APPENDIX A – AIR QUALITY AND GREENHOUSE GAS EMISSIONS TECHNICAL MEMORANDUM

June 22, 2025

Thomas Strand
Chambers Group, Inc.
3151 Airway Avenue, Suite F208
Costa Mesa, CA 92626

Subject: **County of San Bernardino – US-95 at Havasu Lake Road Improvement Project Air Quality and Greenhouse Gas Emissions Technical Memorandum.**

Dear Mr. Strand:

Vista Environmental has conducted an analysis to evaluate whether the proposed US-95 at Havasu Lake Road Improvement Project (proposed project) would cause significant air quality or greenhouse gas impacts. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The methodology follows the Mojave Desert Air Quality Management District's (MDAQMD) recommendations for quantification of emissions and evaluation of potential air quality and greenhouse gas (GHG) impacts.

Site Location and Study Area

The project is located on US Highway 95 southbound at Havasu Lake Road in the unincorporated community of Needles, San Bernardino County, California. This area is part of Yard 15 within the County's jurisdiction and falls under the oversight of San Bernardino County Department of Public Works in coordination with Caltrans. There are no sensitive receptors located within several miles of the project site.

Project Description

The project aims to improve traffic flow, enhance safety, and meet increasing capacity demands. The project scope includes widening US Highway 95 by 14 feet (12-foot lane and 2-foot edge line) and constructing a left-turn pocket with an excavation depth of 1.10 feet. Approximately 3,000 linear feet of brush will be removed to accommodate the widening. Approximately 3,000 linear feet by two (2) feet of Bureau of Land Management (BLM) land will be acquired by Caltrans for right of way to accommodate the widening. An approximately 0.9-acre area will be disturbed as part of the project. No material import/export, detours, or night construction are proposed. Figure 1 is attached to the Memo that shows the proposed site plan.

Standard Requirements

This analysis found that through implementation of the MDAQMD standard dust control regulations during construction of the proposed project that are detailed below in AIR-1, less than significant levels of criteria pollutants and GHG emissions would be created during construction and operation of the proposed project.

AIR-1

The project applicant shall require the construction contractor to follow the standard requirements from MDAQMD Rules 403 and 403.2 with regards to fugitive dust control, which includes, but are not limited to the following:

- Do not allow any track out of material onto the roadways and remove all track out at the end of each workday.
- Cover loaded haul vehicles while operating on public roads.
- Use periodic watering on active sites and pre-water all areas prior to clearing and soil moving activities.
- Apply nontoxic chemical stabilizers according to manufacturer specifications to all construction areas.
- Replant all disturbed area as soon as practical.
- Suspend all grading activities during high wind conditions.

Thresholds of Significance

The MDAQMD's CEQA and Federal Conformity Guidelines (MDAQMD, 2020), outlines significance determination thresholds. The MDAQMD Guidelines state that any project is significant if it triggers or exceed the most appropriate evaluation criteria, and further specifies that the emissions comparison (criteria number 1) is sufficient for most projects:

1. Generate total emissions (direct and indirect) in excess of the threshold given in Table A;
2. Generates a violation of any ambient air quality standard when added to the local background;
3. Does not conform with the applicable attainment or maintenance plan(s)[1];
4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.

The MDAQMD significant emissions thresholds are shown in Table A. According to the MDAQMD Guidelines, A significant project must incorporate mitigation sufficient to reduce its impact to a level that is not significant. A project that cannot be mitigated to a level that is not significant must incorporate all feasible mitigation. Note that the emission thresholds are given as a daily value and an annual value, so that multi-phased project (such as project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value. Since construction of the proposed project is anticipated to take over a year, the annual threshold has been utilized for both short-term construction impact analysis and long-term operational impacts.

[1] A project is deemed to not exceed this threshold, and hence not be significant, if it is consistent with the existing land use plan. Zoning changes, specific plans, general plan amendments and similar land use plan changes which do not increase dwelling unit density, do not increase vehicle trips, and do not increase vehicle miles traveled are also deemed to not exceed this threshold.

Table A – MDAQMD Significant Emissions Thresholds

Pollutant	Annual Threshold (tons)	Daily Threshold (pounds)
Greenhouse Gases (CO_2e)	100,000	548,000
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO_X)	25	137
Volatile Organic Compounds (VOC)	25	137
Oxides of Sulfur (SO_X)	25	137
Particulate Matter (PM_{10})	15	82
Particulate Matter ($PM_{2.5}$)	12	65
Hydrogen Sulfide (H_2S)	10	54
Lead (Pb)	0.6	3

Source: https://www.mdaqmd.ca.gov/home/showpublisheddocument?id=8510

Project Impacts

Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the MDAQMD Air Quality Management Plans (AQMPs). The Project Site is located within the Mojave Desert Air Basin and is regulated by the MDAQMD. The MDAQMD PM10 Attainment Plan and Ozone Attainment Plan established under the Western Mojave Desert AQMPs set forth a comprehensive set of programs that will lead the Basin into compliance with Federal and State air quality standards. The control measures and related emission reduction estimates within the MDAQMD PM10 Attainment Plan and Ozone Attainment Plan are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with these attainment plans is determined by:

- Demonstrating Project consistency with local land use plans and/or population projections (Criterion 1);
- Demonstrating Project compliance with applicable MDAQMD Rules and Regulations (Criterion 2); and
- Demonstrating Project implementation will not increase the frequency or severity of a violation in the Federal or State ambient air quality standards (Criterion 3).

Criterion 1: Consistency with local land use plans and/or population projections.

Growth projections included in the AQMPs form the basis for the projections of air pollutant emissions and are based on general plan land use designations and the *2024-2050 Regional Transportation Plan/Sustainable Communities Strategy* (Connect SoCal 2024), adopted by SCAG on April 4, 2024 which is based on the regional development and growth forecasts provided in the *2023 Federal Transportation Improvement* Program (2023 FTIP), adopted October 2022, which addresses regional development and growth forecasts. While SCAG has recently adopted the Connect SoCal 2024, the MDAQMD has not released an updated AQMP that utilizes information from the Connect SoCal 2024. As such, this

consistency analysis is based off the 2016-2040 RTP/SCS. The population, housing, and employment forecasts within the 2016-2040 RTP/SCS are based on local general plans as well as input from local governments, such as the County. The MDAQMD has incorporated these same demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment) into the AQMPs.

San Bernardino Land Use Service Zoning Maps is the local law that regulates various aspects of how land can be used. The project site is designated and is zoned as Resource Conservation (RC). The RC land use zoning district provides sites for open space and recreational activities, single-family homes on very large parcels, and similar and compatible uses. Road widening is an allowable land use within the RC land use zoning district.

The County's unincorporated area population estimate as of January 1, 2021 was 1,871,997 persons, and the County's total area population estimate as of January 1, 2021 was 2,175,909 persons. SCAG growth forecasts in the 2016-2040 RTP/SCS estimate the County's population to reach 2,731,000 persons by 2040, representing a total increase of 620,000 persons between 2015 and 2040. Additionally, SCAG growth forecasts in the 2016-2040 RTP/SCS estimate the County's employment to reach 1,028,000 jobs by 2040, representing a total increase of 299,000 jobs between 2012 and 2040.

The proposed project would include neither a residential component that would increase local population growth, nor a commercial component that would substantially increase employment. Construction of the proposed project would not result in residential, commercial, or growth-inducing development that would result in a substantial increase in growth-related emissions. In addition, because of the presence of locally available construction workers, and because of the relatively short duration of construction (approximately 4 months), workers are not expected to relocate to the area with their families. The proposed project's ongoing operations would not require any additional road maintenance activities than what is already occurring with the existing roads. As such, the proposed project would not cause the SCAG growth forecast to be exceeded. As the MDAQMD has incorporated these forecasts on population, housing, and employment into the AQMPs, the Project would be consistent with the AQMPs. Impacts would be less than significant.

Criterion 2: Compliance with applicable MDAQMD Rules and Regulations.

The Project would be required to comply with all applicable MDAQMD Rules and Regulations. This would include MDAQMD Rules 401, 402, and 403. MDAQMD Rule 403 requires periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust (PM10) emissions, covering loaded haul vehicles, and reduction of non-essential earth moving activities during higher wind conditions. The proposed project would comply with applicable MDAQMD rules, and as such, would not conflict with applicable MDAQMD Rules and Regulations; therefore, impacts would be less than significant.

Criterion 3: Demonstrating Project implementation will not increase the frequency or severity of a violation in the Federal or State ambient air quality standards.

Analysis of the proposed project's potential to result in more frequent or severe violations of the CAAQS and NAAQS can be satisfied by comparing the proposed project emissions to MDAQMD thresholds. Based on the air quality modeling analysis contained in this report, short-term construction air emissions would not result in significant impacts based on MDAQMD thresholds of significance discussed above. The ongoing operation of the proposed project would generate air pollutant emissions that are

inconsequential and would not result in significant impacts based on MDAQMD thresholds of significance discussed above.

Therefore, the proposed project would not delay the MDAB's attainment goals for ozone, PM10, and PM2.5, and would not result in an increase in the frequency or severity of existing air quality violations. As such, the proposed project would not cause or contribute to localized air quality violations or delay the attainment of air quality standard or interim emissions reductions specified in the AQMPs; thus, impacts would be reduced to less than significant.

Air Quality Emissions

Short-Term Construction-Related Air Quality Impacts

Construction of the proposed project would create air emissions from the operation of construction equipment as well as from fugitive dust generated from the movement of dirt onsite. Construction of the proposed project is anticipated to start in December 2025 and would take approximately 100 workdays to complete.

The criteria air pollution impacts created by the proposed project have been analyzed through use of CalEEMod Version 2022.1.29. CalEEMod is a computer model published by the California Air Pollution Control Officers Association (CAPCOA) for estimating air pollutant and GHG emissions. The CalEEMod 2022.1 program uses the EMFAC2021 computer program to calculate the emission rates specific for the Mojave Desert portion of San Bernardino County for employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer programs to calculate emission rates for heavy equipment operations. EMFAC2021 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles.

The CalEEMod model provides a land use option specific for road widening projects that was utilized and was based on a 0.6 mile road widening that would disturb a 0.9 mile area, and was based on a 100 workday construction period. The only changes to the CalEEMod default parameters included adding a concrete saw and export of 435 tons of pavement debris during the Grubbing and Land Clearing, in order to account for the saw cut and removal of approximately 2 feet of the edge of the existing pavement. In addition, 3 water trucks per day with a 0.6 mile length were added to the Grubbing and Grading phases to account for water truck emissions. A summary of the daily construction-related criteria pollutant emissions from the proposed project is shown below in Table B.

Table B – Construction-Related Criteria Pollutant Emissions

Season and Year of Construction	Maximum Daily Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Winter 2025	3.88	32.9	39.2	0.07	5.61	1.84
Summer 2026	1.93	16.1	21.9	0.04	4.04	0.96
Winter 2026	3.67	30.2	38.7	0.07	5.45	1.70
Maximum Daily Construction Emissions	**3.88**	**32.9**	**39.2**	**0.07**	**5.61**	**1.84**
MDAQMD Daily Thresholds	**137**	**137**	**548**	**137**	**82**	**65**
Exceeds Thresholds?	No	No	No	No	No	No

Source: CalEEMod Version 2022.1.

Table B shows that none of the analyzed criteria pollutants would exceed the MDAQMD daily thresholds during construction of the proposed project. Therefore, a less than significant air quality impact would occur from construction of the proposed project.

Long-Term Operational Air Quality Impacts

The purpose of the proposed turn pocket project is to improve traffic flow, enhance safety and meet increasing capacity demands. The proposed project's ongoing operations would not generate any additional vehicle trips, as it would not require any additional road maintenance activities than what is already occurring with the existing roads. The operation of the proposed project would not change traffic volumes or vehicle miles traveled (VMT) and will provide a slight improvement to the US-95 and Havasu Lake Road intersection level of service (LOS) and vehicle hours traveled (VHT). As such, the on-going operation of the proposed project is not anticipated to generate any additional criteria pollutant air emissions, when compared to existing conditions and no operational air modeling has been provided in this analysis. Therefore, no air quality impacts would occur from the ongoing operation of the proposed project.

Greenhouse Gas Emissions

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The purpose of the proposed turn pocket project is to improve traffic flow, enhance safety and meet increasing capacity demands. The proposed project's ongoing operations would not generate any additional vehicle trips, as it would not require any additional road maintenance activities than what is already occurring with the existing roads. As such, no operational GHG emissions would be created from the proposed project, and GHG emissions would only be created from construction activities.

The MDAQMD shares responsibility with CARB for ensuring that all state and federal GHG standards are achieved and maintained within its jurisdiction. The MDAQMD CEQA Guidelines provides a project level significance threshold of 100,000 tons of CO_2e per year for both construction and operational activities. The MDAQMD developed this threshold in order to comply with the GHG emission reductions required by AB 32. The project's GHG emissions have been calculated with the CalEEMod model based on the construction parameters detailed above for air quality emissions. A summary of the results is shown below in Table C and the CalEEMod model run is provided is attached to this Memo.

Table C – Project Related Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Construction Year	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Year 2025	48.8	<0.01	<0.01	49.1
Year 2026	196	0.01	<0.01	197
Total Construction Emissions	244.8	0.01	<0.01	246.1
Amortized Construction Emissions[1] (30 Years)	**8.16**	**<0.01**	**<0.01**	**8.20**
MDAQMD Threshold				**100,000**
Exceed Thresholds?				**No**

Notes
[1] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2022.1.

The data provided in Table C shows that the construction activities would create a total of 246.1 $MTCO_2e$, which equates to 8.2 $MTCO_2e$ per year, when amortized over 30 years. Table C shows that the GHG emissions created from the proposed project are within the MDAQMD's threshold of 100,000 $MTCO_2e$ per year. Therefore, a less than significant generation of greenhouse gas emissions would occur from development of the proposed project. Impacts would be less than significant.

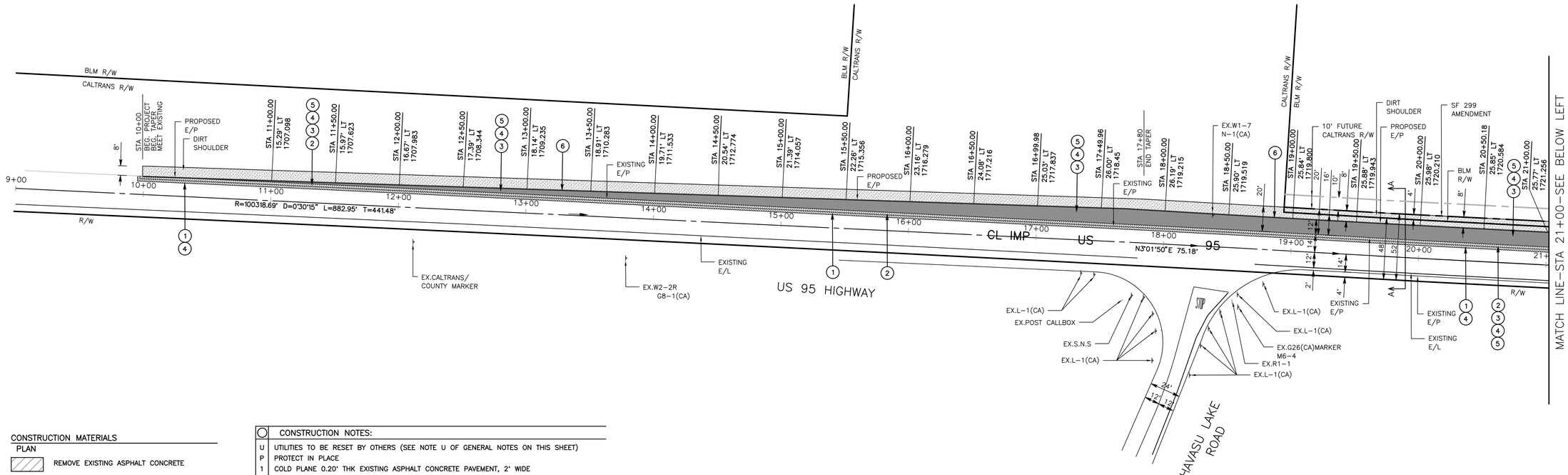
Please let me know if you have any questions or need additional information with regard to the above analysis. I can be reached at (949) 510-5355, or email me at greg@vistalb.com.

Sincerely,

Greg Tonkovich, AICP
Senior Analyst
Vista Environmental
949 510 5355

Encl.: Figure 1 – Proposed Site Plan
CalEEMod Model Printouts

FILE NO. 405600-010



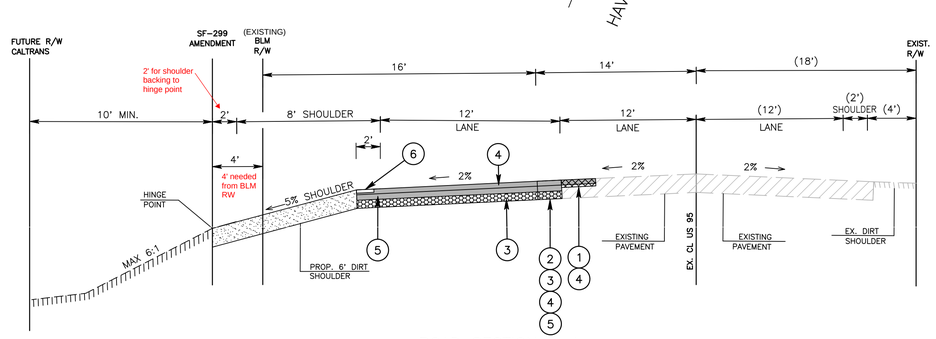
CONSTRUCTION MATERIALS

PLAN

- REMOVE EXISTING ASPHALT CONCRETE
- ASPHALT CONCRETE PAVEMENT
- COLD PLANE/MILL AND OVERLAY
- DIRT SHOUDER

CONSTRUCTION NOTES:

U	UTILITIES TO BE RESET BY OTHERS (SEE NOTE U OF GENERAL NOTES ON THIS SHEET)
P	PROTECT IN PLACE
1	COLD PLANE 0.20' THK EXISTING ASPHALT CONCRETE PAVEMENT, 2' WIDE
2	SAW CUT AND REMOVE EXISTING ASPHALT PAVEMENT, AGGREGATE BASE AND OR/ NATIVE SOIL TO DEPTH SHOWN 2' WIDE MINIMUM.
3	PLACE 0.50" THK CLASS 2 AGGREGATE BASE.
4	PLACE 0.20 THK ASPHALT CONCRETE TYPE G RHMA, 1/2" AG, PG 64-16 RHMA.
5	PLACE 0.40" THK ASPHALT CONCRETE TYPE A, HMA, 3/4" AGGREGATE.
6	INSTALL 6" EDGELINE RUMBLE STRIP A40C PER CALTRANS STANDARDS 2023



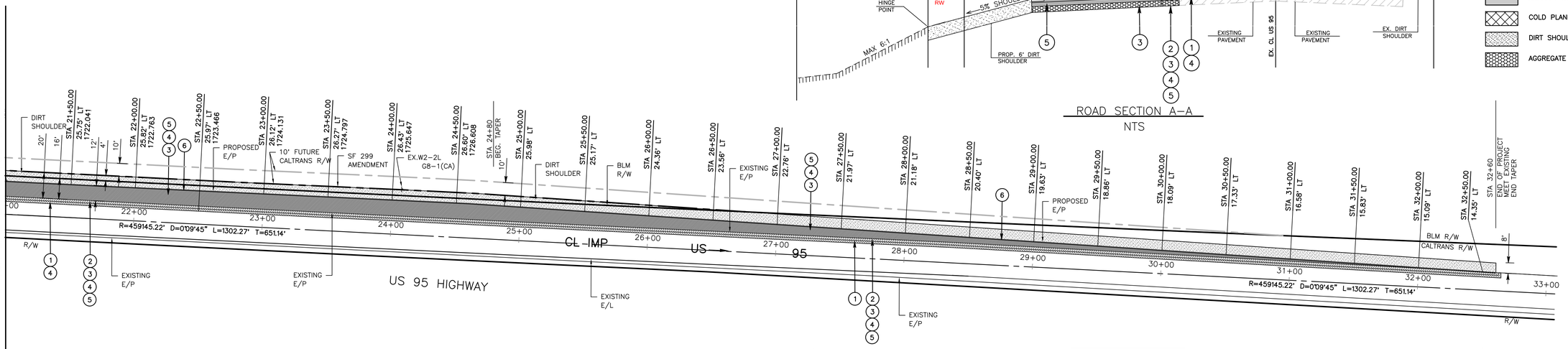
ROAD SECTION A-A

NTS

CONSTRUCTION MATERIALS SECTION A-A

PLAN

- REMOVE EXISTING ASPHALT CONCRETE
- ASPHALT CONCRETE PAVEMENT TYPE A
- ASPHALT CONCRETE PAVEMENT TYPE G
- COLD PLANE
- DIRT SHOULDER
- AGGREGATE BASE



GRAPHIC SCALE 1"=40'

0 20 40 60

FILE NO. 405600-010

MARK	CHANGES		DATE
	NO CHANGES	RESIDENT ENGINEER	

FIELD CHANGES

REGISTERED PROFESSIONAL ENGINEER CHRIS NGUYEN No. C63582 CIVIL STATE OF CALIFORNIA

SAN BERNARDINO COUNTY

DEPARTMENT OF PUBLIC WORKS

DESIGNED BY:	DRAWN BY:	CHECKED BY:	RECOMMENDED BY:
NA	NA	LL	CHRIS NGUYEN, P.E. ENGINEERING MANAGER — DATE

LEI LI P.E. SUPERVISING ENGINEER — DATE

APPROVED BY:

MERVAT N. MIKHAIL, P.E. DEPUTY DIRECTOR — DATE

US 95 AT HAVASU LAKE RD

ROAD PLAN

NEEDLES AREA

STA 10+00 TO 32+60

J.L. REF.	W.O. NO.	PLAN SCALE	SHT. NO.	TOT. SHT'S.
JL12224	H15280	1"=40'	3	4

US 95 & Lake Havasu Rd Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	US 95 & Lake Havasu Rd
Construction Start Date	12/1/2025
Lead Agency	San Bernardino County
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.70
Precipitation (days)	9.60
Location	34.55984866231573, -114.64727897389935
County	San Bernardino-Mojave Desert
City	Unincorporated
Air District	Mojave Desert AQMD
Air Basin	Mojave Desert
TAZ	5148
EDFZ	0-E
Electric Utility	City of Needles
Gas Utility	Southern California Gas
App Version	2022.1.1.29

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
Road Widening	0.60	Mile	0.90	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.93	16.1	21.9	0.04	4.04	0.96	4,495	0.18	0.07	1.76	4,516
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.88	32.9	39.2	0.07	5.61	1.84	8,207	0.34	0.09	0.06	8,242
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.52	4.30	5.70	0.01	0.84	0.24	1,183	0.05	0.01	0.16	1,188
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.09	0.79	1.04	< 0.005	0.15	0.04	196	0.01	< 0.005	0.03	197
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	—	548	137	82.0	65.0	—	—	—	—	548,000
Unmit.	—	—	No	No	No	No	—	—	—	—	No
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	—	548	137	82.0	65.0	—	—	—	—	548,000
Unmit.	—	—	No	No	No	No	—	—	—	—	No

2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2026	1.93	16.1	21.9	0.04	4.04	0.96	4,495	0.18	0.07	1.76	4,516
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	3.88	32.9	39.2	0.07	5.61	1.84	8,207	0.34	0.09	0.06	8,242
2026	3.67	30.2	38.7	0.07	5.45	1.70	8,194	0.32	0.09	0.05	8,229
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2025	0.14	1.20	1.43	< 0.005	0.26	0.07	295	0.01	< 0.005	0.05	296
2026	0.52	4.30	5.70	0.01	0.84	0.24	1,183	0.05	0.01	0.16	1,188
Annual	—	—	—	—	—	—	—	—	—	—	—
2025	0.03	0.22	0.26	< 0.005	0.05	0.01	48.8	< 0.005	< 0.005	0.01	49.1
2026	0.09	0.79	1.04	< 0.005	0.15	0.04	196	0.01	< 0.005	0.03	197

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.67	5.76	6.35	0.01	0.28	0.26	876	0.04	0.01	—	879

Dust From Material Movement	—	—	—	—	0.14	0.02	—	—	—	—	—
Onsite truck	< 0.005	0.06	0.05	< 0.005	2.65	0.26	12.8	< 0.005	< 0.005	< 0.005	13.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.16	0.17	< 0.005	0.01	0.01	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	< 0.005	< 0.005	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	0.07	0.01	0.35	< 0.005	< 0.005	< 0.005	0.37
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	3.97	< 0.005	< 0.005	—	3.99
Dust From Material Movement	—	—	—	—	< 0.005	< 0.005	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	0.06	< 0.005	< 0.005	< 0.005	0.06
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.70	0.00	0.16	0.04	161	0.01	0.01	0.02	163
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.36	0.08	< 0.005	0.09	0.03	300	< 0.005	0.05	0.02	315
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	< 0.005	< 0.005	4.55	< 0.005	< 0.005	0.01	4.62
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	8.23	< 0.005	< 0.005	0.01	8.63
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.75	< 0.005	< 0.005	< 0.005	0.76

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.36	< 0.005	< 0.005	< 0.005	1.43

3.3. Linear, Grading & Excavation (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.69	32.6	36.9	0.07	1.46	1.35	7,645	0.31	0.06	—	7,671
Dust From Material Movement	—	—	—	—	0.97	0.10	—	—	—	—	—
Onsite truck	< 0.005	0.06	0.05	< 0.005	2.65	0.26	12.8	< 0.005	< 0.005	< 0.005	13.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.02	1.15	< 0.005	0.05	0.04	239	0.01	< 0.005	—	240
Dust From Material Movement	—	—	—	—	0.03	< 0.005	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	0.08	0.01	0.40	< 0.005	< 0.005	< 0.005	0.42
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.19	0.21	< 0.005	0.01	0.01	39.6	< 0.005	< 0.005	—	39.8
Dust From Material Movement	—	—	—	—	0.01	< 0.005	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	0.07	< 0.005	< 0.005	< 0.005	0.07
Offsite	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.21	2.23	0.00	0.52	0.12	516	0.03	0.02	0.06	523
Vendor	< 0.005	0.03	0.01	< 0.005	0.01	< 0.005	31.9	< 0.005	< 0.005	< 0.005	33.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.02	< 0.005	16.6	< 0.005	< 0.005	0.03	16.9
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.00	< 0.005	< 0.005	< 0.005	1.04
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	2.76	< 0.005	< 0.005	< 0.005	2.80
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.17	< 0.005	< 0.005	< 0.005	0.17
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Linear, Grading & Excavation (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.50	29.9	36.6	0.07	1.31	1.20	7,644	0.31	0.06	—	7,670
Dust From Material Movement	—	—	—	—	0.97	0.10	—	—	—	—	—
Onsite truck	< 0.005	0.06	0.05	< 0.005	2.65	0.26	12.6	< 0.005	< 0.005	< 0.005	13.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.28	2.40	2.93	0.01	0.10	0.10	613	0.02	< 0.005	—	615
Dust From Material Movement	—	—	—	—	0.08	0.01	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	0.21	0.02	1.00	< 0.005	< 0.005	< 0.005	1.05
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.44	0.54	< 0.005	0.02	0.02	102	< 0.005	< 0.005	—	102
Dust From Material Movement	—	—	—	—	0.01	< 0.005	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	0.04	< 0.005	0.17	< 0.005	< 0.005	< 0.005	0.17
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.19	2.06	0.00	0.52	0.12	506	0.01	0.02	0.05	513
Vendor	< 0.005	0.03	0.01	< 0.005	0.01	< 0.005	31.3	< 0.005	< 0.005	< 0.005	32.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.19	0.00	0.04	0.01	41.8	< 0.005	< 0.005	0.07	42.4
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.51	< 0.005	< 0.005	< 0.005	2.61
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.01	< 0.005	6.93	< 0.005	< 0.005	0.01	7.02
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.42	< 0.005	< 0.005	< 0.005	0.43
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Linear, Drainage, Utilities, & Sub-Grade (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.79	16.0	19.7	0.04	0.62	0.57	4,089	0.17	0.03	—	4,103
Dust From Material Movement	—	—	—	—	0.41	0.04	—	—	—	—	—
Onsite truck	< 0.005	0.06	0.04	< 0.005	2.65	0.26	12.4	< 0.005	< 0.005	0.01	13.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.79	16.0	19.7	0.04	0.62	0.57	4,089	0.17	0.03	—	4,103
Dust From Material Movement	—	—	—	—	0.41	0.04	—	—	—	—	—
Onsite truck	< 0.005	0.06	0.05	< 0.005	2.65	0.26	12.6	< 0.005	< 0.005	< 0.005	13.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	1.53	1.89	< 0.005	0.06	0.05	392	0.02	< 0.005	—	393
Dust From Material Movement	—	—	—	—	0.04	< 0.005	—	—	—	—	—
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	0.25	0.02	1.19	< 0.005	< 0.005	< 0.005	1.25
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.28	0.35	< 0.005	0.01	0.01	64.9	< 0.005	< 0.005	—	65.1
Dust From Material Movement	—	—	—	—	0.01	< 0.005	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	0.05	< 0.005	0.20	< 0.005	< 0.005	< 0.005	0.21
Offsite	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	2.12	0.00	0.36	0.08	393	0.02	0.01	1.33	399
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.13	1.41	0.00	0.36	0.08	348	0.01	0.01	0.03	352
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.03	0.01	34.4	< 0.005	< 0.005	0.06	34.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.01	< 0.005	5.69	< 0.005	< 0.005	0.01	5.77
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Linear, Paving (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	7.53	11.7	0.02	0.30	0.28	1,768	0.07	0.01	—	1,774
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.31	0.48	< 0.005	0.01	0.01	72.7	< 0.005	< 0.005	—	72.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.09	< 0.005	< 0.005	< 0.005	12.0	< 0.005	< 0.005	—	12.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	1.54	0.00	0.26	0.06	286	0.01	0.01	0.97	290
Vendor	0.01	0.31	0.13	< 0.005	0.09	0.03	312	< 0.005	0.04	0.79	326
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.01	< 0.005	10.7	< 0.005	< 0.005	0.02	10.9
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	12.8	< 0.005	< 0.005	0.01	13.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.77	< 0.005	< 0.005	< 0.005	1.80
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.13	< 0.005	< 0.005	< 0.005	2.21
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	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	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—

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

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	12/1/2025	12/15/2025	5.00	10.0	—

Linear, Grading & Excavation	Linear, Grading & Excavation	12/16/2025	2/10/2026	5.00	40.0	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	2/11/2026	4/1/2026	5.00	35.0	—
Linear, Paving	Linear, Paving	4/2/2026	4/23/2026	5.00	15.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Grubbing & Land Clearing	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Linear, Grading & Excavation	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grading & Excavation	Graders	Diesel	Average	2.00	8.00	148	0.41
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Linear, Grading & Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Linear, Grading & Excavation	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82

Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	1.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Linear, Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Linear, Paving	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—

Linear, Grubbing & Land Clearing	Worker	12.5	18.5	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	10.2	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	4.40	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	3.00	0.60	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	40.0	18.5	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	1.00	10.2	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	3.00	0.60	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	27.5	18.5	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	10.2	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	3.00	0.60	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Linear, Paving	Vendor	10.0	10.2	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	—	435	0.90	0.00	—
Linear, Grading & Excavation	—	—	0.90	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	0.90	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Widening	0.90	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	58.7	453	0.03	< 0.005
2026	88.1	453	0.03	< 0.005

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	37.3	annual days of extreme heat
Extreme Precipitation	0.25	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.09	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	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

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

6.3. Adjusted Climate Risk Scores

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

Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	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 include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	61.1
AQ-PM	12.6
AQ-DPM	4.59
Drinking Water	64.5
Lead Risk Housing	37.2
Pesticides	0.00
Toxic Releases	0.71
Traffic	3.73
Effect Indicators	—
CleanUp Sites	74.9
Groundwater	89.6

Haz Waste Facilities/Generators	72.6
Impaired Water Bodies	23.9
Solid Waste	84.7
Sensitive Population	—
Asthma	95.1
Cardio-vascular	75.0
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	66.6
Housing	22.1
Linguistic	0.51
Poverty	78.1
Unemployment	99.6

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	18.02900038
Employed	5.697420762
Median HI	5.530604389
Education	—
Bachelor's or higher	11.81829847
High school enrollment	10.11163865
Preschool enrollment	63.13358142
Transportation	—
Auto Access	12.08777108
Active commuting	77.85191839

Social	—
2-parent households	65.66149108
Voting	35.62171179
Neighborhood	—
Alcohol availability	82.08648787
Park access	41.92223791
Retail density	0.92390607
Supermarket access	2.399589375
Tree canopy	7.955857821
Housing	—
Homeownership	49.06967792
Housing habitability	84.85820608
Low-inc homeowner severe housing cost burden	67.1885025
Low-inc renter severe housing cost burden	90.83793148
Uncrowded housing	66.03361992
Health Outcomes	—
Insured adults	14.39753625
Arthritis	0.0
Asthma ER Admissions	0.0
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	60.3
Cognitively Disabled	2.9
Physically Disabled	0.3

Heart Attack ER Admissions	34.1
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	99.5
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	45.9
Elderly	8.9
English Speaking	74.2
Foreign-born	3.0
Outdoor Workers	14.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	86.5
Traffic Density	2.7
Traffic Access	23.0
Other Indices	—
Hardship	73.7
Other Decision Support	—
2016 Voting	70.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	65.0
Healthy Places Index Score for Project Location (b)	15.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	Project site is Rural
Construction: Construction Phases	—
Construction: Trips and VMT	10 Vendor trucks per day added to Paving Phase. 3 onsite truck trips 0.6 mile length added to Grubbing and Grading for water truck emissions
Construction: Off-Road Equipment	A concrete saw added to Grubbing Phase to account for cutting edge of pavement
Construction: Architectural Coatings	—

APPENDIX B – BIOLOGICAL RECONNAISSANCE ASSESSMENT REPORT

June 2, 2025
3151 Airway Avenue, Suite F208
Costa Mesa, CA 92626

Ayida Smith, M.P.A., Planner II
San Bernardino County Department of Public Works
825 E. Third Street, Room 123
San Bernardino, CA 92415

Subject: Biological Reconnaissance Assessment Report for the proposed US-95 at Havasu Lake Road Improvement Project Located in Needles, San Bernardino County, California

Chambers Group was retained by San Bernardino County Department of Public Works (SBCDPW) to conduct a literature review and biological reconnaissance-level survey for the proposed US-95 at Havasu Lake Road Improvement Project (Project). The purpose of this survey was to document existing vegetation communities, identify special status species with a potential for occurrence, and map habitats that could support special status wildlife species, as well as evaluate potential impacts of the Project to these resources.

Project Site Location and Description

The Project site is located along the US Highway 95 southbound intersection at Havasu Lake Road in unincorporated Needles, San Bernardino County, CA. The site is located within the United States Geological Survey (USGS) *Snaggletooth* California 7.5-minute topographic quadrangle. The approximately 1,850 linear foot Project site is located on Assessor's Parcel Number (APN) 065-123-114. The County of San Bernardino is proposing to expand the right-of-way onto a portion of property under the right-of-way of Caltrans. The Project site has relatively flat terrain with an elevation of approximately 1,720 feet above mean sea level (amsl). A map of the Project location and Project vicinity is provided in Attachment 1: Figure 1.

Literature Review

Prior to performing the biological reconnaissance survey, a literature review was conducted for soils, potential jurisdictional water features that contribute to hydrology, and special status species known to occur within the Project's vicinity (approximately 5 miles) of the Project site.

Soils

Soil maps for the Project site were referenced in accordance with categories set forth by the U.S. Department of Agriculture (USDA) Soil Conservation Service and the USDA Natural Resources Conservation Service Web Soil Survey (USDA 2025).

Hydrology

Prior to performing the field survey, a database review of the U.S. Fish and Wildlife Service's (USFWS 2025) National Wetlands Inventory (NWI) and National Hydrography Database (NHD) blueline drainages were referenced (NHD 2025). A general assessment of waters potentially regulated by the U.S. Army Corps of Engineers (USACE), California Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) was conducted for the Project site. Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States. The State of California (state) regulates discharge of material into waters of the state pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, 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. A desktop assessment was conducted of available data prior to the biological reconnaissance survey in the field.

Special Status Habitats and Species

The most recent records of the California Natural Diversity Database (CNDDB) managed by CDFW (2025) and the California Native Plant Society's (CNPS) Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California (CNPS 2025) were reviewed for the following quadrangles containing and surrounding the Project: *Snaggletooth*, *Stepladder Mountains, Stepladder Mountains NE, Monumental Pass, Whale Mountain, Mohawk Spring, Chemehuevi Peak, Savahia Peak NW,* and *Savahia Peak NE* California USGS 7.5-minute quadrangles. These databases contain records of reported occurrences of federal- or state- listed endangered or threatened species, California Species of Concern (SSC), or otherwise special status species or habitats that may occur within or in the immediate vicinity of the Project site (Attachment 1: Figure 2 – CNDDB Occurrences Map).

Biological Reconnaissance Survey

The biological reconnaissance survey was conducted on foot within the Project site and included a 50-foot buffer on each side of the road edge (Survey Area). During the survey, the biologists identified and mapped all vegetation communities found within the site onto aerial photographs (Attachment 1: Figure 3 – Vegetation Communities Map). Plant communities were determined in accordance with the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Plant nomenclature follows that of *The Jepson Manual, Vascular Plants of California, Second Edition* (Baldwin et al. 2012). Plant and wildlife species observed or detected within the Survey Area were recorded (Attachments 2 and 3). Site photographs were taken depicting current site conditions (Attachment 4).

Results

Chambers Group biologists Austin Burke and Corey Jacobs conducted the biological reconnaissance survey within the Project site to identify vegetation communities, the potential for occurrence of special status species, and/or habitats that could support special status wildlife species. The survey was conducted on foot between 0630 and 1430 hours on April 9, 2025. Weather conditions during the survey included temperatures ranging from 65 to 91 degrees Fahrenheit, wind speeds between 0 and 5 miles per hour, with 0 percent cloud cover and 0 percent precipitation.

Biological Site Conditions

Soils

According to the results from the USDA NRCS Web Soil Survey (USDA 2025), the Project site is located in the Colorado Desert Area, CA, 803 part of the soil map. One soil type is known to occur within and/or adjacent to the site while there is no digital soil data available west of the US-95. No hydric soils were mapped within the Survey Area. The soil type is described below.

- Chemehuevi-Rizzo-Emptygun complex occurs throughout the majority of the Project site east of the US-95. This soil type is made up of 35 percent Chemehuevi soils, 30 percent Rizzo soils, 20 percent Emptygun soils, and 15 percent other minor components. The parent material is alluvium derived from granite. The available water storage is classified as very low with a depth to the water table of more than 80 inches (USDA 2025).

Hydrology

Two potentially jurisdictional water features were observed within the Project site (Attachment 1: Figure 4 – Jurisdictional Waters Map) during the survey. One NWI mapped riverine drainage runs through the southern border of the site, inside of the Project boundary. One NHD mapped stream runs through the northern border of the site, inside of the Project boundary. These features are historically mapped by the NWI and NHD (USGS 2025) and show evidence of channelization and flow. While the two features occur within the mapped Project

boundary, both features occur near the outside boundaries and are located outside of the permanent impact area where work activities are not anticipated to occur and should not be impacted by Project activities.

Several other non-jurisdictional drainage features are located along the US-95 and Havasu Lake Road within the Project site. These features are heavily disturbed by off-highway vehicles (OHV) and do not follow a natural flow path. The features lack evidence of distinct channelization and appear to be erosional features that formed as a result of road runoff and from sheet flow during heavy rainstorm events.

Vegetation Communities and Other Areas

One vegetation community and two other land types were found within the Project site during the biological reconnaissance survey: Creosote Bush Scrub, Bare Ground, and Developed. The communities are described in the following subsections.

Creosote Bush Scrub

Creosote Bush Scrub can be found in alluvial fans, bajadas, upland slopes, and minor intermittent washes (Sawyer et al. 2009). Soils in this community are well drained and sometimes include desert pavement. In sandy situations, it often co-occurs with perennial grasses, and along certain washes and wash terrace deposits with somewhat alkaline soils, it co-dominates with allscale (*Atriplex polycarpa*). Plants also may form semi-riparian stands along low-gradient sandy or silty washes (Sawyer et al. 2009). Creosote bush (*Larrea tridentata*) is dominant or co-dominant in the shrub canopy with *Acamptopappus shockleyi*, *Acamptopappus sphaerocephalus*, *Ambrosia dumosa*, *Ambrosia salsola*, *Atriplex confertifolia*, *Atriplex hymenelytra*, *Atriplex polycarpa*, *Brickellia incana*, *Encelia farinosa*, *Ephedra californica*, *Ephedra nevadensis* and *Lycium andersonii*. Emergent trees may be present at low cover, including *Prosopis glandulosa* or *Yucca brevifolia*. Shrubs are typically less than 3 meters tall with a canopy that is intermittent to open. The herbaceous layer is open to intermittent with seasonal annuals or perennial grasses (Sawyer et al. 2009).

Areas with Creosote Bush Scrub vegetation are present within 3.24 acres of the Project site. Native plant species found in the Project site typical of this vegetation community included: Creosote bush, brittlebush, desert trumpet (*Eriogonum inflatum*), wire lettuce (*Stephanomeria pauciflora*), and white bur-sage. Scattered blue palo verde (*Parkinsonia florida*), cat claw acacia (*Senegalia greggii*) and ocotillo (*Fouquieria splendens* subsp. *splendens*) were also observed. Non-native species included: Mediterranean schismus (*Schismus barbatus*), Sahara mustard (*Brassica toumefortii*), and euphorbia (*Euphorbia sp.*).

Bare Ground

Bare ground areas are generally devoid of vegetation but do not contain any form of pavement or developed structures. Areas of disturbed bare ground are present on both sides of US-95 and Havasu Lake Road. Bare ground is also present along the utility road and in areas with heavy OHV use. Bare Ground covers approximately 2.29 acres of the Project site.

Developed

Developed areas are areas that have been altered by humans and now display man-made structures such as houses, paved roads, buildings, parks, and other maintained areas. Developed areas include the US-95 and Havasu Lake Road. There are 1.47 acres of Developed areas on the Project site.

General Plants

A total of 26 plant species were observed within the Project site during the biological reconnaissance survey (Attachment 2: Plant Species Observed). Plant species observed during the survey were representative of the existing Project site conditions. No special status plant species were observed during the survey.

General Wildlife

A total of 5 wildlife species were observed within the Project site during the biological reconnaissance survey. Wildlife species observed or detected during the survey were characteristic of the existing Project site conditions. A complete list of wildlife species observed or detected is provided in Attachment 3 – Wildlife Species Observed/Detected List. No special status wildlife species were observed during the survey.

Sensitive Species

Special Status Species

The following information is a list of abbreviations used to help determine special status biological resources potentially occurring in the Project site.

CNPS California Rare Plant Rank (CRPR)

1A	=	Plants presumed extinct in California.
1B	=	Plants rare and endangered in California and throughout their range.
2	=	Plants rare, threatened or endangered in California but more common elsewhere in their range.
3	=	Plants about which we need more information, a review list.
4	=	Plants of limited distribution; a watch list.

CRPR Extensions

0.1	=	Seriously endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat).
0.2	=	Fairly endangered in California (20 to 80 percent occurrences threatened).
0.3	=	Not very endangered in California (less than 20 percent of occurrences threatened).

Federal

FE	=	Federally listed; Endangered
FT	=	Federally listed; Threatened

State

ST	=	State listed; Threatened
SE	=	State listed; Endangered
RARE	=	State listed; Rare (Listed “Rare” animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)
SSC	=	State Species of Special Concern
WL	=	CDFW Watch List
FP	=	CDFW Fully Protected

The following information was used to determine biological resources potentially occurring within the Project site. The criteria used to evaluate the potential for special status species to occur within the site are outlined in Table 1.

Table 1: Criteria for Evaluating Special Status Species Potential for Occurrence (PFO)

PFO*	CRITERIA
Absent:	Species are restricted to habitats or environmental conditions that do not occur within the Project site.
Low:	Historical records for this species do not exist within the vicinity (approximately 5 miles) of the Project site, and/or habitats or environmental conditions needed to support the species are of poor quality.
Moderate:	Either a historical record exists of the species within the vicinity of the Project site (approximately 5 miles) and marginal habitat exists on the Project site, or the habitat requirements or environmental conditions associated with the species occur within the Project site, but no historical records exist within 5 miles of the Project site.
High:	Both a historical record exists of the species within the Project site or its immediate vicinity (approximately 1 mile), and the habitat requirements and environmental conditions associated with the species occur within the Project site.
Present:	Species were detected within the Project site at the time of the survey.

*PFO: Potential for Occurrence

Factors used to determine the potential for occurrence included the quality of habitat, elevation, and the results of the reconnaissance survey. In addition, the location of prior CNDDB records of occurrence were used as additional data, but since the CNDDB is a positive-sighting database, this data was used only in support of the analysis from the previously identified factors.

Special Status Plant Species

Database searches (CDFW 2025; CNPS 2025) resulted in a list of 11 federal- and/or state-listed threatened, endangered, or otherwise special status plant species documented to historically occur within the vicinity of Project site. All 11 special status plant species identified in the literature review are considered absent from the Project site.

The following 11 plant species are considered **absent** from the Project site due to lack of suitable habitat and/or the survey took place during the species' bloom period when they would have been conspicuous and identifiable and yet were not observed:

- lonesome agave (*Agave simplex)* – CRPR 2B.3
- three-awned grama (*Bouteloua trifida*) – CRPR 2B.3
- Emory's crucifixion-thorn (*Castela emoryi*) – CRPR 2B.2
- glandular ditaxis (*Ditaxis claryana*) – CRPR 2B.2
- Wright's jaffueliobryum moss (*Jaffueliobryum wrightii*) – CRPR 2B.3
- spiny-hair blazing star (*Mentzelia tricuspis*) – CRPR 2B.1
- creamy blazing star (*Mentzelia tridentata*) – CRPR 1B.3
- desert beardtongue (*Penstemon pseudospectabilis* ssp. *pseudospectabilis*) – CRPR 2B.2
- Arizona pholistoma (*Pholistoma auritum* var. *arizonicum*) – CRPR 2B.3
- narrow-leaved psorothamnus (*Psorothamnus fremontii* var. *attenuatus*) – CRPR 2B.3
- Cove's cassia (*Senna covesii*) – CRPR 2B.2

Special Status Wildlife Species

Database searches (CDFW 2025; USFWS 2025a) resulted in a list of 14 federal- and/or state-listed endangered or threatened, state SSC, or otherwise special status wildlife species documented to occur within the Project site. After a literature review and the assessment of the various habitat types within the Project site, it was determined that 13 special status wildlife species are considered absent and one species has low potential to occur within or adjacent to the site.

The following 13 wildlife species are considered **Absent** from the Project site due to the absence of suitable habitat present within the site:

- Arizona Bell's Vireo (*Vireo bellii arizonae*) – **SE**
- Bendire's thrasher (*Toxostoma bendirei*) – SSC
- desert bighorn sheep (*Ovis canadensis nelsoni*) – FP
- golden eagle (*Aquila chrysaetos*) – FP, WL
- Gila woodpecker (*Melanerpes uropygialis*) – **SE**
- Le Conte's thrasher (*Toxostoma lecontei*) – SSC
- loggerhead shrike (*Lanius ludovicianus*) – SSC
- mountain plover (*Charadrius montanus*) – SSC
- prairie falcon (*Falco mexicanus*) – WL
- razorback sucker (*Xyrauchen texanus*) – **FE**, **SE**, FP
- Townsend's big-eared bat (*Corynorhinus townsendii*) – SSC
- yellow-breasted chat (*Icteria virens*) – SSC
- Yuma Ridgway's rail (*Rallus obsoletus yumanensis*) – **FE**, **ST**, FP

The analysis of the CNDDB search and field survey resulted in one species with a **low** potential to occur in the Project site due to recent occurrences within 5 miles and/or low-quality habitat:

- Desert tortoise (*Gopherus agassizii*) **FT**, **ST**

USFWS Critical Habitat

USFWS Critical Habitat is defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated Critical Habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Designated Critical Habitats require special management and protection of existing resources, including water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types. Designated Critical Habitat delineates all suitable habitats, occupied or not, that is essential to the survival and recovery of the species. According to the USFWS Critical Habitat WebGIS map, the Project site falls within desert tortoise designated critical habitat (USFWS 2025a) as shown in Attachment 1: Figure 5 – USFWS Critical Habitat Map.

Conclusions and Recommendations

Hydrology

Two NWI and NHD mapped jurisdictional and multiple non-jurisdictional unmapped hydrological features occur within the Project site. While the two NWI/NHD mapped drainages do show evidence of channelization and flow, these features are located outside of the permanent impact area and both can be avoided with the use of best management practices (BMPs) such as straw waddle and sandbags. Several non-jurisdictional erosional features occur throughout the site; however, they lack evidence of channelization and eventually turn into sheet flow. It is recommended that no work activities occur within the two mapped drainage features. In addition, BMPs should be used to prevent any spoils from flowing off the site in the event of a storm. No impacts to waters of the United States or waters of the state are anticipated to occur as a result of this Project.

San Bernardino County Department of Public Works.

Therefore, a USACE Section 404, RWQCB 401 certification, and a CDFW Streambed Alteration Agreement will not be required for Project authorization.

Special Status Plant Species

Following the literature review and after the field assessment of the various habitat types in the Project site, it was determined that of the 11 special status plant species known to historically occur within the Project site, all 11 species are considered absent from the Project site due to a lack of suitable habitat for these species.

Special Status Wildlife Species

Following the literature review and the assessment of the various habitat types within the Project site, it was determined that 13 of 14 special status wildlife species known to occur within the Project site are considered absent due to a lack of suitable habitat for these species. One species is considered to have low potential to occur. While the desert tortoise has been recorded within 1 mile of the site and the site occurs within designated critical habitat, no observations of this species have been recorded since 1987 and the habitat within and surrounding the site is of low quality. Therefore, no impacts to desert tortoise are anticipated to occur as a result of Project activities. None of the species with potential to occur and no sign (active burrows, scat, etc.) were observed within the Survey Area during the survey.

Because the Project site is located within USFWS designated critical habitat a pre-construction survey for desert tortoise should be done prior to initiating ground disturbance to ensure no desert tortoise migrating through the area are present on site. If a tortoise or an active burrow is observed no work should occur within 500 feet of the burrow and a qualified biological monitor should be present throughout construction activities.

To minimize potential impacts to nesting birds protected under the Migratory Bird Treaty Act (MBTA), construction activities should take place outside the nesting season (February 1 to August 15) to the greatest extent practicable. If construction activities occur during nesting season, a preconstruction nesting bird survey should be conducted prior to initiation of ground-disturbing activities. To the maximum extent practicable, a minimum buffer zone around occupied nests should be determined by a qualified biologist to avoid impacts to the active nest. The buffer should be maintained during physical ground-disturbing activities. Once nesting has ceased and the nestlings have fledged, the buffer may be removed.

Please contact me at (949) 261-5414 or hmadera@chambersgroupinc.com if you have any questions or concerns regarding this memo report.

Sincerely,

CHAMBERS GROUP, INC.

Heather Madera
Senior Biologist
hmadera@chambersgroupinc.com

Attachments

Attachment 1: Figure 1 – Project Location and Vicinity Map
Figure 2 – CNDDB Occurrences Map
Figure 3 – Vegetation Communities Map
Figure 4 – Jurisdictional Waters Map
Figure 5 – USFWS Critical Habitat Map

Attachment 2: Plant Species Observed

Attachment 3: Wildlife Species Observed/Detected

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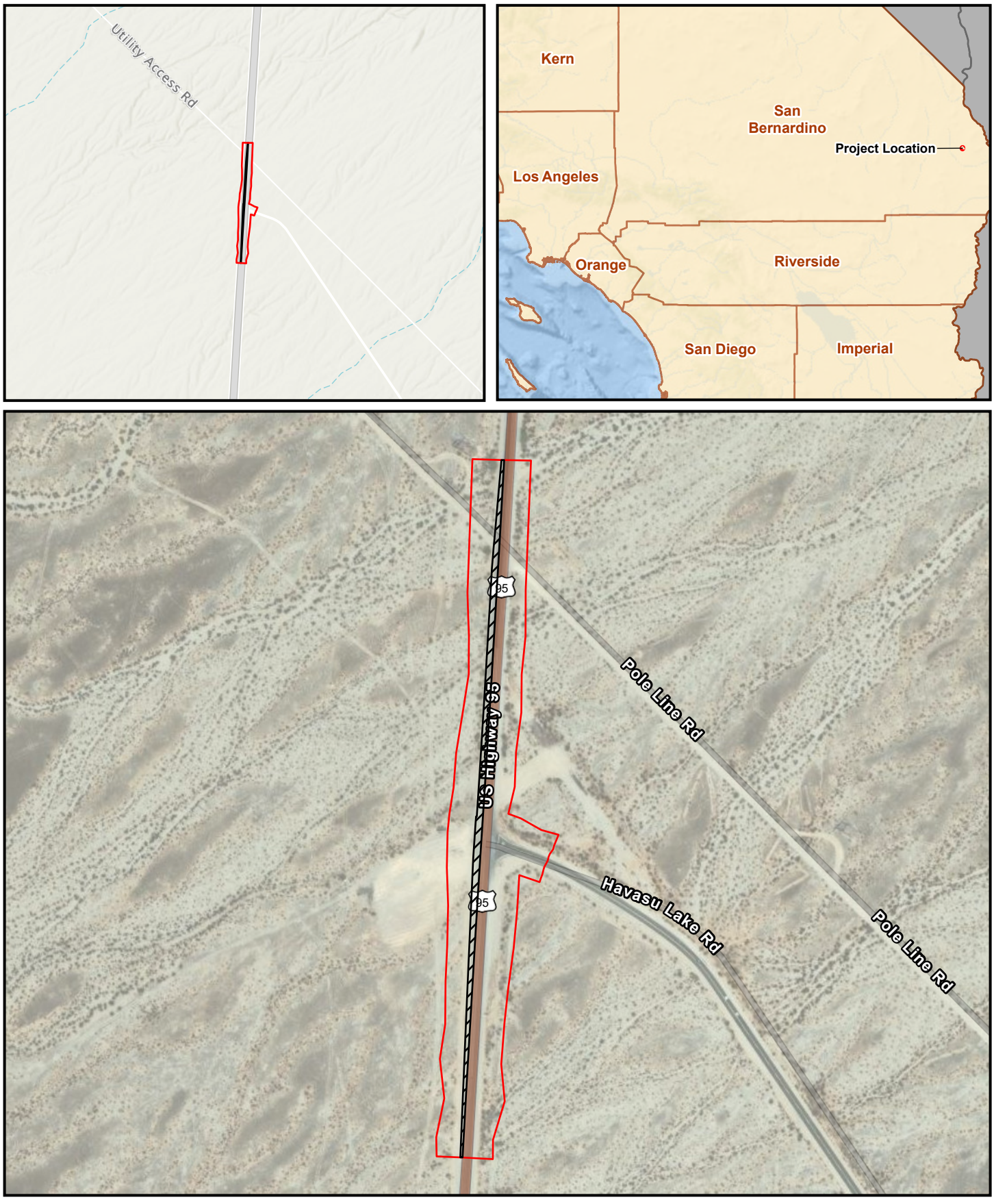
ATTACHMENT 1 – FIGURES



Project Location

Permeant Impact Area

N

0 150 300 600

Feet

Figure 1

US-95 at Havasu Lake Road Improvement Project

Project Location and Vicinity

Name: 21536 US-95 at Havasu Lake Road Improvements.Mxd
Print Date: 4/21/2025 5:16 PM Author: pcarlos

CHAMBERS GROUP

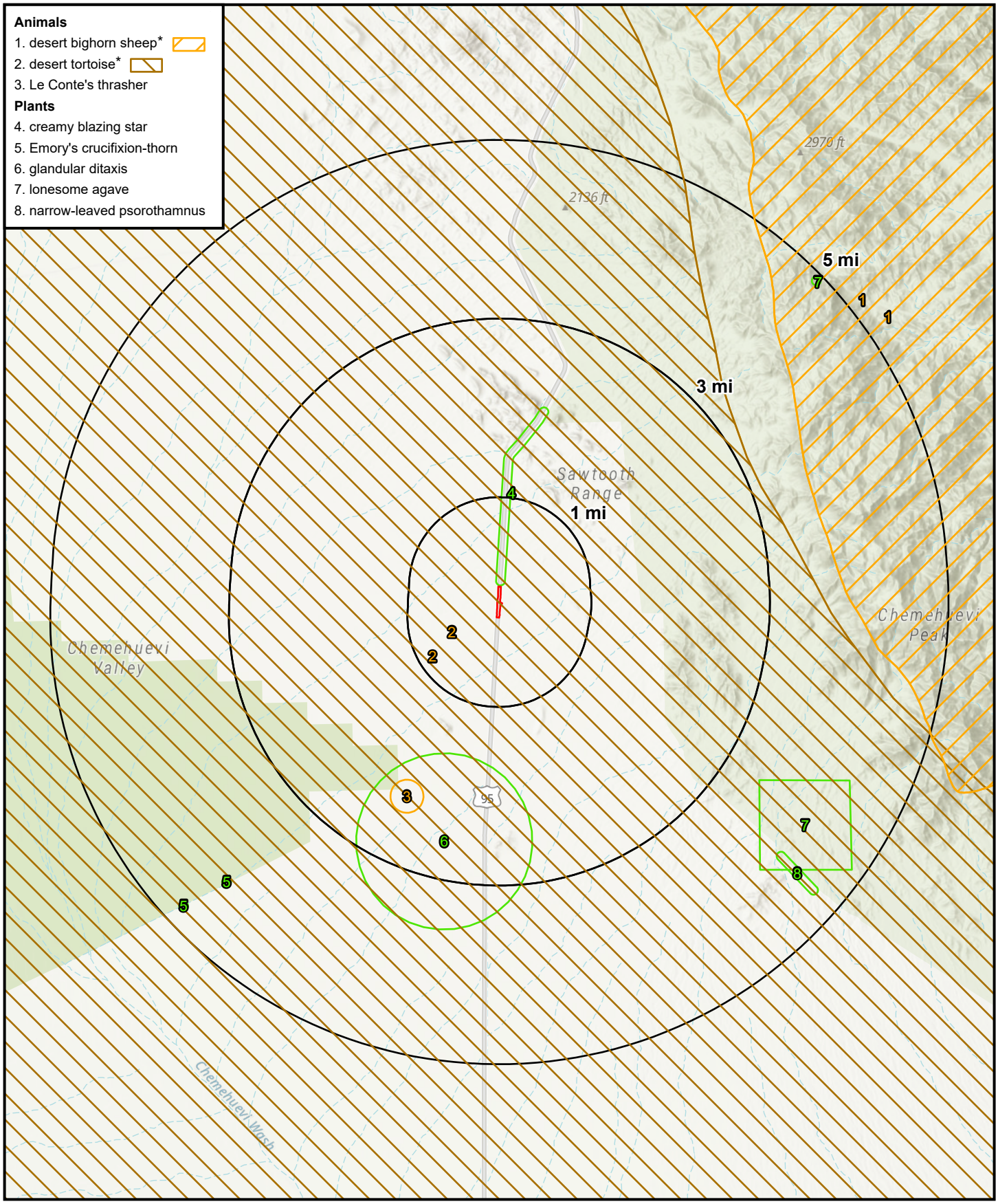


Figure 2
US-95 at Havasu Lake Road Improvement Project
CNDDB Occurrences

Name: 21536 US-95 at Havasu Lake Road Improvements.Mxd
Print Date: 4/21/2025 5:16 PM Author: pcarlos

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Project Location

Vegetation Communities

- 1.Creosote Brush Scrub (3.24 ac)
- 2. Bare Ground (2.29 ac)
- 3. Developed (1.47 ac)

N

0 100 200 400

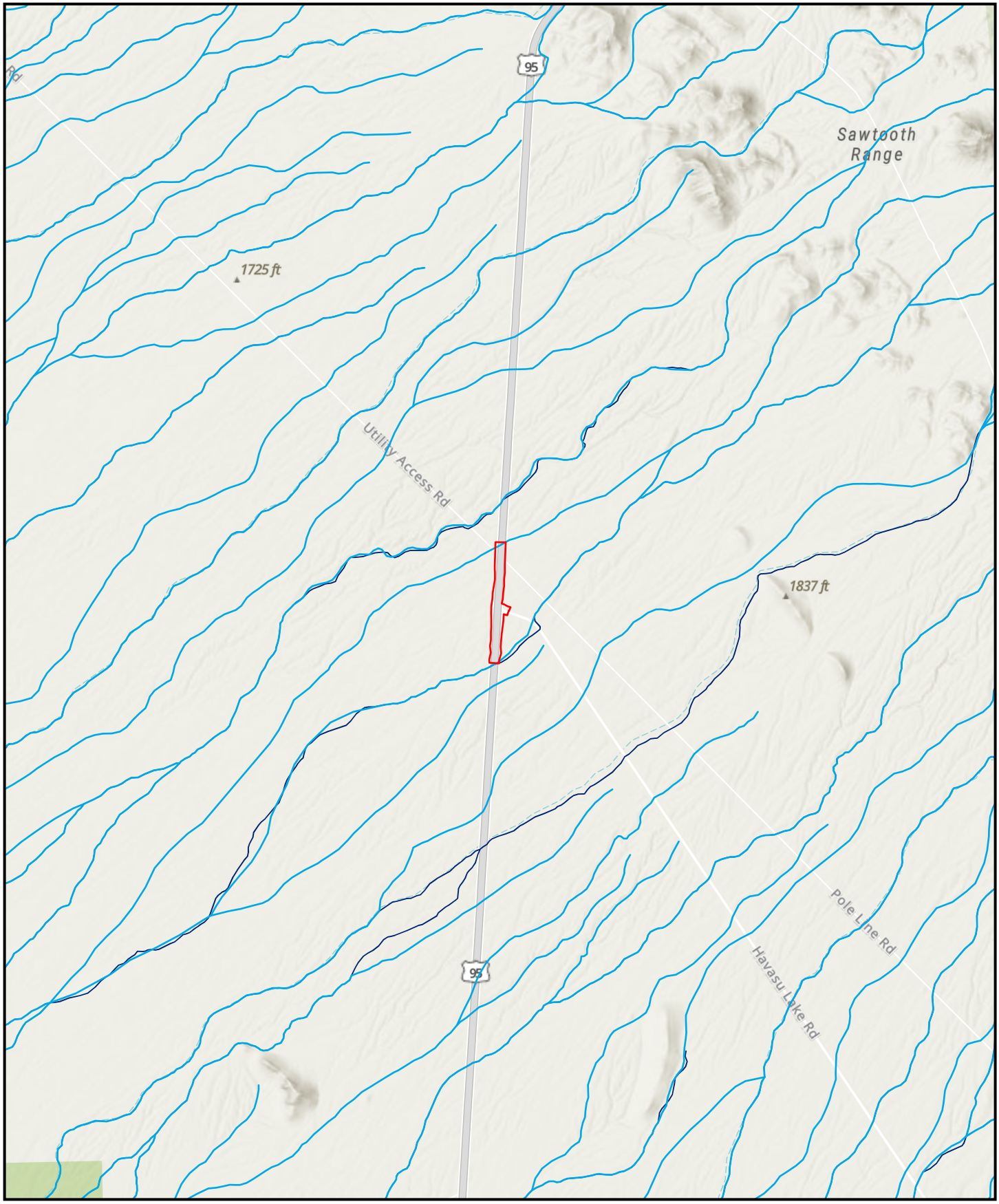
Feet

Figure 3

US-95 at Havasu Lake Road Improvement Project
Vegetation Communities

Name: 21536 US-95 at Havasu Lake Road Improvements.Mxd
Print Date: 4/21/2025 5:16 PM Author: pcarlos

CHAMBERS GROUP



Project Location

NHD

StreamRiver

NWI

Riverine

N

0 800 1,600 3,200

Feet

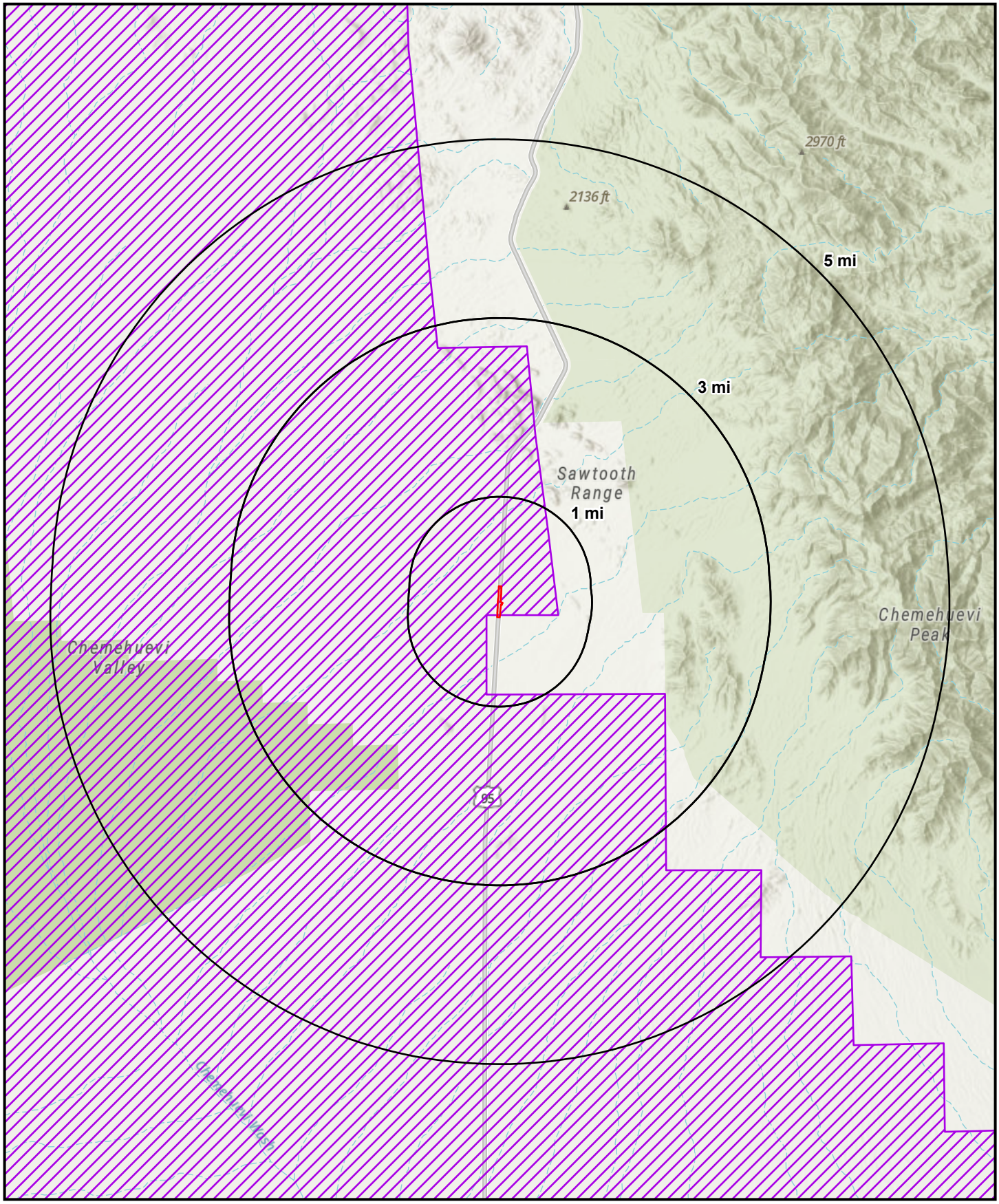
Figure 4

US-95 at Havasu Lake Road Improvement Project

Jurisdictional Waters

Name: 21536 US-95 at Havasu Lake Road Improvements
Print Date: 4/15/2025 10:54 AM Author: pcarlos

CHAMBERS GROUP



Project Location

USFWS Critical Habitat

Desert tortoise

N

0 0.5 1 2

Miles

Figure 5

US-95 at Havasu Lake Road Improvement Project

USFWS Critical Habitat

Name: 21536 US-95 at Havasu Lake Road Improvements.Mxd
Print Date: 4/15/2025 10:54 AM Author: pcarlos

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ATTACHMENT 2 – PLANT SPECIES OBSERVED

Attachment 2 – Plant Species Observed

Scientific Name	Common Name
ANGIOSPERMS (EUDICOTS)	
APOCYNACEAE	**DOGBANE FAMILY**
Asclepias subulata	rush milkweed, ajamete
ASTERACEAE	**SUNFLOWER FAMILY**
Ambrosia dumosa	white bur-sage
Bebbia juncea var. aspera	sweetbush
Encelia farinosa	brittlebush
Stephanomeria pauciflora	wire lettuce
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica tournefortii**	sahara mustard
CACTACEAE	**CACTUS FAMILY**
Ferocactus viridescens	San Diego barrel cactus
CUCURBITACEAE	**GOURD FAMILY**
Cucurbita palmata	coyote melon
Brandegea bigelovii	desert starvine
EUPHORBIACEAE	**SPURGE FAMILY**
*Euphorbia sp.**	euphorbia
FABACEAE	**LEGUME FAMILY**
Marina parryi	Parry's dalea
Parkinsonia florida	blue palo verde
Senegalia greggii	cat claw acacia
FOUQUIERIACEAE	**OCOTILLO FAMILY**
Fouquieria splendens subsp. splendens	ocotillo
GERANIACEAE	**GERANIUM FAMILY**
*Erodium cicutarium**	red-stemmed filaree
LAMIACEAE	**MINT FAMILY**
Hyptis emoryi	desert-lavender
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**
Allionia incarnata var. villosa	trailing windmills
Mirabilis laevis	wishbone bush
POLYGONACEAE	**BUCKWHEAT FAMILY**
Chorizanthe rigida	rigid spineflower
Eriogonum inflatum	desert trumpet
SOLANACEAE	**NIGHTSHADE FAMILY**
Physalis crassifolia	Greene's ground-cherry
VISCACEAE	**MISTLETOE FAMILY**
Phoradendron californicum	desert mistletoe
ZYGOPHYLLACEAE	**CALTROP FAMILY**

Scientific Name	Common Name
Larrea tridentata	creosote bush
ANGIOSPERMS (MONOCOTS)	
POACEAE	**GRASS FAMILY**
*Bromus tectorum**	cheat grass
*Cynodon dactylon**	Bermuda grass
*Schismus barbatus**	Mediterranean schismus

*Non-Native Species

ATTACHMENT 3 – WILDLIFE SPECIES OBSERVED/DETECTED

ATTACHEMENT 3 – WILDLIFE SPECIES OBSERVED OR DETECTED

Scientific Name	Common Name
CLASS AVES	**BIRDS**
ACCIPITRIDAE	**HAWKS, KITES, EAGLES**
Buteo jamaicensis	red-tailed hawk
ALAUDIDAE	**LARKS**
Eremophila alpestris	horned lark
CORVIDAE	**JAYS & CROWS**
Corvus corax	common raven
TROGLODYTIDAE	**WRENS**
Salpinctes obsoletus	rock wren
CLASS REPTILIA	**REPTILES**
PHRYNOSOMATIDAE	**ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS**
Uta stansburiana	side-blotched lizard

ATTACHMENT 4 – SITE PHOTOGRAPHS

ATTACHMENT 4 – SITE PHOTOGRAPHS



Photo 1.

Overview photo of the northern portion of the Project site. The permenant impact area is comprised of bare ground with Creosote Bush Scrub west of it. Photo is facing south.



Photo 2.

The NHD drainage located in the northern portion of the Project site. The drainage channelizes outside of the permenant impact area. Photo facing southwest.



Photo 3.

Overview photo of the western side of the US-95. There is bare ground along the highway and utility access road that crosses through the Project site. Photo facing north.



Photo 4.

Overview photo of the eastern side of the US-95. There is bare ground next to the highway followed up with Creosote Bush Scrub. Photo facing north.



Photo 5.

Overview of US-95 and Lake Havasu Road intersection. Both sides are primarily bare ground due to the heavy OHV use. Photo facing north.



Photo 6.

Overview of Lake Havasu Road. Both sides of the road are comprised of bare ground and Creosote Bush Scrub. Photo facing east.



Photo 7.

Overview of the southern portion of the Project site. The impact area west of the US-95 is bare ground with Creosote Bush Scrub next to it. Photo facing north.



Photo 8.

The NWI riverine located on the southern portion of the Project site. This riverine is heavily disturbed from OHV and channelizes outside of the permenant impact area. Photo facing southwest.

APPENDIX C – ARCHAEOLOGICAL SURVEY

ARCHAEOLOGICAL SURVEY FOR THE US-95 AT HAVASU LAKE ROAD IMPROVEMENT PROJECT, SAN BERNARDINO COUNTY, CALIFORNIA

San Bernardino County, U.S. Highway 95, Havasu Lake Road

Contract Number: 4400024350 (Agr # 24-48)

Prepared for:

COUNTY OF SAN BERNARDINO
Department of Public Works
825 East Third Street, Room 123
San Bernardino, CA 92415

Prepared by:

CHAMBERS GROUP, INC.
9620 Chesapeake Drive, Suite 202
San Diego, CA 92123
(858) 541-2800

May 2025

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NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Authors: Efrain S. Arroyo, MA, RPA

Consulting Firm: Chambers Group, Inc.

Project Proponent/Client: County of San Bernardino, Department of Public Works

Report Date: May 2025

Report Title: Archaeological Survey Report for the US-95 at Havasu Lake Road Improvement Project, San Bernardino County, California

Type of Study: Phase I Cultural Resources Survey

New Sites Recorded: 0 Sites

Previously Recorded Sites: P-36-024812; P-36-024816

USGS Quadrangles: *Snaggletooth*, California 7.5-minute quadrangle (2021)

Project Site Acreage: 7 acres

Permit Numbers: N/A

Keywords: U.S. Highway 95, Havasu Lake Road; Needles; San Bernardino County; Sonoran Desert; Township 5 North, Range 22 East, Section 2; Township 6 North, Range 22 East, Section 35; San Bernardino Base and Meridian; Snaggletooth 7.5-minute quadrangle; County of San Bernardino, Department of Public Works; Chemehuevi; Mohave; archaeological survey; cultural resources survey; negative survey; P-36-024812; P-36-024816; Desert Training Center, California-Arizona Maneuver Area, CHL-985; road improvement; turn pocket

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Figure 2: Project Location on USGS Map A-3

Figure 3: Project Site/APE on Aerial Photograph A-4

Figure 4: Project Site on 1950 USGS Map A-5

Figure 5: CHRIS Record Search Results ..... D-**Error! Bookmark not defined.**

SECTION 1.0 – SUMMARY OF FINDINGS

Chambers Group, Inc. (Chambers Group) was contracted by the County of San Bernardino, Department of Public Works (County), within the San Bernardino County, to complete a Phase I cultural resources assessment for U.S. Highway 95 (US-95) at Havasu Lake Road Improvement Project (Project). The proposed Project includes widening US-95 by 14 feet (12-foot lane and 4-foot edge line) and constructing a left-turn pocket with an excavation depth of 1.10 feet. To accommodate the widening, approximately 3,000 linear feet of brush will be removed, and California Department of Transportation (Caltrans) will acquire approximately 3,000 linear feet by 4 feet of Bureau of Land Management (BLM) land for right of way (ROW). The Project is located on US-95 southbound at Havasu Lake Road in the unincorporated community of Needles, San Bernardino County. This cultural resources assessment was conducted in compliance with the California Environmental Quality Act (CEQA), and Section 106 of the National Historic Preservation Act (NHPA), to accommodate the potential federal crosscutting environmental requirements.

The purpose of this study was to gather and analyze information needed to assess the potential for effects to any cultural resources within the Project site. This study included a cultural resources records search, literature review, additional background research, and pedestrian field survey of the approximately 7-acre Project site.

A records search of a half-mile radius search area centered on the Project site (study area) was conducted prior to the field survey. A records search at the California Historical Resources Information System (CHRIS) South Central Coastal Information Center (SCCIC) identified five previously recorded cultural resources within a half-mile radius study area, including two (P-36-024812 and P-36-024816) within the Project site. Additionally, the Desert Training Center (DTC)/California-Arizona Maneuver Area (CAMA) (California Historical Landmark [CHL]-985) encompasses the Project site. The requested Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search results were negative, indicating no sacred sites were identified within the Project site. Background research yielded no findings of cultural or archaeological significance.

Chambers Group archaeologists Efrain Arroyo and Kellie Kandybowicz conducted a pedestrian survey of the Project site on April 14, 2025. Although the Project site was sparsely vegetated by desert shrubs, ground visibility was good at 80 to 90 percent. Visual inspection of the surface revealed no evidence of previously unrecorded prehistoric or historic-period cultural resources within the Project site. However, the pedestrian field survey did relocate previously recorded cultural resources (P-36-024812 and P-36-024816) within the Project site boundary. These cultural resources were evaluated for eligibility for listing on the California Register of Historical Resources (CRHR) and the National Register of Historic Places (NRHP). Based on the site's lack of integrity, Chambers Group recommends that P-36-024812 is ineligible for CRHR and NRHP listing. Chambers Group recommends that P-36-024816 is ineligible for the NRHP/CRHR under any criteria (see Section 4.0 for detailed evaluation). Based on the location of both ineligible resources, neither cultural resource will be subject to direct impacts associated with the Project.

Based on the results of the records search review, background research, and field survey, no historical resources, as defined per CEQA Guidelines §15064.5(a), were identified within the Project site; therefore, no impacts to historical resources are expected. Considering the results of this study, Chambers Group also recommends a finding of *no adverse effect to historic properties* under Section 106 of NHPA, as no historic properties, as defined per NHPA Section 106, were identified within the Project site.

As currently proposed and designed, the Project will not have direct impacts or effects to the two previously recorded cultural resources within the Project site. More generally, the Project will have minimal permanent impacts or effects on cultural resources, as the widening of US-95 and new left-turn pocket will be constructed in previously disturbed ground, with only temporary impacts during the construction phase. Once US-95 is widened and the left-turn pocket is constructed, there will be minimal changes to the overall conditions throughout the Project site.

However, to ensure the expedient response and assessment to inadvertent findings of cultural resources during construction, Chambers Group recommends that a Qualified Archaeologist, meeting the Secretary of the Interior (SOI) Standards, should be made available by the County for the duration of the ground-disturbing construction activity of the Project.

It is Caltrans' policy to avoid cultural resources whenever possible. Further investigations may be needed if the site[s] cannot be avoided by the project. If buried cultural materials are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find. Additional survey will be required if the project changes to include areas not previously surveyed.

SECTION 2.0 – INTRODUCTION

Chambers Group was contracted by the County to complete a cultural resources records search, literature review, additional background research, and field survey in support of the US-95 at Havasu Lake Road Improvement Project. The Project requires compliance with CEQA and an NHPA Section 106 review to satisfy the potential federal crosscutting environmental requirements for funding.

The purpose of this cultural resource study was to assess the potential for significant cultural resources within the Project site and determine if the Project has the potential to affect any historical resources, per CEQA Guidelines §15064.5(a). The following study and evaluation was conducted in accordance with CEQA. All identified cultural resources were evaluated for eligibility on the CRHR and NRHP.

This report outlines the findings of this Phase I cultural resources assessment and provides recommended appropriate mitigation measures to ensure less than significant impacts to inadvertent findings of cultural resources during construction.

A pedestrian survey of the Project site was conducted on April 14, 2025, by Chambers Group archaeologists Efrain Arroyo and Kellie Kandybowicz.

Mr. Arroyo earned a Master of Arts in Anthropology with a concentration in Archaeology from Binghamton University and is a Registered Professional Archaeologist (RPA) with over 7 years of field experience involving prehistoric and historical cultural resources across California. He qualifies as a Caltrans equivalent Professionally Qualified Staff (PQS) Principal Investigator in Prehistoric and Historical archaeology. Ms. Kandybowicz earned a Bachelor of Arts in Anthropology with a concentration in Archaeology from San Diego State University and has over 16 years of field experience involving prehistoric and historical cultural resources across California. She qualifies as a Caltrans equivalent PQS Archaeological Crew Member.

SECTION 3.0 – HIGHWAY PROJECT LOCATION AND DESCRIPTION

The County DPW proposes widening US-95 by 14 feet (12-foot lane and 4-foot edge line) and constructing a left-turn pocket with an excavation depth of 1.10 feet. The Project aims to improve traffic flow, enhance safety, and meet increasing capacity demands. To accommodate the widening, approximately 3,000 linear feet of brush will be removed, and Caltrans will acquire approximately 3,000 linear feet by 4 feet of BLM land for ROW. BLM will complete National Environment Policy Act (NEPA) approval for the right of way grant to Caltrans. An encroachment permit from Caltrans will be obtained by the County to construct the improvements. Equipment will include a cold planer, concrete mixer, backhoe, paver, roller, and water truck.

The Project is located on US-95 southbound at Havasu Lake Road, approximately 14 miles west of Lake Havasu, San Bernardino County (Appendix A: Figure 1). The Project site is located in Township 5 North, Range 22 East, Section 2, and Township 6 North, Range 22 East, Section 35 of the San Bernardino Base and Meridian, and on the United States Geological Survey (USGS) topographic *Snaggletooth*, California 7.5-minute quadrangle (2021) (Appendix A: Figure 2). The Project site elevation ranges from 1708 to 1729 feet above mean sea level (AMSL). The Project site encompasses approximately 7 acres.

The Area of Potential Effects (APE) is defined as the Project site as delineated by the County and depicted in Appendix A: Figure 3.

SECTION 4.0 – SOURCES CONSULTED

Chambers Group conducted a records search at the CHRIS SCCIC at California State University, Fullerton, on April 1, 2025. A records search of a half-mile radius study area was requested to provide additional context to the Project site and surrounding vicinity and inform this review. Sources consulted during the records search included the NRHP, CRHR, California State Historical Landmarks, California State Points of Historical Interest (CPHI), California Department of Transportation (Caltrans) Statewide Historic Bridge Inventory, CHRIS Inventory, ethnographic information, local inventories, and historical literature, maps, and aerial imagery. Results of the records search are detailed below and included in Confidential Appendix D.

Chambers Group submitted a request to the California NAHC for a review of the SLF for the Project site and study area, on March 17, 2025. The NAHC provided the SLF results on March 18, 2025. Results of the SLF search are detailed below and included in Appendix B.

Chambers Group also reviewed properties listed on the Built Environment Resource Directory (BERD) and publicly available sources for background research, including General Land Office (GLO) survey plat maps, USGS topographic maps, and historical aerial photographs. Background research results are detailed below and depicted in Appendix A: Figure 4.

The records search results identified no previous cultural resource studies (reports) within the half-mile radius study area (Table 1). In addition, the results identified four studies within the USGS topographic *Snaggletooth*, California 7.5-minute quadrangle that are not spatially delineated.

Table 1: Previous Studies within Snaggletooth Quadrangle

Report Number	Year	Authors	Report Title	Affiliation	Resources
SB-00892	1980	Gallegos, Dennis, Emma Lou Davis, Gary Lowe, Frank Norris, and Jay Thesken	Cultural Resources Inventory of the Central Mojave and Colorado Desert Regions, California	WESTEC Services, Inc.	
SB-00991	1980	Norris, Frank B.	Historical and Architectural Resources within the Lower Colorado River System	WESTEC Services, Inc	
SB-01069	1981	Warren, Elizabeth Von Till, Robert H. Crabtree, Claude N. Warren, Marth Knack, and Richard McCarthy	A Cultural Resources Overview of the Colorado Desert Planning Units		
SB-01190	1981	Swarthout, Jeanne and Christopher E. Drover	Final Report for an Archaeological Overview for the Lower Colorado River Valley, Arizona, Nevada, and California: Reach 3, Davis Dam to the International Border	Museum of Northern Arizona	

Note:

The records search results identified five previously recorded cultural resources within a half-mile radius study area (Table 2), including two (P-36-024812 and P-36-024816) within the Project site. Additionally, the DTC/CAMA (CHL-985), which covers the entire *Snaggletooth*, California 7.5-minute quadrangle, also encompasses the Project site (see Subsection 5.4 for full discussion of DTC/CAMA). It should be noted that the DTC/CAMA is not listed in Table 2 but is depicted in Confidential Appendix D: Figure 5.

Table 2: Previously Recorded Resources within Half-Mile of Project Site

Primary Number	Trinomial	Type	Age	Attribute Codes	Recorded By	Reports
P-36-024805	CA-SBR-15846H	Site	Historic	HP39	2011 (J. Lev-Tov)	
P-36-024811	CA-SBR-15852H	Site	Historic	AH4	2011 (J. Lev-Tov)	
P-36-024812	**CA-SBR-15853H**	**Site**	**Historic**	**AH7; HP37**	**2011 (J. Lev-Tov)**	
P-36-024816	**CA-SBR-15857H**	**Structure, Site**	**Historic**	**AH16; HP39**	**2011 (J. Lev-Tov); 2013 (R. Kellawan et al.)**	**SB-08031**

Note: **Bold** text indicates resources within Project site

P-36-024812/CA-SBR-15853H

Description: This historic-period site, featuring a portion of a compacted dirt, previously paved road, was recorded in 2011 by J. Lev-Tov of Statistical Research, Inc. (SRI). This abandoned road segment, identified by its flat topography and pavement remnants, is wide enough for two lanes of traffic and meets US-95 at postmile 37.4, along the eastern side of the highway.

Disuse is evident from the removed asphalt pavement and a low earth berm preventing access from US-95; this pavement removal was presumably intended to discourage motorists. The road is depicted on the 1950 and 1951 USGS topographic *Sawtooth Range*, California 15-minute quadrangles. While Lev-Tov noted the abandonment date was unknown, historical topographic maps and aerial photographs reviewed by Chambers Group indicate it occurred between 1966 and 1970 (appears unpaved on 1947 aerial photograph; 1971 (1973 edition) topographic map depicts the current T-junction of US-95 and Havasu Lake Road, which replaced the original junction, located north of the current one) (NETR 2025).

SRI's survey was limited to the 15 meters within the Caltrans ROW from the edge of the US-95 pavement; the site extends beyond the ROW but was not recorded in those areas. No cultural material was observed in association with the abandoned road, and it is slowly being reclaimed by the desert following the removal of its asphalt pavement.

Evaluation: Lev-Tov (2011) assessed the site's condition as poor but did not evaluate it for eligibility on the CRHR or NRHP. Based on the site's lack of integrity, Chambers Group recommends that P-36-024812 is ineligible for CRHR and NRHP listing.

P-36-024816/CA-SBR-15857H

Description: This historic-period site/structure, featuring a segment of a high-voltage transmission line, was initially recorded in 2011 by Lev-Tov of SRI, and subsequently updated in 2013 by R. Kellawan and others of Far Western Anthropological Research Group, Inc. (Far Western). This high-voltage transmission line transmits electrical power from Parker Dam on the Colorado River near Lake Havasu City, to a substation near Water Road, off Interstate 40, located to the northeast, and is actively used and maintained.

The feature consists of a high-voltage electric transmission line suspended far above the ground surface from steel transmission towers. In all, five voltage wires make up the transmission line. The transmission line is depicted on the 1950 and 1951 *Sawtooth Range*, California 15-minute quadrangles.

The 2013 update by Far Western described a previously undocumented segment encountered within the ROW of PG&E gas lines 300 A and B; this segment was surveyed for one-quarter mile in each direction of the pipeline corridor.

In 2011, the site boundary was determined in part by the Caltrans 15-meter ROW on either side of US-95. The site continues to the northwest and southeast beyond the Caltrans ROW, but these portions were not recorded by SRI. No associated artifacts were observed during either recording.

Evaluation: Lev-Tov (2011) assessed the site/structure's condition as good but did not evaluate it for eligibility on the CRHR or NRHP. Due to its lack of association with any important historical event, facility, or person, the transmission line is ineligible for listing under Criteria A/1 and B/2. Due to its common and indistinctive nature as a purely functional and utilitarian structure, it is ineligible for listing under Criterion C/3. The transmission line does not have the potential to yield important information about history under Criterion D/4 and is ineligible for the NRHP/CRHR. Therefore, Chambers Group recommends that P-36-024816 is ineligible for the NRHP/CRHR under any criteria.

Additionally, a review of the San Bernardino County BERD revealed no recorded built environment resources within the Project site or study area.

In 1849, GLO was transferred from the Treasury Department to the newly created Department of the Interior. The Commissioner, under the Secretary of the Interior, was to perform "all executive duties appertaining to the surveying and sale of the public lands of the United states, or in anywise respecting such public lands, and also such as relate to the private land claims, and the issuing of patents for all grants of land under the authority of the Government" (National Archives 1964:2). By 1855, Township 5 North, Range 22 East and Township 6 North, Range 22 East had been surveyed by the Surveyor General. Apart from noting ravines in Section 2 (T5N, R22E) and Section 35 (T6N, R22E), and an "Indian trail" in Section 1 (T5N, R22E) and Section 36 (T6N, R22E), a review of the 1855 survey plat map for Township 5 North, Range 22 East (posted 1856) and the 1855 survey plat map for Township 6 North, Range 22 East (posted 1884) did not indicate the presence of any notable features within the Project site or adjacent sections.

The oldest available USGS topographic map available is the 1903 edition of the *Needles*, Arizona-California 30-minute quadrangle. This map does not indicate the presence of any particular details within the Project site; however, roads are located to the west and east of the Project site, one of which is named Parker Road. The 30-minute series continued to be issued until 1950. The 1950 *Sawtooth Range*, California 15-

minute series (Appendix A: Figure 4) depicts the area development not noted on the earlier series, including US-95 and the transmission line (P-36-024816).

As previously noted, historical topographic maps and aerial photographs indicate the original road segment (P-36-024812) was abandoned between 1966 and 1970 (appears unpaved on 1947 aerial photograph; 1971 (1973 edition) topographic map depicts the current T-junction of US-95 and Havasu Lake Road, which replaced the original junction, located north of the current one) (NETR 2025).

4.1 SUMMARY OF NATIVE AMERICAN CONSULTATION

Chambers Group submitted a request to the California NAHC for a SLF search, on March 17, 2025. The SLF search results, received on March 18, 2025, were negative for the study area, indicating that no sacred sites were identified within a half-mile radius of the Project site. These results were conveyed to the County upon receipt and are included in Appendix B.

As the CEQA lead agency, the County is responsible for conducting tribal consultation under Assembly Bill 52 (AB 52). The County sent AB 52 opportunity to consult letters via certified mail on December 19, 2024, to the following three tribes: Colorado River Indian Tribes, Twenty-Nine Palms Band of Mission Indians, and Yuhaaviatam of San Manuel Nation. As of this writing, the three contacted tribes declined consultation. For further details, please refer to the environmental documents prepared for the Project.

It is further assumed that any necessary Section 106 consultation will be conducted by BLM or by the relevant permitting agency based on a NEPA funding or permitting nexus.

SECTION 5.0 – BACKGROUND

5.1 ENVIRONMENT

The Project is located in the northern margins of the Sonoran Desert, near its boundary with the Mojave Desert. The Project is also located within the BLM-managed Mojave Trails National Monument, adjacent to the Stepladder Mountains Wilderness to the west and the Chemehuevi Mountains Wilderness to the east. The Project site encompasses the junction of US-95 and Havasu Lake Road, including paved roads and associated dirt shoulders and turnouts, separate dirt roads, and undeveloped desert land with sparse desert scrub vegetation, surrounded by open desert landscape.

The Project site is underlain by quaternary alluvium and marine deposits, representing sediment deposited by the Colorado River system over the last 2.58 million years and by ancient seas from earlier geological epochs (Jennings 1985; Horton et al. 2017). Soils within the Project site are characterized by the Chemehuevi, Rizzo, Emptygun, Chemwash, Havasulake, and Catfishbay series. Specifically, the Project site is dominated by Chemehuevi gravelly sandy loam, 2 to 8 percent slopes, Rizzo gravelly loamy coarse sand, 0 to 75 percent slopes, Emptygun very gravelly sandy loam, 8 to 60 percent slopes, and Chemwash very gravelly loamy coarse sand, 2 to 8 percent (USDA 2025).

The climate varies by elevation, consisting of warm to hot summers and cool to cold winters. Rain events, while typically spread out in frequency, are derived from winter frontal storms coming off the Pacific Ocean and intermittent summer monsoons. In the region of the Project, the North Desert Region of San Bernardino County, the most abundant vegetation type is Sonoran and Mojave Desert Scrub, dominated by small to moderate-sized shrubs, including creosote bush; Joshua trees are also common in parts of the region (County of San Bernardino 2019:4-25).

5.2 ETHNOGRAPHY

The Project site is located within the ancestral territory of the Mohave and the Chemehuevi. The Colorado River Indian Reservation (associated with the Colorado River Indian Tribes) is the closest reservation to the Project site, though the reservation is a modern construct of the American government and does not fully reflect the culture history of the area. The population of the reservation comprises people from the Mohave, Chemehuevi, Hopi, and Navajo. While the Hopi and Navajo were brought to the reservation from further east, both the Mohave and Chemehuevi have occupied this region since the Chemehuevi split off from the Southern Paiute in the area of present-day Las Vegas (Bean and Vane 2002). Although the Chemehuevi originated from the Southern Paiute, their culture was heavily influenced by the Mohave (Deur and Confer 2012), demonstrating the close relationship between the two tribes. Relationships between the Chemehuevi and the Mohave were not always peaceful; however, the Mohave retained the rights to travel through the newly established Chemehuevi territory (Bean and Vane 2002).

The Chemehuevi subsistence pattern was agriculturally based. Maize, squash, melons, gourds, beans, cowpeas, winter wheat, and some grasses were key crops grown in the floodplain areas along the Colorado River. Hunting and gathering were also important elements of the subsistence strategy, typically undertaken by younger adults while the elderly stayed in the village to tend to the crops (Deur and Confer 2012).

Spiritually, the Chemehuevi were tied to their land, with spiritual power originating from particular landmarks within their territory such as mountain peaks, caves, or springs. Puha trails linked these

landmarks and were also considered to hold spiritual power (Deur and Confer 2012). The manner in which ceremonies were practiced showed the tribe's close ties with the Mohave. Hunting and gathering traditions, as well as burial practices, followed the traditional Paiute pattern. Other ceremonial practices demonstrate Mohave influence (Deur and Confer 2012).

The Mohave were agrarian and relied on fishing in the Colorado River. It should be noted that the Chemehuevi deferred fishing rights to the Mohave (Deur and Confer 2012). During the protohistoric and historic times, the Mohave people were semi-sedentary. Floodplain farming was common, and the Colorado River formed the center of their territory. Their territory extended on either side of the Colorado River: to the east as far as the highest crest of the Black Mountains, the Buck Mountains, and the Mohave Mountains, and to the west to the Sacramento, Dead, and Newberry Mountains. From north to south, their territory ran from the Mohave Valley to south of what is now the City of Blythe (Bean and Vane 2002).

The Mohave peoples were nationalistic, considering their home territory to be their own country (Deur and Confer 2012). Frequently warring with the Halchidoma, the Mohave and Quechan joined forces to evict the Halchidoma from their territory. The Mohave then encouraged the Chemehuevi to move into the river area (Russell et al. 2002). Trade was of particular importance to the Mohave, who had extensive trail networks for travel to the Pacific Coast in the west, and for trade with the Cahuilla in the south and east (Bean and Vane 2002).

In the spring and summer months, the Mohave lived along the banks of the Colorado River to tend to crops and to fish. Crops were planted in the spring as the river, swollen from winter rains, receded. Seeds were planted in the newly exposed and saturated mud. While the Mohave people cultivated crops, their major food staple was gathered mesquite and screwbean pods. In the winter, they moved their settlement areas to rises above the river to avoid seasonal flooding (Russell et al 2002).

5.3 PRE-CONTACT CONTEXT

As previously noted, the Project is located in the northern margins of the Sonoran Desert, near its boundary with the Mojave Desert. At this location, the northern Sonoran Desert transitions to the Mojave Desert along the Colorado River valley, with the Mojave Desert generally occupying the area immediately west of the river. This portion of the northern Sonoran Desert, situated along the Colorado River valley, constitutes the Colorado Desert subregion.

Given the Project site is situated near the convergence of these two great desert systems, the cultural sequences developed for each are best described individually. However, these sequences do not exhibit clear lines of demarcation within the vicinity of the Project site. Desert evolution and human occupation in this region have been varied and dynamic over millennia, and definitive boundaries between cultural periods or sequences have not been definitively established.

Malcolm Rogers, a pioneering researcher in the Southern California deserts, developed cultural chronologies that have both influenced and complicated subsequent research for decades. Rogers (1966) was among the first to synthesize and propose a regional overview, but his frequent additions of new data led to several revisions, often contradicting earlier versions (Warren 1984; Weide 1976; Schaefer 1994; Hall 2000). Rogers proposed a sequence beginning with the San Dieguito Complex (subdivided into San Dieguito I, II, and III), spanning from 11,000 to 9,000 years before present (BP). A 2,000-year hiatus was followed by the Amargosa Complex (Amargosa I–III), dating from 7,000 to 1,950 BP. Next in his proposed

sequence were the Basketmaker III and Pueblo II Periods (1,950 to 1,450 BP), followed by Prehistoric Yuman and Shoshonean Groups (approximately 1,450 to 450 BP). He placed the Paiute and Mojave groups after 450 BP.

Mojave Desert

The Mojave Desert cultural sequence was divided into five major periods by Warren (1984:413–424) and Warren and Crabtree (1986). This sequence includes Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Shoshonean/Protohistoric periods. Warren (1984:413) describes the Lake Mojave Period (10,000 to 7,000 BP) as having "a generalized hunting and gathering subsistence system." The subsequent Pinto Period (approximately 7,000 to 4,000 BP) is characterized by its diagnostic Pinto-style projectile point, as well as by scrapers and knives. Warren suggested that this period lacked ground stone implements. However, Schroth (1994:79) states that "[g]round stone, principally cobble manos and block metates, are present at 16 of 22 Pinto-period sites in the Pinto Basin." Campbell and Campbell (1935:28–29) also noted ground stone at Pinto Basin sites; while they could not definitively place these implements within the Pinto Period, they concluded that the numerous associations suggested contemporaneity with other Pinto-period artifacts. These factors, combined with the evidence from non-intensive seasonal encampments, suggest Pinto-period occupation comprised small bands of people. Around 4,000 BP, marking the transition to the Gypsum Period, projectile points such as Humboldt Concave Base, Gypsum Cave, Elko Eared, and Elko Corner-notched are evident in the archaeological record. Additionally, changes in ground stone tools during this later period suggest a shift toward an economy based on processing hard seed goods.

Indications of long-range trade or travel are also suggested by coastal California shell ornaments (Warren 1984:419). By 1,450 BP, the adoption of ground stone and bow and arrow technologies suggests further shifts in desert adaptations. With the introduction of Rose Spring and Eastgate projectile points throughout much of the desert, brownware and buffware ceramics, and Cottonwood and Desert Side-notched projectile points in the southern desert, Warren proposed the Saratoga Springs Period. Dating from 1,450 to 750 BP, this period is characterized by a "more complex settlement-subsistence system with large permanent villages" (Warren 1984:424) and increased long-distance networks. Warren further suggests that artifact types associated with the Saratoga Springs Period continued in use through the Shoshonean/Protohistoric time period, from 750 BP up to the historic period.

Building on Warren's work, Sutton (1996:225–240) presents a slightly altered chronology for the Mojave Desert region. While claims for a very early "Pre-Projectile Point" occupation of the desert have been made (Simpson 1958; Davis et al. 1980), Sutton suggests the evidence for these claims is wanting. The first clearly definable period of occupation is the Paleoindian Period. Dating from 12,000 to 10,000 BP, the Paleoindian Period is characterized by Clovis, or Clovis-style, fluted points, associated with the Big Game Hunting Tradition. Sutton notes, however, that while hunting megafauna may have been a primary subsistence strategy, smaller game as well as vegetal foods were also procured. Following his discussion of the Paleoindian period, Sutton references Warren's outline for the subsequent Lake Mojave, Pinto, and Gypsum Periods. Sutton's chronology diverges from Warren's Saratoga Springs Period, proposing his own Rose Springs Period. Dating from 1,450 to 950 BP, the Rose Spring Period follows the Gypsum Period and is characterized by Rose Springs and Eastgate projectile points. These point types, along with the use of ground stone tools, imported marine shell artifacts and obsidian, and evidence of more developed middens, suggest more intensive and extensive use of desert resources. Sutton's Late Prehistoric Period, from 950 BP to contact, is an extension of the previous Rose Springs Period, continuing similar subsistence strategies but with a replacement of projectile point forms by Cottonwood Triangular and Desert Side-notched points and the introduction of ceramic technology.

Like others, Hall (2000:14–16) suggests a five-stage chronology. Hall's chronology begins with the Lake Mojave Period, dating to around 10,000 BP and extending to 7,500 BP. During this period, the Mojave Desert region was occupied by small bands of hunters and gatherers. Great Basin stemmed points and flaked stone crescents mark this period (Hall 2000:14). Continuing into the Pinto Period (approximately 7,500 BP to 4,500 BP), these mobile bands showed more intensive occupation with the advent of ground stone tools and a reliance on large and small game and various vegetal resources. Archaeological evidence also indicates long-range travel or trade during this period, such as the presence of *Olivella* sp. spire-lopped beads in archaeological sites.

Following a brief hiatus, a culture with a different adaptive strategy appears. Hall (2000:16) describes the Newberry Period, dating from 4,000 to 1,450 BP, as one characterized by "geographically expansive land-use pattern[s]…involving small residential groups moving between select localities." Evidence for long-distance trade or travel continues, along with a diffusion of trait characteristics from other groups. Defining artifact types from this period include Elko and Gypsum contracting stem points and split oval beads. Hall then adopts Warren's Saratoga Springs Period (1,450 to 750 BP) and adds the Tecopa Period (750 BP to contact) to define the last 1,500 years of cultural development. Like Warren's Saratoga Springs Period, Hall (2000:17) notes an apparent restriction in geographic use area as a consequence of increasing population. Anasazi grayware ceramics and Rose Springs and Eastgate projectile points are characteristic artifact types for the Saratoga Springs period. The Tecopa Period continues similar patterns noted during the Saratoga Springs Period; and, like Sutton's Late Period, Cottonwood Triangular and Desert Side-notched projectile points replace earlier forms. Furthermore, the archaeological record also shows the introduction of buff and brownwares, as well as beads of steatite, glass, and *Olivella* sp., including Thin Lipped, Tiny Saucer, Cupped, and Cylinder styles.

Colorado Desert

Schaefer (1994), using numerous studies from the northern Colorado Desert area, presents a four-period cultural sequence. Incorporating Rogers' earlier definition of the Malpais Pre-Projectile Period (Rogers 1939:6–7), Schaefer identifies a Paleoindian Period, dating prior to 10,000 BP and lasting to 8,000 BP. This period is characterized by settlements atop mesas and terraces, occupied by small, mobile bands of hunters and gatherers who subsisted on small and large game and a variety of vegetal materials. Key indicators include cleared circular areas in the desert gravels, sometimes called "house sites" or "sleeping circles" (Rogers 1939:6-7; 1966:45–47); gravel pictographs of both the rock alignment and intaglio type (Rogers 1939:9–16); and very simple stone tools.

Schaefer next describes the Early Archaic Period dating from 8,000 BP to 4,000 BP, and the Late Archaic Period dating from 4,000 to 1,450 BP. Both periods appear thinly populated, with a population decline beginning in the Early Archaic. They show highly flexible group sizes practicing a seasonally adjusted settlement pattern based on available food resources. Ground stone tool production and use greatly expanded during this time. In a work within Altschul (1994:27–23), Schaefer elaborates on these periods, shifting the timeframe to 10,000 BP and 1,350 BP and inserting a Middle Archaic Period. While low population densities characterize both the Early and Late Archaic periods, Schaefer suggests the Middle Archaic saw a population increase. Interpretations of increased projectile point variability suggest that social group membership, resource competition, and the development of defenses along territorial borders were taking place during this period. Following a return to warmer and drier conditions, the Late Archaic Period appears to indicate a return to small, mobile groups focusing on ground stone technology and seasonally available resources. Characteristic artifact types include large spear and dart points,

basketry, nets, traps, split-twig figurines (also noted in Warren's Gypsum Period), and other perishable items (Altschul 1994:29).

Schaefer's final cultural phase, the Late Prehistoric, is termed the Patayan and subdivided into Patayan I, II, and III. Key characteristic features are the use of ceramic technology, cremation funerary patterns, and an extensive trail system. Schaefer dates Patayan I from 1,150 to 900 BP, noting that people organized in small mobile groups along the Lower Colorado River and utilized a Hohokam-style tool kit. The Patayan II Period dates from 900 to 450 BP and is notable for the infilling of Lake Cahuilla, which encouraged population shifts toward the floodplain and along the western and eastern regions of the desert. Ceramic production also shifted from the Lower Colorado River toward a more local manufacture. Subsequent desiccation of Lake Cahuilla (Altschul 1994:30) marks the Patayan III Period (approximately 450 BP to historic times). Populations returned to the Lower Colorado River as small, mobile bands subsisting on seasonal hunting and gathering as well as small-scale agriculture. During this period, contact with European explorers occurred, giving rise to the Protohistoric Period.

5.4 POST-CONTACT CONTEXT

The first significant European settlement of California began during the Spanish Period (1769 to 1821) when 21 missions, four presidios, and three pueblos were established between San Diego and Sonoma. Although located primarily along the coast, the missions dominated economic and political life over the greater California region. The purpose of the missions was primarily for political control and forced assimilation of the Native American population into Spanish society and Catholicism, along with economic support to the presidios (Castillo 1978).

In the 1700s, due to pressures from other colonizers (Russians, French, British), New Spain decided that a party should be sent north with the idea of founding both military presidios and religious missions in Alta California to secure Spain's hold on its lands. The aim of the party was twofold. The first was the establishment of presidios, which would give Spain a military presence within its lands. The second was the establishment of a chain of missions slightly inland from the coast, with the aim of Christianizing the native population. By converting the native Californians, they could be counted as Spanish subjects, thereby bolstering the colonial population within a relatively short time (Lech 2012).

The party was led by Gaspar de Portolá and consisted of two groups: one would take an overland route, and one would go by sea. All parties were to converge on San Diego, which would be the starting point for the chain of Spanish colonies. What became known as the Portolá Expedition set out on March 24, 1769. Portolá arrived in what would become San Diego on July 1, 1769. Here, he immediately founded the presidio of San Diego. Garrisoning one group in the southern part of Alta California, Portolá took a smaller group and began heading north to his ultimate destination of Monterey Bay. Continuing up the coast, Portolá established Monterey Bay as a Spanish possession on June 3, 1770, although it would take two expeditions to accomplish this task. Having established the presidios at San Diego and Monterey, Portolá returned to Mexico. During the first four years of Spanish presence in Alta California, Father Junípero Serra, a member of the Portolá expedition and the Catholic leader of the new province, began establishing what would become a chain of 21 coastal missions in California. The first, founded concurrently at San Diego with the presidio, was the launching point for this group. During this time, four additional missions (San Carlos Borromeo de Carmelo, San Antonio de Padua, San Gabriel Arcángel, and San Luis Obispo de Tolosa) were established (Lech 2012).

The Mexican Period (1821 to 1848) began with the success of the Mexican Revolution in 1821, but changes to the mission system were slow to follow. When secularization of the missions occurred in the 1830s, the missions' vast land holdings in California were divided into large land grants called ranchos. The Mexican government granted ranchos throughout California to Spanish and Hispanic soldiers and settlers (Castillo 1978; Cleland 1941). Even after the decree of secularization was issued in 1833 by the Mexican Congress, missionaries continued to operate a small diocesan church. In 1834, the San Gabriel Mission, including over 16,000 head of cattle, was turned over to the civil administrator.

In 1848, the Treaty of Guadalupe Hidalgo ended the Mexican-American War and marked the beginning of the American Period (1848 to present). The discovery of gold that same year sparked the 1849 California Gold Rush, bringing thousands of miners and other new immigrants to California, not only from various parts of the United States but from all over the world, most of whom settled in the Sierra gold fields in the northern part of the state. For those settlers who chose to come to southern California, much of their economic prosperity was fueled by cattle ranching rather than by gold. This prosperity, however, came to a halt in the 1860s after a series of severe floods and droughts, as well as legal disputes over land boundaries, which put many ranchos into bankruptcy. Subsequently, California cycled through boom and bust for several decades until World War I when the Department of the Navy began porting warships along the west coast. Subsequently, California has grown, and contracted, predominantly around military policy along the west coast, and the Pacific Ocean. Following the industrial expansion related to World War II and the Cold War, technology and systems associated have come to the fore as economic drivers.

Desert Training Center/California-Arizona Maneuver Area

Very shortly after the United States formally began engagement in World War II, the U.S. Army sought to broaden its training capacity outside the eastern states and instructed General George S. Patton to identify training areas in the desert West in an effort to simulate combat situations expected in North Africa and southern Europe. The Desert Training Center, later the California-Arizona Maneuver Area, encompassed an area stretching from Searchlight, Nevada, in the north, to Yuma, Arizona, in the south, just east of Indio, California, in the west, and east to the Colorado River at first, then eastward again along Bill Williams River to Ives Peak and south to Montezuma, north of the Gila River. Over 30,000 square miles of desert was thus encompassed and divided into training areas with camps measuring 3 miles by 1 mile on average, various small arms ranges, airfields, target areas, and maneuver areas. The closest DTC/CAMA installations to the Needles area are Camp Ibis and Needles Army Airfield to the north, and Camps Rice, Iron Mountain, and Granite, and Rice Army Airfield to the south. Units based at these installations had virtual free range to use the desert region as deemed necessary.

Some 20 years following the closure of operations at the DTC/CAMA, a Cold War exercise was implemented within the same general region of the Mojave Desert. Joint Exercise Desert Strike, also known as Operation Desert Strike or simply Desert Strike, was conducted in 1964 as a simulated battlefield exercise located within much of the previous DTC/CAMA footprint. The ground maneuver area extended from Barstow, California, just east of Edwards Air Force Base, eastward 170 miles to Kingman, Arizona, and from a point approximately 40 miles south of Las Vegas, Nevada, southward 160 miles to Blythe, California. The area was used for "a semi-controlled exercise under the direction of U.S. Strike Command that allowed opposing joint task forces, comprised primarily of armored and mechanized forces with full air support but including airborne units, a maximum of 'free play' initiative to develop, perfect, and test combat techniques and tactics" (USAF 1964:4). As executed "[t]wo joint task forces with a total of over 100,000 personnel of the U.S. Air Force and Army, over 900 aircraft, and more than 500 tanks battled for nearly two weeks on a ground maneuver area of some 13 million acres in the desert region of

southwestern United States. As in past joint exercises, tactical nuclear weapons training was conducted during the play of the exercise" (USAF 1964:2).

SECTION 6.0 – FIELD METHODS

Chambers Group conducted a pedestrian field survey of the Project site. The pedestrian survey included a systematic surface inspection, using up to 15-meter-wide transects adjusting the spacing and intensity of visual inspection based on ground surface visibility and probability of cultural resources. Since much of the Project site consisted of paved roads and graded dirt roads, the survey focused on open ground, built environment features, and possible buried deposits. The cultural resources survey was conducted in accordance with the professional standards, as outlined in the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (NPS 1983).

All undisturbed or exposed ground surfaces within the Project sites were examined for prehistoric (precontact) artifacts (e.g., flaked lithic tools, tool-making debris, stone milling tools, ceramics, and fire-affected rock [FAR]), ecofacts (bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures and buildings (e.g., standing exterior walls, postholes, foundations) or historic-era artifacts (e.g., metal, glass, and ceramics). Existing ground disturbances (e.g., cutbanks, ditches, burrows, et cetera) were also visually inspected. Photographs of the Project site, including current conditions, and previously recorded cultural resources were documented using a digital camera.

Site information was recorded on Department of Parks and Recreation (DPR 523 series) site forms in accordance with the California Office of Historic Preservation (1995) *Instructions for Recording Historical Resources*. The relevant updated DPR 523 site forms and maps will be submitted to the SCCIC.

All field notes, photographs, and records pertaining to the current study are on file at the Chambers Group San Diego office.

SECTION 7.0 – STUDY FINDINGS AND CONCLUSIONS

Chambers Group archaeologists Efrain Arroyo and Kellie Kandybowicz conducted pedestrian field survey of the Project site on April 14, 2025. No BLM managed lands were physically accessed during the field survey. The survey relocated previously recorded cultural resources, P-36-024812 and P-36-024816 within the Project site boundary. Based on the site's lack of integrity, Chambers Group recommends that P-36-024812 is ineligible for CRHR and NRHP listing. Chambers Group recommends that P-36-024816 is ineligible for the NRHP/CRHR under any criteria. Visual inspection of the surface revealed no evidence of prehistoric or historic-period resources within the Project site. No new cultural resources were identified during the field survey.

Modern refuse was observed throughout the Project site. This material consisted of various roadside debris, including metal, glass, and brick, and was diffusely arrayed along the roadside, lacking organization, and context. Although the Project site was sparsely vegetated by desert shrubs, ground visibility was good, 80 to 90 percent. There is a dirt road, marked by a BLM post and labeled as Hightower Road (NS 056), that crosses the Project site and continues on both west and east sides of US-95, approximately 687 feet north from the US-95/Havasu Lake Road T-junction.

As currently proposed and designed, the Project will not have direct impacts or effects to the two previously recorded cultural resources within the Project site. More generally, the Project will have minimal permanent impacts or effects on cultural resources, as the widening of US-95 and new left-turn pocket will be constructed in previously disturbed ground, with only temporary impacts during the construction phase. Once US-95 is widened and the left-turn pocket is constructed, there will be minimal changes to the overall conditions throughout the Project site.

Based on the results of the cultural resources records search review, background research, and field survey, no historical resources, as defined per CEQA Guidelines §15064.5(a), were identified within the Project site; therefore, no impacts to historical resources are expected. Considering the results of this study, Chambers Group also recommends a finding of *no adverse effect to historic properties* under Section 106 of NHPA, as no historic properties, as defined per NHPA Section 106, were identified within the Project site. However, for post-review discoveries of cultural resources, the Project is required to adhere to 36 CFR 800.13(b), "discoveries without prior planning," and industry standard best management practices regarding the unanticipated discovery of cultural resources, detailed below.

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) will be contacted immediately to evaluate the find. Ground-disturbing activities will not resume until all the stipulations of 36 CFR 800.13(b) and (c) are satisfied and the Lead Agency has authorized a continuance. If the discovery proves to be significant under CEQA or NHPA, additional work such as data recovery excavation and Native American consultation may be necessary to mitigate any significant impacts.

Chambers Group recommends that the County should retain an SOI-Qualified Archaeologist to remain on-call for the duration of the Project's ground-disturbing construction activity to ensure the expedient response and assessment to inadvertent findings of cultural resources during construction.

HUMAN REMAINS – LEGAL REQUIREMENTS. In the event that human remains are discovered during ground-disturbing activities, then the Project would be subject to California Health and Safety Code

7050.5, CEQA Section 15064.5, and California Public Resources Code (PRC) Section 5097.98. If human remains are found during ground-disturbing activities, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Medical Examiner-Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County Medical Examiner-Coroner shall be notified immediately. If the human remains are determined to be of Native American ancestry, the Medical Examiner-Coroner shall notify the NAHC, which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials (NPS 1983).

If previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.

SECTION 8.0 – REFERENCES CITED

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SECTION 9.0 – PREPARERS QUALIFICATIONS

Chambers Group archaeologist Efrain Arroyo served as the principal investigator of this study and author of this report. Mr. Arroyo earned a Master of Arts in Anthropology with a concentration in Archaeology from Binghamton University and is an RPA and SOI-qualified archaeologist with over 7 years of field experience involving prehistoric and historical cultural resources across California. He qualifies as a Caltrans equivalent PQS Principal Investigator in Prehistoric and Historical archaeology.

Chambers Group archaeologist Kellie Kandybowicz served as a field technician contributing to the field survey of this study. Ms. Kandybowicz earned a Bachelor of Arts in Anthropology with a concentration in Archaeology from San Diego State University and has over 16 years of field experience involving prehistoric and historic cultural resources across California. She qualifies as a Caltrans equivalent PQS Archaeological Crew Member.

Chambers Group Cultural Resources Department Lead Lucas Tutschulte and Cultural Resources Principal Investigator Richard Shultz provided oversight throughout this study, including the review of this report. Lucas Tutschulte earned a Bachelor of Science in Anthropology with a concentration in Archaeology from the University of Kansas with over 19 years of experience involving managing prehistoric and historic cultural resources. Richard Shultz earned a Master of Arts in Cultural Resource Management from the Sonoma State University and is an RPA and SOI-qualified archaeologist with over 30 years of experience managing prehistoric and historical cultural resources across California. He qualifies as a Caltrans equivalent PQS Principal Investigator in Prehistoric and Historical archaeology.

APPENDIX A – MAPS

APPENDIX A – MAPS

Figure 1: Regional Location

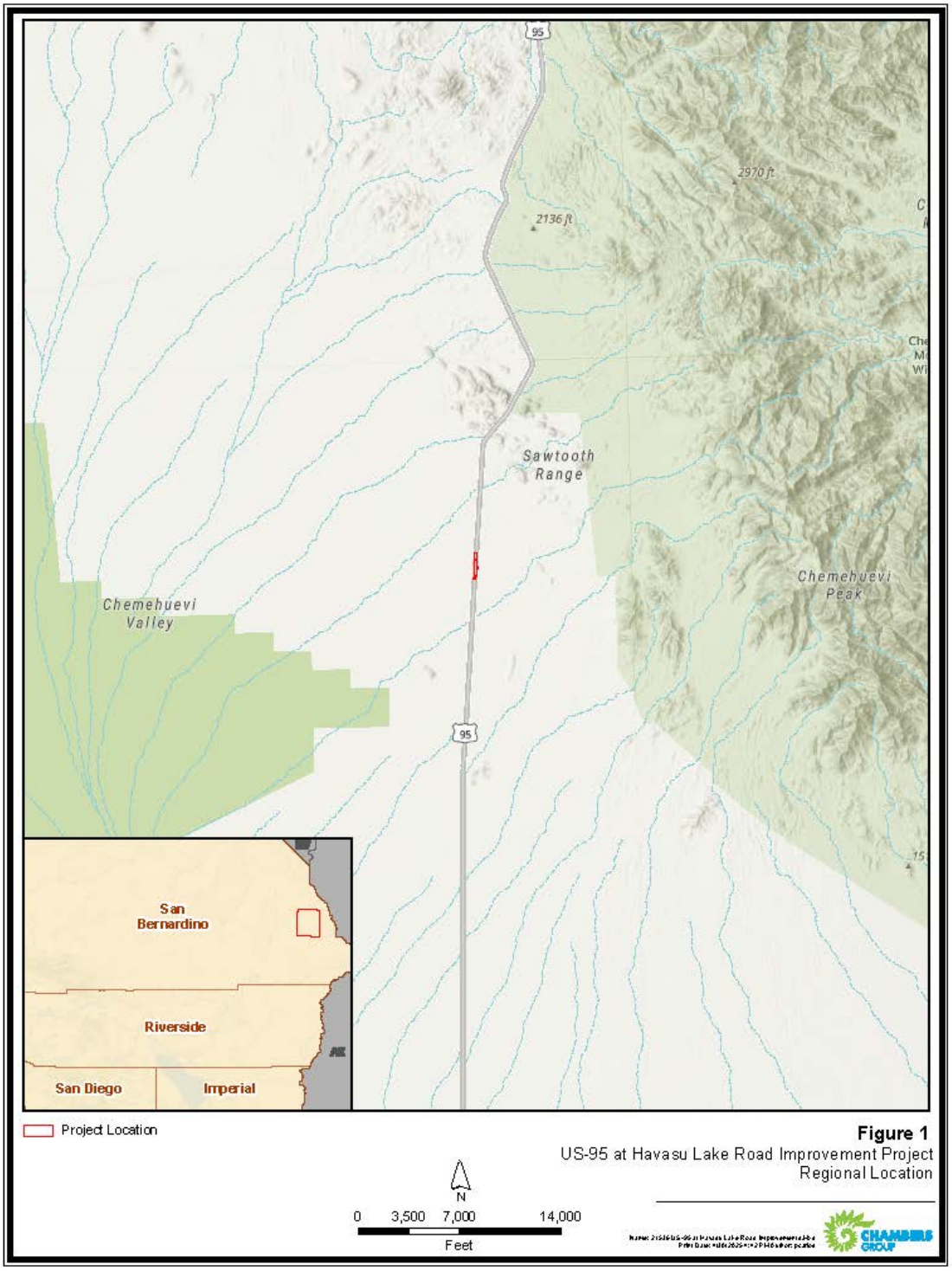


Figure 2: Project Location on USGS Map

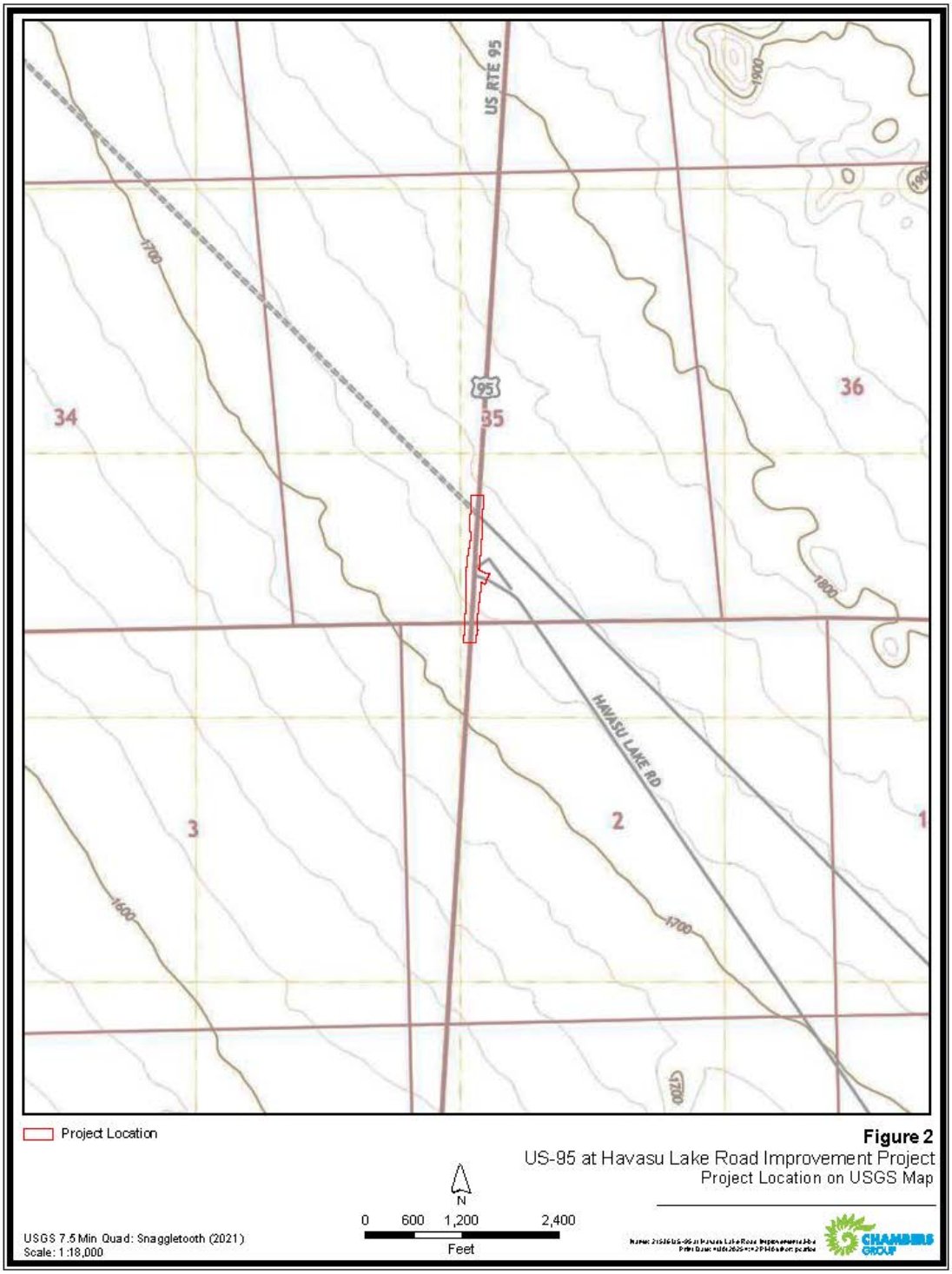


Figure 3: Project Site/APE on Aerial Photograph

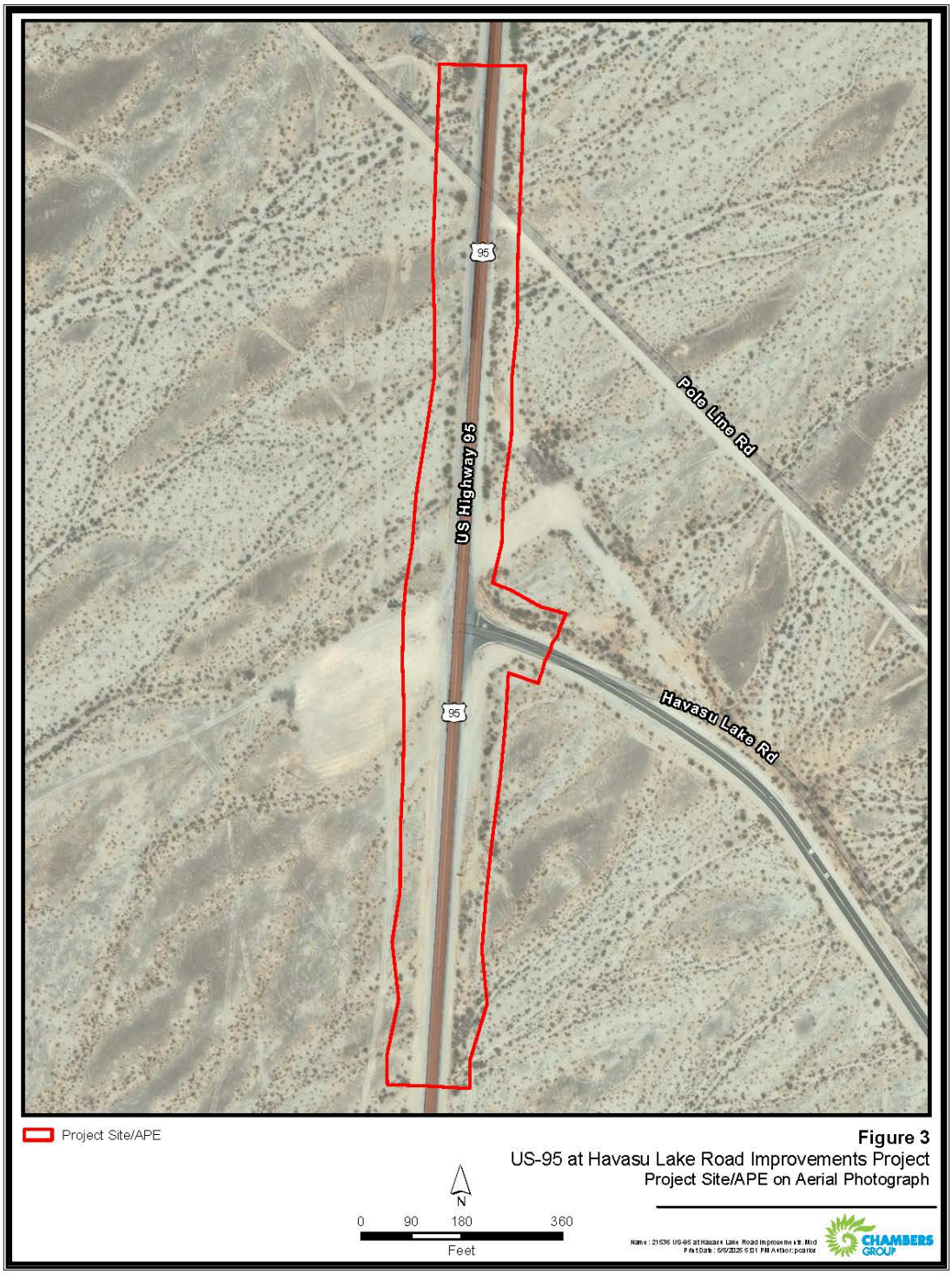
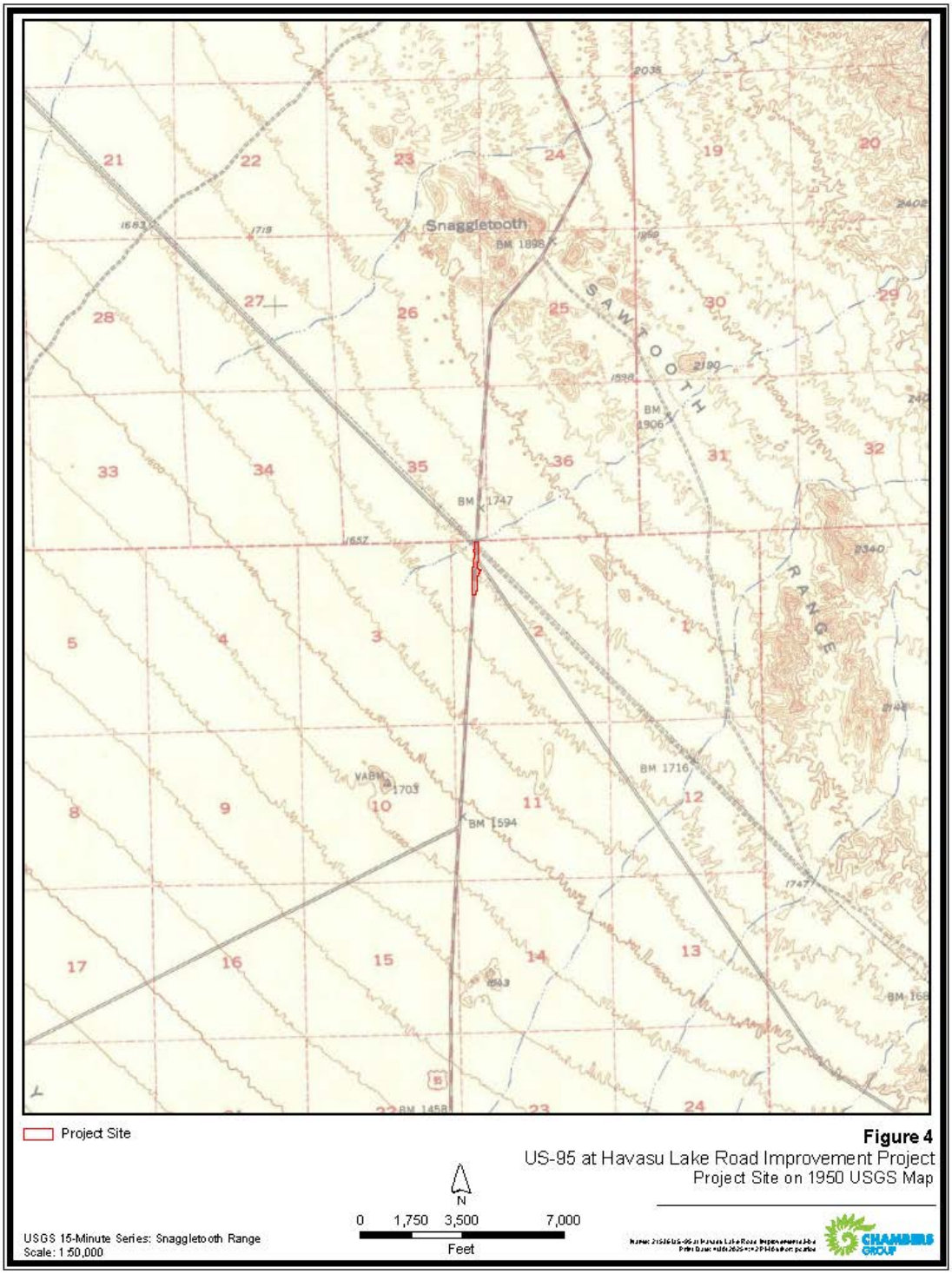


Figure 3
US-95 at Havasu Lake Road Improvements Project
Project Site/APE on Aerial Photograph

Figure 4: Project Site on 1950 USGS Map



APPENDIX B – NAHC SLF SEARCH RESULTS

APPENDIX B – NAHC SLF SEARCH RESULTS

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

March 18, 2025

Efrain Arroyo
Chambers Group, Inc.

Via Email to: earroyo@chambersgroupinc.com

Re: US-95 at Havasu Lake Road Improvement (21536) Project, San Bernardino County

To Whom It May Concern:

As requested, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed based on information submitted for the above referenced project. The results were negative. Please note that tribes do not always record their sacred sites in the SLF, nor are they required to do so. As such, a SLF search is not a substitute for consultation with all tribes that are traditionally and culturally affiliated with a project's geographic area.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. Please contact all of those listed; if they cannot supply information, they may recommend others with specific knowledge. If within two weeks of notification, a response has not been received, the Commission requests that you follow-up with a telephone call or email to ensure that the project information was received.

If you receive notification of a change of address or phone number from a tribe, please notify the NAHC so that we can assure that our lists contain current information.

In addition to engaging in tribal consultation, you should consult the appropriate regional California Historical Research Information System (CHRIS) archaeological Information Center to determine whether it has information regarding the presence of recorded archaeological sites within the project area.

If you have any questions or need additional information, please contact me at melina.carlos@nahc.ca.gov.

Sincerely,

Melina Carlos

Melina Carlos
Cultural Resources Analyst

Attachment

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

Commissioner
Vacant

ACTING EXECUTIVE SECRETARY
STEVEN QUINN

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

APPENDIX C – OTHER FIGURES

APPENDIX C – OTHER FIGURES



Photograph 1: Western side of US-95

Date: April 15, 2025

View: North



Photograph 2: Western side of US-95 Highway

Date: April 15, 2025

View: South



Photograph 3: US-95/Havasu Lake Road T-Junction

Date: April 15, 2025

View: South



Photograph 4: Site P-36-024812/CA-SBR-15853H, compacted dirt, previously paved road

Date: April 15, 2025

View: East



Photograph 5: Site P-36-024816/CA-SBR-15857H, high-voltage transmission line

Date: April 15, 2025

View: West

APPENDIX D – CONFIDENTIAL FIGURES AND SITE RECORDS