home.

Wasson Canyon Project (2020). Archaeologist for a due diligence constraints assessment related to cultural resources for an approximately 74.6-acre property located in the City of Lake Elsinore, Riverside County, California. Performed constraints assessment and produced a due diligence report. Work performed for KB Home.

Rosetta Hills Project (2020). Archaeologist for a due diligence constraints assessment related to cultural resources for an approximately 49.6-acre property located in the City of Lake Elsinore, Riverside County, California. Performed constraints assessment and produced a due diligence report. Work performed for KB Home.

Banner Park Residential Development (2020 - 2021). Archaeologist for an 82-acre residential development project located in Menifee, Riverside County, California. Assisted with the production of the Cultural Resources Monitoring Plan and monitored grading and rock breaking activities within the project area. Work performed for Pulte Homes.

Pure Water San Diego Conveyance Project (2021 - 2024). Archaeologist providing support for environmental compliance under the construction management contract for the first phase of the Pure Water San Diego Program, a multi-year program that will provide one-third of San Diego's water supply locally by 2035. The North City Project is the first phase initiated by the City of San Diego Public Utilities Department and involves upgrades to existing facilities and construction of new pump stations and pipelines. Prepared the Cultural Resources Monitoring and Treatment Plan for the North City Project Construction Packages, and prepared the Cultural Resources Work Plans for six project packages. Additionally, conducted cultural resources monitoring.

Unencased Transmission Main Replacement Initial Study/PEIR Addendum (2023 -2024). Senior Archaeologist for the replacement of two potable water transmission mains within the unincorporated community of Blossom Valley, in eastern San Diego County. Conducted a records search, contacted the Native American Heritage Commission for a Sacred Lands File Search, and prepared a Cultural Resources Technical Report. Work performed for the Padre Dam Municipal Water District.

Coronado Strand Main Replacement (2020). Archaeologist for a 46,300 linear-foot water main replacement in the City of Coronado. Conducted archival research and prepared the cultural resource survey report. Work performed as a subconsultant for California American Water Company, with the City of Coronado as the lead agency.

Appendix B

Records Search Results
(Confidential, bound separately)

Appendix C

Native American Correspondence
(Confidential, bound separately)

Appendix D

Locations of Cultural Resources
(Confidential, bound separately)

Appendix E

Site Records
(Confidential, bound separately)

Appendix D

Phase 1 Paleontological Resources Assessment

PHASE I PALEONTOLOGICAL RESOURCES ASSESSMENT EASTERN MUNICIPAL WATER DISTRICT SCOTT ROAD REGIONAL LIFT STATION SEWER CONVEYANCE PROJECT UNINCORPORATED RIVERSIDE COUNTY, CALIFORNIA

Prepared for:
HELIX Environmental Planning, Inc.
7578 El Cajon Blvd,
La Mesa, CA 91942

Prepared By:

Jennifer Ritz (Kelly), M.Sc., Geology, Principal Paleontologist
Meghan Lamb, M.A.
Hannah Johnston, M.Sc.

Material Culture Consulting, Inc.
2701-B North Towne Avenue
Pomona, California 91767

November 2025

Type of Study: Paleontological resources assessment
Paleontological Localities within Area of Potential Impact: None
Project Location: USGS 7.5' Topographic Quadrangle Winchester, Sections 7, 8, 16, 17, 18 and 20 Township 6 South, Range 2 West
APN: N/A
Project Area: approx. 78 acres
Key Words: Paleontology, CEQA, Riverside, Negative Survey, Low sensitivity, Unknown Sensitivity, Kgb, Mzq, Qof_a, Qa, ms, hdg, grd

MANAGEMENT SUMMARY

The Eastern Municipal Water District Scott Road Regional Lift Station Sewer Conveyance Project (hereafter referred to as Project or Project Area) proposes the construction of a new lift station and conveyance pipelines located in Unincorporated Riverside County, California. MCC was retained by HELIX Environmental Planning, Inc. to conduct a Phase I paleontological resource investigation of the Project Area in accordance with the California Environmental Quality Act (CEQA). This assessment included a locality search, an examination of geologic maps and paleontological literature, and review of the prior field survey.

No significant paleontological resources were identified directly within the Project Area during the locality search. The Riverside County Land Information System (RCLIS) GIS data reveals that the Project Area lies within an area mapped as Low sensitivity as well as a small portion of Undetermined sensitivity. Low sensitivity indicates that it is not likely for the presence of geologic formations or mappable rock units that have the potential to contain fossilized body elements and/or trace fossils, such as tracks, nests, and eggs, which can occur at or below the surface. Undetermined sensitivity sediments reflect that the rock units and/or mapped area have been insufficiently studied or recorded to classify their sensitivity. Undetermined sensitivity requires a report be filed with the County Geologist per OS 19.8.

Geologic maps show that the proposed Project Area lies within Paleozoic or Mesozoic metasedimentary rocks and Cretaceous plutonic rocks, in addition to Holocene alluvial deposits (Dibblee and Minch 2003, Morton et al 2003). Therefore, any excavations in the proposed Project area are not anticipated to encounter any recognizable or significant fossils. No further paleontological mitigation measures are recommended.

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INTRODUCTION

Eastern Municipal Water District proposes the construction of a new lift station and conveyance pipelines in Unincorporated Riverside County, California. Material Culture Consulting, Inc. (MCC) was retained by HELIX Environmental Planning, Inc. to conduct a Phase I paleontological investigation of the Project Area. This paleontological resource assessment was conducted in compliance with the California Environmental Quality Act (CEQA), Public Resources Code (13 PRC) 2100, (14 CAC) 15000, Appendix G, Section J, (PRC) 2100-21177, Appendix G, (PRC) 5097.5. This study included a locality records search, an examination of geologic maps and paleontological literature, and a field survey to determine whether the proposed project would impact any significant paleontological resources. According to these regulations and guidelines, if development of a project has the potential to result in significant impacts to paleontological resources, a plan must be developed to mitigate those impacts to a level which is less than significant. This assessment documents the potential for encountering paleontological resources during development of this Project and provides recommendations on how to mitigate impacts to those resources.

PROJECT LOCATION AND DESCRIPTION

The proposed Project is located within Unincorporated Riverside County, California (Figure 1). The Project includes two alternative alignments on the northern half of the Project area. Alignment alternative 1 runs along Wickerd Road and Eucalyptus Road. Alignment alternative 2 follows Leon Road and Garbani Road before turning north along Eucalyptus Road (Figure 2 and 3). Both Alignments are approximately 1.8-miles in length. Where the two alignments meet at the intersection Wickerd Road and Leon road a single alignment continues running north to south along Leon Road to Scott Road, then follows Scott Road west to east to Ashford Lane and midway to Ashford Lane there is a spur pipeline that branches off at Beeler running north for approximately 0.25 miles (Figure 2 and 3). The Project follows developed roads surrounded by a mix of vacant lots and minimally developed commercial and residential area. Specifically, the proposed Project is located in Sections 7, 8, 16, 17, 18 and 20, within Township 6 South, Range 2 West on the U.S. Geological Survey (USGS) Winchester 7.5' topographic quadrangle (San Bernardino Baseline Meridian) (Figure 2). The Project's current site plan proposes the construction of a new lift station and conveyance pipelines. The entire pipeline including alternatives is approximately 4.84-miles in length.

PROJECT PERSONNEL

Jennifer Ritz, M.S., served as the Staff Paleontologist II for this Project and authored this report. Ms. Ritz has a M.S. in Geology from California State University, Long Beach and over 16 years experience in all aspects of paleontology, including 12 years in California paleontological mitigation. She is the Qualified Paleontological Resource Consultant for MCC on the County of Riverside's Paleontological Consultant List, under Jennifer Kelly.

Meghan Lamb, M.A., RPA, Senior Project Manager has a M.A. in Forensic Anthropology from the California State University, Los Angeles. Ms. Lamb directed and oversaw coordination and provided co-authorship for this Project. Ms. Lamb has over 13 years' experience in osteological excavation, human identification, and project management and coordination.

MCC Archaeologist and cross-trained Paleontologist, Hannah Johnston, M.Sc., provided co-authorship of this report and GIS support. MCC Archaeologist and cross-trained Paleontologist Zac White, B.A. conducted the field survey. (See Appendix A)

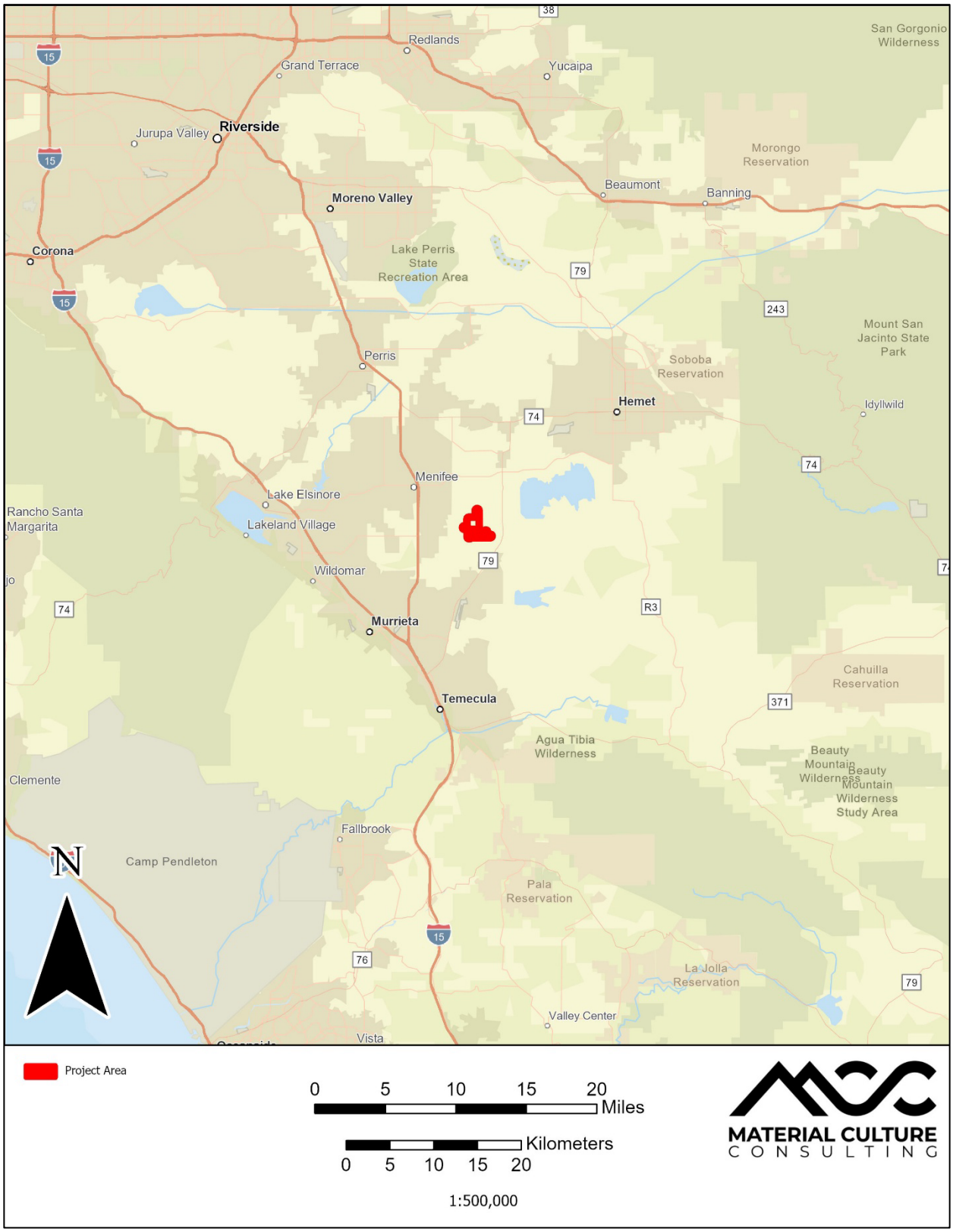


Figure 1. Scott Road Regional Lift Station Sewer Conveyance Project Vicinity (1:500,000)

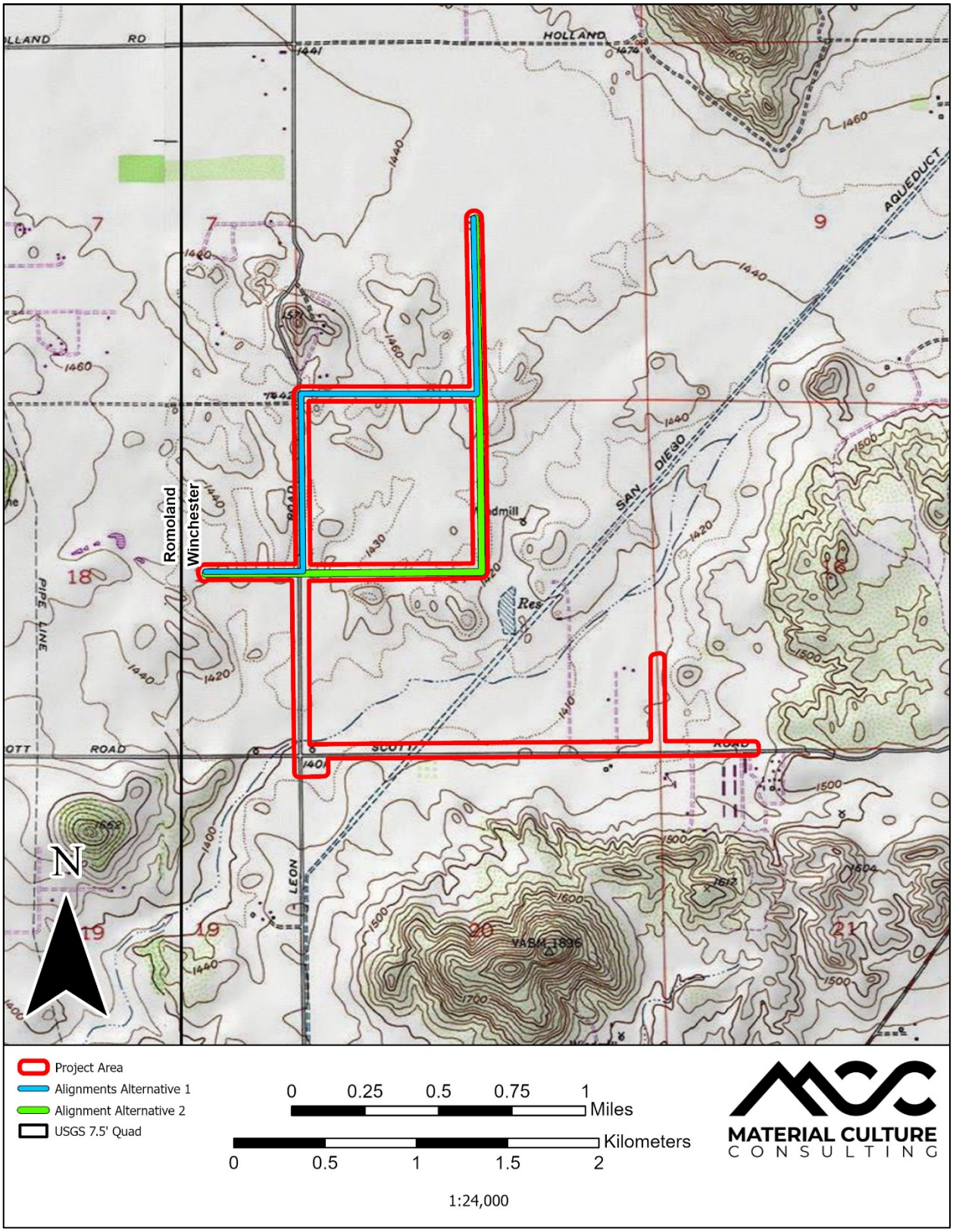


Figure 2. Scott Road Regional Lift Station Sewer Conveyance Project Location (1:24,000, as depicted on Winchester USGS 7.5 Minute Quadrangle).

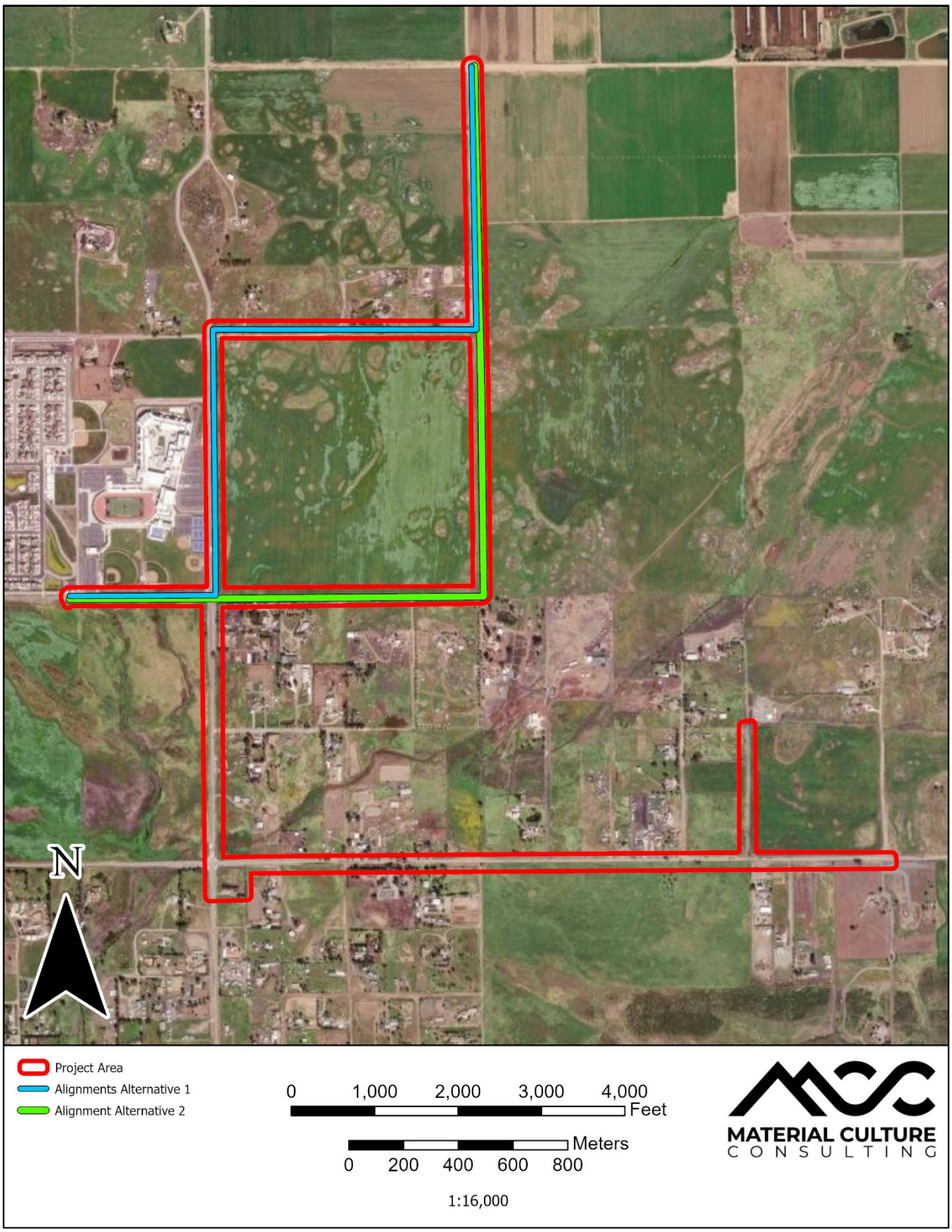


Figure 3. Scott Road Regional Lift Station Sewer Conveyance Project Area (1:10,000, as depicted on aerial photograph).

ENVIRONMENTAL SETTING

Riverside County is situated within the Peninsular Ranges Geologic Province, and the Project Area itself is located within southwestern Riverside County. Nestled between the Santa Ana Mountains to the west and the San Jacinto Mountains to the east, the region is located within the Peninsular Ranges, a northwest-southeast oriented complex of blocks separated by similarly trending faults (Norris and Webb 1976). The Project Area is located within the Domenigoni Valley floor and is relatively flat, with elevations averaging approximately 440 m (1443 ft.) above mean sea level (AMSL). The Project Area is surrounded by three large bodies of water: Diamond Valley Lake is located approximately 3.15 miles east, Lake Skinner reservoir is located 5.50 miles southeast, and Lake Elsinore is approximately 13.50 miles west of the Project Area. Vegetation in much of the area has been altered by historical and modern development consisting mostly of dry seasonal non-native grasses. The Project Area and the surrounding area have minimal past landscaping apart from the construction of Liberty High School in 2020.

GEOLOGICAL CONTEXT

The Winchester quadrangle lies within the geomorphic province known as the Peninsular Ranges Province, near the northern end and western side of the Perris Block. The Perris Block is a structurally stable, internally cohesive mass of crystal rocks bounded on the east by the San Jacinto fault zone, bounded on the west by the Elsinore and Chino fault zones, on the north by the Cucamonga fault zone (Morton and Matti 1989), and on the south by a series of sedimentary basins (Morton and Matti 1989). The Perris Block is known to have been active since Pliocene time. These structurally depressed throughs are filled with sediments of upper Pliocene through Recent age, and the ridges are composed of plutonic igneous rocks, metasedimentary rocks, and late stage intrusive dikes (Mann 1955; Woodford et al. 1971; Kennedy 1977).

The majority of the Project Area is mapped by Dibblee and Minch (2003) as igneous and metamorphic rocks including schists, gabbro, and diorite (ms, hdg, and grd on the map) with a small area of Holocene-aged alluvial sediments on Leon Road between Loretta Ave and Scott Road in the Project area (Figure 4). Morton, D.M., Bovard, K.R., and Morton, Gregory (2003) mapped the Project Area within granodiorite to tonalite (Kdvg), older and very old alluvial fan deposits from the middle to early Pleistocene (Qvof and Qvoa), and old alluvial fan deposits from the late to middle Pleistocene (Qof) (Figure 5). Morton et al have mapped the majority of the Project as very old or old alluvium, rather than the metamorphic and igneous rocks of Dibblee. However, per Dibblee and the RCLIS, the majority of the Project lies in Low Sensitivity sediments.

Granodiorite, diorite, gabbro, and tonalite units are intrusive igneous rocks. Schist is a highly metamorphosed rock unit. These igneous and metamorphic rocks form deep underground and are not suitable for the preservation of paleontological resources. Very old and older alluvial units have the potential to produce paleontological resources, however younger (Holocene/Recent) units do not; as the mapping of Dibblee and Minch in 2003 agrees with the RCLIS, and previous surveys in the Project area do not indicate the presence of Older alluvial units, it is therefore considered that this project has Low potential to encounter significant fossils during construction activities.

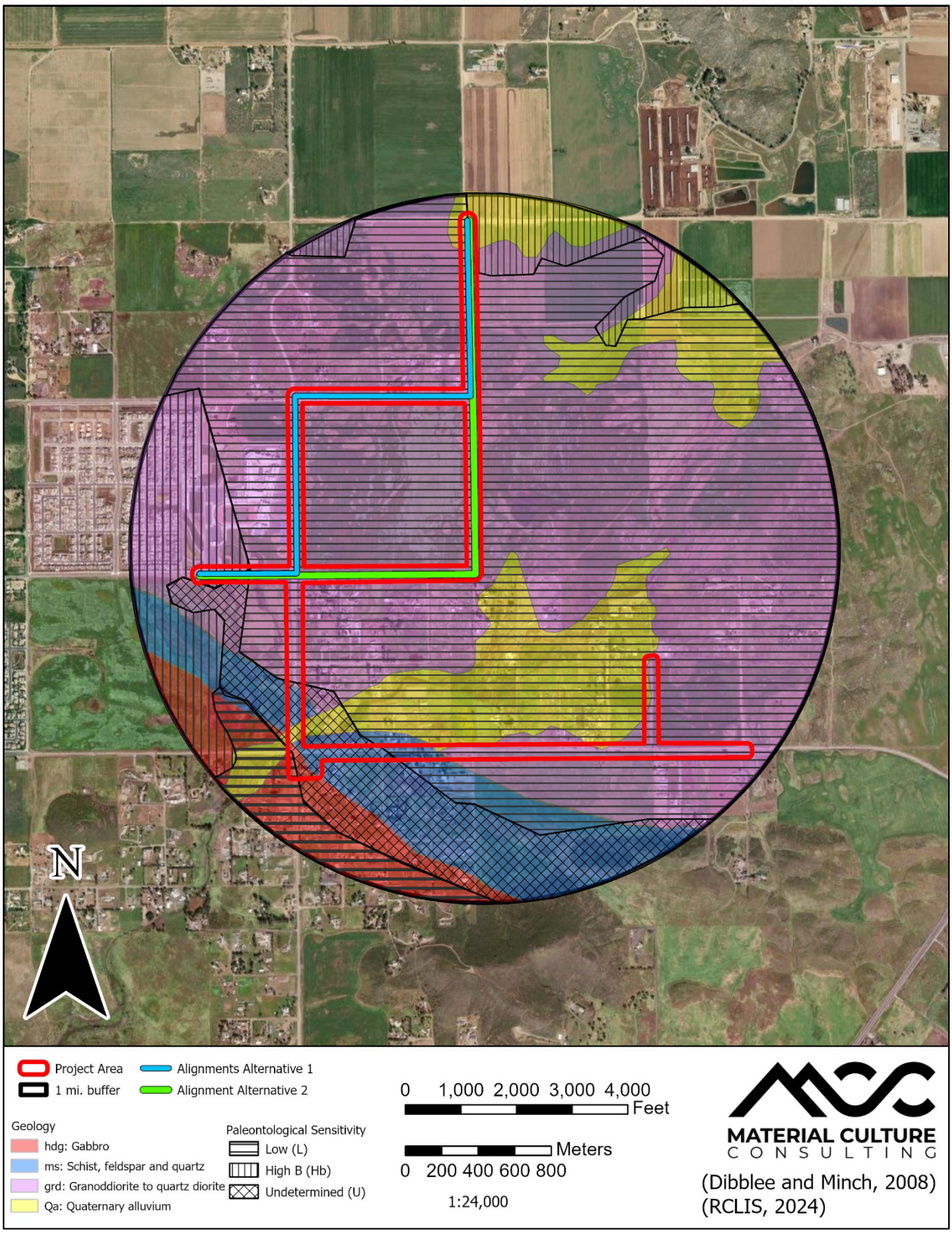


Figure 4. Scott Road Regional Lift Station Sewer Conveyance Project Geologic Map 1 (Geology from Dibblee and Minch, 2003) (Paleontological sensitivity from RCLIS, 2024)

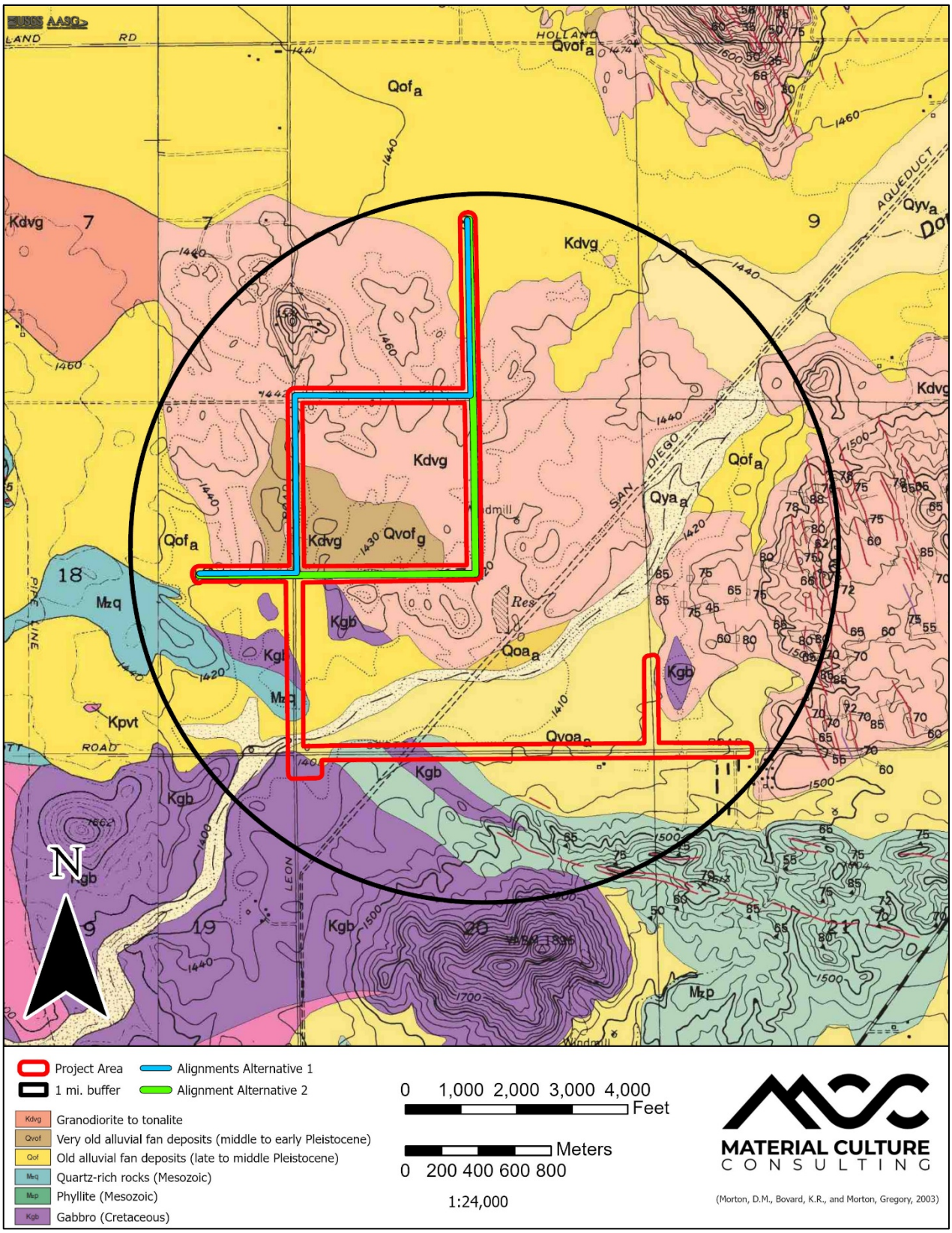


Figure 5. Scott Road Regional Lift Station Sewer Conveyance Project Geologic Map 2 (Morton, D.M., Bovard, K.R., and Morton, Gregory, 2003)

REGULATORY ENVIRONMENT

The Project is subject to local and state laws and regulations regarding paleontological resources. These regulations require the identification of paleontological resources during the planning stage of new projects; include application review for projects that would potentially involve land disturbance; provide project-level standard conditions of approval that address unanticipated discoveries; and provide requirements to develop specific mitigation measures if resources are encountered during any development activity. Specific governing legislation and regulations include the following:

STATE REGULATIONS

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)
CEQA declares that it is state policy to "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

The CEQA Environmental Checklist includes one question regarding paleontological resources: “Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?” (CEQA Guidelines Appendix G, Section VII, Part F). If paleontological resources are identified as being within a proposed Project Area, the sponsoring agency must take those resources into consideration when evaluating project impacts. The level of consideration may vary with the importance of the resource.

CEQA does not provide a definition for unique paleontological resources. Therefore, many paleontologists and agencies utilize the Society of Vertebrate Paleontology (SVP) criteria, which define significant (i.e., unique) paleontological resources as:

> “Fossils and fossiliferous deposits...consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information” (SVP 2010).

CALIFORNIA PUBLIC RESOURCES CODE
Public Resources Code (PRC) Division 5, Chapter 1.7, Section 5097.5 includes additional state-level requirements for the assessment and management of paleontological resources. Section 5097.5 states that a person shall not knowingly and willfully excavate upon, or remove, destroy, injure or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands. As defined in PRC Section 5097.5, public lands include any lands owned by, or under the jurisdiction of the state, county, district, authority, or public corporation, or any agency thereof.

LOCAL REGULATIONS

RIVERSIDE COUNTY GENERAL PLAN
The Project is located within Unincorporated Riverside County. The Riverside County General Plan requires consideration of paleontological resources under the Multipurpose Open Space (OS) Element of the General Plan (County of Riverside, 2015). The Riverside County General Plan recommendations are based on the SVP guidelines (2010) for the mitigation of paleontological resources. Additionally, the Riverside County General Plan Multipurpose Open Space Element contains a figure indicating potential paleontological sensitivity, Figure OS-8. The Multipurpose Open Space Element of the general plan (County of Riverside, 2015) provides the following requirements for paleontologically sensitive areas within the county:

- **OS 19.6.** Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8, a paleontological resource impact mitigation program (PRIMP) shall be filed with the County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources.

- **OS 19.7.** Whenever existing information indicates that a site proposed for development has low paleontological sensitivity as shown on Figure OS-8, no direct mitigation is required unless a fossil is encountered during site development. Should a fossil be encountered, the County Geologist shall be notified and a paleontologist shall be retained by the project proponent. The paleontologist shall document the extent and potential significance of the paleontological resources on the site and establish appropriate mitigation measures for further site development.
- **OS 19.8.** Whenever existing information indicates that a site proposed for development has undetermined paleontological sensitivity as shown on Figure OS-8, a report shall be filed with the County Geologist documenting the extent and potential significance of the paleontological resources on site and identifying mitigation measures for the fossil and for impacts to significant paleontological resources prior to approval of that department.
- **OS 19.9.** Whenever paleontological resources are found, the County Geologist shall direct them to a facility within Riverside County for their curation, including the Western Science Center (WSC) in the City of Hemet.

METHODS

PALEONTOLOGICAL RESEARCH

The literature review included an examination of geologic maps of the Project Area and a review of relevant published and unpublished geological and paleontological literature to determine which geologic units are present within the Project Area, and whether fossils have been recovered from those geologic units elsewhere in the region. As geologic units may extend over large geographic areas and contain similar lithologies and fossils, the literature review includes areas well beyond the Project Area.

The purpose of a locality search is to establish the status and extent of previously recorded paleontological resources within and adjacent to the study area for a given project. On October 24, 2024, the locality search was conducted through the Western Science Center (WSC) for the Project Area. The Project Area was subsequently updated and exceeded the first locality search boundary and a second locality search was conducted on July 8, 2025 (Appendix B).

Riverside County Information Technology (RCLIS/RCIT) also provides a paleontological resource sensitivity map to determine the required impact mitigation used in environmental assessments of development proposals (RCLIS, 2024). This map was consulted by MCC staff in December 2024 and July 2025.

PALEONTOLOGICAL POTENTIAL ASSESSMENT

The Riverside County General Plan (2015) recommendations are based on the Society of Vertebrate Paleontology guidelines (2010) for the mitigation of paleontological resources. Riverside County classifies paleontological potential three ways:

> **Low Potential:** Previous field surveys and documentation have demonstrated these areas as having a low potential for containing significant paleontological resources. However, it must be noted that surface geology is not always indicative of subsurface geology or the potential for paleontological resources.
>
> **Undetermined Potential:** Areas underlain by sedimentary rocks for which literature or unpublished studies are not available, have undetermined potential for containing significant paleontological resources.
>
> **High Potential:** Sedimentary rocks with high potential for containing significant non-renewable paleontological resources include rock units in which vertebrate or significant invertebrate fossils have been found or determined likely to be present. High sensitivity areas are mapped as either “High A” or “High B” based on the following criteria:

High Sensitivity A: Geologic formations or mapped rock units that are known to contain or have the correct age and depositional conditions to contain significant paleontological resources.

High Sensitivity B: A sensitivity equivalent to High A, but is based on the occurrence of fossils at a specified depth below the surface. This category indicates fossils are likely to be encountered at or below 4 feet of depth and may be impacted during construction activities.

The northern half of Project area which consisted of Alignment Alternative 1 and 2 was surveyed in 2024 by MCC staff in order to ground-truth mapping and record search results for that portion of the prior project (MCC, 2024).

PALEONTOLOGICAL RESOURCES SURVEY METHODS

The survey stage is important in a Project's environmental assessment phase to verify the exact location of each identified paleontological resource (if any), the condition or integrity of the resource, and provides invaluable information on the type of sediment present within the Project Area, which informs the assessment of paleontological sensitivity. On November 26, 2024, MCC qualified archaeologist and cross-trained paleontologist, Zachary White conducted a pedestrian survey of the northern half of Project area which consisted of Alignment Alternative 1 and 2. Special attention was paid to any graded areas and to rodent burrows that offered a better view of the underlying sediment. The purpose of a field survey is to note the sediments in the Project Area, relocate any known paleontological localities, and identify any unrecorded paleontological resources exposed on the surface. In this way, impacts to existing, unrecorded paleontological material may be mitigated prior to the beginning of ground-disturbing activities and portions of the Project Area that are more likely to contain paleontological resources may be identified.

RESULTS

PALEONTOLOGICAL RECORDS SEARCH

After reviewing the paleontological sensitivity layer on Riverside County Map My County, as provided by Riverside County Information Technology (RCIT), the Project Area is deemed to have low paleontological potential with a very small portion of Undetermined potential.

In October 2024, a locality search was conducted through the Western Science Center of Riverside County (WSC) (Appendix B). The WSC confirmed that geologic units underlying this project are mapped entirely as granodiorite and tonalite units from the Cretaceous epoch, with possible Pleistocene sediments just north of the Project area along Eucalyptus Road (Dibblee and Minch 2003). Cretaceous granodiorite/tonalite units are not considered paleontologically sensitive due to their formation at high temperatures deep under the ground surface. The Western Science Center does not have localities within the Project Area or within a 1 mile radius.

In July 2025, a second locality search was conducted through the WSC (Appendix B). The WSC confirmed that geologic units underlying this portion of the Project are mapped entirely as Paleozoic or Mesozoic metasedimentary rocks and Cretaceous plutonic rocks, and Quaternary (Holocene) alluvial sediments, none of which are likely to be fossiliferous (Appendix B). The Western Science Center does not have localities within the Project Area or within a 1 mile radius.

FIELD SURVEY RESULTS

During the course of fieldwork, survey conditions and ground visibility were good, with an approximate visibility of 75% due to the presence of sparse vegetation throughout the property (See Figures 6-13). Vegetation consists of dry seasonal non-native grasses, including mustard grass and tall tumble mustard. Pepper and eucalyptus trees are located along the private property and Lantana flowers along the Leon Road.

Bedrock and weathered sediments observed were consistent with the mapped Mesozoic granitic rocks (grMZ) of Dibblee and Minch. Surficial sediments consisted of a light to medium brown sandy loam, moderately sorted and subrounded with granitic inclusions that ranged from pebble- to boulder-sized. The survey area bisects agricultural fields that have been furrowed (highly disturbed) with surrounding granite outcrops. Overall, the entire Project area is disturbed by modern refuse and imported gravels along the unpaved roads. No paleontological resources were observed during the fieldwork survey.

No Pleistocene-age alluvial sediments were observed during the survey.



Figure 6. Project overview from north end of Eucalyptus Road, view south



Figure 7. Sediment example north end of Eucalyptus Road, plan view



Figure 8. Overview at intersection of Garbani Road and Eucalyptus Road, view north



Figure 9. Representative photo of Disturbed soils along Eucalyptus Road bisected by agricultural fields with bioturbation present, plan view



Figure 10. Overview from west end of Wickerd Road, view east



Figure 11. Representative photo of sediment at the west end of Wickerd Road, plan view



Figure 12. Overview of granitic boulders and outcrops south of Garbani Road, view southeast



Figure 13. Overview of modern refuse, view southeast

CONCLUSIONS AND RECOMMENDATIONS

MCC conducted a Phase I paleontological resource assessment of the Project Area that included two (2) locality records search, an examination of geologic maps and paleontological literature, and a prior pedestrian survey for the northern half of Project area which consisted of Alignment Alternative 1 and 2. No significant paleontological resources were identified within the Project Area during the two (2) locality searches. The surficial sediments within the Project Area consist of recently disturbed weathering products of the underlying igneous and metamorphic units, and Recent alluvium which are unlikely to contain significant fossil resources.

WSC notes that no localities were found within the Project area or within a 1 mile radius, but if excavation activity extends beyond the current project bounds into the neighboring High sensitivity Pleistocene units, the likelihood of encountering fossil resources increases, and monitoring will be required.

RECOMMENDED MITIGATION

Based on the results of the Phase I paleontological resource assessment, the proposed Project Area is considered to have Low sensitivity for the potential to impact paleontological resources during construction. Therefore, any excavations in the proposed Project area are not anticipated to encounter any recognizable fossils. MCC recommends no further paleontological mitigation measures for this current phase of the Project as described.

Due to the presence of a small area of Undetermined sensitivity sediments, mapped as Holocene-aged alluvium, per OS 19.8 a report shall be filed with the County Geologist prior to approval of that department.

CERTIFICATION: I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: November 26, 2025

Signature: _____
Name: Jennifer Ritz, MSc., Geology
Riverside County Qualified Paleontologist

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Appendix A:

PERSONNEL QUALIFICATIONS

JENNIFER RITZ, M.SC.

PRINCIPAL PALEONTOLOGIST

PROFILE

Jennifer Ritz has experience in all aspects of paleontology. She has extensive experience with monitoring, salvage, fieldwork, project management, and report writing, as well as volunteer experience from the La Brea Tar Pits/Page Museum and the Cooper Center of Orange County (Paleontology department) and field experience as a Staff Geologist for Leighton Geotechnical. Her expertise is Geology, and she has her M.S. in Geological Sciences, emphasis in Geochemistry. Jennifer has taught lab courses in paleontology and general geology and assisted with field mapping classes. Jennifer is HAZWOPER 40-hour certified and a registered Orange County paleontologist. She has authored and co-authored more than 100 paleontological compliance documents, including PRMPs, EIR, EIS, PEA, treatment plans, final monitoring reports, survey reports, and other compliance documents, in compliance with NEPA, CEQA, Caltrans and city and county laws, ordinances, regulations, and statutes.

PROJECT EXPERIENCE

Ontario Ranch Logistic Center
Ontario Land Ventures, LLC :: City of Ontario, County of San Bernardino, California
Paleontological Principal Investigator and Project Manager. Ms. Ritz coordinated all surveying, preparation of compliance and environmental documentation for this project, and authored the PRIMP for this project. Ms. Ritz also oversaw the paleontological monitoring program for this Project. This was a mass grading project for the construction of two main warehouse buildings for a new industrial park development.
Duration: 2018 – 2021

Rosamond Water Waste Treatment Plant Rehabilitation Project
Rosamond Community Services District Wastewater Treatment Plant :: Rosamond, CA, Kern County
Paleontological Principal Investigator and Project Manager. Ms. Ritz oversaw the paleontological monitoring program when paleontological resources were discovered during construction. The project involved the addition of a wastewater treatment wetland on a 80-acre property owned by the RCSD, located just south of the existing treatment facility. Excavations involved the reconfiguration of the existing pond into three ponds and the conversion of the facultative lagoons to a percolation pond system. Ms. Ritz co-authored the final paleontological mitigation report.
Duration: 2019 - 2020

Saddleback Stadium Improvement Project
South Orange County Community College District :: City of Mission Viejo, Orange County
Paleontological Principal Investigator and Project Manager. Ms. Ritz coordinated all surveying, preparation of compliance and environmental documentation for this project, prepared the Paleontological Resources Impact Mitigation Plan (PRIMP), and oversaw the paleontological monitoring program detailed in the PRIMP. Ms. Ritz co-authored the final paleontological mitigation report. This Project was a renovation to the college's athletic facilities which included the development of a new 8,000 seat stadium.
Duration: 2018 – 2020

EXPERIENCE

15 years

EDUCATION

M.Sc. in Geology
California State University, Long Beach, California, 2012

B.S., Geology (preliminary work for entry to M.S. Geology Program)
California State University, Long Beach, 2005

CERTIFICATIONS

- Orange County Certified Paleontologist
- San Diego County Certified Paleontologist
- 10HR OSHA (in progress)

PROFESSIONAL MEMBERSHIPS

- Society for Vertebrate Paleontologists

Rider Commerce Center Project
Core5 Industrial Partners :: Perris, CA, Unincorporated Riverside County, California
Paleontological Principal Investigator and Project Manager Ms. Ritz coordinated all surveying, preparation of compliance and environmental documentation for this project, and prepared the Paleontological Resources Impact Mitigation Plan (PRIMP). Ms. Ritz also oversaw the paleontological monitoring program for this Project. This was for the development of a 204,300 sqft commerce building which involved the construction of a light industrial warehouse, two offices, and a parking lot.
Duration: 2018-2020

Harvill Industrial Park Project
KCS West :: City of Perris, Riverside County, California
Paleontological Principal Investigator and Project Manager. Ms. Ritz coordinated all surveying, preparation of compliance and environmental documentation for this project, and prepared the Paleontological Resources Impact Mitigation Plan (PRIMP). Ms. Ritz also oversaw the paleontological monitoring program for this Project. This was a mass grading project for the development of a new 423,664 sqft warehouse and associated site improvements.
Duration: 2017 – 2020

West of Devers Transmission Line Project
Southern California Edison :: Riverside County, California
Paleontological Project Manager. Ms. Ritz provided all project management and paleontological related services. This included proper BLM authorization and permitting to conduct surveying and a research design for field reconnaissance related to PEA, EIS/EIR documentation for the proposed transmission line. She assisted with managing documentation with laws relating to paleontological resources, among which are CEQA and NEPA compliance.
Duration: 2009 – 2016

Regional Connector
Los Angeles County Metropolitan Transportation Authority :: Los Angeles County, CA
Paleontological Monitor. Ms. Ritz performed paleontological monitoring during construction involving ground disturbance. Metro is constructing a new rail line and associated stations to connect future and existing rail lines in the downtown area into an integrated system. The Regional Connector Transit Corridor Project will directly link the 7th Street/Metro Center Station to the Metro Gold Line near Little Tokyo/Arts District Station. The project will involve construction and operation of a 1.9-mile Light Rail Transit (LRT) connector that would link the Metro Blue Line, Metro Gold Line, and Metro Expo Line into a single consolidated system.
Duration: 2015 – 2016

Crenshaw/LAX Mass-Transit Light Rail Line
Los Angeles County Metropolitan Transportation Authority :: Los Angeles, CA
Project Coordinator and Monitor. Ms. Ritz performed project scheduling, communication with Metro and construction crew staff, and ensuring project compliance for archaeological and paleontological monitoring during the construction of Metro's 8.5-mile mass-transit light rail line through southwest Los Angeles. Ms. Ritz also performed paleontological monitoring during ground disturbing activities and Qa/Qc the paleontological documentation.
Duration: 2015 – 2016

Orange Line Bus Enhancement to North Hollywood Red Line
Los Angeles County Metropolitan Transportation Authority :: Los Angeles, CA
Paleontological Lead and Monitor. Ms. Ritz performed paleontological monitoring during ground disturbance which included trenching and mass-grading for Metro's construction of a pedestrian tunnel connecting the North Hollywood Metro Orange Line and Metro Red Line Stations. Ms. Ritz was also the Lead Paleontologist overseeing the paleontological monitors and Qa/Qc the paleontological documentation.
Duration: 2014 – 2015

Tehachapi Renewable Transmission Project (TRTP) Segments 3 – 11
Southern California Edison :: Kern County, Los Angeles County, San Bernardino County
Paleontological Project Manager. Ms. Ritz conducted and led surveys along this project's right of way. She was also in charge of scheduling monitoring crews during grading in areas of paleontological sensitivity, managing and reviewing log sheets, and tracking data that is incorporated to final reports. Ms. Ritz played a valuable role with scheduling for the project's needs. She monitored, surveyed, and reported on all paleontological facets of this project as the Lead Paleontological Monitor for segment 3B, which was located near Rosamond, and for segments 4-11 which extended into Los Angeles and San Bernardino Counties. She authored more than 10 of the compliance reports for this project. She also performed monitoring on every segment of this Project.
Duration: 2009 - 2015

MEGHAN LAMB, MA

SENIOR ARCHAEOLOGIST AND PROJECT MANAGER

PROFILE

Meghan has 13 years of professional experience in all aspects of archaeology throughout California. Ms. Lamb earned her Master's degree in Forensic Anthropology at California State University, Los Angeles and her Bachelor's degree in Anthropology from Southern Illinois University. Furthermore, she received a Post-Baccalaureate Certificate in Forensic Identification from California State University, Chico and is a Registered Professional Archaeologist (RPA). Ms. Lamb's specialties include Human Osteology, Forensic Anthropology, Field Archaeology, and Skeletal Illustration. She oversees Material Culture Consulting's construction monitoring projects to ensure compliance with all mitigation measures, environmental regulations and laws, safety measures, and performs project management and field scheduling duties for archaeology and paleontology projects. Meghan has varied experience within Transportation projects and agencies including, California Department of Transportation (CALTRANS), Orange County Transportation Authority, Los Angeles County Metropolitan Transportation Authority (METRO), San Bernardino County Transportation Authority, and Union Pacific Railroad.

Storm Vegetation Management Program
Southern California Edison :: San Bernardino National Forrest, CA
Project Manager. Ms. Lamb Provides project management support for all archaeological field surveys and monitoring assignments for this program. The work areas include San Bernardino National Forest. Her responsibilities included maintaining communication with all involved parties, fulfilling staffing requests, tracking the project's progress, and submitting all deliverables to the client.

Vegetation Management
Southern California Edison :: Inyo, Sierra, Sequoia, and San Bernardino National Forest, BLM Bishop, BLM Barstow, BLM Palm Springs, CA
Project Manager. Ms. Lamb Provides project management support for all archaeological field surveys and monitoring assignments for this program. The work areas include Inyo, Sierra, San Bernardino, and Sequoia National Forest. Her responsibilities included maintaining communication with all involved parties, fulfilling staffing requests, tracking the project's progress, and submitting all deliverables to the client.

Routine Line Clearing
Southern California Edison :: Inyo, Sierra, and Sequoia National Forest, CA
Project Manager. Ms. Lamb Provides project management support for all archaeological field surveys and monitoring assignments for this program. The work areas include Inyo, Sierra, and Sequoia National Forest. Her responsibilities included maintaining communication with all involved parties, fulfilling staffing requests, tracking the project's progress, and submitting all deliverables to the client.

EXPERIENCE

13 years

EDUCATION

M.A. Forensic Anthropology
California State University – Los Angeles, 2011

Post-Bachelor Forensic Identification
California State University – Chico, 2007

B.A. Anthropology
Southern Illinois University - Carbondale, 2005

PROFESSIONAL MEMBERSHIPS

- Register of Professional Archaeologists - RPA ID 989763

San Jacinto Deteriorated Pole Program
Southern California Edison :: Santa Barbara, Riverside, and San Bernardino County, CA
Project Manager. Ms. Lamb Provides project management support for all archaeological field surveys and monitoring assignments for this program. The work areas include Santa Barbara, Riverside, and San Bernardino Counties. Her responsibilities included maintaining communication with all involved parties, fulfilling staffing requests, tracking the project's progress, and submitting all deliverables to the client.

San Joaquin Valley Cross Loop
Southern California Edison :: Tulare County, CA
Archaeology Supervisor. Ms. Lamb performed scheduling, communication, and project compliance during grading, drilling, trenching and excavations in both archaeological and paleontological sensitive areas. She co-authored the final monitoring compliance report and completed DPR 523 Forms. The project consisted of a new 220kV transmission line from the existing Big Creek 1 & 3-Rector transmission line to the existing Big Creek 3-Springville-transmission line for approximately 12.2 miles.

Tehachapi Renewable Transmission Project (TRTP) Segments 6 and 11C
Southern California Edison :: Los Angeles County, CA
Lead Archaeologist and Assistant Project Manager. Ms. Lamb performed archaeological monitoring and participated in multiple archaeological site excavations in the Angeles National Forest at the Hay-1 and Kentucky Springs sites for approximately 3 months. She assisted the archaeological staff with artifact identification, documentation, and collection. Furthermore, she was responsible for scheduling of archaeological and paleontological monitors and communication with Southern California Edison staff and construction crews.

Beacon Battery Storage Facility Project
Los Angeles Department of Water and Power :: Kern County, CA
Assistant Project Manager. Ms. Lamb provided project management and scheduling for on-site archaeological and Native American Tribal monitoring, and coordination with Native American Tribal monitors. She conducted on-call field visits to assess and collect unanticipated finds and curated the collect finds prior to transmittal the Kern Valley Indian Community. The project was completed in compliance with the California Environmental Quality Act (CEQA) and all applicable local laws and regulations. The project consisted of the construction of an on-site battery storage facility located within the Beacon Solar Project site. Earthwork activities conducted on-site consisted of mass cut-and-fill grading for several large pads, excavations for underground electrical vaults, utility trenching, and drilling for structures.

Regional Connector
Los Angeles County Metropolitan Transportation Authority :: Los Angeles County, CA
Assistant Project Manager and On-Call Osteologist. Ms. Lamb was responsible for project scheduling, communicating with Metro and construction crew staff, and overseeing archaeological monitoring during construction excavation activities. Ms. Lamb was the On-Call Osteologist for LA Metro's CEQA/NEPA On-Call contract. She assisted in the identification of bone when there is a question of a discovery being human or non-human on monitoring compliance projects. Metro is constructing a new rail line and associated stations to connect future and existing rail lines in the downtown area into an integrated system. The Regional Connector Transit Corridor Project will directly link the 7th Street/Metro Center Station to the Metro Gold Line near Little Tokyo/Arts District Station. The project will involve construction and operation of a 1.9-mile Light Rail Transit (LRT) connector that would link the Metro Blue Line, Metro Gold Line, and Metro Expo Line into a single consolidated system.

Durango Street Excavation
Southern California Edison :: Chino, CA
Osteologist. Ms. Lamb participated in salvaging prehistoric human skeletal remains of two individuals from the project area. She assisted in compiling and organizing data for an osteological inventory database. She assisted in gathering 2-D record photographs for confidential technical documentation. This work was done in conformance with the project's Post-Review Treatment Plan specifications for the treatment and protection of human remains, and the Most Likely Descendants' burial policy and wishes.

San Diego Freeway (I-405) Improvement Project
Orange County Transportation Authority in cooperation with Caltrans :: Orange County, CA
Project Coordinator and Osteologist. Ms. Lamb participated in salvaging prehistoric fragmentary human skeletal remains of multiple individuals from the project area. She assisted in compiling and organizing data for an osteological inventory database documenting the more than 2,300 fragmentary human remains that were salvaged. She assisted in gathering 2-D record photographs for confidential technical documentation. This work was done in conformance with the project's Post-Review Treatment Plan specifications for the treatment and protection of human remains, and the Most Likely Descendants' burial policy and wishes. Ms. Lamb also scheduled daily field work assignments and coordinated field communications with archeological monitoring personnel. The OCTA, in cooperation with Caltrans, is widening the San Diego Freeway (I-405) between State Route 73 and Interstate 605 (I-605), near the Los Angeles County line. The project will upgrade 16 miles of I-405 by adding one regular lane in each direction (from Euclid Street to the I-605) and making improvements to freeway entrances, exits, and bridges.

Purple Line 3
Los Angeles County Metropolitan Transportation Authority :: Los Angeles, CA
Assistant Project Manager and On-Call Osteologist. Ms. Lamb performed project scheduling, communication with Metro and construction crew staff, and ensuring project compliance for archaeological and paleontological monitoring during the construction Refinements within the Westwood/VA Hospital Station area that includes straightening the tunnel alignment beneath the VA WLA South Campus, removal of a subterranean track crossover, replacement of a crossover which will be constructed via a cut-and-cover method west of the Westwood/VA Hospital Station in Lot 42 on the VA WLA Campus, and a parking structure located within an existing VA parking lot. Ms. Lamb was responsible for Feature and Isolate observation reporting for compliance.

Patsaouras Plaza
Los Angeles County Metropolitan Transportation Authority :: Los Angeles, CA
Assistant Project Manager and On-Call Osteologist. Ms. Lamb was responsible for project scheduling, communicating with Metro and construction crew staff, and overseeing archaeological monitoring during construction excavations. Ms. Lamb was the On-Call Osteologist for LA Metro's CEQA/NEPA On-Call contract. She assisted in the identification of bone when there is a question of a discovery being human or non-human on monitoring compliance projects. In 2018, Ms. Lamb participated in salvaging of historic fragmentary human skeletal remains. She assisted in compiling and organizing data for an osteological inventory database. She assisted in gathering 2-D record photographs for confidential technical documentation. This work was done in conformance with the project's Post-Review Treatment Plan specifications for the treatment and protection of human remains, and the Most Likely Descendants' burial policy and wishes.

Kramer Junction Realignment
California Dept of Transportation :: District 8, San Bernardino County, CA
Assistant Project Manager and Osteological Monitor. Ms. Lamb performed project scheduling, communicated with construction crews, and performed archaeological monitoring during construction. Caltrans proposed to realign and widen State Route 58 (SR-58) into a four lane expressway near Kramer Junction, San Bernardino County. The project is located in a desert rural area surrounded by open desert, rail systems, a military base, and commercial and residential developments near Kramer Junction and the community of Boron. In addition to the realigning and widening of SR-58, an interchange was proposed where SR-58 crosses US 395 and a grade separation structure will be constructed where SR-58 crosses the railroad.

Howlands Landing Water Pipeline Project
Southern California Edison :: Los Angeles County, CA
Archaeological Monitor and Assistant Project Manager. Ms. Lamb performed archaeological monitoring at Howlands Landing/Well Project on Catalina Island. Catalina Island's well water was compromised by salt-water intrusion; therefore, a new well was dug to remedy the issue, which required archaeological monitoring to inspect graded surfaces and excavations, including spoils piles within the project area during the construction of a new pump house and trenching for water pipes and electrical conduits for the operations of a newly installed freshwater well. Ms. Lamb authored the monitoring report and also assisted the archaeological staff with artifact identification, documentation, and collection.

HANNAH JOHNSTON, M.Sc.

STAFF ARCHAEOLOGIST II AND STAFF PALEONTOLOGIST

PROFILE

Hannah Johnston has over three years of experience in cultural resource management involving archaeology and paleontology resource monitoring and two years within academia. Ms. Johnston has worked on projects subject to Federal, State, and local government regulations within California. Hannah has extensive experience in paleontological monitoring on mass grading residential projects in Riverside and San Bernardino County. She also has varied experience with cultural monitoring, survey, and excavation efforts throughout California including Los Angeles, Riverside, and San Bernardino County and in the Sierra, Inyo, Sequoia, Los Angeles, and San Bernardino National Forests. Ms. Johnston is also experienced in osteological identification and excavations. In addition, she has conducted laboratory analysis of artifacts and faunal remains from California's coastal region.

River Walk Village Project
California West Communities :: Menifee, Riverside County, CA
Staff Paleontologist. Ms. Johnston performed paleontological monitoring during ground-disturbing activities in native sediments. Her responsibilities included maintaining communication with all involved parties and completing and submitting paperwork and photographic records. The Project will construct a tract map for condominium purposes for the development of 198 detached townhomes. The proposed parcel is approximately 14.21 net acres on a lightly grubbed vacant lot, which includes 1.9 acres of open space and 0.3 acres of recreational open space. The City of Menifee is the lead agency under the California Environmental Quality Act (CEQA).

Rancho Diamante Phase II Project
City of Hemet :: Hemet, Riverside County, CA
Staff Paleontologist. Ms. Johnston performed paleontological monitoring during ground-disturbing activities in native sediments. Her responsibilities included maintaining communication with all involved parties and completing and submitting paperwork and photographic records. This Project proposes the development of 1,008 residential units on 244 gross acres comprised of three parcels (TMs 35392, 35393, and 35394). This current Project is specific to development of TM 35392.

Adam's Avenue Affordable Housing
National Community Renaissance :: Murrieta, Riverside County, CA
Staff Paleontologist. Ms. Johnston performed paleontological monitoring during ground-disturbing activities in native sediments. Her responsibilities included maintaining communication with all involved parties and completing and submitting paperwork and photographic records. The Project will construct three high density residential buildings consisting of 119 "family housing units" and one residential building consisting of eighty-one "senior housing units" with associated parking and other related improvements on a 6.5-acre parcel. The project would construct and operate four four-story residential buildings with 200 total units, including three multi- family housing buildings and one senior housing building.

EXPERIENCE

3 years CRM
2 years Academia

EDUCATION

M.Sc. Professional Human Osteoarcheology
University of Reading, United Kingdom
2022

B.A. Anthropology
California State University, Los Angeles
2020

CERTIFICATIONS

- First Aid and CPR certified
- GIS Basics Training (Esri)
- ArcGIS Online Basics (Esri)
- ArcGIS Pro Basics (Esri)

PROFESSIONAL MEMBERSHIPS

- Association of American Physical Anthropologists (AAPA)
- American Anthropological Association (AAA)
- British Association for Biological Anthropology and Osteoarchaeology (BABAO)
- Western Social Science Association (WSSA)

Countryside Project
KB Home :: Ontario, San Bernardino County, CA
Staff Paleontologist. Ms. Johnston performed paleontological monitoring during ground-disturbing activities in native sediments. Her responsibilities included maintaining communication with all involved parties and completing and submitting paperwork and photographic records. The Project is in Ontario and was previously used as a dairy farm, residential lot, church, and agricultural row crops. The Project plan is to subdivide 11.05 acres of land into 36 numbered lots and two lettered lots to facilitate future residential development.

I-15 Logistics Center
City of Fontana :: Fontana, San Bernardino County, CA
Staff Archaeologist and Paleontologist. Ms. Johnston is performing archaeological and paleontological monitoring during ground-disturbing activities. Her responsibilities include maintaining communication with all involved parties and completing and submitting paperwork and photographic records. The Project includes the development and operation of a 1,175,720-square foot logistics facility on approximately 76 acres (Logistics Site); the realignment of a segment of Lytle Creek Road from the western Project boundary eastward to a new intersection with Sierra Avenue; and the annexation of 152 acres (Annexation Area or Project Area), inclusive of the 76-acre Logistics Site.

Routine Line Clearing Vegetation Management
Southern California Edison :: Sierra and Sequoia National Forest, CA
Staff Archaeologist. Ms. Johnston is conducting archaeological monitoring and pre-survey for tree felling within the SNF and SQNF. Her responsibilities include maintaining communication with all involved parties and completing and submitting paperwork and photographic records.

Heavy Tree Vegetation Management
Southern California Edison :: Sierra National Forest
Staff Archaeologist. Ms. Johnston conducted archaeological monitoring and pre-survey for tree felling within the SNF. Her responsibilities included maintaining communication with all involved parties and completing and submitting paperwork and photographic records.

Operations and Maintenance Program
Southern California Edison :: Inyo, Sequoia National Forest, Ventura and Kern County, CA
Staff Archaeologist. Ms. Johnston provides monitoring and survey support during excavations for the SCE Operations and Maintenance Program within the Inyo and Sequoia National Forest and throughout Ventura and Kern County. Her responsibilities include maintaining communication with all involved parties and completing and submitting paperwork and photographic records.

Environmental Clearance Program
Southern California Edison :: Angeles National Forrest, CA
Staff Archaeologist. Ms. Johnston was part of a team that surveyed 30 poles within the Angeles National Forest for the SCE Environmental Clearance Program. Her responsibilities included maintaining communication with all involved parties and completing and submitting paperwork and photographic records.

MEP040-4 Bishop Survey
Southern California Edison :: Inyo County, CA
Staff Archaeologist. Under the direction of a permitted Field Director, Ms. Johnston was part of a team that conducted two (2) 10-day cultural resources survey across multiple land designations including BLM, CDFW, and Private Lands within the Bishop area. Her duties included operating GIS applications to record spatial data, complete paperwork and photos, and assist with uploading daily data.

San Jacinto CCP Program
Southern California Edison :: Riverside and San Bernardino County, CA
Staff Archaeologist. Ms. Johnston provides monitoring and survey support during excavations for pole installation and trenching throughout Riverside and San Bernardino County. Her responsibilities include maintaining communication with all involved parties and completing and submitting paperwork and photographic records.

Grid Resiliency Project and Plant Betterment Project
Southern California Edison :: Bureau of Land Management, Bishop Field Office and Private Property, CA
Staff Archaeologist. Under the direction of a permitted Field Director, Ms. Johnston was part of a team that conducted cultural resources survey of 17.25 acres and performed site recording for SCE's Grid Resiliency Project and Plant Betterment Project on lands administered by BLM Bishop and Private Property. Her duties included operating GIS applications to record spatial data, complete paperwork and photos, and assist with uploading daily data.

Rincon Athos Solar Project
Desert City, Riverside County, CA
Staff Archaeologist. Ms. Johnston provided cultural resource monitoring services during ground disturbing phases of the project. Her responsibilities included maintaining communication with all involved parties along with completing and submitting paperwork and photographic records for the client daily.

Deteriorated Pole Replace Program
Southern California Edison :: Sequoia, San Bernardino, Angeles, and Los Padres National Forest, CA
Staff Archaeologist. Ms. Johnston provides cultural resource monitoring services during ground disturbing phases of the project. Her responsibilities include maintaining communication with all involved parties and completing and submitting paperwork and photographic records.

Santa Monica Mountain Range Excavation
California State University :: Los Angeles, CA
Field Archaeologist. Ms. Johnston's studies and tasks included coastal archaeology, Native American studies, zooarchaeology, landscape archaeology, excavation, analyzing soil composition, site planning, cataloging, survey, total station, recording data and GIS coordinates, sieving, and cleaning artifacts.

Spike Island Excavation
Institute of Field Research :: Spike Island off County Cork, Ireland
Field Bioarchaeologist. Ms. Johnston's studies and tasks included bioarchaeology, excavation, site planning, cataloging, recording data, site plans, photogrammetry, point mapping, total station, cleaning bones and artifacts, identifying human remains, and paleopathology.

Coastal Archaeology Lab
California State University :: Los Angeles, CA
Lab Assistant. Ms. Johnston's duties included sieving, measuring, cataloging, and sorting faunal remains and organic material.

Forensic Anthropology Lab
California State University :: Los Angeles, CA
Lab Assistant. Ms. Johnston's duties included organizing the bone collection, practicing compiling biological profiles, and identification of trauma and disease.

Appendix B:

PALEONTOLOGICAL
RESOURCES RECORDS
SEARCH RESULTS

WESTERN SCIENCE CENTER

October 24th, 2024

Material Culture Consulting
Hannah Johnston
2701-B North Towne Avenue
Pomona, CA 91767

Dear Ms. Johnston,

This letter presents the results of a record search conducted for the Wickerd Road Sewer Paleo Study Project in the City of Menifee, Riverside County, CA. The project area is located at the southeast corner of Garbani Road and Leon Road, with extensions onto Wickerd Road and Eucalyptus Road on Township 6 South, Range 2 West, Sections 7, 8, 17, and 18 of the *Winchester, CA* USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped entirely as granodiorite and tonalite units from the Cretaceous epoch, with possible Pleistocene sediments just north of the project area along Eucalyptus Road (Dibblee and Minch 2008). Cretaceous granodiorite/tonalite units are not considered paleontologically sensitive. The Western Science Center does not have localities within the project area or within a 1 mile radius.

While the presence of any fossil material is unlikely, if excavation activity extends beyond the current project bounds into the neighboring Pleistocene units, the material would be scientifically significant. Excavation activity associated with the development of the project area is unlikely to be paleontologically sensitive, but caution during development should be observed.

If you have any questions, or would like further information, please feel free to contact me at bstoneburg@westerncentermuseum.org.

Sincerely,

Brittney Elizabeth Stoneburg, MSc
Collections Manager

WESTERN SCIENCE CENTER

July 8, 2025

Material Culture Consulting, Inc.
Hannah Johnston
2701-B N. Towne Ave.
Pomona, CA 91766

Dear Hannah Johnston,

This letter presents the results of a record search conducted for the Highpoint Wickerd Road Sewer Project in the City of Menifee, Riverside County, California, on the Winchester 7.5-minute USGS quadrangle.

The geologic units underlying the project area include Paleozoic or Mesozoic metasedimentary rocks and Cretaceous plutonic rocks, none of which would be fossiliferous. However, also mapped are alluvial deposits dating from the Quaternary, which could include the highly fossiliferous Pleistocene sediments that produced the extensive collection from Diamond Valley Lake housed at Western Science Center (Dibblee & Minch 2003, *Geologic map of the Winchester quadrangle, Riverside County, California*). Although the Western Science Center does not have any fossil localities within the project area or 1-mile radius, the project area is approximately two miles southwest of a dense cluster of fossil localities at Diamond Valley Lake (see attached map).

Any fossil specimens recovered from the project would be scientifically significant. Excavation activity associated with the development of the project area would impact the paleontologically sensitive Quaternary units, and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils from the study area.

If you have any questions, or would like further information, please feel free to contact me at amcdonald@westerncentermuseum.org

Sincerely,

Andrew McDonald

Andrew McDonald, PhD
Curator