

# Highway 74/Ethanac Sewer Extension Project

Draft Initial Study/Mitigated Negative Declaration

November 2023 | 00407.00078.001

*Prepared for:*

**Elsinore Valley Municipal Water District**

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Lake Elsinore, CA 92530

*Prepared by:*

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# Table of Contents

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<b><u>Section</u></b>	<b><u>Page</u></b>
<b>1.0 Introduction .....</b>	<b>1</b>
1.1 Initial Study Information Sheet .....	1
<b>2.0 Project Description .....</b>	<b>2</b>
2.1 Project Location .....	2
2.2 Project Background.....	2
2.3 Project Components .....	2
2.4 Construction Equipment and Phasing .....	3
2.5 Construction Best Management Practices .....	3
<b>3.0 Environmental Factors Potentially Affected .....</b>	<b>5</b>
3.1 Determination.....	6
<b>4.0 Environmental Initial Study Checklist.....</b>	<b>7</b>
I. Aesthetics.....	8
II. Agriculture and Forestry Resources.....	9
III. Air Quality .....	11
IV. Biological Resources .....	15
V. Cultural Resources .....	20
VI. Energy .....	25
VII. Geology and Soils.....	26
VIII. Greenhouse Gas Emissions.....	29
IX. Hazards and Hazardous Materials .....	31
X. Hydrology and Water Quality .....	33
XI. Land Use and Planning.....	36
XII. Mineral Resources .....	37
XIII. Noise .....	38
XIV. Population and Housing.....	40
XV. Public Services.....	41
XVI. Recreation.....	42
XVII. Transportation .....	42
XVIII. Tribal Cultural Resources .....	44
XIX. Utilities and Service Systems .....	45
XX. Wildfire .....	47
XXI. Mandatory Findings of Significance.....	48
<b>5.0 References.....</b>	<b>52</b>
<b>6.0 Preparers.....</b>	<b>54</b>

# Table of Contents (cont.)

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## LIST OF APPENDICES

A	Air Quality and Greenhouse Gas Emissions Assessment
B	Biological Resources Letter Report
C	Cultural Resources Survey (confidential; bound separately)
D	Geotechnical Evaluation
E	Paleontological Resources Assessment (confidential; bound separately)

## LIST OF FIGURES

<u>No.</u>	<u>Title</u>	<u>Follows Page</u>
1	Regional Location.....	2
2	Project Location .....	2

## LIST OF TABLES

<u>No.</u>	<u>Title</u>	<u>Page</u>
1	Maximum Daily Construction Emissions.....	13
2	Maximum Localized Daily Construction Emissions.....	14
3	Construction GHG Emissions .....	30
4	Construction Equipment Noise Levels .....	39

# Acronyms and Abbreviations

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AB	Assembly Bill
Agua Caliente	Agua Caliente Band of Cahuilla Indians
APE	Area of Potential Effect
AQMP	Air Quality Management Plan
BMP	best management practices
CalEEMod	California Emissions Estimator Model
CAGN	coastal California gnatcatcher
CAP	Climate Action Plan
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CFG Code	California Fish and Game Code
CO	carbon monoxide
CO <sub>2</sub> e	carbon dioxide equivalent
County	Riverside County
CY	cubic yard
dba	A-weighted decibel
DOC	California Department of Conservation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIC	Eastern Information Center
EVMWD	Elsinore Valley Municipal Water District
FEMA	Federal Emergency Management Agency
FTA	Federal Transportation Administration
GHG	greenhouse gas
HELIX	HELIX Environmental Planning, Inc.
Kgt	Zircon-age Massive textured tonalite
lbs.	pounds
L <sub>EQ</sub>	hourly sound level
L <sub>MAX</sub>	maximum noise level
LST	Localized Significance Threshold
MBTA	Migratory Bird Treaty Act
MSHCP	Multiple Species Habitat Conservation Plan
MT	metric tons

## Acronyms and Abbreviations (cont.)

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NAHC	Native American Heritage Commission
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OEHHA	Office of Environmental Health Hazard Assessment
Pala	Pala Band of Mission Indians
Pechanga	Pechanga Band of Luiseño Indians
PM <sub>10</sub>	particulate matter 10 microns or less in diameter
PM <sub>2.5</sub>	particulate matter 2.5 microns or less in diameter
PRIMP	Paleontological Resource Impact Mitigation Plan
PVC	polyvinyl chloride
Qvoa	middle to early Pleistocene-age Very old alluvial-channel deposits
Rincon	Rincon Band of Luiseño Indians
ROW	rights-of-way
RWQCB	Regional Water Quality Control Board
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SO <sub>2</sub>	sulfur dioxide
Soboba	Soboba Band of Luiseño Indians
SRA	source receptor area
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TMP	traffic management plan
TUA	Traditional Use Area
USFWS	U.S. Fish and Wildlife Service
VdB	vibration decibel
VMT	vehicle miles traveled
VOC	volatile organic compound
WRF	Water Reclamation Facility

# 1.0 Introduction

## 1.1 Initial Study Information Sheet

1. Project title: Highway 74/Ethanac Sewer Extension Project
2. Lead agency name and address: Elsinore Valley Municipal Water District  
31315 Chaney Street, Lake Elsinore, CA 92530
3. Contact person and phone number: Joseph McGhee, P.E.  
(951) 674-3146
4. Project location: Highway 74, between Wasson Canyon Road and Ethanac Road, and within Wasson Canyon Road, between Highway 74 and Mauricio Avenue Meadowbrook, Riverside County, CA
5. Project sponsor's name and address: See Lead Agency
6. General plan designation: None – public rights-of-way
7. Zoning: None – public rights-of-way
8. Description of project: See Section 2
9. Surrounding land uses and setting: See Section 2
10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):
  - County of Riverside (Encroachment Permit)
  - Regional Water Quality Control Board (RWQCB) (Construction General Permit)
  - California Department of Industrial Relations (Underground Classification)
11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

On June 6, 2023, letters inviting tribes to consult under Assembly Bill (AB) 52 were sent to the Soboba Band of Luiseño Indians (Soboba), Pechanga Band of Luiseño Indians (Pechanga), Rincon Band of Luiseño Indians (Rincon), and Agua Caliente Band of Cahuilla Indians (Agua Caliente). Pechanga and Rincon requested AB 52 consultation and Agua Caliente responded noting no further consultation was needed. The Pala Band of Mission Indians (Pala) also requested involvement in AB 52 consultation in response to informal outreach about the Project. Project reports and draft mitigation measures have been provided to these tribes, as requested, for review. Revisions to the mitigation measures provided by Pechanga are contained herein. Rincon's review of Project documents is ongoing. Consultation with these tribes is ongoing.

## **2.0 Project Description**

### **2.1 Project Location**

The Highway 74/Ethanac Sewer Extension Project (Project) is proposed within the Meadowbrook community in unincorporated Riverside County (County), California (Figure 1, *Regional Location*). Specifically, the Project would be constructed within Highway 74, between Wasson Canyon Road and Ethanac Road, and within Wasson Canyon Road, between Highway 74 and Mauricio Avenue (Figure 2, *Project Location*). The City of Lake Elsinore borders the Project site to the south, along Mauricio Avenue.

### **2.2 Project Background**

Elsinore Valley Municipal Water District (EVMWD) is a public utility, created on December 23, 1950, under the Municipal Water District Act of 1911. EVMWD provides public water service, water supply development and planning, wastewater treatment and disposal, and recycling. Currently, EVMWD has over 46,000 water, wastewater, and agricultural service connections over a 96-square-mile service area within the cities of Lake Elsinore, Wildomar, Canyon Lake, and Murrieta, and unincorporated portions of the County of Riverside. EVMWD is a sub agency of the Western Municipal Water District, a member agency of The Metropolitan Water District of Southern California.

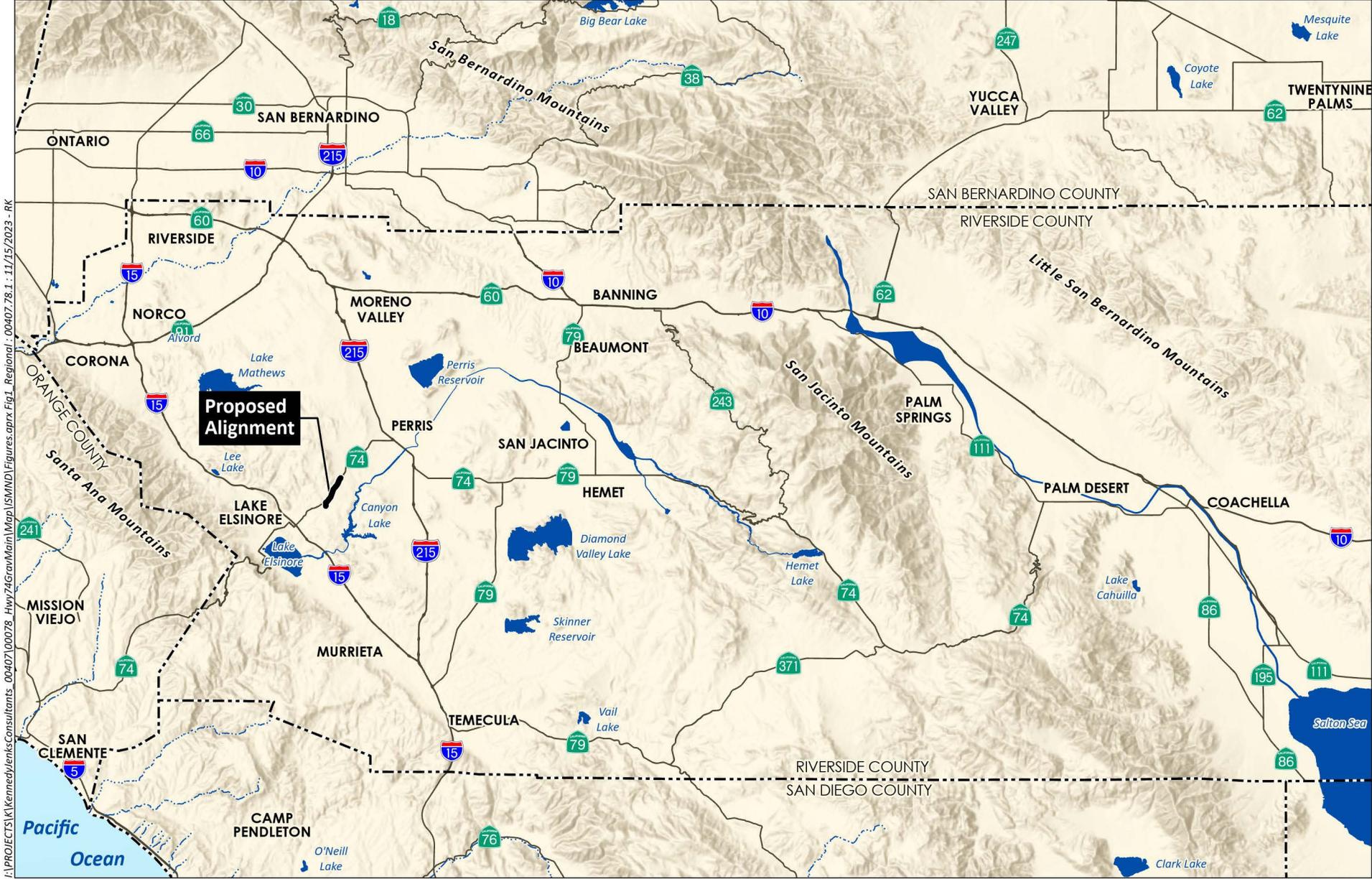
The Project is within EVMWD's Regional Water Reclamation Facility (WRF) sewershed. The Project would be in a location that could facilitate the future conversion of the surrounding Meadowbrook rural residential community from septic tanks to sewer in accordance with EVMWD's 2016 Sewer System Master Plan.

### **2.3 Project Components**

The Project consists of construction of up to 12,500 feet of a 16-inch gravity trunk sewer pipeline within Highway 74, between Wasson Canyon Road and Ethanac Road, and within Wasson Canyon Road, between Highway 74 and Mauricio Avenue. The Project would connect to an existing 15-inch diameter polyvinyl chloride (PVC) gravity trunk sewer at the intersection of Wasson Canyon Road and Mauricio Avenue. Since EVMWD's service area boundary is generally located along Ethanac Road, it is assumed that sewer service north of Ethanac Road would be provided by the Eastern Municipal Water District.

The connection at Wasson Canyon Road and Mauricio Avenue would involve the removal of a concrete plug to the existing 15-inch diameter PVC gravity trunk sewer, inspection of the existing sewer, and installation of a manhole. Termination of the proposed pipeline would occur near the intersection of Highway 74 and Ethanac Road with a terminal manhole and a 5-foot-long sewer pipeline extension ending with a 15-inch concrete plug. Manholes throughout the alignment would be installed with spacing of up to 500 feet and would be flush with the finished roadway surface.

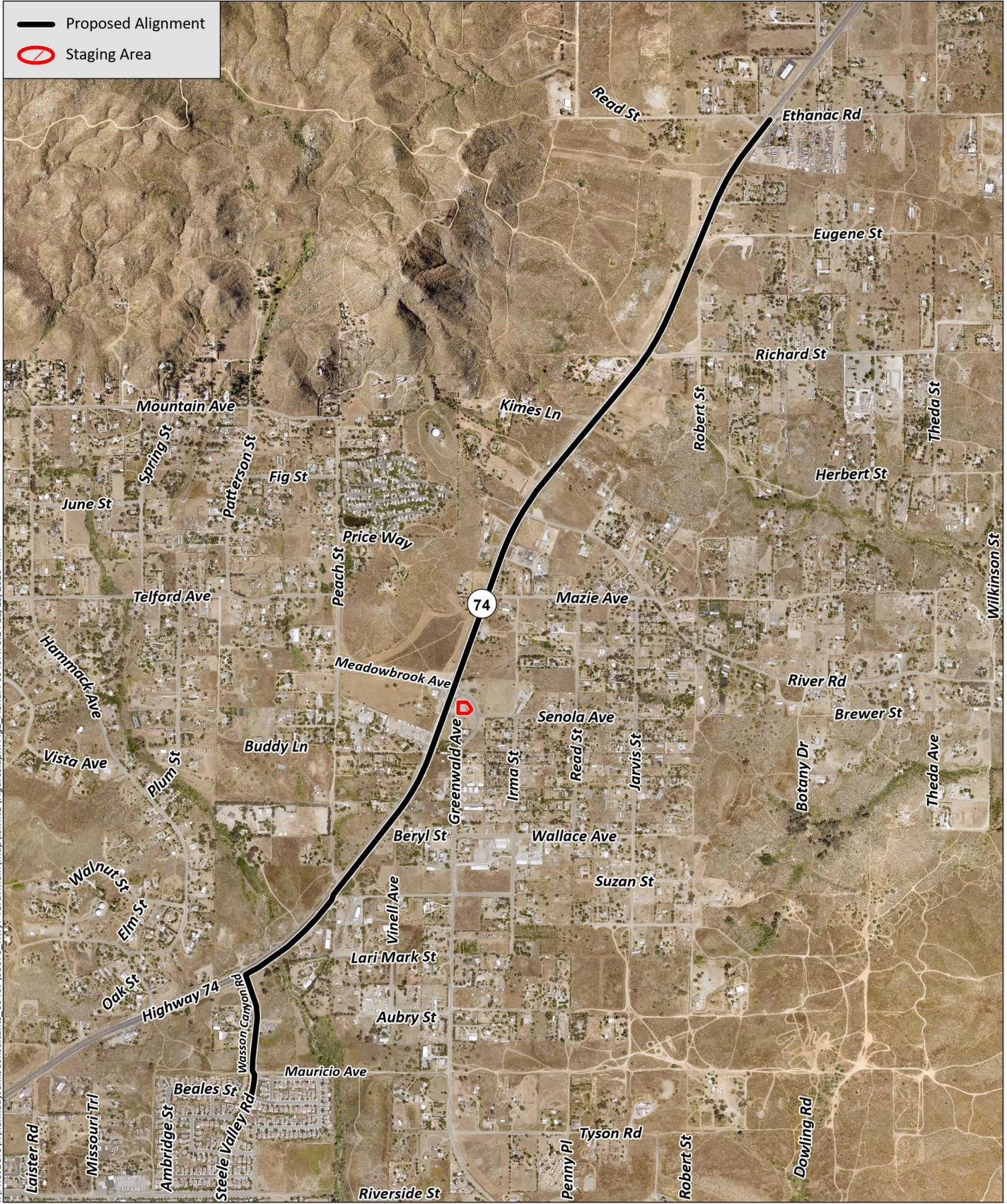
Within Wasson Canyon Road, a two-lane road, the pipeline would be located approximately parallel to and 6 feet east of the roadway centerline. Within Highway 74, a four-lane road, the pipeline would typically be installed in the center of the driving lane nearest to the roadway centerline, on the south or east side of the centerline. Installation of the pipeline within Highway 74 at the Wasson Canyon Wash Crossing would include a 3.5-foot square concrete pipe encasement on top of the existing concrete box culvert located on the eastern side of Highway 74.



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Source: Base Map Layers (ESRI, 2013)



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Source: Aerial (County of Riverside, 2020)

## **2.4 Construction Equipment and Phasing**

The duration of construction is estimated to be approximately 37 months, starting October 2024. The majority of pipeline, along Highway 74, would be constructed using open trench methods at a minimum depth of seven feet. Within the narrower Wasson Canyon Road, it is anticipated that open trench construction or a microtunnel boring machine would be used to install the pipeline. Construction is anticipated to occur at a rate of 10 to 20 linear feet per day.

A minimum working limit width of 36 feet is recommended by the Project engineers to allow for a 3-foot-wide trench, a pipe laydown area, and a dump truck to drive aisle for material placement. It is anticipated that this construction work area would result in limiting traffic to one lane in each direction during pipe installation in Highway 74 and a temporary road closure for Wasson Canyon Road. Construction traffic management plans (TMPs) would be required to be approved by the County for construction within roadway rights-of-way (ROW). Work hours and lane closure schedules are anticipated to be determined in coordination with the County.

Off-site staging areas are anticipated to consist of the approximately 0.25-acre gravel-surfaced property at the southeast corner of Highway 74 and Greenwald Avenue and a temporary equipment storage lot, less than 0.5-acre in size, at an undetermined location along the Highway 74 road corridor in a previously disturbed/developed property. See Figure 2.

Approximately 17,000 cubic yards (CY) of soil material would be excavated during trenching. It is estimated that 1,700 CY would be used to backfill trenched areas and the remaining 15,300 CY of excavated material would be exported. To refill trenched areas, 15,300 CY of soil material would also be imported to the Project site.

## **2.5 Construction Best Management Practices**

### **Air Quality**

Construction would implement standard dust control measures as required by South Coast Air Quality Management District (SCAQMD) Rule 403, including watering two times daily during grading, ensuring that all exposed surfaces maintain a minimum soil moisture of 12 percent, and limiting vehicle speeds on unpaved roads to 15 miles per hour. All trucks hauling dirt, sand, soil, or other loose materials would be covered with a fabric cover and maintain a freeboard height of 12 inches.

### **Brush Management**

To minimize the risk of losses resulting from wildfire, the following measures would be implemented during construction of the Project:

- Construction adjacent to areas of dense foliage during dry conditions will be avoided, when feasible.
- In cases where avoidance is not feasible, brush fire prevention and management practices will be incorporated. Specifics of the brush management program will be incorporated into Project construction documents.

## **Noise**

The following measures would be implemented during construction to minimize noise impacts to surrounding land uses:

- Construction equipment, including vehicles, generators, and compressors, would be maintained in proper operating condition and will be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, acoustical lagging, and/or engine enclosures).
- Construction work, including on-site equipment maintenance and repair, would be limited to the hours specified in Riverside County Ordinance 847 (6:00 a.m. to 6:00 p.m. between June and September and 7:00 a.m. to 6:00 p.m. between October and May).
- Staging areas for construction equipment would be located away from residential land uses where feasible.

## **Sensitive Biological Resources**

Construction plans would include work limits and the limits of sensitive biological resources. Sensitive habitat areas, including riparian habitats, would be flagged prior to construction occurring adjacent to these areas to ensure staging and other construction activities avoid such resources and remain within the disturbed and developed portions of the Project site.

## **Water Quality**

Implementation of the proposed Project would require conformance with the National Pollutant Discharge Elimination System (NPDES) requirements. Such conformance would entail implementation of a Storm Water Pollution Prevention Plan (SWPPP) to address the discharge of contaminants (including construction-related hazardous materials) and minimize runoff through appropriate best management practices (BMPs). As a standard construction practice and regulatory requirement, EVMWD would implement best BMPs from the required SWPPP for the Project, which may include:

- Covering stockpiled excavated and/or fill materials to reduce potential off-site sediment transport;
- Employing appropriate standard spill prevention practices and clean-up materials;
- Maintaining the Project area free of trash and debris;
- Properly storing, handling, and disposing of toxins and pollutants, including waste materials;
- Using erosion control devices, such as straw wattles, mulch, mats, and/or geotextiles;
- Using sediment catchment structures such as hay bales, gravel or sandbags, silt fencing, fiber rolls, matting, berms, or similar devices along grading boundaries and drainage courses to prevent off-site sediment transport;
- Daily backfilling, compaction, and/or covering of excavated trenches to minimize erosion potential; and/or
- Regularly inspecting and maintaining all erosion control and sediment catchment facilities to ensure proper function and effectiveness.

### 3.0 Environmental Factors Potentially Affected

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

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

### 3.1 Determination

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that, although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that, although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Parag Kalaria

Signature

Parag Kalaria

Printed name

November 14,2023

Date

Elsinore Valley Municipal Water District

For

## 4.0 Environmental Initial Study Checklist

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

- A. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- B. “Less Than Significant with Mitigation Incorporated” applies where the inclusion of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” All mitigation measures are described, including a brief explanation of how the measures reduce the effect to a less than significant level. Mitigation measures from earlier analyses may be cross-referenced.
- C. “Less Than Significant Impact” applies where the project does not create an impact that exceeds a stated significance threshold.
- D. “No Impact” applies where a project does not create an impact in that category. “No Impact” answers do not require an explanation if they are adequately supported by the information sources cited by the lead agency which show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project specific screening analysis).

The explanation of each issue identifies the significance criteria or threshold used to evaluate each question; and the mitigation measure identified, if any, to reduce the impact to less than significance. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration [CEQA Guidelines Section 15063(c)(3)(D)]. Where appropriate, the discussion identifies the following:

- a) Earlier Analyses Used. Identifies where earlier analyses are available for review.
- b) Impacts Adequately Addressed. Identifies which effects from the checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and states whether such effects were addressed by mitigation measures based on the earlier analysis.
- c) Mitigation Measures. For effects that are “Less Than Significant with Mitigation Incorporated,” describes the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

**I. Aesthetics**

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Have a substantial adverse effect on a scenic vista?

**Less Than Significant Impact.** Scenic vistas of surrounding mountains, including the Santa Ana Mountains, are available from the Project alignment. Low-lying development surrounds the alignment but does not obstruct the overall scenic vistas. During construction, equipment would be added to the Project area but would not be of a height to obstruct vistas of surrounding mountains. Further, construction equipment would be located there temporarily and removed upon completion of construction. After the completion of construction, the proposed Project would consist of sewer infrastructure located entirely underground. Therefore, no permanent changes to scenic vistas would occur due to the Project. Impacts would be less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

**No Impact.** The portion of Highway 74 where the Project is proposed is an eligible state scenic highway. The nearest designated state scenic highway to the Project site is the portion of Highway 74 within the San Bernadino National Forest, beginning approximately 25 miles east of the Project site (California Department of Transportation 2019). The Project site would not be visible from this designated state scenic highway. As discussed in item I.a, permanent Project components would be located underground and construction activities that would occur above ground would be temporary in nature. Thus, the Project would not result in damage to scenic resources in a state scenic highway and no impact would occur.

- c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

**Less Than Significant Impact.** The definition of “urbanized area” in an unincorporated area contained in Public Resources Code 21071 requires a finding that the adopted plans and zoning for the area are consistent with principles that encourage compact development. The Meadowbrook community does not qualify as an urbanized area and the Project is evaluated according to its impact on the visual character and quality of public views of the Project site and its surroundings.

As described further in item I.a, the Project would temporarily introduce construction equipment to the Project area but would not result in permanent, aboveground components. Construction equipment introduced to the Project area would not result in substantial degradation of the visual character or quality of public views, which consist of more distant mountain ranges. As no aboveground components would be installed, no permanent change to the visual character or quality of public views of the Project site and its surroundings would occur. Impacts would be less than significant.

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

**No Impact.** Construction of the proposed Project would occur during daytime hours when no lighting is required for construction activities. No nighttime construction, which would require lighting, is proposed to occur. Once operational, Project components would be located underground and would not be a source of light or glare. No impact would occur.

## II. Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non- forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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

**No Impact.** The Project site consists of existing ROW and developed land. According to the California Important Farmland Finder, land surrounding the Project site is designated as Grazing Land, Other Land, and Urban and Built-up Land (California Department of Conservation [DOC] 2018). No Williamson Act contracts or sites with agricultural zoning are present within the Project site. The Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use. No impact would occur.

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

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

**No Impact.** The Project site consists of developed roadways and properties, which are not zoned for or used as forest land, timberland, or timberland zoned Timberland Production. Therefore, the Project would not result in rezoning of these uses or the conversion of forest land to a non-forest use. No impact would occur.

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

**No Impact.** As discussed in items II.a through d above, the Project site does not contain agricultural or forest land uses. The Project would not result in conversion of these uses and no impact would occur.

### III. Air Quality

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

The discussion below is based on the Air Quality and Greenhouse Gas Emissions Assessment prepared by HELIX Environmental Planning, Inc. (HELIX; 2023a), attached to this Initial Study as Appendix A.

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

**Less Than Significant Impact.** The Project is located within the South Coast Air Basin (SCAB) where the SCAQMD is responsible for implementing emissions standards and other requirements of federal and state laws. As required by the California Clean Air Act, the SCAQMD has responded to the requirement to decrease emissions by preparing a sequence of Air Quality Management Plans (AQMPs). On December 2, 2022, the SCAQMD adopted the 2022 AQMP, which seeks to achieve multiple goals in partnership with other entities promoting reductions in criteria pollutant emissions, greenhouse gas (GHG) emissions, and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2022). The 2022 AQMP is the applicable air quality plan for the Project. Growth forecasts prepared by the Southern California Association of Governments (SCAG) form the basis for the land use and transportation control portions of the AQMP.<sup>1</sup> These growth forecasts are based, in part, on projections originating with County and City General Plans, and are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP.

The two principal criteria for determining conformance to the AQMP are:

1. Whether a project would result in an increase in the frequency or severity of existing air quality violations; cause or contribute to new violations; or delay timely attainment of air quality standards; and

<sup>1</sup> SCAG serves as the federally designated metropolitan planning organization for the southern California region.

2. Whether a project would exceed the assumptions in the AQMP.

With respect to the first criterion, as shown in item III.b, the Project would not generate short-term or long-term emissions that could potentially cause an increase in the frequency or severity of existing air quality violations; cause or contribute to new violations; or delay timely attainment of air quality standards.

With respect to the second criterion, the Project proposes installation of a trunk sewer pipeline, which would not result in population or employment increases and would not exceed the growth projection assumptions in the AQMP. The proposed pipeline would serve existing and planned development in the Project area and would not induce unanticipated population growth. Construction would require approximately 12 construction workers who would be recruited from the local pool of labor. Therefore, Project construction would not create employment opportunities exceeding growth estimates for the area.

Because the Project is consistent with the growth assumptions used in developing the AQMP, pursuant to SCAQMD guidelines, the proposed Project is considered consistent with the region's AQMP. As such, proposed Project-related emissions are accounted for in the AQMP, which is crafted to bring the basin into attainment for all criteria pollutants. Accordingly, the proposed Project would be consistent with the emissions projections in the AQMP and impacts would be less than significant.

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

**Less Than Significant Impact.** The SCAB is currently non-attainment for federal ozone and particulate matter 10 microns or less in diameter (PM<sub>10</sub>) standards and for state ozone, PM<sub>10</sub>, and particulate matter 2.5 microns or less in diameter (PM<sub>2.5</sub>) standards. Concentrations of all other pollutants meet applicable federal and/or state standards. To determine whether a project would result in emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation, a project's emissions are evaluated based on the quantitative emission thresholds established by the SCAQMD (SCAQMD 2023).

The Project would generate criteria pollutants in the short-term during construction. Once construction activity is complete, the Project components would be sealed pipelines, which would be located underground and operate passively. The Project's construction emissions were calculated using the California Emissions Estimator Model (CalEEMod), Version 2022.1.1.14 (California Air Pollution Control Officers Association 2022). Emission calculations in CalEEMod were based on equipment assumptions provided by Project engineers and assumed implementation of standard dust control measures required by SCAQMD Rule 403, as described further in Section 2.5. Specific model input details are described further in the project's air quality assessment provided in Appendix A. The results of the emissions calculations for Project construction are shown in Table 1, *Maximum Daily Construction Emissions*. The data are presented as the maximum anticipated daily emissions for comparison with the SCAQMD thresholds.

**Table 1**  
**MAXIMUM DAILY CONSTRUCTION EMISSIONS**

Year	Pollutant Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2024	2.7	20.2	25.9	0.1	1.2	0.8
2025	2.6	17.9	25.6	0.1	1.0	0.7
2026	2.4	15.4	23.5	0.1	0.9	0.6
2027	2.4	14.6	23.4	0.1	0.9	0.6
<b>Maximum Daily Emissions</b>	<b>2.7</b>	<b>20.2</b>	<b>25.9</b>	<b>0.1</b>	<b>1.2</b>	<b>0.8</b>
<i>SCAQMD Thresholds</i>	75	100	550	150	150	55
<b>Significant Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: HELIX 2023a; SCAQMD 2023

VOC = volatile organic compound; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; SO<sub>2</sub> = sulfur dioxide;

PM<sub>10</sub> = respirable particulate matter 10 microns or less in diameter; PM<sub>2.5</sub> = fine particulate matter 2.5 microns or less in diameter; SCAQMD = South Coast Air Quality Management District

As shown in Table 1, the Project's construction emissions would not exceed SCAQMD thresholds and, therefore, would not result in a cumulatively considerable net increase of any criteria pollutant. As described previously, the Project would consist of passive pipelines after construction and would not result in operational emissions of criteria pollutants. Impacts would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

**Less Than Significant Impact.** Sensitive receptors in the Project vicinity include residences located adjacent to the proposed alignment. Construction of the Project has the potential to result in emissions of criteria pollutants and toxic air contaminants (TACs). These emissions are evaluated below. No emissions would occur during Project operation and sensitive receptors would not be exposed to substantial pollutant concentration.

#### Criteria Pollutants

The localized effects from criteria pollutants were evaluated at sensitive receptor locations potentially impacted by the Project according to the SCAQMD's Localized Significance Thresholds (LSTs) method (SCAQMD 2009). LSTs represent the maximum daily on-site emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard based on the ambient concentrations of that pollutant for each source receptor area (SRA).

The Project spans SRA 24, Perris Valley, and SRA 25, Lake Elsinore, and residential sensitive receptors are located within 25 meters of the Project site. The LSTs being applied to the Project are based on SRA 24 (the more conservative thresholds), receptors located within 25 meters, and a disturbed area not to exceed one acre per day. Consistent with the LST guidelines, when quantifying mass emissions for localized analysis, only emissions that occur on-site are considered. The maximum daily on-site emissions calculated in CalEEMod are shown in Table 2, *Maximum Localized Daily Construction Emissions*, and compared with the applicable LSTs.

**Table 2**  
**MAXIMUM LOCALIZED DAILY CONSTRUCTION EMISSIONS**

Year	Pollutant Emissions (pounds per day)			
	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
2024	19.8	24.3	0.8	0.7
2025	17.6	24.1	0.7	0.6
2026	15.1	21.8	0.6	0.5
2027	14.3	21.8	0.5	0.5
<b>Maximum Daily Emissions</b>	<b>19.8</b>	<b>24.3</b>	<b>0.8</b>	<b>0.7</b>
<i>SCAQMD LST</i>	<i>118</i>	<i>602</i>	<i>4</i>	<i>3</i>
<b>Significant Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: HELIX 2023a; SCAQMD 2009

NO<sub>x</sub> = nitrogen oxides; lbs./day = pounds per day; CO = carbon monoxide; PM<sub>10</sub> = respirable particulate matter with a diameter of 10 microns or less; PM<sub>2.5</sub> = fine particulate matter with a diameter of 2.5 microns or less; SCAQMD = South Coast Air Quality Management District; LST = Localized Significance Threshold

As shown in Table 2, localized emissions for all criteria pollutants would remain below their respective SCAQMD LSTs and impacts to sensitive receptors as a result of criteria pollutant emissions would be less than significant.

#### Toxic Air Contaminants

TACs are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust is known as diesel particulate matter (DPM). In 1998, the California Air Resource Board (CARB) identified DPM as a TAC based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects.

The use of heavy-duty construction equipment, haul trucks, and construction worker vehicles could generate DPM, which is a TAC. Generation of DPM from construction projects typically occurs in a localized area (e.g., near locations with multiple pieces of heavy construction equipment working in close proximity) for a short period of time. Because construction activities and subsequent emissions vary depending on the phase of construction, the construction-related emissions to which nearby receptors are exposed to would also vary throughout the construction period. Concentrations of DPM emissions are typically reduced by 70 percent at approximately 500 feet (CARB 2005). As discussed above, sensitive residential receptors are located adjacent to the Project site.

The dose of TACs to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance in the environment and the extent of exposure a person has with the substance; a longer exposure period to a fixed amount of emissions would result in higher health risks. Current models and methodologies for conducting cancer health risk assessments are associated with longer-term exposure periods (typically 30 years for individual residents based on guidance from Office of Environmental Health Hazard Assessment [OEHHA]) and are best suited for evaluation of long duration TAC emissions with predictable schedules and locations. These assessment models and methodologies do not correlate well with the temporary and highly variable nature of construction activities. Cancer potency factors are based on animal lifetime studies or worker studies where there is long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying

to evaluate the cancer risk from projects that will only last a small fraction of a lifetime (OEHHA 2015). Considering this information, the relatively short duration of construction activities, and the fact that any concentrated use of heavy construction equipment would occur at a single location for a short portion of the construction period, construction of the Project would not expose sensitive receptors to substantial DPM concentrations, and impacts would be less than significant.

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

**Less Than Significant Impact.** The Project could produce odors during proposed construction activities resulting from heavy diesel equipment exhaust and application of asphalt; however, standard construction practices would minimize the odor emissions and their associated impacts. Any odors emitted during construction would be temporary, short-term, and intermittent in nature, as construction equipment would progress along the Project alignment and asphalt odors would cease upon drying. Therefore, odor impacts from construction of the Project would be less than significant due to the duration of exposure.

The Project proposes the installation of sewer infrastructure, which would be sealed underground after installation and would not result in the emission of odors related to the transport of wastewater. Therefore, long-term operation of the Project would not result in a change to existing odors in the Project vicinity, and there would be no impact.

#### IV. Biological Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The discussion below is based on the Biological Resources Report prepared by HELIX (2023b), attached to this Initial Study as Appendix B. The Biological Resources Report included a general biological resources survey, literature review, and preliminary aquatic resource assessment. The study area described throughout this analysis includes the Project site and a 50-foot buffer around the proposed sewer alignment while the impact area includes a 36-foot buffer around the proposed sewer alignment where construction activity is anticipated to occur.

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

**Less Than Significant with Mitigation Incorporated.** The biological resources assessment identified eight vegetation communities within the study area: arroyo willow thicket, brittlebush scrub, California buckwheat scrub, disturbed California buckwheat scrub, developed, disturbed habitat, non-native vegetation, and unvegetated streambed. No special status plant species were observed in the study area or considered to have the potential to occur within the Project footprint. Therefore, no impact to special status plant species would occur.

Thirteen special status animal species have potential to occur in the study area, though this potential is considered low due to the lack of suitable habitat and regular disturbance of the developed Project site. No special status species were observed during the biological survey. Vegetation along the Project alignment provides marginal nesting habitat for birds and raptors protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFG Code). This vegetation is also marginally suitable for burrowing owl. Patches of Brittlebush scrub and California buckwheat scrub (including disturbed) within the study area is of low-quality and considered very poor habitat for coastal California gnatcatcher (CAGN) due to its sparsity, and its adjacency to disturbance including a road, residential housing, and disturbed habitat. During construction, the Project has the potential to result in impacts to nesting birds protected by the MBTA and CFG Code, burrowing owl, and CAGN. These potential impacts are described in further detail below.

The removal or trimming of trees and other vegetation during Project construction occurring during the general bird nesting season (February 1 to August 31 for songbirds and as early as January 15 for raptors) could result in significant impacts to nesting birds in violation of the MBTA and CFG Code. These impacts may also include indirect effects as a result of construction noise in areas supporting an active bird nest, such that the disturbance results in nest abandonment or nest failure. Mitigation measure BIO-1 would require a pre-activity nesting bird survey prior to construction activities between January 15 and September 15. In the event that active bird nests are identified during such surveys, mitigation measure BIO-1 requires avoidance buffers to be established around these nests. Implementation of mitigation measure BIO-1 would reduce impacts on nesting birds to a less than significant level.

While the patches of brittlebush scrub and California buckwheat scrub along the Project alignment are considered low-quality habitat for CAGN, there remains marginal potential for CAGN nesting within these habitat patches. No direct removal of this habitat is currently proposed; however, the Project would be constructed parallel to the potentially suitable nesting habitat and construction adjacent to suitable habitat during the nesting season would result in potentially significant impacts. To avoid impacts to CAGN, mitigation measure BIO-1 would require pre-construction surveys and/or barriers for work within 500 feet of suitable CAGN habitat during the CAGN breeding season (February 15 to August 30). With implementation of mitigation measure BIO-1, impacts to CAGN would be less than significant.

Burrowing owl has low potential to occur in the study area; however, ground disturbance within 500 feet of an active burrow during the burrowing owl breeding season (February 1 through August 31) or within 165 feet of an active burrow outside the breeding season could result in significant direct or indirect impacts to burrowing owl in violation of the MBTA and CFG code. Mitigation measure BIO-2 would require burrowing owl surveys be conducted prior to construction and, if burrowing owls are observed, avoidance buffers be established or a minimization, avoidance, and exclusion plan be submitted. With implementation of mitigation measure BIO-2, impacts to burrowing owl would be less than significant.

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

**Less Than Significant Impact.** No sensitive natural communities occur in the study area based on their global and state sensitivity ratings. As described above, Brittlebush scrub and California buckwheat scrub habitats are suitable habitats for sensitive species and would be avoided during Project construction. Arroyo willow thicket and unvegetated streambed are riparian habitats in the study area but are located outside of the proposed impact area. As described in Section 2.5, these habitats would be mapped on construction plans and flagged in the field prior to construction to ensure avoidance of direct impacts. With implementation of BMPs in accordance with the Project's SWPPP, no indirect impacts to off-site sensitive natural communities or riparian habitats would occur. The Project would avoid direct and indirect impacts to riparian habitat and sensitive natural communities adjacent to the proposed alignment; therefore, impacts would be less than significant.

- c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

**Less Than Significant Impact.** Arroyo willow thicket and unvegetated streambeds are considered potentially jurisdictional wetland habitats in the study area; however, these habitats are located outside of the Project impact area. Natural stream courses that flow into culverts under Highway 74 are all highly disturbed. EVMWD would implement BMPs during construction, which would prevent impacts to off-site federally protected wetlands. Therefore, impacts would be less than significant.

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

**No Impact.** The Project site is primarily within the ROW of Highway 74, a heavily trafficked road, where wildlife is subject to noise and other effects from this roadway and surrounding residential development. Although birds may use trees on-site, the Project site does not function as a wildlife corridor or nursery site. In addition, the Project's aboveground impacts would be limited to the construction period and would not result in permanent aboveground changes impeding wildlife movement. The Project would not substantially interfere with wildlife movement or nursery sites and no impact would occur.

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

**No Impact.** The Project would not conflict with any local policies or ordinances protecting biological resources. Tree removal, if required, may occur within the ornamental vegetation on residential lots adjacent to the proposed alignment. Chapter 12.24 of the Riverside County Code of Ordinances prohibits the removal of any native tree at least 30 feet in height and 12 inches in diameter-at-breast height. The Project would not result in the removal of native trees and would not conflict with County policies or ordinances. No impact would occur.

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

**No Impact.** The Project site is within the plan area for the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP), and partially within Criteria Cells and 3974 and 4078. The Project site is also within the Stephens' Kangaroo Rat Habitat Conservation Plan area but outside of mapped habitat for the species. EVMWD is not a signatory to the MSHCP or Stephens' Kangaroo Rat Habitat Conservation Plan and is not required to comply with plan conditions and associated mitigation fees; however, the Project's conformance with these plans that cover the study area is addressed to the extent feasible.

The Project site does not include lands targeted for conservation within MSHCP Criteria Cells that overlap the alignment. The Project site is also outside of the Narrow Endemic Plant Species Study area and the Criteria Area Species Study area for sensitive plant species; therefore, surveys of these species are not required. As previously described, burrowing owl surveys would be required during construction as part of mitigation measure BIO-2. No other species-specific study areas overlap the Project site. Impacts to riparian or riverine resources would be less than significant; however, no determination of biologically equivalent or superior preservation would be required since EVMWD is not subject to the

requirements of the MSHCP. As noted, the Project site is outside of mapped Stephens' Kangaroo Rat habitat. EVMWD is not subject to mitigation fees for development within the plan area and no conflicts with the Stephens' Kangaroo Rat Habitat Conservation Plan would occur. As EVMWD is not subject to the provisions of local habitat conservation plans, no impact would occur.

## Mitigation

Implementation of mitigation measures BIO-1 through BIO-4 would reduce potential impacts to special status animal species and riparian habitat to a less than significant level.

**BIO-1 Avoidance of Nesting Birds and Raptors.** To prevent direct impacts to nesting birds, including raptors, protected under the federal MBTA and CFG Code, the following measures shall be implemented:

Project activities requiring the removal and/or trimming of vegetation suitable for nesting birds shall occur outside of the general bird breeding season (March 15 through August 31 for songbirds and January 15 through August 31 for raptors) to the extent feasible. If construction activities (i.e., earthwork, clearing, and grubbing) must occur during the general bird nesting season for migratory songbirds (March 15 through August 31) and raptors (January 15 through August 31), a qualified biologist shall perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds, including coastal California gnatcatcher, and raptors afforded protection under the MBTA and CFG Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities. If construction is inactive for more than seven days, an additional survey shall be conducted. The results of the pre-construction survey shall be documented by the qualified biologist.

If the qualified biologist determines that no active migratory bird or raptor nests occur, the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird, coastal California gnatcatcher, or raptor nest is present, no impacts within 300 feet (500 feet for raptors and coastal California gnatcatcher) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, as determined by the qualified biologist. The biological monitor may modify the buffer or propose other recommendations in order to minimize disturbance to nesting birds.

**BIO-2 Avoidance of Burrowing Owl.** To prevent direct and indirect impacts to burrowing owl, the following measures shall be implemented:

A pre-construction burrowing owl survey shall be conducted in accordance with the protocol described in the California Department of Fish and Wildlife (CDFW) Staff Report on Burrowing Owl Mitigation (CDFW 2012). The initial take avoidance survey shall occur no less than 14 days prior to initiating ground-disturbing activities, with a final survey conducted within 24 hours prior to initiating ground-disturbing activities. If, after the initial take avoidance survey, no suitable burrowing owl habitat, including burrows, is present, the second survey 24 hours prior to ground disturbance shall not be required. The Project shall avoid disturbing active burrowing owl burrows (active nests).

In accordance with CDFW protocol for low disturbance projects, initial setback distances for avoidance of active burrows shall be 656 feet (200 meters) from April 1 to October 15 and 164 feet (50 meters) from October 16 to March 31. Exceptions can be made to the avoidance distance for areas with natural (hills, trees) or artificial (buildings, walls) barriers in place. The final avoidance buffer shall be at the discretion of the biologist. If, after consideration of a reduced buffer, an adequate avoidance buffer cannot be provided between an occupied burrow and required ground-disturbing activities, then passive relocation activities during the non-breeding season (September 1 through January 31) may be authorized in consultation with CDFW, which would include preparation, approval, and implementation of a Burrowing Owl Exclusion Plan in accordance with protocol described in the CDFW Staff Report on Burrowing Owl Mitigation. No impacts shall occur to active burrowing owl nests.

**V. Cultural Resources**

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

The discussion below is based on the Cultural Resources Survey prepared by HELIX (2023c), attached to this Initial Study as Appendix C. The Area of Potential Effect (APE) evaluated in this survey included a 36-foot buffer around the roadways containing the proposed alignment to account for potential staging areas outside of the pipeline location.

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

**No Impact.** HELIX staff conducted a record search of the California Historical Resources Information System of the Eastern Information Center (EIC) on July 31, 2023 for the proposed alignment and a half-mile radius around the Project site. A review of the California Historical Resources and the state Office of Historic Preservation historic properties directories was also conducted.

The EIC has a record of 41 previously recorded cultural resources within a 0.5-mile radius of the Project site. Four of these resources, two bedrock milling feature sites and two historic-period roads, were identified as overlapping the APE. Based on further review of sketch maps, these historic period roads were found to be outside of the proposed Project alignment. No historical resources were identified during the pedestrian survey of the Project site. As there are no historical resources within the proposed alignment that would be affected by the Project, no impact to historical resources would occur.

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

**Less Than Significant with Mitigation Incorporated.** As described in item V.a, two bedrock milling feature sites were identified in the EIC records search as being within the APE. However, one of these sites (P-33-015417) was determined to be 14 meters (46 feet) west of Highway 74 and outside of the APE. The other bedrock milling site (P-33-015416) is located at the edge of the APE, which includes a 36-foot buffer along the Project alignment for staging activities. This resource area would be flagged and avoided during construction. Previous surveys of the APE have not resulted in the identification of additional archaeological resources. No new archaeological resources were identified during the Project pedestrian survey and the two bedrock milling features were reidentified in their mapped locations. While no recorded archaeological resources were identified within the proposed alignment, the Project vicinity is considered sensitive for cultural resources based on the presence of such resources in the records search area and at the edge of the APE. Archaeological resources may be buried within the Project alignment and disturbance of these resources during Project installation would result in significant impacts. Mitigation measures CR-1 through CR-9 would require the implementation of a cultural resource monitoring program during ground disturbing activities but allow the reduction of monitoring presence in areas determined to be too deep or disturbed to contain cultural material. The mitigation measures also require flagging around the archaeological site (P-33-015416) located at the edge of the APE. With implementation of mitigation measures CR-1 through CR-9, impacts to archaeological resources would be less than significant.

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

**Less than Significant Impact.** The Project is proposed within existing roadways and is not located on or adjacent to a formal cemetery or a known burial ground. Since the Project site has been developed as a roadway, it is unlikely ground disturbance during Project construction would result in the disturbance of any human remains. Should human remains be uncovered during construction, the Project would comply with existing regulations, including California Health and Safety Code Section 7050.5, and the remains would be protected, analyzed, and preserved as required. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission (NAHC), would be contacted in order to determine proper treatment and disposition of the remains in accordance with California Public Resources Code section 5097.98. Therefore, impacts to human remains would be less than significant.

### Mitigation

Implementation of mitigation measures CR-1 through CR-9 would reduce potential impacts to archaeological resources to a less than significant level.

- CR-1 Archaeological Monitoring During Construction.** At least 30 days prior to grading, excavation, and/or other ground-disturbing activities on the Project site, EVMWD shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology and listed on the Register of Professional Archaeologists or the County of Riverside list of qualified archaeologists to monitor ground-disturbing activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project archeologist and the

Consulting Tribes(s) shall attend the pre-grading meeting with EVMWD, the construction manager, and contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include: a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project Archaeologist and Consulting Tribe(s) shall make themselves available to provide the Training on an as-needed basis.

**CR-2 Native American Tribal Monitoring During Construction.** At least 30 days prior to grading, excavation, and/or other ground-disturbing activities, EVMWD shall contact the Monitoring Tribe(s), identified through government-to-government consultation, to notify each Tribe of excavation activities and coordinate with the Tribe(s) to develop Monitoring Agreements. The Agreements shall address the designation, responsibilities, and participation of Native American tribal monitors during excavation and other ground-disturbing activities and construction scheduling. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed.

**CR-3 Cultural Resources Monitoring Plan.** The Project Archaeologist, in consultation with the Monitoring Tribe(s) and EVMWD, shall develop a Cultural Resources Monitoring Plan to address the details, timing, and responsibility of archaeological and cultural activities that will occur on the Project site. Details in the Plan shall include:

- a. Project grading and development scheduling;
- b. The protocols and stipulations that EVMWD, the Monitoring Tribe(s), and the Project Archaeologist will follow in the event of inadvertent cultural resources discoveries, including newly discovered cultural resources;
- c. Roles and responsibilities of individuals on the Project; and
- d. Contact information of relevant individuals for the Project.

**CR-4 Cultural Resources Sensitivity Training.** Prior to grading, excavation, and/or other ground-disturbing activities on the Project site, the Project Archaeologist and the Monitoring Tribe(s) shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, and of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains. EVMWD's construction manager shall ensure that construction personnel are made available for and attend the training and shall retain documentation demonstrating attendance.

**CR-5 Inadvertent Finds.** If during ground disturbance activities, unique cultural resources are discovered that were not assessed by the archaeological report(s) and/or environmental

assessment conducted prior to Project approval, the following procedures shall be followed. Unique cultural resources are defined, for this condition only, as being multiple artifacts in close association with each other, but may include fewer artifacts if the area of the find is determined to be of significance due to its sacred or cultural importance as determined in consultation with the Native American Tribe(s). Tribal cultural resources are excluded from the definition of unique cultural resources as those resources are defined by the tribal values ascribed to them by their affiliated communities. Treatment of tribal cultural resources inadvertently discovered during the Project's ground-disturbing activities shall be subject to the consultation process required by state law and AB 52.

- i. All ground disturbance activities within 100 feet of the discovered cultural resources shall be halted until a meeting is convened between the Project Applicant, the Project Archaeologist, the Tribal Representative(s), and EVMWD to discuss the significance of the find.
- ii. At the meeting, the significance of the discoveries shall be discussed and after consultation with the Tribal Representative(s) and the Project Archaeologist, a decision shall be made, with the concurrence of EVMWD, as to the appropriate mitigation (documentation, recovery, avoidance, etc.) for the cultural resources.
- iii. Further ground disturbance, including but not limited to grading, trenching, etc., shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional Tribal Monitors if needed.
- iv. Treatment and avoidance of the newly discovered resources shall be consistent with the Cultural Resources Management Plan and Monitoring Agreements entered into with the appropriate Tribe(s). This may include avoidance of the cultural resources through Project design, in-place preservation of cultural resources located in native soils and/or re-burial on the Project property so they are not subject to further disturbance in perpetuity as identified in Non-Disclosure of Reburial Condition/Mitigation Measures.
- v. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan shall be prepared by the Project Archeologist, in consultation with the Tribe(s), and shall be submitted to EVMWD for their review and approval prior to implementation of the said plan.
- vi. Pursuant to Calif. Pub. Res. Code § 21083.2(b) avoidance is the preferred method of preservation for archaeological resources and cultural resources. If the Project Applicant and the Tribe(s) cannot agree on the significance or the mitigation for the archaeological or cultural resources, these issues will be presented to EVMWD for decision. EVMWD shall make the determination based on the provisions of CEQA with respect to archaeological resources, recommendations of the Project Archeologist and shall consider the cultural and religious principles and practices of the Tribe(s). Notwithstanding any other rights available under the law, the decision of EVMWD shall be appealable to the EVMWD governing body. Evidence of

compliance with this mitigation measure, if a significant archaeological resource is found, shall be provided to EVMWD upon the completion of a treatment plan and final report detailing the significance and treatment finding.

**CR-6 Final Disposition.** In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

- a) One or more of the following treatments, in order of preference, shall be employed with the Tribe(s). Evidence of such shall be provided to EVMWD:
  - i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resources.
  - ii. Reburial of the resources on the Project property. The measures for reburial shall include, at least, the following: Measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed, with an exception that sacred items, burial goods, and Native American human remains are excluded. Any reburial process shall be culturally appropriate. Listing of contents and location of the reburial shall be included in the confidential Phase IV report. The Phase IV Report shall be filed with EVMWD under a confidential cover and not subject to Public Records Request.
  - iii. If preservation in place or reburial is not feasible then the resources shall be curated in a culturally appropriate manner at a Riverside County curation facility that meets State Resources Department Office of Historic Preservation Guidelines for the Curation of Archaeological Resources ensuring access and use pursuant to the Guidelines. The collection and associated records shall be transferred, including title, and are to be accompanied by payment of the fees necessary for permanent curation. Evidence of curation in the form of a letter from the curation facility stating that subject archaeological materials have been received and that all fees have been paid, shall be provided by the landowner to EVMWD. There shall be no destructive or invasive testing on sacred items, burial goods, and Native American human remains. Results concerning finds of any inadvertent discoveries shall be included in the Phase IV monitoring report. Evidence of compliance with this mitigation measure, if a significant archaeological resource is found, shall be provided to EVMWD upon the completion of a treatment plan and final report detailing the significance and treatment finding.

**CR-7 Discovery of Human Remains.** If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the “most likely

descendant”. The “most likely descendant” shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

**CR-8 Non-disclosure.** It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code 6254 (r), parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code 6254 (r).

**CR-9 Final Archaeological Monitoring Report.** The Project Archaeologist shall prepare a final archaeological report within 60 days of completion of the Project. The report shall follow Archaeological Resource Management Report Guidelines (California Office of Historic Preservation 1990) and EVMWD requirements and shall include, at a minimum: a discussion of monitoring methods and techniques used, the results of the monitoring program, including artifacts recovered, an inventory of resources recovered, updated Department of Parks and Recreation forms, if any, and any other site(s) identified, final disposition of the resources, and any additional recommendations. A final copy shall be submitted to EVMWD, the Eastern Information Center, and the Monitoring Tribe(s).

**VI. Energy**

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

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

**Less Than Significant Impact.** Construction of the Project would consume energy, primarily in the form of the petroleum-based fuels (i.e., gasoline and diesel). Heavy-duty off-road construction equipment, haul trucks delivering and removing construction materials, and worker vehicles would consume these fuels. Project-related consumption of such energy resources for construction would be temporary, typical for this type of construction, and cease upon the completion of construction (estimated to last between 37 months). No inefficient or unnecessary construction methods are proposed such that excessive energy resources would be consumed during Project construction. During Project operation, no energy resources would be required since Project components would be passive infrastructure

elements. Therefore, the Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources and impacts would be less than significant.

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

**No Impact.** During construction, the construction contractor would be required to use equipment that complies with applicable regulations related to energy-efficient operations. The Project would not require energy during operation. Therefore, no there would be no conflicts with state or local plans for renewable energy or energy efficiency and no impact would occur.

## VII. Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The discussion below is based on the Geotechnical Evaluation prepared for the project by Ninyo & Moore (2023), attached to this Initial Study as Appendix D.

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

- i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?

**No Impact.** The Project site is not within an Alquist-Priolo Fault Zone (DOC 2023). The nearest active fault to the Project site is the Glen Ivy segment of the Elsinore Fault Zone, located approximately five miles southwest of the Project site (Ninyo & Moore 2023). As there are no faults are mapped within the Project alignment, the risk of fault rupture within the alignment is low and no impact would occur.

- ii. Strong seismic ground shaking?

**Less Than Significant Impact.** Based on the presence of the faults throughout the Project region, there is potential for strong ground shaking to occur. Since the Project would not result in structures usable by humans, there are no risks to people or structures related to ground shaking that would occur during Project operation. The proposed sewer pipeline would be engineered and constructed in compliance with current codes and standards for the Project's location, as described by the geotechnical investigation for the Project. Ground shaking in the Project region would not result in substantial adverse effects related to the Project and impacts would be less than significant.

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

**No Impact.** No recommendations related to liquefactions were provided in the Project's geotechnical investigation. The Project site does not have liquefaction potential, as it is underlain by granitic rock and lacks static groundwater (Ninyo & Moore 2023). The Project would not result in adverse effects as a result of liquefaction and no impact would occur.

- iv. Landslides?

**No Impact.** The Project site does not have substantial landslide potential (Ninyo & Moore 2023). Further, the proposed pipeline installation would not create habitable structures that would be at risk in the event of a landslide. No impact would occur.

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

**Less Than Significant Impact.** The Project would increase the potential for erosion during construction due to the removal of stabilizing surfaces, excavation, and backfill. After completion of construction activities, these surfaces would be restabilized and there would be no change of erosion potential in the Project area.

Short-term erosion and sedimentation impacts would be addressed through conformance with applicable elements of the NPDES Construction General Permit, including implementation of a SWPPP. The required Project-specific BMPs would be determined during the SWPPP process based on site-

specific characteristics (soils, slopes, etc.) and implementation of these BMPs would ensure Project construction would not result in substantial soil erosion or topsoil loss. Impacts would be less than significant.

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

**No Impact.** As described in items VII.a.iii and VII.a.iv above, the Project would not result in adverse effects related to landslide or liquefaction. The potential for lateral spreading, subsidence, and collapse are typically related to a location's potential for liquefaction. Therefore, the Project is not located on or anticipated to result in an unstable geologic unit associated with landslide, lateral spreading, subsidence, liquefaction, or collapse. No impact would occur.

- d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

**Less Than Significant Impact.** Soils encountered along the Project alignment have expansion potential resistance values between 50 and 62 and the Project's geotechnical investigation includes recommendations for Project pavement installation based on these underlying soils. Therefore, no adverse effects would result from construction within expansive soils and impacts would be less than significant.

- e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

**No Impact.** The Project does not propose the installation or use of septic tanks or alternative waste water disposal systems. The Project would install a trunk sewer pipeline that would allow for sewer disposal in the Project region in the future. No impact would occur.

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

**Less Than Significant with Mitigation Incorporated.** The Project site is primarily within an area of low paleontological sensitivity with some areas of undetermined potential to contain paleontological resources (County 2023). Given that some of the Project alignment is mapped as having undetermined paleontological sensitivity, a paleontological resources assessment was undertaken to identify the potential for paleontological resources to underly the Project alignment (Appendix E; Material Cultural Consulting 2023). Based on the results of a records search, geological map review, and literature review, it was determined the Project is underlain by middle to early Pleistocene-age Very old alluvial-channel deposits (Qvoa), which has moderate paleontological potential, and Zircon-age Massive textured tonalite (Kgt), which has a very low paleontological potential. The records search did not identify fossil localities within two miles of the Project site. Within areas of the Project underlain by Kgt, the Project would not result in direct or indirect destruction of paleontological resources and no impact would occur. The Project alignment is underlain by Qvoa within Highway 74 between River Road and Kimes Lane, and the Project has the potential to encounter paleontological resources during ground disturbing activities in this location, resulting in a potentially significant impact. Mitigation measure GEO-1 would require preparation of a Paleontological Resource Impact Mitigation Plan (PRIMP), as recommended by the paleontological resources assessment. With implementation of mitigation measure GEO-1, impacts would be less than significant.

**Mitigation**

Implementation of mitigation measure GEO-1 would reduce potential impacts to paleontological resources to a less than significant level.

**GEO-1 Paleontological Resource Impact Mitigation Plan.** Prior to the County’s issuance of an encroachment permit, EVMWD shall hire a qualified paleontologist to prepare a Paleontological Resource Impact Mitigation Plan (PRIMP). The PRIMP shall include a requirement for full-time paleontological monitoring during ground-disturbing activities within the middle to early Pleistocene-age Very old alluvial-channel deposits (Qvoa) mapped on Highway 74 between River Road and Kimes Lane. An inadvertent discovery plan shall be developed and included in the PRIMP to address treatment of paleontological resources should any be encountered during construction of the Project. If paleontological resources are inadvertently discovered during ground-disturbing activities, work must be halted within 50 feet of the find until it can be evaluated by a qualified paleontologist. If the discovery proves to be significant, additional work, such as fossil collection and curation, may be warranted and would be discussed in consultation with the appropriate regulatory agency(ies). Any recovered fossil remains shall be prepared and identified to the lowest taxonomic level possible by qualified paleontologists. Significant remains shall then be transferred to a fossil repository for curation. Upon completion of ground-disturbing activities in the area mapped Qvoa, a qualified paleontologist shall prepare a report of findings made during ground-disturbing activity and include an itemized list of any fossil specimens recovered during grading.

**VIII. Greenhouse Gas Emissions**

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

The discussion below is based on the Air Quality and Greenhouse Gas Emissions Assessment prepared by HELIX (2022a), attached to this Initial Study as Appendix A.

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

**Less Than Significant Impact.** The 2019 Riverside County Climate Action Plan (CAP) includes guidance for addressing GHG emissions under CEQA. For projects that are not exempt under CEQA, a screening threshold of 3,000 metric tons (MT) of carbon dioxide equivalent (CO<sub>2</sub>e) per year is used to determine if

additional analysis is required (County 2019). Projects that exceed the 3,000 MT CO<sub>2</sub>e per year screening threshold are required to either achieve a minimum 100 points per the CAP Screening Tables or a 25 percent reduction over 2020 GHG emission levels. Consistent with the CEQA Guidelines, projects determined to be consistent with the County CAP would be determined to have a less than significant individual and cumulative impact for GHG emissions.

Project construction would result in GHG emissions generated by vehicle engine exhaust from construction equipment and worker commuting trips. Construction GHG emissions were calculated by using CalEEMod, as described further in Appendix A, and are shown in Table 3, *Construction GHG Emissions*. For construction emissions, SCAQMD recommends that the emissions be amortized (i.e., averaged) over the anticipated lifespan of a project (30 years) and added to operational emissions. However, no operational emissions would result from the proposed Project.

**Table 3**  
**CONSTRUCTION GHG EMISSIONS**

Year	Emissions (MT CO <sub>2</sub> e)
2024	206.0
2025	837.6
2026	827.9
2027	704.4
<b>Total Construction Emissions<sup>1</sup></b>	<b>2,575.9</b>
<b>Amortized Construction Emissions</b>	<b>85.9</b>
<i>CAP Threshold</i>	<i>3,000</i>
<b>Significant Impact?</b>	<b>No</b>

Source: HELIX 2023a; County 2019

<sup>1</sup> Total may not sum due to rounding.

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

Averaged over 30 years, the proposed construction activities would contribute approximately 85.9 MT CO<sub>2</sub>e emissions per year. The construction emissions would not exceed the County screening threshold of 3,000 MT CO<sub>2</sub>e per year and impacts would be less than significant.

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

**Less Than Significant Impact.** There are numerous State plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The principal overall State plan and policy is AB 32, the California Global Warming Solutions Act of 2006. The initial quantitative goal of AB 32 was to reduce GHG emissions to 1990 levels by 2020. Senate Bill 32 would require further reductions of 40 percent below 1990 levels by 2030 and AB 1279 established a policy to achieve net zero GHG emissions no later than 2045 and achieve and maintain net negative GHG emissions thereafter. Statewide plans and regulations such as GHG emissions standards for vehicles (AB 1493), the low carbon fuel standard, and regulations requiring an increasing fraction of electricity to be generated from renewable sources are being implemented at the statewide level; as such, compliance at the project level is not addressed.

As described in item VIII.a, the Project would comply with the County's CAP, which is intended to bring the County into alignment with statewide plans, policies, and regulations related to GHG emissions. The

Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and impacts would be less than significant.

**IX. Hazards and Hazardous Materials**

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

**Less Than Significant Impact.** Construction activities may involve the limited transport, storage, use, and/or disposal of hazardous materials, such as for the fueling and servicing of construction equipment on-site. These activities would be short-term or one-time in nature and would be subject to federal, state, and local health and safety regulations, which would minimize hazards related to the use of these materials. Long-term operation of the Project would involve little or no hazardous materials since pipelines would be sealed underground and do not emit hazardous materials. The Project would not

result in a significant hazard related to the transport, use, or disposal of hazardous materials and impacts would be less than significant.

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

**Less Than Significant Impact.** As discussed above in item IX.a, limited amounts of hazardous materials would be used during construction; however, these materials would be used and stored in accordance with applicable regulations that would limit the potential for their accidental release. As the proposed pipeline would be sealed underground, there are no reasonably foreseeable upset or accident conditions that would result in the release of hazardous materials into the environment. Impacts would be less than significant.

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

**No Impact.** There are no schools located within one-quarter mile of the proposed Project alignment. Therefore, the Project would not result in the emission or handling of hazardous materials within one-quarter mile of a school site and no impact would occur.

- d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

**Less Than Significant Impact.** The Department of Toxic Substances Control (DTSC) EnviroStor database and the State Water Resources Control Board (SWRCB) GeoTracker database were consulted to identify if the Project site or surrounding nearby properties are on a list compiled pursuant to Government Code 65962.5. No open cases for hazardous materials sites were recorded in GeoTracker within a 1,000-foot radius of the proposed alignment (SWRCB 2023). An inactive voluntary cleanup case was identified in EnviroStor for the Good Hope Gold Mine, which occurs west of Highway 74, between Eugene Street and Richard Street (DTSC 2023). When development was proposed on this property, a voluntary cleanup agreement was made between the developer and DTSC; however, cleanup activities have ceased the cleanup agreement has been terminated (DTSC 2022). The Project is not anticipated to disrupt soils affected by the prior mining activities, as excavation would occur only within the roadway. As such, the Project would not create a significant hazard to the public or the environment due to a hazardous materials site and impacts would be less than significant.

- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

**No Impact.** The Project site is not located within the planning area for nearby airports and is not within two miles of an airport where such a plan has not been adopted (County 2023). The nearest airport to the Project site is the Perris Valley Airport, located approximately 3.8 miles northeast of the alignment. Therefore, the Project would not expose workers constructing the pipeline to a safety hazard or excessive noise related to airports. No impact would occur.

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

**Less Than Significant Impact.** Construction activity would occur in the public ROW and require an encroachment permit from the County. As described in Section 2.4 and as a condition of the encroachment permit, a TMP would be developed with measures to ensure traffic safety is maintained throughout Project construction. It is anticipated that one lane in each direction would remain open during construction within Highway 74 and a temporary road closure would be required during construction within Wasson Canyon Road. The Project’s TMP would be required to be reviewed and approved by the County to ensure that Project construction would not interfere with emergency response or evacuations. After construction, no Project components would be aboveground and there would be no interference with emergency operations. Adherence to the TMP would reduce potential conflicts with emergency response or evacuation plans and impacts would be less than significant.

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

**Less Than Significant Impact.** The majority of the Project site is within areas designated as a Very High Fire Hazard zones per County Ordinance 787 (County 2023). Vacant lands with low-lying brush surround Highway 74 and present the potential for wildland fires during construction. Implementation of brush management practices, as identified in Section 2.5, would ensure the use of construction equipment near wildlands does not result in wildland fires. No change to wildland fire risk would occur after construction when the pipeline is sealed underground. Impacts would be less than significant.

## X. Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional resources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

**Less Than Significant Impact.** Potential water quality impacts associated with the Project include short-term construction-related discharges. The proposed Project is considered a Linear Underground Project that would disturb more than 1 acre of land and the construction contractor would be required to comply with the EVMWD’s general permit, submit a Notice of Intent to the RWQCB, and develop a SWPPP. The SWPPP, discussed further in Section 2.5, would identify Project-specific measures that would prevent substantial discharges during Project construction. Upon completion of construction, Project components would be located underground and would not result in runoff that could degrade water quality. With implementation of construction BMPs required by the Project-specific SWPPP, impacts related to water quality would be less than significant.

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

**No Impact.** The Project would be constructed within existing, paved roadways and would return roadways to their existing conditions after pipeline installation. Therefore, no increase in the amount of impermeable surface at the Project site would occur. The Project would not require the withdrawal of groundwater. Therefore, the Project would not decrease groundwater supplies or interfere with groundwater recharge and no impact would occur.

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

**Less Than Significant Impact.** During construction, the removal of paved surfaces and excavation of trenches would expose soils, which may result in erosion or siltation on- or off-site. As described in Section 2.5, a SWPPP would be developed and would require implementation of construction BMPs to prevent substantial erosion during construction. Upon completion of construction, Project components would be underground and roadways would be repaved, which would minimize the potential for erosion. With implementation of the BMPs required by the Project's SWPPP, impacts related to erosion and siltation would be less than significant.

- ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site?

**No Impact.** The Project site consists of existing, paved streets and would be returned to this condition after pipeline installation. As such, no change to the volume or rate of runoff from the Project area would occur such that flooding would be induced on- or off- site. No impact would occur.

- iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional resources of polluted runoff?

**Less Than Significant Impact.** As discussed in item X.c.ii above, the Project would not result in changes to the amount of runoff from the Project area. The Project would also not contribute pollutants to the Project area that would result in polluted runoff during Project operation. During construction activities, BMPs would be implemented in accordance with the Project's SWPPP to prevent substantial polluted runoff from entering the stormwater drainage system. Impacts would be less than significant.

- iv. Impede or redirect flood flows?

**No Impact.** The Project site does not contain floodplains designated by the Federal Emergency Management Agency (FEMA; 2008). Small portions of the proposed alignment are bisected by County-designated flood areas (County 2023). Project improvements would be installed under existing roadways and these surfaces would be returned to pre-Project conditions upon the completion of construction. Therefore, the Project would not impede or redirect potential flood flows and no impact would occur.

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

**No Impact.** As described in item X.c.iv, small portions of the Project site contain County-designated floodplains. The Project site would not be at risk of inundation due to tsunami, as it is 27 miles east of the Pacific Ocean. Lake Elsinore and Lake Perris are the waterbodies in the County anticipated to have the potential for seiche hazards; however, the Project site is not within the identified hazard areas (County 2015a). Project components would be contained underground and would not result in the release of pollutants in the unlikely event of Project inundation. No impact would occur.

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

**Less Than Significant Impact.** The Project would comply with the Water Quality Control Plan for the Santa Ana River Basin and NPDES Stormwater Program by implementing a SWPPP listing BMPs to prevent construction pollutants and products from violating any water quality standards or waste discharge requirements. The Project site is not within the plan area for a sustainable groundwater management plan (California Department of Water Resources 2023). Impacts would be less than significant.

**XI. Land Use and Planning**

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a) Physically divide an established community?

**No Impact.** The Project would be installed within existing ROWs and all Project components would be located underground upon completion of construction. As such, the Project would not physically divide an established community and no impact would occur.

- b) Cause significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

**Less Than Significant with Mitigation Incorporated.** The Project would be installed underground in the public ROW and would not result in changes to land use types in the Project area. During construction, staging would occur in developed lots along the alignment but would not result in changes to land uses on these lots.

As described throughout this Initial Study, the Project has the potential to result in a conflict with policies and/or regulations adopted for the purpose of avoiding or mitigating environmental impacts. As evaluated above in Section 4.IV, the proposed Project could result in potential impacts to biological resources. Implementation of mitigation measures BIO-1 through BIO-4 would reduce or avoid construction-related impacts to resources identified for protection in the County General Plan and MSHCP.

During excavation activities, the Project also has the potential to result in impacts to paleontological resources, as discussed in Section 4.VII. Implementation of mitigation measure GEO-1 would ensure the Project complies with County General Plan policies intended to protect paleontological resources.

The Project proposes work within the ROW and presents the potential to result in traffic hazards and impacts to circulation. Adherence to TMPs approved by the County would reduce the potential for adverse impacts related to circulation and ensure consistency with local traffic policies. After construction is completed, surfaces would be returned to their pre-Project conditions and circulation elements would resume functioning as outlined in the General Plan Circulation Element.

As evaluated in Section 4.XIII, construction activities have the potential to generate noise adjacent to residences; however, these activities would occur during the hours prescribed by the County Ordinance and impacts related to construction noise would remain less than significant.

The proposed Project would not result in changes to land use and would not result in other land use policy conflicts. With implementation of the mitigation measures discussed above, impacts would be less than significant.

## XII. Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

**No Impact.** Mineral Resource Zone (MRZ) categories are used by the State Geologist to classify the lands according to their potential to contain mineral resources. The Project site is within MRZ-3, where the significance of mineral deposits is undetermined (County 2015b). The Project would occur within existing roadways; therefore, there is little to no potential for mineral resource recovery to occur within the Project site. The Project would not result in the loss of availability of mineral resources or a delineated mineral resource recovery site. No impact would occur.

**XIII. Noise**

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

- a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

**Less Than Significant Impact.** Operation of the pipeline would not result in any permanent increases in noise levels in the Project area. Construction of the Project would result in temporary construction-related noise increases. Construction would occur approximately 60 feet from the nearest residences adjacent to the Project site along Wasson Canyon Road. Residences along Wasson Canyon Road would be exposed to the greatest increases in noise levels during construction, as residential structures are closest to the roadway and ambient noise levels are lower than along Highway 74. Noise levels from the anticipated construction equipment were calculated in the Roadway Construction Noise Model and the results are provided in Table 4, *Construction Equipment Noise Levels*.

**Table 4  
CONSTRUCTION EQUIPMENT NOISE LEVELS**

Equipment	Percent Operating Time	dBA L <sub>MAX</sub> at 60 feet	dBA L <sub>EQ</sub> at 60 feet
Backhoe	40	76.0	72.0
Boring Jack Power Unit	50	81.4	78.4
Dump Truck	40	74.9	70.9
Excavator	40	79.1	75.1
Front End Loader	40	77.5	73.5
Mounted Impact Hammer	20	88.7	81.7
Paver	50	75.6	72.6

Source: U.S. Department of Transportation 2008

dBA = A-weighted decibel; L<sub>MAX</sub> = maximum noise level; L<sub>EQ</sub> = hourly sound level

Riverside County Ordinance 847 contains the County's property noise limits; however, construction is exempt from these noise limits as long as it is limited to the hours of 6:00 a.m. to 6:00 p.m. during the months of June through September and to the hours of 7:00 a.m. to 6:00 p.m. during the months of October through May. The Project would be constructed during these hours and would not result in conflicts with the local noise ordinance. Further, the BMPs described in Section 2.5 would be implemented during construction and would reduce construction noise levels at residential and other surrounding land uses. In addition, pipeline construction is anticipated to occur at a rate of 10 to 20 feet per day and would be located near an individual residence for a short portion of the overall construction period. The Project would not result in substantial temporary or permanent increases in ambient noise levels exceeding County standards and impacts would be less than significant.

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

**Less Than Significant Impact.** The County General Plan EIR considers impacts related to human annoyance by vibration in accordance with Federal Transportation Administration (FTA) thresholds, which state residential land uses would be disturbed by generation of 72 vibration decibels (VdB) from frequent events, defined as more than 70 vibration events per day (County 2015a). The FTA also provides vibration damage criteria for buildings and state that buildings extremely susceptible to vibration damage may be affected by vibration levels of 90 VdB (FTA 2018).

The highest potential for vibration during construction would be associated with the hoe ram used to break up rocks during trenching. According to the FTA, a hoe ram typically produces a vibration level of 87 VdB at a distance of 25 feet (FTA 2018). As previously noted, construction activities are anticipated to occur approximately 60 feet from the nearest residences. At 60 feet, a hoe ram would generate a vibration level of 76 VdB.<sup>2</sup> This would not exceed the threshold for vibration damage for buildings extremely susceptible to vibration damage. Therefore, no structural damage due to vibration would occur.

Project construction is expected to slightly exceed the residential annoyance criteria of 72 VdB for frequent vibration events; however, construction would occur during daytime hours and for a limited period of time. At approximately 80 feet from an individual residence, vibration levels would be reduced

<sup>2</sup> Vibration level at distance = Reference vibration level – 30\*LOG(D/25), where Reference vibration level is at 25 feet and D is distance from equipment to the receiver in feet; formula from FTA 2018.

below the FTA annoyance level. Due to the short-term, temporary nature of construction vibration and the lack of structural damage that would occur, impacts related to vibration would be less than significant.

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

**No Impact.** The Project site is not located within the planning area for nearby airports and is not within two miles of an airport where such a plan has not been adopted (County 2023). As such, the Project is not within the noise contours for nearby airports and people constructing the Project would not be exposed to excessive aircraft noise. No impact would occur.

#### XIV. Population and Housing

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

- a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

**No Impact.** Installation of the proposed trunk sewer would allow for the conversion of existing land uses in the Meadowbrook community from septic tanks to sewer infrastructure in accordance with EVMWD’s 2016 Sewer System Master Plan. The availability of the sewer main is not anticipated to induce population growth, as it would accommodate flows from planned development in the area. Land use plans developed by the County anticipate growth in the Elsinore Area Plan region where the Project is proposed. While the Project would serve these uses, it would not induce growth not previously anticipated. No impact would occur.

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

**No Impact.** The Project site consists of public ROW where there is no existing housing. The Project would not displace people or housing and would not necessitate the construction of new housing. No impact would occur.

## XV. Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Fire protection?

**No Impact.** The Project would not induce population growth or create new aboveground structures that would require fire protection services. The proposed pipeline would operate passively underground and would not be a potential fire source. No new or altered fire protection facilities would be required and no impact would occur.

b) Police protection?

**No Impact.** The Project would not result in population growth or the construction of features that would require police protection. Since the Project components would be contained underground, no police protection services would be required during operation. No impact would occur.

c) Schools?

**No Impact.** The Project would not induce population growth, including that of school-aged children. Therefore, no new or altered school facilities would be required and no impact would occur.

d) Parks?

**No Impact.** The Project would not result in population growth and thereby would not result in an increased need for parks or the need for upgrades to existing park facilities. No impact would occur.

e) Other public facilities?

**No Impact.** No population growth would occur as a result of the Project. Therefore, no increased use of public facilities or need for new public facilities would occur and there would be no impact.

**XVI. Recreation**

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

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

**No Impact.** The Project would not result in population growth and would not increase the use of parks or recreational facilities. Thus, substantial physical deterioration of these facilities would not occur or be accelerated and no impact would occur.

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

**No Impact.** The Project would install a sewer pipeline and does not propose any recreational facilities. Additionally, the Project would not induce population growth that would require the construction or expansion of park or recreational facilities. No impact would occur.

**XVII. Transportation**

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

**Less Than Significant Impact.** During construction, the Project would temporarily alter existing circulation patterns and would require an encroachment permit from the County. In accordance with an encroachment permit, the Project would implement a TMP that would outline procedures and traffic control measures necessary to ensure adequate access would be maintained during the altered traffic conditions. At the conclusion of construction, Highway 74 and Wasson Canyon Road would be returned to their pre-Project conditions in compliance with the County’s circulation programs, plans and policies. Impacts would be less than significant.

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

**Less Than Significant Impact.** According to CEQA Guidelines Section 15064.3 subdivision (b), vehicle miles traveled (VMT) exceeding an applicable threshold of significance may indicate a significant impact. The County has prepared guidelines for VMT assessments, which provide a list of project types that can be screened from detailed VMT analysis and assumed to result in a less than significant impact. Projects that generate fewer than 110 trips per day can be assumed to cause a less than significant transportation impact (County 2020). Project-generated trips would be limited to the construction period when 12 construction workers and various construction materials would be transported to the site. The Project would not exceed the 110-trip threshold and no conflicts with CEQA Guidelines Section 15064.3 subdivision (b) would occur. Impacts would be less than significant.

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

**Less Than Significant Impact.** As previously described, the Project would require altered traffic patterns during construction; however, adherence to a TMP would ensure that road and lane closures would not result in substantial hazards to construction personnel or users of the circulation system. After construction, roadways would be returned to their pre-Project conditions and would not introduce hazardous design features or incompatible uses. Impacts would be less than significant.

- d) Result in inadequate emergency access?

**Less Than Significant Impact.** During construction occurring in public ROWs, measures included in the TMP would be implemented to ensure that adequate emergency access would be maintained. After

construction, roadways would be returned to pre-Project conditions and would accommodate emergency vehicle access. Impacts would be less than significant.

### XVIII. Tribal Cultural Resources

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

- a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
- i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?
  - ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

**Less Than Significant with Mitigation Incorporated.** The Sacred Lands File search results from the NAHC were received on April 11, 2023 and were positive. The NAHC indicated that Pechanga should be contacted for further information. HELIX contacted Pechanga as well as the 26 Native American

representatives and interested parties identified by the NAHC. Responses from the Cahuilla Band of Indians, Pala, Pechanga, and Rincon indicated the Project site is within the Traditional Use Area (TUA) of these tribes. The Cahuilla Band of Indians and Pechanga specifically identified the potential for the Project to uncover sensitive tribal cultural resources. Pala also requested involvement in government-to-government consultation under AB 52. The Quechan Tribe of the Fort Yuma Reservation responded to outreach by HELIX and deferred to more local tribes.

EVMWD sent letters inviting tribes to consultation under AB 52 on June 6, 2023. Pechanga and Rincon responded requesting consultation with EVMWD. As noted above, Pala also requested involvement in AB 52 consultation efforts for the Project. Consultation with these tribes is ongoing. Through consultation with Pechanga, the Project was identified as being within a registered Traditional Cultural Property and less than one-quarter mile from Pechanga reservation lands. In addition, during consultation, Pechanga discussed the high potential for previously unknown cultural resources to be uncovered during the development of the Project due to the known sites in the vicinity, the historic use of the roads comprising the Project site, and the age of Highway 74. Mitigation measures CR-1 through CR-9 are based on EVMWD’s consultation with Pechanga. Rincon noted the Project site is within its TUA and requested Project documents for review. Pala stated the Project site is within its TUA but has not responded to requests for further discussions with EVMWD. Agua Caliente did not identify the Project site as within its TUA and no further consultation was requested. As multiple tribes have identified the Project site as within their TUAs and sensitive for buried resources, it is assumed that tribal cultural resources may be present within the Project alignment. Impacts to these resources as a result of Project construction would be significant. Mitigation measures CR-1 through CR-9 require implementation of a Native American monitoring program during ground disturbance and identify the procedure to follow in the event of unanticipated tribal cultural resource discovery. With implementation of mitigation measures CR-1 through CR-9, impacts to tribal cultural resources would be less than significant.

## XIX. Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

**Less Than Significant Impact.** No water, storm water, electric, natural gas, or telecommunications utilities would be required for operation of the proposed Project. Wastewater accommodated by the proposed sewer main would be transported to the Regional WRF, which currently treats approximately 6.1 million gallons of its 8.0 million gallon per day capacity. Future development proposing connections to the sewer main would be required to undergo separate review by EVMWD to ensure the Regional WRF and proposed sewer main have the capacity to accommodate proposed wastewater flows. The Project would not require the construction or relocation of utilities which could cause significant environmental effects and impacts would be less than significant.

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

**No Impact.** The Project does not involve operations that would require permanent water supplies. Water supplies required during the construction of the Project would be limited to water utilized in water trucks for dust suppression on the Project site. Sufficient water supplies from the EVMWD are available to provide these limited water supplies to the Project during construction. No change to water supplies available to reasonably foreseeable development during normal, dry, and multiple dry years would occur as a result of Project implementation and there would be no impact.

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

**No Impact.** The Project itself would not result in increased wastewater treatment demand, as it would consist only of trunk sewer installation. Development in the Project vicinity is anticipated to provide connections to the trunk sewer in the future, thereby resulting in additional wastewater treatment demand at the Regional WRF. As described in item XIX.a, the Regional WRF currently has approximately 1.9 million gallons per day of available capacity. Individual projects proposing connections to the Project pipeline would be required to undergo individual assessments to ensure adequate capacity within the trunk sewer and Regional WRF are available. The Project would not result in the capacity of Regional WRF being exceeded and the wastewater treatment provider (EVMWD) would continue to be able to serve its existing commitments. No impact would occur.

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

**Less Than Significant Impact.** The Project would not generate solid waste during operation. During construction, excavated material and other construction supply waste would be disposed of in accordance with applicable construction waste regulations. CALGreen construction debris standards do not apply to this Project type. The minimal quantities of solid waste generated during construction would not exceed the capacity of local infrastructure or result in conflicts with applicable statutes and regulations. Impacts would be less than significant.

**XX. Wildfire**

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

**Less Than Significant Impact.** See item IX.f. Adherence to conditions of the required TMP would ensure the Project would not interfere with emergency response or evacuation plans. During Project operation, no Project components would interfere with emergency operations and impacts would be less than significant.

- b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

**Less Than Significant Impact.** As described in item IX.g, the Project site is within the County’s designated Very High Fire Hazard zone (County 2023). Operation of the Project would not result in an exacerbation of wildfire risk as it would be contained underground. During construction, the use of equipment near dry brush with designated fire risk has the potential to result in exacerbated wildfire risks. Implementation of the brush management practices identified in Section 2.5 would minimize the potential for the use of construction equipment to result in wildfires. Impacts would be less than significant.

- c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

**Less Than Significant Impact.** The Project proposes the installation of sewer infrastructure that would operate passively underground and would not require maintenance that would exacerbate fire risk. Temporary and ongoing impacts to the environment related that would occur as a result of this infrastructure installation are analyzed throughout this Initial Study. Impacts would be less than significant.

- d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

**Less Than Significant Impact.** The Project would not create habitable or aboveground structures that could be exposed to significant wildfire risks and would not alter drainage patterns in the Project area. As described in item XX.b, the Project would implement brush management practices to minimize the potential for wildfires to start during Project construction. The Project is not anticipated to result in risks to nearby people or structures, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be less than significant.

**XXI. Mandatory Findings of Significance**

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present, and probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

**Less Than Significant with Mitigation Incorporated.** The Project has the potential to result in impacts to nesting birds, burrowing owl, CAGN, and riparian habitat; however, implementation of mitigation measures BIO-1 through BIO-4 would reduce these impacts to a less than significant level. No special status plant species would be impacted by Project implementation. The Project also has the potential to impact significant cultural and tribal cultural resources. Implementation of mitigation measures CR-1 through CR-9 would ensure these impacts are reduced to a less than significant level. Therefore, the Project would not substantially degrade the environment, decrease the number or habitat of special status plant or animal species, or eliminate major periods of California history. Impacts would be less than significant with mitigation incorporated.

b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present, and probable future projects)?

**Less Than Significant with Mitigation Incorporated.** CEQA Guidelines Section 15130 requires a discussion of the cumulative impacts of a project when the project’s incremental effect is “cumulatively considerable,” meaning that the project’s incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects.

Projects proposed by EVMWD to be constructed in the same time period as the Project include the Avenues Septic to Sewer Project (Avenues project; EVMWD 2023a), Sedco Hills Septic to Sewer Project (Sedco Hills project; EVMWD 2023b), and Canyon Lake Water Treatment Plant Phase 1 Improvements Project (Canyon Lake project; EVMWD 2023c). The Avenues and Sedco Hills projects propose the installation of sewer infrastructure to serve existing residential customers of EVMWD who utilize septic systems. The Avenues and Sedco Hills projects are proposed approximately 3.6 miles and 4.3 miles south

of the Project site, respectively, and are anticipated to be constructed over approximately 24 months beginning August 2023. The Canyon Lake project is proposed to upgrade the capacity and treatment systems of the existing Canyon Lake Water Treatment Plant, located approximately 2.9 miles south of the Project site. The improvements are anticipated to be constructed over 25 months, beginning in February 2024. The three identified projects would have construction schedules overlapping, in part, with construction of the proposed Project.

As is the case with the proposed Project, the identified EVMWD projects are intended to serve existing and planned development and no growth-inducing components are proposed. The Avenues and Sedco Hills projects would also be passive infrastructure elements, contributing sewer flows to the Regional WRF, but would not result in ongoing environmental impacts during operation. Only the Canyon Lake project would have active operations resulting in ongoing emissions and energy use. As the projects would not induce growth or result in ongoing operations, no cumulative impacts related to operation of the Project in combination with the other identified projects would occur.

Based on the distance between the project areas, construction noise from the Project and cumulative projects would be too far apart to contribute to cumulative noise impacts to any singular location. Similarly, the addition of vehicle trips associated with the construction workers required to construct these four projects would not contribute to significant, cumulative transportation impacts as they would travel along different roadways and would not generate a substantial number of vehicle trips.

As discussed in Section 4.III, the Project's construction emissions of criteria pollutants would not exceed the SCAQMD daily screening thresholds or LSTs. Due to the distance between the Project and identified cumulative projects, no localized air quality violations for sensitive receptors would occur. The Project was determined to have a less than significant impact in relation to GHG emissions, which are inherently discussed in terms of cumulative impacts.

With implementation of mitigation measures BIO-1 through BIO-4, no net loss of habitat or special status species would occur and impacts to biological resources would be less than significant at the Project level and in combination with cumulative projects. The Project would implement mitigation measures CR-1 through CR-9 and would not contribute to the cumulative loss of cultural or tribal cultural resources. Potential impacts to paleontological resources in areas with moderate paleontological sensitivity (Highway 74 between River Road and Kimes Lane) would require mitigation measure GEO-1 be implemented. With implementation of this mitigation measure, the Project would not contribute to the cumulative loss of paleontological resources.

All resource topics for the Project and identified projects have been analyzed in accordance with the CEQA Guidelines and found to pose no impact, a less than significant impact, or a less than significant impact with mitigation. Potential cumulative projects that could be constructed in the vicinity of the Project would also be required to comply with existing applicable federal, state, and local regulations.

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

**Less Than Significant Impact.** The Project would not consist of any construction activities or operational components that would negatively affect any persons in the vicinity. In addition, all resource topics have been analyzed in accordance with the State CEQA Guidelines or associated thresholds and found to pose no impact, a less than significant impact, or a less than significant impact with mitigation incorporated. As discussed in Section 4.III, no violations of air quality thresholds would occur and no significant

impacts to sensitive receptors related to pollutants would occur. As discussed in Section 4.IX of this Initial Study, there are no concerns from past activities at the Project site and no hazardous materials and/or wastes would be generated by the Project. As detailed in Section 4.XIII, the Project would not generate excessive noise that would conflict with local noise ordinances and cause disturbances to local residents. During construction, temporarily altered traffic conditions may occur; however, implementation of a TMP would ensure emergency access and evacuation routes are maintained. As discussed in Section 4.XX, the Project would implement brush management practices such that the Project would not increase risks related to wildfires. Consequently, the Project would not result in any environmental effects that would cause substantial adverse effects on human beings directly or indirectly.

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## 6.0 Preparers

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# IS/MND Appendix A

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## Air Quality and Greenhouse Gas Emissions Assessment

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October 27, 2023

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**Subject: Air Quality and Greenhouse Gas Emissions Assessment for the Highway 74/Ethanac Sewer Extension Project**

Dear Mr. Webster:

HELIX Environmental Planning, Inc. (HELIX) has assessed air quality and greenhouse gas (GHG) emission impacts associated with the construction of the proposed Highway 74/Ethanac Sewer Extension Project (Project). The analysis also addresses impacts to sensitive receptors from exposure to toxic air contaminants (TACs) and the Project's conformity with the Federal Clean Air Act (CAA). This letter summarizes the findings of the air quality and GHG emissions assessment.

## **PROJECT LOCATION**

The Project is proposed within the Meadowbrook community in unincorporated Riverside County (County), California. Specifically, the Project would be constructed within Highway 74 between Wasson Canyon Road and Ethanac Road, and within Wasson Canyon Road between Highway 74 and Mauricio Avenue. The City of Lake Elsinore borders the Project site to the south, along Mauricio Avenue. Refer to Figure 1, *Regional Vicinity*, and Figure 2, *Aerial Photograph*.

## **PROJECT DESCRIPTION**

The Elsinore Valley Municipal Water District (EVMWD) is proposing to construct a gravity trunk sewer pipeline to extend wastewater service to the Meadowbrook community, which currently treats wastewater using individual septic sewer systems. The Project consists of approximately 12,500 feet of a 16-inch diameter gravity trunk sewer pipeline within Highway 74, between Wasson Canyon Road and Ethanac Road, and within Wasson Canyon Road, between Highway 74 and Mauricio Avenue. The Project would connect to an existing 15-inch diameter gravity trunk sewer at the intersection of Wasson Canyon Road and Mauricio Avenue.

## PROJECT CONSTRUCTION METHODOLOGY AND ASSUMPTIONS

The duration of construction is estimated to be approximately 37 months, starting October 2024. The majority of pipeline, along Highway 74, would be constructed using open trench methods at a minimum depth of seven feet with a trench width of three feet. Within the narrower Wasson Canyon Road, it is anticipated that open trench construction or a microtunnel boring machine would be used to install the pipeline. Construction is anticipated to occur at a rate of 10 to 20 linear feet per day.

The Project's construction emissions were calculated using the California Emissions Estimator Model (CalEEMod), Version 2022.1.1.14 (California Air Pollution Control Officers Association [CAPCOA] 2022). CalEEMod is a computer model used to estimate air pollutant emissions resulting from construction and operation of land development projects throughout the state of California. CalEEMod was developed by CAPCOA with the input of several air quality management and pollution control districts.

CalEEMod has the capability to calculate reductions in construction emissions from the effects of dust control, diesel-engine classifications, and other selected emissions reduction measures. Construction emission calculations presented herein assume the implementation of standard dust control measures as required by South Coast Air Quality Management District (SCAQMD) Rule 403, including watering two times daily during grading, ensuring that all exposed surfaces maintain a minimum soil moisture of 12 percent, and limiting vehicle speeds on unpaved roads to 15 miles per hour (SCAQMD 2005). Project-specific input was based on general Project information, assumptions provided by the Project engineers, and default model settings to estimate reasonably conservative conditions.

The entire Project would take approximately 37 months to complete. However, given current funding limitations, it is anticipated that the portion of the Project from Wasson Canyon Road at Mauricio Road to Highway 74 at River Road would be constructed between October 2024 and July 2026 with the remaining portion of the pipeline north of River Road to be installed at a later date. To be conservative, modeling assumes that construction of these two portions of pipeline would occur sequentially and conclude in November 2027. If construction of the second portion of the pipeline occurs at a later date, actual emissions could be less than those forecasted because of a more modern and cleaner-burning construction equipment fleet mix than assumed in CalEEMod.

Construction would require the use of off-road equipment and would include trenching, pipeline installation, and resurfacing/repaving. Table 1, *Construction Equipment Assumptions*, presents a summary of the equipment assumed by the Project engineer to be involved in each day of pipeline construction. Modeling conservatively assumes that each day of construction would involve every activity (trenching, pipeline installation, and resurfacing). Tunnel boring within Wasson Canyon Road is anticipated to occur throughout the first six months of construction.

**Table 1**  
**CONSTRUCTION EQUIPMENT ASSUMPTIONS**

Activity	Equipment	Number	Horsepower
Trenching	Dumpers	2	16
	Excavator	1	36
	Off-Highway Trucks (Water Truck)	1	376
	Rubber Tired Loader	2	150
	Tractor/Loader/Backhoe	1	84
Pipeline Installation	Off-Highway Trucks (Utility Trucks)	3	376
Resurfacing/Repaving	Paver	1	89
Tunnel Boring	Bore/Drill Rigs	1	83

Source: CalEEMod (output data is provided in Attachment A)

Approximately 17,000 cubic yards (CY) of soil material would be excavated during trenching. It is estimated that 1,700 CY would be used to backfill trenched areas and the remaining 15,300 CY of excavated material would be exported. To refill trenched areas, 15,300 CY of soil material would also be imported to the Project site.

## PROJECT OPERATION METHODOLOGY AND ASSUMPTIONS

Once construction activity is complete, the Project would be located underground and operate passively. The Project components would not require ongoing maintenance once installed and would not result in increased vehicle trips or other operational activities. Therefore, the Project would not result in operational air pollutant or GHG emissions and no impacts related to such emissions would occur.

## AIR QUALITY

### Climate and Meteorology

The Project site is within the South Coast Air Basin (SCAB), which consists of all or part of four counties: Los Angeles, San Bernardino, Riverside, and Orange. The distinctive climate of the SCAB is determined by its terrain and geographic location. The SCAB is a coastal plain that includes broad valleys and low hills. It is bound by the Pacific Ocean to the southwest and high mountains around the rest of its perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light, average wind speeds.

The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. Winds in the Project area are usually driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by daytime onshore sea breezes. At night, the wind generally slows and reverses direction traveling toward the sea. Local canyons can also alter wind direction, with wind tending to flow parallel to the canyons. The vertical dispersion of air pollutants in the SCAB is hampered by the presence of persistent temperature inversions.

High pressure systems, such as the semi-permanent high-pressure zone in which the SCAB is located, are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, and resulting in the formation of subsidence inversions. Such inversions restrict the vertical dispersion of air pollutants released into the marine layer and,

together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The basin-wide occurrence of inversions at 3,500 feet above mean sea level or less averages 191 days per year (SCAQMD 1993).

## Regulatory Framework

### Criteria Pollutants

Ambient air quality is described in terms of compliance with state and national standards, and the levels of air pollutant concentrations considered safe, to protect the public health and welfare. These standards are designed to protect people most sensitive to respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. The U.S. Environmental Protection Agency (USEPA), the federal agency that administrates the Federal CAA of 1970, as amended in 1990, has established National Ambient Air Quality Standards (NAAQS) for several air pollution constituents known as criteria pollutants, including: ozone (O<sub>3</sub>); carbon monoxide (CO); coarse particulate matter (PM<sub>10</sub>; particles 10 microns or less in diameter) and fine particulate matter (PM<sub>2.5</sub>; particles 2.5 microns or less in diameter); sulfur dioxide (SO<sub>2</sub>); and lead (Pb).

As permitted by the Federal CAA, California has adopted the more stringent California Ambient Air Quality Standards and expanded the number of regulated air constituents. Ground-level ozone is not emitted directly into the environment but is generated from complex chemical and photochemical reactions between precursor pollutants, primarily reactive organic gases (ROGs; also known as volatile organic compounds [VOCs])<sup>1</sup>, and oxides of nitrogen (NO<sub>x</sub>). PM<sub>10</sub> and PM<sub>2.5</sub> are generated from a variety of sources, including road dust, diesel exhaust, fuel combustion, tire and brake wear, construction operations and windblown dust. In addition, PM<sub>10</sub> and PM<sub>2.5</sub> can also be formed through chemical and photochemical reactions of precursor pollutants in the atmosphere.

The California Air Resources Board (CARB) is required to designate areas of the state as attainment, nonattainment, or unclassified for the ambient air quality standards. An “attainment” designation for an area signifies that pollutant concentrations do not violate the standard for that pollutant in that area. A “nonattainment” designation indicates that a pollutant concentration violated the standard at least once. The air quality attainment status of the SCAB is shown in Table 2, *South Coast Air Basin – Attainment Status*.

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

**Table 2**  
**SOUTH COAST AIR BASIN – ATTAINMENT STATUS**

<b>Pollutant</b>	<b>Federal Attainment Status</b>	<b>State of California Attainment Status</b>
1-hour Ozone (O <sub>3</sub> )	(No federal standard)	Nonattainment
8-hour Ozone (O <sub>3</sub> )	Extreme Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment (Maintenance)	Attainment
Respirable Particulate Matter (PM <sub>10</sub> )	Attainment (Maintenance)	Nonattainment
Fine Particulate Matter (PM <sub>2.5</sub> )	Serious Nonattainment	Nonattainment
Nitrogen Dioxide (NO <sub>2</sub> )	Attainment (Maintenance)	Attainment
Sulfur Dioxide (SO <sub>2</sub> )	Unclassifiable/Attainment	Attainment
Lead (Pb)	Unclassifiable/Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen Sulfide	(No federal standard)	Attainment
Visibility	(No federal standard)	Attainment

Source: SCAQMD 2022

The SCAB is currently in nonattainment for federal ozone and PM<sub>10</sub> standards and for state ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> standards. Concentrations of all other pollutants meet applicable federal and/or state standards.

The SCAQMD is responsible for implementing emissions standards and other requirements of federal and state laws in the SCAB. As a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), County transportation commissions, and local governments, and cooperates actively with all federal and state government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary. The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. As required by the California CAA, the SCAQMD has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs).

On December 2, 2022, the SCAQMD adopted the 2022 AQMP, which is a regional and multi-agency effort (SCAQMD, CARB, SCAG, and USEPA). The 2022 AQMP represents a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures. The plan seeks to achieve multiple goals in partnership with other entities promoting reductions in criteria pollutant emissions, GHG emissions, and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. Included in the 2022 AQMP are updated strategies and control measures to address the designation of the SCAB as an “extreme” nonattainment area for the 2015 NAAQS 8-hour ozone standard (SCAQMD 2022). The AQMP is incorporated into the State Implementation Plan, which is subsequently submitted to the USEPA.

### Toxic Air Contaminants

TACs are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or short-term acute effects such as eye watering, respiratory irritation (a cough), runny nose, throat pain, and headaches. TACs are considered either carcinogenic or noncarcinogenic based

on the nature of the health effects associated with exposure to the pollutant. For carcinogenic TACs, there is no level of exposure that is considered safe, and impacts are evaluated in terms of overall relative risk expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust is known as diesel particulate matter (DPM). Almost all DPM is 10 microns or less in diameter, and 90 percent of DPM 2.5 microns or less in diameter (CARB 2023). Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung. In 1998, CARB identified DPM as a TAC based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM has a significant impact on California's population—it is estimated that about 70 percent of total known cancer risk related to air toxics in California is attributable to DPM (CARB 2023).

### Sensitive Receptors

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

The Project site is located in a rural area with residential sensitive receptors located adjacent to the roadways where construction activities would occur. No other sensitive receptors, including schools and hospitals, have been identified along the Project alignment.

### Significance Criteria

The following significance thresholds are based on Appendix G of the state CEQA Guidelines. A significant impact would occur identified if the Project would:

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

Appendix G of the State CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions. The significance thresholds are updated, as needed, to appropriately represent the most current technical information and attainment status in

the SCAB. Table 3, *SCAQMD Air Quality Significance Thresholds*, presents the most current significance thresholds, including regional daily thresholds for short-term construction and long-term operational emissions; maximum incremental cancer risk and hazard indices for TACs; and maximum ambient concentrations for exposure of sensitive receptors to localized pollutants. A project with daily emission rates, risk values, or concentrations below these thresholds is generally considered to have a less than significant effect on air quality.

**Table 3**  
**SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS**

Pollutant	Construction	Operation
<b>Mass Daily Thresholds (lbs/day)</b>		
VOC	75	55
NO <sub>x</sub>	100	55
CO	550	550
PM <sub>10</sub>	150	150
PM <sub>2.5</sub>	55	55
SO <sub>x</sub>	150	150
Lead	3	3
<b>Toxic Air Contaminants</b>		
TACs	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
<b>Ambient Air Quality for Criteria Pollutants</b>		
NO <sub>2</sub>	1-hour average ≥ 0.18 ppm Annual average ≥ 0.03 ppm	
CO	1-hour average ≥ 20.0 ppm (state) 8-hour average ≥ 9.0 ppm (state/federal)	
PM <sub>10</sub>	24-hour average ≥ 10.4 µg/m <sup>3</sup> (construction) 24-hour average ≥ 2.5 µg/m <sup>3</sup> (operation) Annual average ≥ 1.0 µg/m <sup>3</sup>	
PM <sub>2.5</sub>	24-hour average ≥ 10.4 µg/m <sup>3</sup> (construction) 24-hour average ≥ 2.5 µg/m <sup>3</sup> (operation)	
SO <sub>2</sub>	24-hour average ≥ 25 µg/m <sup>3</sup>	

Source: SCAQMD 2023

SCAQMD = South Coast Air Quality Management District; lbs/day = pounds per day; VOC = volatile organic compound; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> = particulate matter 10 microns or less in diameter; PM<sub>2.5</sub> = particulate matter 2.5 microns or less in diameter; SO<sub>x</sub> = sulfur oxides; TACs = toxic air contaminants; NO<sub>2</sub> = nitrogen dioxide; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide; µg/m<sup>3</sup> = micrograms per cubic meter

## Project Air Quality Analysis

(1) *Would the Project conflict with or obstruct implementation of the applicable air quality plan?*

**Less than Significant Impact.** SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, economy, community development, and environment. With regard to air quality planning, SCAG has prepared the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), a long-range transportation plan that uses growth forecasts to project trends out over a 20-year period to identify regional transportation strategies to address mobility needs (SCAG 2020).

These growth forecasts form the basis for the land use and transportation control portions of the AQMP. These documents are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP. Both the RTP/SCS and AQMP are based, in part, on projections originating with County and City General Plans.<sup>2</sup>

The two principal criteria for determining conformance to the AQMP are:

1. Whether a project would result in an increase in the frequency or severity of existing air quality violations; cause or contribute to new violations; or delay timely attainment of air quality standards; and
2. Whether a project would exceed the assumptions in the AQMP.

With respect to the first criterion, the analyses presented below demonstrate that the Project would not generate short-term or long-term emissions that could potentially cause an increase in the frequency or severity of existing air quality violations; cause or contribute to new violations; or delay timely attainment of air quality standards.

With respect to the second criterion, the Project proposes installation of a trunk sewer pipeline. The Project would not result in population or employment increases and would not exceed the growth projection assumptions in the AQMP. The proposed pipeline would serve existing and planned development in the Project area and would not induce unanticipated population growth. In addition, approximately 12 construction workers would be required to construct the Project and would be recruited from the local pool of labor; therefore, Project construction would not create employment opportunities exceeding growth estimates for the area.

Because the Project is consistent with the growth assumptions used in developing the AQMP, pursuant to SCAQMD guidelines, the proposed Project is considered consistent with the region's AQMP. As such, proposed Project-related emissions are accounted for in the AQMP, which is crafted to bring the basin into attainment for all criteria pollutants. Accordingly, the proposed Project would be consistent with the emissions projections in the AQMP, thus resulting in a less than significant impact.

*(2) Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?*

**Less than Significant Impact.** The Project's construction emissions were estimated using CalEEMod, as described above. The emissions generated from construction activities include:

- Dust (including PM<sub>10</sub> and PM<sub>2.5</sub>) primarily from fugitive sources such as soil disturbance and vehicle travel over unpaved surfaces; and
- Combustion emissions of air pollutants (including ROG, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and sulfur oxides [SO<sub>x</sub>]), primarily from operation of heavy off-road equipment.

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<sup>2</sup> SCAG serves as the federally designated metropolitan planning organization for the southern California region.

The results of the emissions calculations for Project construction are shown in Table 4, *Maximum Daily Construction Emissions*. The data are presented as the maximum anticipated daily emissions for comparison with the SCAQMD thresholds. The model output is included as Attachment A to this letter. As shown in Table 4, the Project’s construction emissions would not exceed SCAQMD thresholds and would not result in a cumulatively considerable net increase of any criteria pollutant. As described previously, the Project would consist of passive pipelines after construction and would not result in operational emissions of criteria pollutants. Impacts would be less than significant.

**Table 4**  
**MAXIMUM DAILY CONSTRUCTION EMISSIONS**

Year	Pollutant Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2024	2.7	20.2	25.9	0.1	1.2	0.8
2025	2.6	17.9	25.6	0.1	1.0	0.7
2026	2.4	15.4	23.5	0.1	0.9	0.6
2027	2.4	14.6	23.4	0.1	0.9	0.6
<b>Maximum Daily Emissions</b>	<b>2.7</b>	<b>20.2</b>	<b>25.9</b>	<b>0.1</b>	<b>1.2</b>	<b>0.8</b>
<i>SCAQMD Thresholds</i>	75	100	550	150	150	55
<b>Significant Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: CalEEMod (output data is provided in Attachment A); SCAQMD 2023

VOC = volatile organic compound; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; SO<sub>2</sub> = sulfur dioxide; PM<sub>10</sub> = respirable particulate matter 10 microns or less in diameter; PM<sub>2.5</sub> = fine particulate matter 2.5 microns or less in diameter; SCAQMD = South Coast Air Quality Management District

*(3) Would the Project expose sensitive receptors to substantial pollutant concentrations?*

Criteria Pollutants

**Less than Significant Impact.** The localized effects from the on-site portion of daily construction emissions were evaluated at sensitive receptor locations potentially impacted by the Project according to the SCAQMD’s Localized Significance Thresholds (LSTs) method (SCAQMD 2009). LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard based on the ambient concentrations of that pollutant for each source receptor area (SRA). The LST methodology is recommended to be limited to projects of five acres or less and to avoid the need for complex dispersion modeling. If a project exceeds the LST look up values, then the SCAQMD recommends that project-specific localized air quality modeling be performed.

The Project spans SRA 24, Perris Valley, and SRA 25, Lake Elsinore, and sensitive receptors are located within 25 meters of the Project site. The LSTs being applied to the Project are based on SRA 24 (the more conservative thresholds), receptors located within 25 meters, and a disturbed area not to exceed one acre per day. Consistent with the LST guidelines, when quantifying mass emissions for localized analysis, only emissions that occur on-site are considered. Emissions related to off-site delivery/haul truck activity and construction worker trips are not considered in the evaluation of construction-related localized impacts, as these do not contribute to emissions generated on a project site. As shown in Table 5, *Maximum Localized Daily Construction Emissions*, localized emissions for all criteria pollutants would remain below their respective SCAQMD LSTs. Therefore, impacts would be less than significant.

**Table 5**  
**MAXIMUM LOCALIZED DAILY CONSTRUCTION EMISSIONS**

Year	Pollutant Emissions (pounds per day)			
	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
2024	19.8	24.3	0.8	0.7
2025	17.6	24.1	0.7	0.6
2026	15.1	21.8	0.6	0.5
2027	14.3	21.8	0.5	0.5
<b>Maximum Daily Emissions</b>	<b>19.8</b>	<b>24.3</b>	<b>0.8</b>	<b>0.7</b>
<i>SCAQMD LST</i>	<i>118</i>	<i>602</i>	<i>4</i>	<i>3</i>
<b>Significant Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: CalEEMod (output data is provided in Attachment A); SCAQMD 2009  
 NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> = respirable particulate matter 10 microns or less in diameter;  
 PM<sub>2.5</sub> = fine particulate matter 2.5 microns or less in diameter; SCAQMD = South Coast Air Quality Management District; LST = Localized Significance Threshold

### Toxic Air Contaminants

**Less than Significant Impact.** Construction of the Project would result in the use of heavy-duty construction equipment, haul trucks, and construction worker vehicles. These vehicles and equipment could generate DPM, which is a TAC. Generation of DPM from construction projects typically occurs in a localized area (e.g., near locations with multiple pieces of heavy construction equipment working in close proximity) for a short period of time. Because construction activities and subsequent emissions vary depending on the phase of construction, the construction-related emissions to which nearby receptors are exposed to would also vary throughout the construction period. Concentrations of DPM emissions are typically reduced by 70 percent at approximately 500 feet (CARB 2005). As discussed above, sensitive residential receptors are located adjacent to the Project site.

The dose of TACs to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance in the environment and the extent of exposure a person has with the substance; a longer exposure period to a fixed amount of emissions would result in higher health risks. Current models and methodologies for conducting cancer health risk assessments are associated with longer-term exposure periods (typically 30 years for individual residents based on guidance from OEHHA) and are best suited for evaluation of long duration TAC emissions with predictable schedules and locations. These assessment models and methodologies do not correlate well with the temporary and highly variable nature of construction activities. Cancer potency factors are based on animal lifetime studies or worker studies where there is long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime (OEHHA 2015). Considering this information, the relatively short duration of construction activities, and the fact that any concentrated use of heavy construction equipment would occur at a single location for a short portion of the construction period, construction of the Project would not expose sensitive receptors to substantial DPM concentrations, and the impact would be less than significant.

(4) *Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

**Less than Significant Impact.** The Project could produce odors during proposed construction activities resulting from heavy diesel equipment exhaust and application of asphalt; however, standard construction practices would minimize the odor emissions and their associated impacts. Any odors emitted during construction would be temporary, short-term, and intermittent in nature, as construction equipment would progress along the Project alignment and asphalt odors would cease upon drying. Therefore, odor impacts from construction of the Project would be less than significant due to the duration of exposure.

The Project proposes the installation of sewer infrastructure, which would be sealed underground after installation and would not result in the emission of odors related to the transport of wastewater. Therefore, long-term operation of the Project would not result in a change to existing odors in the Project vicinity, and there would be no impact.

## GREENHOUSE GAS EMISSIONS

### Setting

GHGs, as defined under California's Assembly Bill (AB) 32, include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF<sub>6</sub>). AB 32, the California Global Warming Solutions Act of 2006, recognizes that California is a source of substantial amounts of GHG emissions. The statute states that:

*Global warming poses a serious threat to the economic wellbeing, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.*

In order to help avert these potential consequences, AB 32 established a State goal of reducing GHG emissions to 1990 levels by the year 2020, which is a reduction of approximately 16 percent from forecasted emission levels, with further reductions to follow. In addition, AB 32 required CARB to develop a Scoping Plan to help the State achieve the targeted GHG emission reductions. In 2015, Executive Order (EO) B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG emission reduction targets with those of leading international governments, including the 28 nation European Union. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in AB 32. As a follow-up to AB 32 and in response to EO-B-30-15, Senate Bill (SB) 32 was passed by the California legislature in 2016 to codify the EO's California GHG emission reduction target of 40 percent below 1990 levels by 2030. The most recent update to the Scoping Plan was adopted in December 2022 and lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279 (CARB 2022).

The County developed a Climate Action Plan (CAP) that was first adopted in December 2015 and updated in 2019 (County 2019). Through the CAP, the County has established goals and policies that incorporate environmental responsibility into its daily management of residential, commercial, and industrial growth, education, energy and water use, air quality, transportation, waste reduction, economic development and open space and natural habitats to further their commitment. Following the state's adopted AB 32 GHG reduction target, the 2015 CAP initially set a goal to reduce emissions back to 1990 levels by the year 2020, calculated as a 15 percent decrease from 2008 levels for the County. The 2019 CAP Update refined the County's efforts to meet future GHG reduction goals for the years 2035 and 2050 in accordance with updated legislation including EO B-30-15 and SB 32.

## Significance Criteria

Given the relatively small levels of emissions generated by a typical development in relationship to the total amount of GHG emissions generated on a national or global basis, individual development projects are not expected to result in significant, direct impacts with respect to climate change. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new development could result in significant, cumulative impacts with respect to climate change. Thus, the potential for a significant GHG emissions impact is limited to cumulative impacts.

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

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

In accordance with CEQA Guidelines Section 15064(h)(3), a lead agency may conclude that a project's GHG impact is not cumulatively considerable if the project demonstrates consistency with a qualified local plan such as a CAP. The 2019 County CAP includes guidance for addressing GHG emissions under CEQA. As the County CAP is designed to achieve statewide GHG reduction targets countywide, individual projects that comply with the County's CEQA development review process can be considered consistent with statewide GHG reduction plans and policies.

The 2019 CAP Update's GHG Development Review Process includes a multi-step process for the assessment of GHG emissions during CEQA review. First, if a project is exempt under CEQA, the project's GHG emissions may be considered less than significant. For projects that are not exempt under CEQA, a screening threshold of 3,000 MT CO<sub>2</sub>e per year is used to determine if additional analysis is required. Projects that exceed the 3,000 MT CO<sub>2</sub>e per year screening threshold are required to either achieve a minimum 100 points per the Screening Tables or a 25 percent reduction over 2020 GHG emissions levels. Consistent with the CEQA Guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions (County 2019).

## Project Greenhouse Gas Emissions Analysis

(1) *Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?*

**Less than Significant Impact.** Project construction would result in GHG emissions generated by vehicle engine exhaust from construction equipment and worker commuting trips. Construction GHG emissions were calculated by using CalEEMod, as described above. Input details and the model output are provided in Attachment A to this letter.

The estimated construction GHG emissions for the Project are shown in Table 6, *Construction GHG Emissions*. For construction emissions, SCAQMD recommends that the emissions be amortized (i.e., averaged) over the anticipated lifespan of a project (30 years) and added to operational emissions. However, no operational emissions would result from the proposed Project. Averaged over 30 years, the proposed construction activities would contribute approximately 85.9 MT CO<sub>2</sub>e emissions per year. The construction emissions would not exceed the County screening threshold of 3,000 MT CO<sub>2</sub>e per year and impacts would be less than significant.

**Table 6**  
**CONSTRUCTION GHG EMISSIONS**

Year	Emissions (MT CO <sub>2</sub> e)
2024	206.0
2025	837.6
2026	827.9
2027	704.4
<b>Total Construction Emissions<sup>1</sup></b>	<b>2,575.9</b>
<b>Amortized Construction Emissions</b>	<b>85.9</b>
<i>CAP Threshold</i>	<i>3,000</i>
<b>Significant Impact?</b>	<b>No</b>

Source: CalEEMod (output data is provided in Attachment A); County 2019

<sup>1</sup> Total may not sum due to rounding.

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

(2) *Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?*

**Less than Significant Impact.** There are numerous State plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The principal overall State plan and policy is AB 32, the California Global Warming Solutions Act of 2006. The initial quantitative goal of AB 32 was to reduce GHG emissions to 1990 levels by 2020. SB 32 would require further reductions of 40 percent below 1990 levels by 2030 and AB 1279 established a policy to achieve net zero GHG emissions no later than 2045 and achieve and maintain net negative GHG emissions thereafter. Statewide plans and regulations such as GHG emissions standards for vehicles (AB 1493), the low carbon fuel standard, and regulations requiring an increasing fraction of electricity to be generated from renewable sources are being implemented at the statewide level; as such, compliance at the project level is not addressed.

As described above, the Project would comply with the County's CAP, which is intended to bring the County into alignment with statewide plans, policies, and regulations related to GHG emissions. The Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and impacts would be less than significant.

## GENERAL CONFORMITY ANALYSIS

### Regulatory Framework

#### National Ambient Air Quality Standards

The Federal CAA identified and established the NAAQS for a number of criteria pollutants in order to protect the public health and welfare. The criteria pollutants include ozone, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, and lead.

A region is given the status of "attainment" or "unclassified" if the NAAQS have not been exceeded. A status of "nonattainment" for particular criteria pollutants is assigned if the NAAQS have been exceeded. Once designated as nonattainment, attainment status may be achieved after three years of data showing non-exceedance of the standard. When an area is reclassified from nonattainment to attainment, it is designated as a "maintenance area," indicating the requirement to establish and enforce a plan to maintain attainment of the standard. The Project is located within the SCAB, which is classified as being a serious nonattainment area for PM<sub>2.5</sub>, and an extreme nonattainment area for ozone (see Table 2).

#### General Conformity Rule

Section 176(c) of the Federal CAA states that a federal agency cannot issue a permit for, or support an activity within, a nonattainment or maintenance area unless the agency determines it will conform to the most recent U.S. Environmental Protection Agency-approved State Implementation Plan. Thus, a federal action must not:

- Cause or contribute to any new violation of a NAAQS.
- Increase the frequency or severity of any existing violation.
- Delay the timely attainment of any standard, interim emission reduction, or other milestone.

As part of the general conformity process, a conformity analysis is required if a federal action's direct and indirect emissions have the potential to emit one or more of the six criteria pollutants at or above emission rates shown in Table 7, *Emission Rates for Criteria Pollutants in Nonattainment Areas*.

**Table 7**  
**EMISSION RATES FOR CRITERIA POLLUTANTS IN NONATTAINMENT AREAS**

Pollutant	Emission Rate (tons per year) <sup>1</sup>
Ozone (VOCs or NO <sub>x</sub> )	
Serious Nonattainment Area	50
Severe Nonattainment Area	25
Extreme Nonattainment Area	10
Other ozone nonattainment area outside an ozone transport zone	100
Other ozone nonattainment area inside an ozone transport zone	
VOC	50
NO <sub>x</sub>	100
Carbon Monoxide	
All maintenance areas	100
SO <sub>2</sub> or NO <sub>2</sub>	
All nonattainment areas	100
PM <sub>10</sub>	
Moderate Nonattainment Area	100
Serious Nonattainment Area	70
PM <sub>2.5</sub>	
Moderate Nonattainment Area	100
Serious Nonattainment Area	70
Pb	
All nonattainment areas	25

Source: 40 CFR 93.153

<sup>1</sup> De minimis threshold levels for conformity applicability analysis.

VOC = volatile organic compound; NO<sub>x</sub> = nitrogen oxides; SO<sub>2</sub> = sulfur dioxide;

NO<sub>2</sub> = nitrogen dioxide; PM<sub>10</sub> = respirable particulate matter 10 microns or less in diameter;

PM<sub>2.5</sub> = fine particulate matter 2.5 microns or less in diameter; Pb = lead

If the total direct and indirect emissions associated with a project are below the de minimis levels indicated in Table 7, general conformity requirements do not apply and the project is considered in conformity and would not result in an adverse effect. The Project would be located within the SCAB, which is classified as being a serious nonattainment area for PM<sub>2.5</sub>, and an extreme nonattainment area for ozone. As the Project region is in nonattainment for two of the criteria pollutants indicated in Table 7, ozone and PM<sub>2.5</sub>, conformity for these pollutants must be completed.

### Significance Criteria

A significant impact would be identified if Project emissions would exceed the General Conformity Rule de minimis thresholds provided in Table 7 for the pollutants for which the SCAB is a federal nonattainment area (ozone and PM<sub>2.5</sub>).

### Conformity Analysis

The Project's construction emissions were estimated using CalEEMod, as described above, and the model output is included as Attachment A to this letter. The results of the calculations for Project

construction are shown in Table 8, *Construction Emission Conformity Analysis*. The data are presented as the maximum annual construction emissions in tons and compared with the applicable de minimis thresholds, which are provided in tons per year. As shown in Table 8, the Project’s total construction emissions would not exceed the annual de minimis thresholds. As previously described, operation of the proposed Project would not result in the emission of criteria pollutants. Emissions of criteria pollutants associated with the Project would be below the de minimis thresholds established to ensure compliance with the Federal CAA. Thus, impacts to air quality would be less than significant and the Project would conform with the Federal CAA.

**Table 8**  
**CONSTRUCTION EMISSION CONFORMITY ANALYSIS**

Criteria Pollutant (Attainment Status)	De Minimis Threshold (tons/year)	Construction Emissions (tons/year)	Adverse Effect?
VOC (Extreme Nonattainment Area)	10	0.3	No
NO <sub>x</sub> (Extreme Nonattainment Area)	10	2.2	No
CO (Attainment/Maintenance)	--	3.1	No
SO <sub>2</sub> (Unclassifiable/Attainment)	--	<0.1	No
PM <sub>10</sub> (Attainment/Maintenance)	--	0.1	No
PM <sub>2.5</sub> (Serious Nonattainment Area)	70	0.1	No

Source: CalEEMod (output data is provided in Attachment A); 40 CFR 93.153  
 VOC = volatile organic compound; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; SO<sub>2</sub> = sulfur dioxide;  
 PM<sub>10</sub> = respirable particulate matter 10 microns or less in diameter; PM<sub>2.5</sub> = fine particulate matter 2.5 microns or less in diameter

**SUMMARY**

Emissions of criteria pollutants would be below SCAQMD thresholds, and the Project would be consistent with the AQMP for the region. Sensitive receptors would not be exposed to substantial concentrations of TACs or odors. Thus, impacts to air quality would be less than significant and no mitigation measures would be required. GHG emissions resulting from construction activities would be below the County CAP screening threshold and the Project would not conflict with applicable GHG reduction plans or policies. Therefore, GHG impacts would be less than significant no mitigation measures would be required. Criteria pollutant emissions would also be below General Conformity de minimis levels. Therefore, the Project would not conflict with the Federal CAA.

Sincerely,

  
 Joanne Dramko, AICP  
 Principal Air Quality Specialist

  
 Shelby Bocks  
 Air Quality Specialist

**Attachments:**

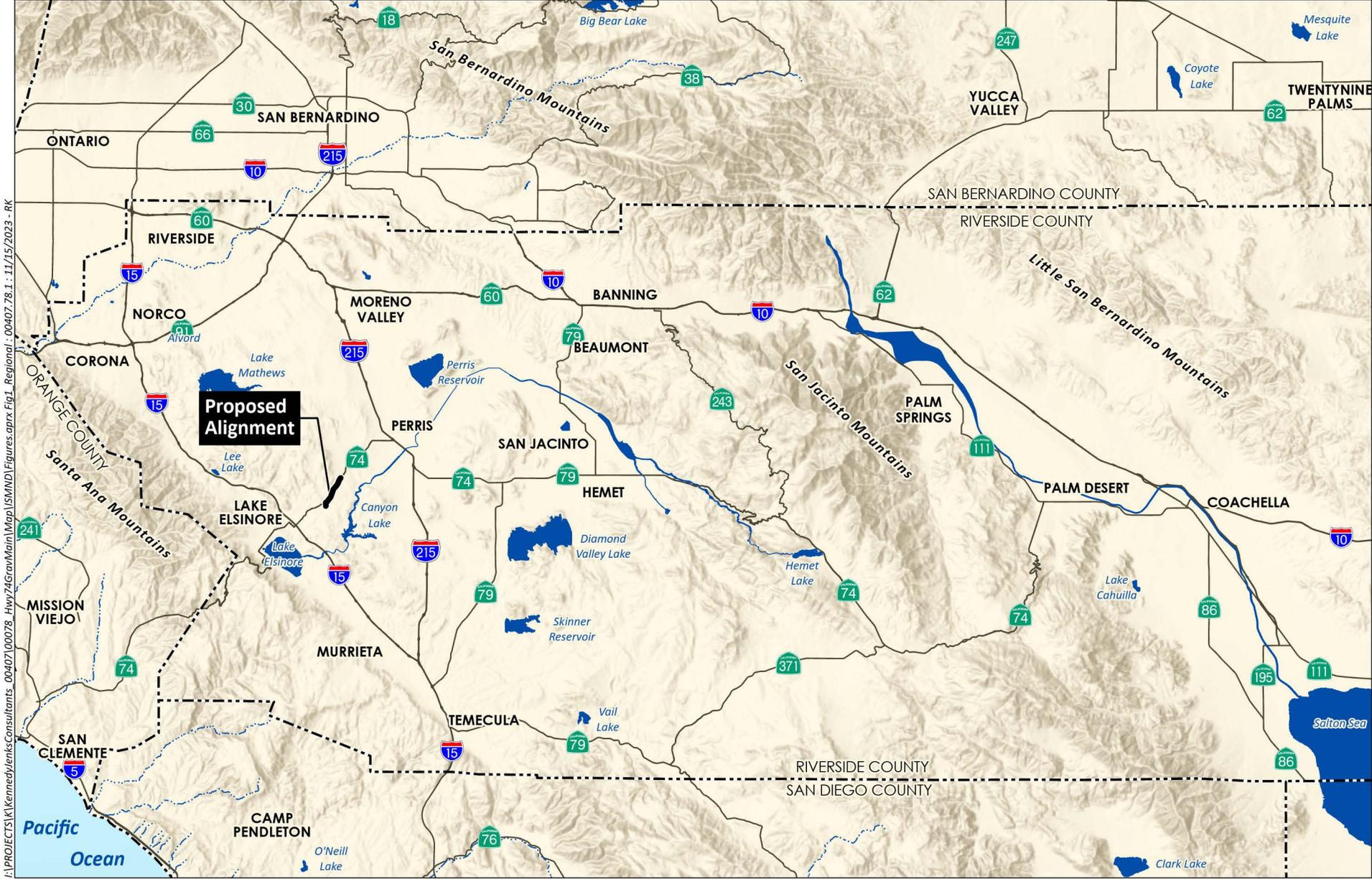
- Figure 1: Regional Location
- Figure 2: Aerial Photograph
- Attachment A: CalEEMod Model Output

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## Figures

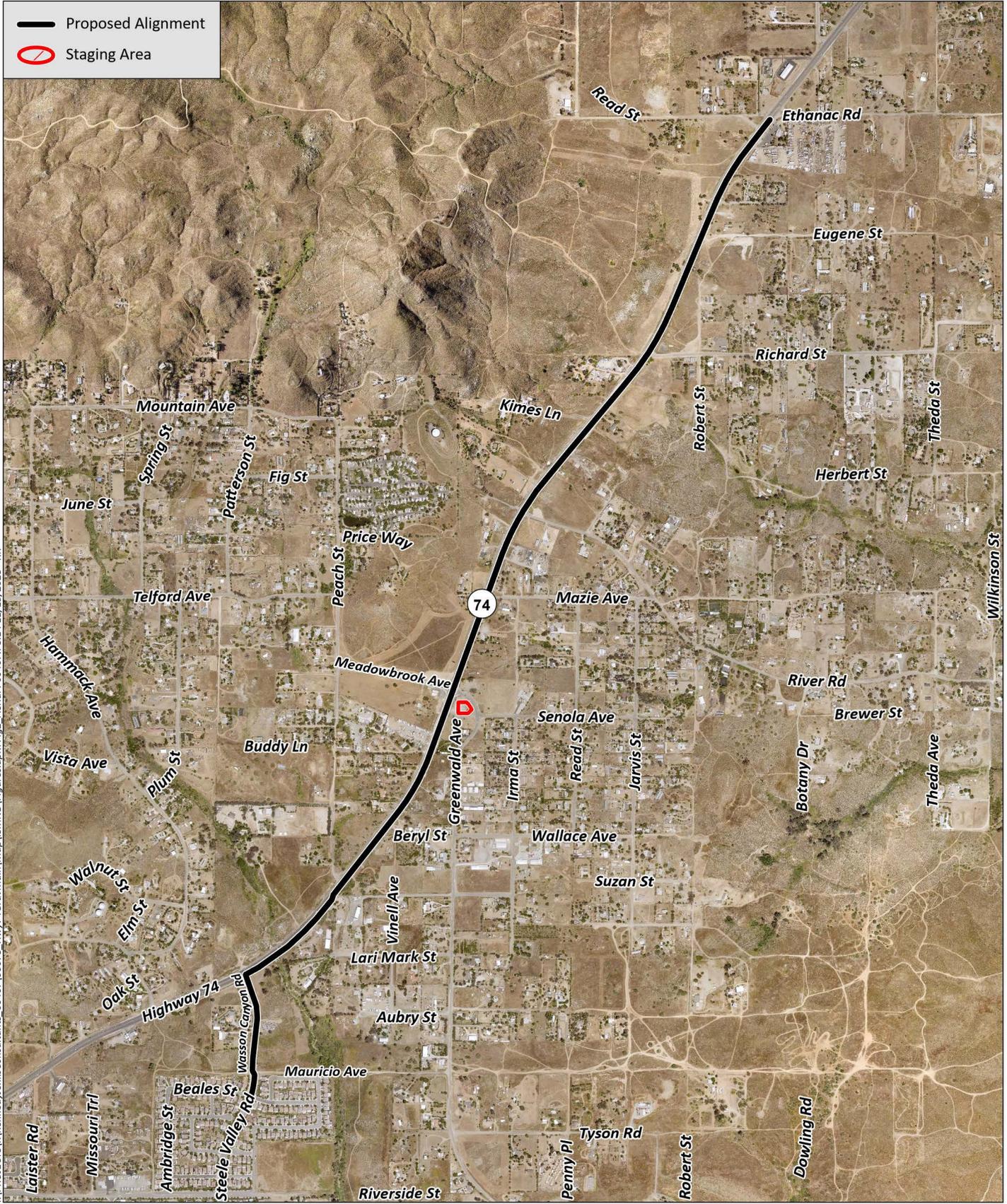
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Source: Base Map Layers (ESRI, 2013)



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Source: Aerial (County of Riverside, 2020)

# Attachment A

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CalEEMod Model Output

# Highway 74 Sewer Detailed Report

## Table of Contents

### 1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

### 2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

### 3. Construction Emissions Details

3.1. Linear, Grading & Excavation (2024) - Unmitigated

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

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

3.7. Linear, Grading & Excavation (2027) - Unmitigated

3.9. Linear, Drainage, Utilities, & Sub-Grade (2024) - Unmitigated

3.11. Linear, Drainage, Utilities, & Sub-Grade (2025) - Unmitigated

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

3.15. Linear, Drainage, Utilities, & Sub-Grade (2027) - Unmitigated

3.17. Linear, Paving (2024) - Unmitigated

3.19. Linear, Paving (2025) - Unmitigated

3.21. Linear, Paving (2026) - Unmitigated

3.23. Linear, Paving (2027) - Unmitigated

3.25. Linear, Trenching (2024) - Unmitigated

3.27. Linear, Trenching (2025) - Unmitigated

#### 4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

#### 5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

### 5.3. Construction Vehicles

#### 5.3.1. Unmitigated

### 5.4. Vehicles

#### 5.4.1. Construction Vehicle Control Strategies

### 5.5. Architectural Coatings

### 5.6. Dust Mitigation

#### 5.6.1. Construction Earthmoving Activities

#### 5.6.2. Construction Earthmoving Control Strategies

### 5.7. Construction Paving

### 5.8. Construction Electricity Consumption and Emissions Factors

### 5.18. Vegetation

#### 5.18.1. Land Use Change

##### 5.18.1.1. Unmitigated

#### 5.18.1. Biomass Cover Type

##### 5.18.1.1. Unmitigated

#### 5.18.2. Sequestration

##### 5.18.2.1. Unmitigated

## 6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

## 7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

## 8. User Changes to Default Data

# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	Highway 74 Sewer
Construction Start Date	10/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	9.20
Location	33.73396016803031, -117.28801703047901
County	Riverside-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5520
EDFZ	11
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.14

## 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Linear	2.37	Mile	0.86	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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.96	2.49	16.6	23.6	0.06	0.64	0.37	1.01	0.59	0.09	0.68	—	6,993	6,993	0.28	0.10	1.71	7,030
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.25	2.74	20.2	25.9	0.06	0.80	0.37	1.17	0.74	0.09	0.83	—	7,351	7,351	0.30	0.10	0.05	7,388
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.12	1.78	12.1	17.0	0.04	0.46	0.26	0.72	0.43	0.06	0.49	—	5,033	5,033	0.20	0.07	0.53	5,059
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.39	0.33	2.20	3.09	0.01	0.08	0.05	0.13	0.08	0.01	0.09	—	833	833	0.03	0.01	0.09	838

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

2025	2.96	2.49	16.6	23.6	0.06	0.64	0.37	1.01	0.59	0.09	0.68	—	6,993	6,993	0.28	0.10	1.71	7,030
2026	2.88	2.42	15.4	23.5	0.06	0.58	0.37	0.95	0.53	0.09	0.62	—	6,988	6,988	0.28	0.09	1.56	7,025
2027	2.85	2.39	14.6	23.4	0.06	0.54	0.37	0.90	0.49	0.09	0.58	—	6,977	6,977	0.27	0.09	1.42	7,013
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.25	2.74	20.2	25.9	0.06	0.80	0.37	1.17	0.74	0.09	0.83	—	7,351	7,351	0.30	0.10	0.05	7,388
2025	3.07	2.58	17.9	25.6	0.06	0.68	0.37	1.05	0.62	0.09	0.71	—	7,349	7,349	0.30	0.10	0.04	7,385
2026	2.88	2.42	15.4	23.1	0.06	0.58	0.37	0.95	0.53	0.09	0.62	—	6,962	6,962	0.27	0.10	0.04	6,997
2027	2.84	2.39	14.6	23.1	0.06	0.54	0.37	0.90	0.49	0.09	0.58	—	6,951	6,951	0.27	0.09	0.04	6,986
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.55	0.46	3.40	4.37	0.01	0.14	0.06	0.20	0.12	0.01	0.14	—	1,238	1,238	0.05	0.02	0.13	1,244
2025	2.12	1.78	12.1	17.0	0.04	0.46	0.26	0.72	0.43	0.06	0.49	—	5,033	5,033	0.20	0.07	0.53	5,059
2026	2.05	1.73	11.0	16.6	0.04	0.41	0.26	0.67	0.38	0.06	0.44	—	4,975	4,975	0.19	0.07	0.48	5,001
2027	1.73	1.45	8.89	14.1	0.04	0.33	0.22	0.55	0.30	0.05	0.35	—	4,233	4,233	0.16	0.06	0.37	4,254
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.10	0.08	0.62	0.80	< 0.005	0.02	0.01	0.04	0.02	< 0.005	0.03	—	205	205	0.01	< 0.005	0.02	206
2025	0.39	0.33	2.20	3.09	0.01	0.08	0.05	0.13	0.08	0.01	0.09	—	833	833	0.03	0.01	0.09	838
2026	0.37	0.32	2.01	3.02	0.01	0.08	0.05	0.12	0.07	0.01	0.08	—	824	824	0.03	0.01	0.08	828
2027	0.32	0.27	1.62	2.57	0.01	0.06	0.04	0.10	0.05	0.01	0.06	—	701	701	0.03	0.01	0.06	704

### 3. Construction Emissions Details

#### 3.1. Linear, Grading & Excavation (2024) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.17	0.98	7.69	11.0	0.02	0.35	—	0.35	0.32	—	0.32	—	2,161	2,161	0.09	0.02	—	2,169
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.29	1.84	< 0.005	0.06	—	0.06	0.05	—	0.05	—	364	364	0.01	< 0.005	—	365
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.24	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	60.2	60.2	< 0.005	< 0.005	—	60.4
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00

### 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.09	0.92	6.82	10.9	0.02	0.30	—	0.30	0.27	—	0.27	—	2,162	2,162	0.09	0.02	—	2,169

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Off-Road Equipment	1.09	0.92	6.82	10.9	0.02	0.30	—	0.30	0.27	—	0.27	—	2,162	2,162	0.09	0.02	—	2,169
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Off-Road Equipment	0.78	0.66	4.87	7.79	0.01	0.21	—	0.21	0.19	—	0.19	—	1,544	1,544	0.06	0.01	—	1,549
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Off-Road Equipment	0.14	0.12	0.89	1.42	< 0.005	0.04	—	0.04	0.04	—	0.04	—	256	256	0.01	< 0.005	—	257
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.05	0.88	6.26	10.9	0.02	0.26	—	0.26	0.24	—	0.24	—	2,163	2,163	0.09	0.02	—	2,170
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.05	0.88	6.26	10.9	0.02	0.26	—	0.26	0.24	—	0.24	—	2,163	2,163	0.09	0.02	—	2,170
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	0.63	4.47	7.81	0.01	0.19	—	0.19	0.17	—	0.17	—	1,545	1,545	0.06	0.01	—	1,550
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.82	1.43	< 0.005	0.03	—	0.03	0.03	—	0.03	—	256	256	0.01	< 0.005	—	257
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.7. Linear, Grading & Excavation (2027) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.02	0.85	5.85	11.0	0.02	0.23	—	0.23	0.21	—	0.21	—	2,163	2,163	0.09	0.02	—	2,170
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.02	0.85	5.85	11.0	0.02	0.23	—	0.23	0.21	—	0.21	—	2,163	2,163	0.09	0.02	—	2,170
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.52	3.56	6.67	0.01	0.14	—	0.14	0.13	—	0.13	—	1,316	1,316	0.05	0.01	—	1,321
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.65	1.22	< 0.005	0.03	—	0.03	0.02	—	0.02	—	218	218	0.01	< 0.005	—	219

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Linear, Drainage, Utilities, & Sub-Grade (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.65	1.39	9.34	9.03	0.04	0.33	—	0.33	0.31	—	0.31	—	3,990	3,990	0.16	0.03	—	4,004
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.23	1.57	1.52	0.01	0.06	—	0.06	0.05	—	0.05	—	671	671	0.03	0.01	—	674
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.29	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	111	111	< 0.005	< 0.005	—	112
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.14	1.51	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	317	317	0.02	0.01	0.04	321	
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.1	62.1	< 0.005	0.01	< 0.005	65.0	
Hauling	0.01	< 0.005	0.17	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	140	140	< 0.005	0.02	0.01	147	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.02	0.02	0.02	0.27	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	54.1	54.1	< 0.005	< 0.005	0.10	54.9	
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.5	10.5	< 0.005	< 0.005	0.01	10.9	
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.6	23.6	< 0.005	< 0.005	0.02	24.7	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.96	8.96	< 0.005	< 0.005	0.02	9.08	
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.73	1.73	< 0.005	< 0.005	< 0.005	1.81	
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.90	3.90	< 0.005	< 0.005	< 0.005	4.10	

### 3.11. Linear, Drainage, Utilities, & Sub-Grade (2025) - Unmitigated

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

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

Off-Road Equipment	1.60	1.34	8.21	8.88	0.04	0.29	—	0.29	0.27	—	0.27	—	3,996	3,996	0.16	0.03	—	4,010
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.60	1.34	8.21	8.88	0.04	0.29	—	0.29	0.27	—	0.27	—	3,996	3,996	0.16	0.03	—	4,010
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.14	0.96	5.86	6.34	0.03	0.21	—	0.21	0.19	—	0.19	—	2,854	2,854	0.12	0.02	—	2,864
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.07	1.16	< 0.005	0.04	—	0.04	0.03	—	0.03	—	473	473	0.02	< 0.005	—	474
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.11	1.85	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	338	338	0.01	0.01	1.24	343	
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	61.2	61.2	< 0.005	0.01	0.17	64.2	
Hauling	0.01	< 0.005	0.15	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	138	138	< 0.005	0.02	0.29	145	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.11	0.10	0.12	1.40	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	311	311	0.01	0.01	0.03	315	
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	61.2	61.2	< 0.005	0.01	< 0.005	64.0	
Hauling	0.01	< 0.005	0.16	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	138	138	< 0.005	0.02	0.01	144	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.08	0.07	0.09	1.06	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	225	225	0.01	0.01	0.38	228	
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.7	43.7	< 0.005	0.01	0.05	45.8	
Hauling	< 0.005	< 0.005	0.12	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	98.5	98.5	< 0.005	0.02	0.09	103	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.01	0.01	0.02	0.19	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.2	37.2	< 0.005	< 0.005	0.06	37.8	
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.24	7.24	< 0.005	< 0.005	0.01	7.58	
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	0.01	17.1	

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.58	1.33	7.65	8.91	0.04	0.27	—	0.27	0.25	—	0.25	—	4,000	4,000	0.16	0.03	—	4,014
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.58	1.33	7.65	8.91	0.04	0.27	—	0.27	0.25	—	0.25	—	4,000	4,000	0.16	0.03	—	4,014
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	0.95	5.46	6.36	0.03	0.19	—	0.19	0.18	—	0.18	—	2,857	2,857	0.12	0.02	—	2,867
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.00	1.16	< 0.005	0.04	—	0.04	0.03	—	0.03	—	473	473	0.02	< 0.005	—	475

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.72	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	331	331	0.01	0.01	1.12	336
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.2	60.2	< 0.005	0.01	0.16	63.2
Hauling	0.01	< 0.005	0.15	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	135	135	< 0.005	0.02	0.28	142
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.11	1.31	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	304	304	< 0.005	0.01	0.03	308
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.2	60.2	< 0.005	0.01	< 0.005	63.1
Hauling	0.01	< 0.005	0.16	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	135	135	< 0.005	0.02	0.01	142
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	0.98	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	220	220	< 0.005	0.01	0.35	223
Vendor	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.0	43.0	< 0.005	0.01	0.05	45.1
Hauling	< 0.005	< 0.005	0.11	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	96.8	96.8	< 0.005	0.02	0.09	102
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	36.4	36.4	< 0.005	< 0.005	0.06	36.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.12	7.12	< 0.005	< 0.005	0.01	7.46
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	16.0	16.0	< 0.005	< 0.005	0.01	16.8

3.15. Linear, Drainage, Utilities, & Sub-Grade (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.59	1.33	7.30	8.91	0.04	0.26	—	0.26	0.24	—	0.24	—	3,999	3,999	0.16	0.03	—	4,013
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.59	1.33	7.30	8.91	0.04	0.26	—	0.26	0.24	—	0.24	—	3,999	3,999	0.16	0.03	—	4,013
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.81	4.44	5.42	0.02	0.16	—	0.16	0.14	—	0.14	—	2,434	2,434	0.10	0.02	—	2,442
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	0.81	0.99	< 0.005	0.03	—	0.03	0.03	—	0.03	—	403	403	0.02	< 0.005	—	404
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.08	1.59	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	325	325	< 0.005	0.01	1.01	329
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.1	59.1	< 0.005	0.01	0.15	61.9
Hauling	0.01	< 0.005	0.14	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	133	133	< 0.005	0.02	0.26	139
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	1.21	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	299	299	< 0.005	0.01	0.03	302
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.1	59.1	< 0.005	0.01	< 0.005	61.8
Hauling	0.01	< 0.005	0.15	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	133	133	< 0.005	0.02	0.01	139
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	184	184	< 0.005	0.01	0.26	187
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.0	36.0	< 0.005	0.01	0.04	37.6
Hauling	< 0.005	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	80.8	80.8	< 0.005	0.01	0.07	84.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	30.5	30.5	< 0.005	< 0.005	0.04	30.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.96	5.96	< 0.005	< 0.005	0.01	6.23
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.4	13.4	< 0.005	< 0.005	0.01	14.0

### 3.17. Linear, Paving (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.36	1.95	< 0.005	0.06	—	0.06	0.06	—	0.06	—	298	298	0.01	< 0.005	—	299
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.23	0.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	50.2	50.2	< 0.005	< 0.005	—	50.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.32	8.32	< 0.005	< 0.005	—	8.34
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.19. Linear, Paving (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	1.25	1.93	< 0.005	0.05	—	0.05	0.05	—	0.05	—	298	298	0.01	< 0.005	—	299
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	1.25	1.93	< 0.005	0.05	—	0.05	0.05	—	0.05	—	298	298	0.01	< 0.005	—	299

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.89	1.38	< 0.005	0.04	—	0.04	0.03	—	0.03	—	213	213	0.01	< 0.005	—	214	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Off-Road Equipment	0.02	0.01	0.16	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	35.3	35.3	< 0.005	< 0.005	—	35.4	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.21. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.17	1.92	< 0.005	0.05	—	0.05	0.04	—	0.04	—	298	298	0.01	< 0.005	—	299
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.17	1.92	< 0.005	0.05	—	0.05	0.04	—	0.04	—	298	298	0.01	< 0.005	—	299
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.83	1.37	< 0.005	0.03	—	0.03	0.03	—	0.03	—	213	213	0.01	< 0.005	—	214
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.15	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	35.3	35.3	< 0.005	< 0.005	—	35.4

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.23. Linear, Paving (2027) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	1.14	1.92	< 0.005	0.04	—	0.04	0.04	—	0.04	—	298	298	0.01	< 0.005	—	299
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	1.14	1.92	< 0.005	0.04	—	0.04	0.04	—	0.04	—	298	298	0.01	< 0.005	—	299
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.69	1.17	< 0.005	0.03	—	0.03	0.02	—	0.02	—	182	182	0.01	< 0.005	—	182
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.13	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30.1	30.1	< 0.005	< 0.005	—	30.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.25. Linear, Trenching (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.43	2.40	< 0.005	0.05	—	0.05	0.05	—	0.05	—	382	382	0.02	< 0.005	—	383
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.24	0.40	< 0.005	0.01	—	0.01	0.01	—	0.01	—	64.2	64.2	< 0.005	< 0.005	—	64.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.6	10.6	< 0.005	< 0.005	—	10.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.27. Linear, Trenching (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	1.28	2.38	< 0.005	0.04	—	0.04	0.03	—	0.03	—	382	382	0.02	< 0.005	—	384
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.18	0.34	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.05	9.05	< 0.005	< 0.005	—	9.08
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	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	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																			
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																		
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																		
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
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Linear, Grading & Excavation	Linear, Grading & Excavation	10/7/2024	11/07/2027	5.00	805	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	10/7/2024	11/7/2027	5.00	805	—
Linear, Paving	Linear, Paving	10/7/2024	11/7/2027	5.00	805	—
Tunnel Boring	Linear, Trenching	10/7/2024	3/14/2025	5.00	115	—

## 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, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Linear, Grading & Excavation	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	2.00	8.00	150	0.36
Linear, Grading & Excavation	Off-Highway Trucks	Diesel	Average	1.00	4.00	376	0.38
Linear, Grading & Excavation	Dumpers/Tenders	Diesel	Average	2.00	4.00	16.0	0.38
Linear, Drainage, Utilities, & Sub-Grade	Off-Highway Trucks	Diesel	Average	3.00	8.00	376	0.38
Linear, Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Tunnel Boring	Bore/Drill Rigs	Diesel	Average	1.00	8.00	83.0	0.50

## 5.3. Construction Vehicles

### 5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
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Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	0.00	18.5	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	0.00	10.2	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	24.0	18.5	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	2.00	10.2	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	2.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	0.00	18.5	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	10.2	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT
Tunnel Boring	—	—	—	—
Tunnel Boring	Worker	0.00	18.5	LDA,LDT1,LDT2
Tunnel Boring	Vendor	—	10.2	HHDT,MHDT
Tunnel Boring	Hauling	0.00	20.0	HHDT
Tunnel Boring	Onsite truck	—	—	HHDT

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

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

## 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)
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## 5.6. Dust Mitigation

### 5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grading & Excavation	—	—	0.86	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	15,300	15,300	0.86	0.00	—

### 5.6.2. Construction Earthmoving Control Strategies

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

## 5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Linear	0.86	100%

## 5.8. Construction Electricity Consumption and Emissions Factors

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

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	532	0.03	< 0.005
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005

2027	0.00	532	0.03	< 0.005
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## 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
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### 5.18.1. Biomass Cover Type

#### 5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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### 5.18.2. Sequestration

#### 5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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## 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	29.0	annual days of extreme heat
Extreme Precipitation	3.05	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth

Wildfire	17.8	annual hectares burned
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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 (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth 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 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

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	4	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

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

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

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

### 6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	1	1	4

Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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

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

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

## 6.4. Climate Risk Reduction Measures

# 7. Health and Equity Details

## 7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	88.8
AQ-PM	53.0
AQ-DPM	12.3
Drinking Water	69.0
Lead Risk Housing	56.5
Pesticides	61.8
Toxic Releases	31.4
Traffic	4.60

Effect Indicators	—
CleanUp Sites	76.7
Groundwater	0.00
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	0.00
Solid Waste	52.9
Sensitive Population	—
Asthma	63.4
Cardio-vascular	89.1
Low Birth Weights	73.3
Socioeconomic Factor Indicators	—
Education	86.4
Housing	25.7
Linguistic	75.2
Poverty	81.1
Unemployment	92.2

## 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	19.56884383
Employed	4.606698319
Median HI	25.15077634
Education	—
Bachelor's or higher	17.50288721
High school enrollment	100

Preschool enrollment	62.33799564
Transportation	—
Auto Access	36.01950468
Active commuting	2.489413576
Social	—
2-parent households	33.36327473
Voting	8.199666367
Neighborhood	—
Alcohol availability	86.66752214
Park access	12.53689208
Retail density	3.220839215
Supermarket access	15.62941101
Tree canopy	3.772616451
Housing	—
Homeownership	63.13358142
Housing habitability	25.99769023
Low-inc homeowner severe housing cost burden	33.1707943
Low-inc renter severe housing cost burden	14.8209932
Uncrowded housing	23.61093289
Health Outcomes	—
Insured adults	11.03554472
Arthritis	0.0
Asthma ER Admissions	35.3
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	36.0
Cognitively Disabled	13.7
Physically Disabled	11.3
Heart Attack ER Admissions	6.7
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	83.7
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	60.8
SLR Inundation Area	0.0
Children	67.0
Elderly	45.9
English Speaking	33.3
Foreign-born	57.7
Outdoor Workers	49.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	95.8
Traffic Density	16.5

Traffic Access	23.0
Other Indices	—
Hardship	86.7
Other Decision Support	—
2016 Voting	27.1

### 7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	73.0
Healthy Places Index Score for Project Location (b)	10.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

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

### 7.4. Health & Equity Measures

No Health & Equity Measures selected.

### 7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

### 7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

## 8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Tunnel boring to occur for first 5.7 months in Wasson Canyon Road, traditional excavation in Highway 74 for remaining construction period.

Construction: Off-Road Equipment	List of construction equipment provided by project engineer.
Construction: Trips and VMT	Per project engineer, material delivery to occur as needed and 12 workers required on-site daily. One vendor and one hauling round trip assumed to occur each day.

# IS/MND Appendix B

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Biological Resources Letter Report

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October 27, 2023

00407.00078.001

Andrew L. Webster, P.E.  
Senior Water Resources Manager  
Kennedy Jenks  
38977 Sky Canyon Drive  
Murrieta, CA 92563

**Subject: Biological Resources Letter Report for the Highway 74/Ethanac Sewer Extension Project**

Dear Mr. Webster:

This Biological Resources Letter Report documents the results of a biological resources assessment completed by HELIX Environmental Planning, Inc. (HELIX) for the Highway 74/Ethanac Sewer Extension Project (Project) located adjacent to the City of Lake Elsinore, in unincorporated Riverside County, California. The Elsinore Valley Municipal Water District (EVMWD) plans to install sewer pipelines within Highway 74, between Wasson Canyon Road and Ethanac Road, and within Wasson Canyon Road, between Highway 74 and Mauricio Avenue, in addition to associated improvements. For regional context purposes, the Project is within the boundary of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP, RCTLMA 2003). The majority of the Project area is located outside areas targeted for specific conservation requirements, except for two Criteria Cells (3974 and 4078). EVMWD is not a signatory to the MSHCP and is not required to comply with plan conditions and associated mitigation fees. The Project is located outside of Critical Habitat designated by the U.S. Fish and Wildlife Service (USFWS).

This report summarizes the existing biological resources within the Project site and analyzes the proposed impacts under the California Environmental Quality Act (CEQA) and applicable federal, state, and local policy.

## **PROJECT DESCRIPTION AND LOCATION**

The Project site is generally located within the Meadowbrook community in unincorporated Riverside County (County), California (Figure 1, *Regional Location*). It is depicted on the Elsinore, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle, within Township 5 South, Range 4 West, and Sections 15, 21, and 22 (Figure 2, *USGS Topography*). More specifically, the Project would be constructed within Highway 74, between Wasson Canyon Road and Ethanac Road, and within Wasson Canyon Road, between Highway 74 and Mauricio Avenue (Figure 3, *Aerial Photograph*). The City of Lake Elsinore boundary borders the Project, immediately south of the intersection of Mauricio Avenue and

Wasson Canyon Road; however, the Project does not fall within their jurisdiction. The Project would occur primarily within the existing road rights-of-way (ROW) and encompasses 36 small Assessor's Parcel Numbers (APNs), including existing residential homes and commercial properties (Attachment A, *APN List*). The "study area" is defined by the 12,500-foot, 16-inch gravity sewer pipeline, two temporary staging areas (one temporary staging area location is identified and one to be determined), associated infrastructure, and a 50-foot buffer from the proposed alignment, totaling approximately 30.14 acres. A minimum working limit width of 36 feet is recommended by the Project engineers for trenching, laydown areas, and a drive aisle for material placement. The 36-foot buffer from the proposed alignment and staging areas are together described as the "impact area" in this report.

EVMWD is a public, non-profit agency created on December 23, 1950, under the Municipal Water District Act of 1911. EVMWD provides public water service, water supply development and planning, wastewater treatment and disposal, and recycling. Currently, EVMWD has over 46,000 water, wastewater, and agricultural service connections over a 96-square-mile service area within the cities of Lake Elsinore, Wildomar, Canyon Lake, and Murrieta, and unincorporated portions of the County of Riverside. EVMWD is a sub-agency of the Western Municipal Water District, a member agency of the Metropolitan Water District of Southern California. The Project is within EVMWD's Regional Water Reclamation Facility (WRF) sewershed. The Project would be in a location that could facilitate the future conversion of the surrounding Meadowbrook rural residential community from septic tanks to sewers per the with EVMWD's 2016 Sewer System Master Plan.

The Project consists of the construction of up to 12,500 feet of a 16-inch gravity trunk sewer pipeline within Highway 74, between Wasson Canyon Road and Ethanac Road, and within Wasson Canyon Road, between Highway 74 and Mauricio Avenue. The Project would connect to an existing 15-inch diameter polyvinyl chloride (PVC) gravity trunk sewer at the intersection of Wasson Canyon Road and Mauricio Avenue. Since EVMWD's service area boundary is generally located along Ethanac Road, it is assumed that sewer service north of Ethanac Road would be provided by the Eastern Municipal Water District.

The connection at Wasson Canyon Road and Mauricio Avenue would involve the removal of a concrete plug to the existing 15-inch diameter PVC gravity trunk sewer, inspection of the existing sewer, and installation of a manhole. Termination of the proposed pipeline would occur near the intersection of Highway 74 and Ethanac Road with a terminal manhole and a 5-foot-long sewer pipeline extension ending with a 15-inch concrete plug. Manholes throughout the alignment would be installed with spacing of up to 500 feet and flush with the finished roadway surface.

Within Wasson Canyon Road, a two-lane road, the pipeline would be located approximately parallel to and 6 feet east of the roadway centerline. Within Highway 74, a four-lane road, the pipeline would typically be installed in the center of the driving lane nearest to the roadway centerline, on the south or east side of the centerline. Installation of the pipeline within Highway 74 at the Wasson Canyon Wash Crossing would include a 3.5-foot square concrete pipe encasement on top of the existing concrete box culvert located on the eastern side of Highway 74 (Figure 4, *Proposed Pipe Alignment*).

The duration of construction is estimated to be approximately 37 months, starting October 2024. The majority of the pipeline along Highway 74 would be constructed using open trench methods at a minimum depth of seven feet. Within the narrower Wasson Canyon Road, it is anticipated that open trench construction or a micro-tunnel boring machine would be used to install the pipeline. Construction is anticipated to occur at a rate of 10 to 20 linear feet per day.

A minimum working limit width of 36 feet is recommended by the Project engineers to allow for a 3-foot-wide trench, a pipe laydown area, and a dump truck drive aisle for material placement. It is anticipated that this construction work area would result in limiting traffic to one lane in each direction during the pipe installation in Highway 74 and a temporary road closure for Wasson Canyon Road. Construction traffic management plans (TMPs) would be required to be approved by the County for construction within Highway 74 and Wasson Canyon Road. Work hours and lane closure schedules are anticipated to be determined in coordination with the County.

Off-site staging areas are anticipated to consist of the approximately 0.25-acre gravel-surfaced property at the southeast corner of Highway 74 and Greenwald Avenue and a temporary equipment storage lot, less than 0.5-acre in size, at an undetermined location along the Highway 74 road corridor in a previously disturbed/developed property. When construction equipment is not in use, it would be stored at locations selected by the contractor and approved by EVMWD.

Approximately 17,000 cubic yards (CY) of soil material would be excavated during trenching. It is estimated that 1,700 CY would be used to backfill trenched areas, and the remaining 15,300 CY of excavated material would be exported. To refill trenched areas, 15,300 CY of soil material would also be imported to the Project.

Construction would implement standard dust control measures as required by South Coast Air Quality Management District (SCAQMD) Rule 403, including watering two times daily during grading, ensuring that all exposed surfaces maintain a minimum soil moisture of 12 percent, and limiting vehicle speeds on unpaved roads to 15 miles per hour. All trucks hauling dirt, sand, soil, or other loose materials would be covered with a fabric cover and maintain a freeboard height of 12 inches.

The implementation of the proposed Project would require conformance with the National Pollution Discharge Elimination System General Construction Activity Permit. Such conformance would entail the implementation of a Storm Water Pollution Prevention Plan (SWPPP) to address the discharge of contaminants (including construction-related hazardous materials) and minimize runoff through appropriate best management practices (BMPs).

As a standard construction practice and regulatory requirement, EVMWD would implement BMPs from the required SWPPP for the Project, which may include:

- Covering stockpiled excavated and/or fill materials to reduce potential off-site sediment transport;
- Employing appropriate standard spill prevention practices and clean-up materials;
- Maintaining the Project area free of trash and debris;
- Properly storing, handling, and disposing of toxins and pollutants, including waste materials;
- Using erosion control devices, such as straw wattles, mulch, mats, and/or geotextiles;

- Using sediment catchment structures such as hay bales, gravel or sandbags, silt fencing, fiber rolls, matting, berms, or similar devices along grading boundaries and drainage courses to prevent off-site sediment transport;
- Daily backfilling, compaction, and/or covering of excavated trenches to minimize erosion potential; and/or
- Regularly inspecting and maintaining all erosion control and sediment catchment facilities to ensure proper function and effectiveness.

Construction plans would include work limits and the limits of sensitive biological resources. Sensitive habitat areas, including riparian habitats, would be flagged prior to construction occurring adjacent to these areas to ensure staging and other construction activities avoid such resources and remain within the disturbed and developed portions of the Project site.

## **METHODS**

### **Literature Review**

Before conducting the general biological survey, HELIX performed a search of the California Natural Diversity Database (CNDDDB; California Department of Fish and Wildlife [CDFW] 2023a and b), California Native Plant Society (CNPS) rare plant inventory (CNPS 2023a), USFWS Critical Habitat Portal (USFWS 2023a), USFWS National Wetlands Inventory (USFWS 2023b), and USFWS Information for Planning and Conservation (IPaC; USFWS 2023c) database applications to obtain information regarding sensitive biological resources known to occur within the vicinity of the study area (Attachment B, *IPaC Report*).

### **General Biological Survey**

HELIX biologists Daniel Torres and Matthew Dimson completed a general biological survey of the study area on July 25, 2023. The assessment focused on inventorying existing vegetation communities; qualifying habitat suitability and potential for the occurrence of sensitive species, including federally listed species protected under the federal Endangered Species Act (ESA); preliminarily identifying potential aquatic resources; and identifying other sensitive biological resources, such as potential nesting habitat for bird species protected under the Migratory Bird Treaty Act (MBTA). Representative photographs were taken and are included as Attachment C, *Representative Photographs*. The study area was surveyed with the aid of binoculars, and all observed or detected plant and animal species were recorded (Attachments D and E, *Plant Species Observed* and *Animal Species Observed or Detected*). Animal identifications were made in the field by visual observation or detection of calls, burrows, tracks, scat, and sign. Plant identifications were made in the field.

### **Preliminary Aquatic Resource Assessment**

HELIX completed an informal, preliminary aquatic resource assessment concurrent with the general biological survey within the study area. The preliminary assessment focused on mapping culverts, riparian and wetland vegetation, surface soils, topography, and other data to identify potentially jurisdictional aquatic resources.

## Survey Limitations

The lists of species identified are not necessarily comprehensive accounts of all species that occur on the site, as species that are nocturnal, secretive, or seasonally restricted may not have been observed. Additionally, species may occur within the limits of private property in the study area and may not have been observed due to access.

## Nomenclature

The nomenclature for this report follows the Jepson Manual (Baldwin et al. 2012) for Latin names of plants, and the Manual of California Vegetation (CNPS 2023b) for vegetation communities. Animal nomenclature follows the North American Butterfly Association (NABA 2017) for butterflies, the Center for North American Herpetology (Taggart 2020) for reptiles and amphibians, the American Ornithological Society (AOS 2022) for avian species, and the Revised checklist of North American mammals north of Mexico (Bradley et al. 2014) for mammals. Sensitive plant and wildlife status are from the CDFW Special Animal List (CDFW 2023b). Soils data is from the U.S. Department of Agriculture Web Soil Survey (USDA 2022).

## ENVIRONMENTAL SETTING

### Existing Conditions

#### Regional Context

The study area is located within a rural residential area in western Riverside County. The study area is within the boundary of the MSHCP, and the majority of the study area is located outside lands targeted for conservation, except for two Criteria Cells (3974 and 4078). MSHCP Conserved Lands do not overlay the study area but exist to the north and south of the southern portion of the study area. The biological resources located near the site that are of local importance include Lake Elsinore (to the south) and the San Jacinto River (to the east) that flows into Lake Elsinore and the habitats adjacent to those water bodies. Although one Core Linkage is located immediately south of Highway 74, just north of the intersection of Wasson Canyon Road, the feature is outside the study area.

The southern extent of the study area near the intersection of Wasson Canyon Road and Highway 74 is within MSHCP Criteria Cells (Cell 3974 and 4078). Although EVMWD is not a signatory to the MSHCP and compliance with plan conditions and associated mitigation fees is not applicable, this document will address the Project's conformance with the MSHCP to the extent feasible (See Issue #6, below).

#### Disturbance

Most of the study area comprises disturbed roadside areas. The undeveloped areas within the study area are disturbed by regular disking, mowing, and off-road vehicular activity. Some remnant patches of intact native habitats exist within the study area; however, these patches are heavily altered by adjacent disturbance.

## Topography and Soils

Overall, the study area is gently sloped, with an elevation ranging from approximately 1,665 feet above mean sea level (AMSL) in the northern portion of the study area to 1,635 AMSL in the south. There are nine soil types mapped within the study area, including Bosanko clay (BfD, 9 to 15 percent slopes), Cajalco fine sandy loam (CaC2 and CaD2, 2 to 15 percent slopes, eroded), Cieneba rocky sandy loam (CkF2, 15 to 50 percent slopes, eroded), Fallbrook fine sandy loam (FfC2 and FaD2, 2 to 15 percent slopes), Gorgonio loamy sand (GkD, channels, 2 to 15 percent slopes), Honcut sandy loam (HnC, 2 to 8 percent slopes), Las Posas loam (LaD2, 8 to 15 percent slopes, eroded), Temescal (TbF2, 15 to 50 percent slopes, eroded), and Vista coarse sandy loam (VsD2, 8 to 15 percent slopes, eroded).

These soil series are characterized by well-draining substrates derived from weathered granitic material or igneous rock and are generally found at elevations lower than 3,000 AMSL, with rock outcrops being common in areas with the Gorgonio and Honcut Series occurring across alluvial fans. Most of the surface soils in the study area show significant disturbance and alteration from their native state.

## Vegetation Communities and Land Use

A total of eight vegetation communities or land cover types occur within the study area, which include arroyo willow thicket, brittlebush scrub, California buckwheat scrub (including disturbed), developed, disturbed habitat, non-native vegetation, and unvegetated streambed (Figures 5a-i, *Vegetation Communities*; Table 1, *Existing Vegetation Communities and Land Uses in the Study Area*). Each was identified to the alliance level using the online version of the Manual of California Vegetation (CNPS 2023b).

**Table 1**  
**EXISTING VEGETATION COMMUNITIES AND LAND USES IN THE STUDY AREA**

MCV Habitat Name	Acres
Arroyo Willow Thicket ( <i>Salix lasiolepis</i> Shrubland Alliance)	0.03
Brittlebush Scrub ( <i>Encelia farinosa</i> Shrubland Alliance)	0.05
California Buckwheat Scrub ( <i>Eriogonum fasciculatum</i> Shrubland Alliance)	0.11
California Buckwheat Scrub ( <i>Eriogonum fasciculatum</i> Shrubland Alliance) – Disturbed	0.17
Developed	22.26
Disturbed Habitat	7.17
Non-native Vegetation	0.28
Unvegetated Streambed	0.07
<b>Total</b>	<b>30.14</b>

### Arroyo Willow Thicket (*Salix lasiolepis* Shrubland Alliance)

Arroyo Willow Thicket consists of dense, broadleaved, winter-deciduous stands of trees dominated by shrubby willows (*Salix* spp.) in association with mule fat (*Baccharis salicifolia*) and with scattered emergent cottonwood (*Populus fremontii*) and western sycamores (*Platanus racemosa*). This vegetation community occurs on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early seral community, preventing succession to a riparian woodland or forest. In the absence of periodic flooding, this early seral type would be succeeded by southern cottonwood or western sycamore riparian forest.

This habitat comprises two small patches adjacent to a drainage feature in the southern portion of the study area. The habitat is dominated by Goodding's willow (*Salix gooddingii*) and red willow (*Salix lasiolepis*). One large Fremont cottonwood was observed in the habitat patch on the eastern side of the study area. Other native species observed included mule fat and seep monkeyflower (*Erythranthe guttata*). A significant number of non-native species were also observed, including annual beard-grass (*Polypogon monspeliensis*), Bermuda grass (*Cynodon dactylon*), and tamarisk (*Tamarix ramosissima*). Approximately 0.03 acre of arroyo willow thicket occurs in the study area.

#### Brittlebush Scrub (*Encelia farinosa* Shrubland Alliance)

Brittlebush scrub is the most xeric expression of coastal sage scrub, typically found on xeric sites such as steep slopes, severely drained soils, or clays that release stored soil moisture slowly. Typical stands are open and dominated by brittlebush (*Encelia farinosa*) and may also include California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), and red brome (*Bromus rubens*). Brittlebush scrub within the study area is dominated by brittlebush and includes small amounts of other native species, including California buckwheat and common sandaster (*Corethrogyne filaginifolia*). Short pod mustard (*Hirschfeldia incana*) and red brome were also common within this plant community. Approximately 0.05 acre of brittlebush scrub occurs in the study area. This habitat community was mapped as a single isolated patch adjacent to disturbed habitat and residential housing.

#### California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)

California buckwheat scrub is a xeric expression of coastal sage scrub, typically found on xeric sites such as steep slopes, severely drained soils, or clays that release stored soil moisture slowly. Typical stands are open and dominated by California buckwheat and may also include brittlebush, California sagebrush, and red brome. California buckwheat scrub within the study area is dominated by California buckwheat and also includes small amounts of brittlebush, red brome, and short pod mustard. Approximately 0.11 acre of California buckwheat scrub and 0.17 acre of California buckwheat scrub-disturbed occur in the study area. This habitat community occurs adjacent to an existing road, disturbed habitat, and development, and was mapped as several small, isolated patches.

#### Developed

The developed land cover type includes lands that have been constructed upon or otherwise physically altered to the extent that native vegetation is no longer supported. Developed land is characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation. Areas where no natural land is evident due to a large amount of debris or other materials being placed upon it may also be considered developed. The developed land in the study area includes structures, paved and dirt roads, and ornamental vegetation. Approximately 22.26 acres of developed land characterized by these elements occur within the study area.

#### Disturbed Habitat

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

the study area (including the staging area). Approximately 7.17 acres of disturbed habitat occur within the study area.

### Non-native Vegetation

Non-native vegetation generally includes non-native trees or shrubs planted as windrows, invasive trees and shrubs, and other vegetation that has spread from landscaping. In the study area, this habitat occurs on or adjacent to development within disturbed habitat and comprises olive (*Olea europaea*), eucalyptus (*Eucalyptus* sp.), Peruvian pepper (*Schinus molle*), and Jerusalem thorn (*Parkinsonia aculeata*). Approximately 0.28 acre of non-native vegetation occurs within the study area.

### *Unvegetated Streambed*

Unvegetated streambed typically consists of coarse-textured substrate, which ranges from sand to gravel. The coarse-textured substrate is transported and deposited by stream flows. Approximately 0.07 acre of unvegetated streambed associated with one culvert occurs in the study area. The feature consists mostly of sandy substrate and is generally unvegetated. Scattered non-native species were observed at low percent cover, including short pod mustard, wild fennel (*Foeniculum vulgare*), giant reed (*Arundo donax*), and tocalote (*Centaurea melitensis*). Sparse cover of native plant species was also observed, including mule fat and alkali heliotrope (*Heliotropium curassavicum*).

### Flora and Fauna

A total of 34 plant species (Attachment D) and 12 animal species (consisting of one invertebrate, one reptile, four birds, and two mammal species; Attachment E) were observed or otherwise detected in the study area during the general biological survey.

## **Sensitive Biological Resources**

### Sensitive Natural Communities

Sensitive natural communities include land that supports unique vegetation communities or the habitats of rare, threatened, or endangered species or subspecies of animals or plants as defined by Section 15380 of the CEQA Guidelines. Developed or disturbed land does not meet the definition of sensitive. According to CDFW, plant communities, alliances, and associations with a statewide ranking of S1 through S3 are considered sensitive natural communities. The list of California Sensitive Natural Communities uses the Alliance and Association names for plant communities from the Manual of California Vegetation (MCV; CNPS 2023b). The sensitivity rankings for plant communities observed in the study area are provided in Table 2, *Vegetation Community Sensitivity Rating*.

**Table 2**  
**VEGETATION COMMUNITY SENSITIVITY RATING**

<b>MCV Alliance</b>	<b>Sensitive Ranking<sup>1</sup></b>
Arroyo Willow Thicket ( <i>Salix lasiolepis</i> Shrubland Alliance)	G4/S4
Brittlebush Scrub ( <i>Encelia farinosa</i> Shrubland Alliance)	G5/S4
California Buckwheat Scrub ( <i>Eriogonum fasciculatum</i> Shrubland Alliance, including disturbed)	G5/S5
Developed Land	None
Disturbed Habitat	None
Non-native Vegetation	None
Unvegetated Streambed	None

<sup>1</sup> Ranking G=federal and S=State of California

Based on global and state rankings, no sensitive natural communities occur within the study area, as all rankings are greater than S3. Arroyo Willow Thicket and Unvegetated Streambed would be considered potentially jurisdictional by CDFW and are discussed further in the Preliminary Aquatic Resource Assessment section below.

### Special-Status Plant and Animal Species

#### Special-Status Plant Species

Special-status plant species are those listed as federally threatened or endangered by the USFWS; State listed as threatened or endangered or considered sensitive by the CDFW; and/or are CNPS California Rare Plant Rank (CRPR) species, as recognized in the CNPS Inventory of Rare and Endangered Vascular Plants of California and consistent with the CEQA Guidelines. The desktop analysis for special-status plant species occurrences included a five-mile search radius from the study area of the CNDDDB, a one-quadrangle search of the CNPS rare plant inventory, USFWS critical habitat, and a search of the USFWS IPaC database applications.

A total of 24 plant species were evaluated for their potential to occur in the study area (Attachment F, *Special-Status Plant Species with Potential to Occur*). The evaluated species include seven species listed on a state or federal level. There are six special-status plant species with low potential to occur on-site; none of the species are listed on a state or federal level. The remainder of the species do not have the potential to occur due to a lack of suitable habitat and high levels of disturbance in the study area.

No special-status plant species were observed within the study area. A population of 21 paniculate tarplant (*Deinandra paniculata*) was observed approximately 150 feet north of the study area (see Figure 5d). No impacts to this population are proposed.

#### Special-Status Animal Species

Special-status animal species are those listed as threatened or endangered, proposed for listing, or candidates for listing by the USFWS or National Marine Fisheries Service under the ESA, and those animal species considered sensitive by CDFW. The desktop analysis for special-status animal species occurrences included a five-mile search radius from the study area of the CNDDDB, USFWS critical habitat, and a search of the USFWS IPaC database applications.

Special-status animal species evaluated for their potential to occur in the study area are listed in Attachment G, *Special-Status Animal Species with Potential to Occur*. A total of 29 species, including three invertebrates, one amphibian, eight reptiles, eleven birds, and six mammals, were evaluated for their potential to occur in the study area. Thirteen of the species evaluated have low potential to occur in the study area. These species include one species federally listed as endangered, one fully protected species, one candidate species for state listing as endangered, six state species of special concern, and four watch list species. The remainder of the animal species do not have the potential to occur on-site due to a lack of suitable habitat and residential development on the site. No special-status animal species were observed in the study area during the general biological survey.

Bald eagle, a state-listed species, is known to forage at Lake Elsinore but is not known to nest in the vicinity. The study area is approximately four miles from Lake Elsinore. The bald eagle may use trees within the study area for temporary roosting but is unlikely to remain due to the high disturbance from human activities.

### Nesting Birds and Raptors

Portions of the study area include marginal nesting habitat (e.g., trees, shrubs, structures) for several common bird species, including raptors, protected under the MBTA and California Fish and Game Code (CFG Code).

### Preliminary Aquatic Resource Assessment

At the landscape level, several natural stream courses flow through culverts under Highway 74 (Figures 6a-i, *Preliminary Aquatic Resource Assessment*). The study area includes riparian habitats and culvert inlets and outlets mapped across the alignment. The riparian habitats are located in the southern portion of the Project alignment and immediately south of the paved road edge outside of the impact area (See Figures 6g and 6h). The culverts are located at the margins of the study area or immediately outside the study area boundary.

### Wildlife Corridors and Linkages

Wildlife corridors connect isolated habitats and allow movement or dispersal of plant materials and animals. Local wildlife corridors allow access to resources such as food, water, and shelter within the framework of the wildlife's daily routine and life history. For example, animals can use these corridors to travel between their riparian breeding habitats and their upland burrowing habitats. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations. A corridor is a specific route that is used for the movement and migration of species; it may be different from a linkage in that it represents a smaller or narrower avenue for movement. A linkage is an area of land that supports or contributes to the long-term movement of animals and genetic exchange by providing live-in habitat that connects to other habitat areas. Many linkages occur as stepping-stone linkages that are made up of a fragmented archipelago arrangement of habitat over a linear distance.

The study area does not, by itself, serve as or contribute to any known or potential corridors or linkages. Although relatively larger areas of open space exist within the vicinity of the study area, Highway 74 is a heavily trafficked road and would be considered an impediment to wildlife movement. Additionally, one

Core Linkage defined by the MSHCP is located immediately south of Highway 74, just north of the intersection of Wasson Canyon Road. The feature is located outside of the study area, approximately 25 feet to the south, and appears to be associated with an aquatic resource.

## **APPLICABLE REGULATIONS**

Based on the findings of this report, activities affecting the biological resources determined to exist or have the potential to exist within the study area could be subject to the federal, state, and local regulations discussed below.

### **Federal**

#### Federal Endangered Species Act

The ESA (16 USC 1531 et seq. [1973]) extends legal protection to plants and animals, listed as endangered or threatened by the USFWS, and gives authorization to the USFWS to review proposed federal actions to assess potential impacts to species listed as endangered or threatened. The ESA prohibits the unauthorized “taking” of a federally listed species and adverse modification of designated critical habitat.

“Taking” of a threatened or endangered species is deemed to occur when an intentional or negligent act or omission results in any of the following actions: “to harass, harm, pursue, hunt, shoot, kill, trap, capture, or collect, or attempt to engage in any such conduct.” Such acts may include significant habitat modification or degradation if they result in death or injury. Likewise, import, export, interstate, and foreign commerce of listed species are all prohibited. Sections 7 and 10 of the ESA permit “incidental take” of a listed species via a federal or private action, respectively, through formal consultation with the USFWS.

#### Migratory Bird Treaty Act

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

#### Clean Water Act

The USACE regulates the discharge of dredge or fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA; 33 USC 1344). The purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all waters of the U.S. A federal CWA Section 404 Permit would be required for a project to place fill in waters of the U.S. Projects impacting waters of the U.S. can be permitted on an individual basis or be covered under one of several approved nationwide permits. Individual permits are assessed individually based on the type of action, amount of fill, etc. Individual permits typically require substantial time (often longer than one year) to review and approve, while nationwide permits are pre-approved if a project meets applicable conditions. Utility line activities may be authorized under CWA Section 404 Nationwide Permit (NWP) 12, which does not place a limit on impacts to linear feet of waters of the U.S. A CWA Section 401 Water Quality Certification administered

by the Regional Water Quality Control Board (RWQCB) must be issued before the issuance of a Section 404 Permit.

## State of California

### California Environmental Quality Act

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

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) states that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in ESA and the section of the CFG Code dealing with rare or endangered plants and animals. CEQA Guideline Section 15380(d) allows a public agency to undertake a review to determine whether a significant effect would occur on species that have not yet been listed by either the USFWS or CDFW (i.e., species of concern). Thus, if warranted under special circumstances, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as formally protected.

Per the requirements of CEQA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project area and whether the proposed project will have a potentially significant impact on such species.

### California Fish and Game Code

The CFG Code regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as natural resources such as lakes and streams. Sections 1600 et seq. of the CFG Code include definitions and provisions for the protection of lake and streambed resources. The CDFW requires notification for any activity that could result in an alteration of lake or streambed resources. Under CFG Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto. Raptors (birds of prey) and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. In common practice, CDFW places timing restrictions on the clearing of potential nesting habitat (e.g., vegetation), as well as restrictions on disturbances allowed near active raptor nests.

## SIGNIFICANCE OF PROJECT IMPACTS AND PROPOSED MITIGATION

This section provides a project-level biological resources impact analysis for the proposed Project in support of an environmental review. The issues addressed in this section are derived from Appendix G of the State CEQA Guidelines. Mitigation, monitoring, and reporting requirements to eliminate or reduce Project impacts to a less than significant level are also provided in this section. The following analysis is

based on the impact footprint of the current Project design, which has been refined to ensure the Project avoids sensitive biological resources.

## Issue 1: Special-Status Species

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

### Issue 1 Impact Analysis

Less than Significant Impact with Mitigation. Project construction could result in potentially significant impacts on nesting birds protected under the federal MBTA and CFG Code; however, the impacts would be reduced to less than significant levels with the implementation of the proposed mitigation, as described in further detail below. The study area supports disturbed habitat that occurs along Highway 74 and open fields adjacent to the study area that are considered marginally suitable for burrowing owl (BUOW, *Athene cunicularia*). The study area supports patches of brittlebush scrub and California buckwheat scrub (including disturbed). This habitat is of low quality and is considered marginally suitable habitat for coastal California gnatcatcher (CAGN, *Polioptila californica californica*) due to its sparsity, and its adjacency to disturbance including a road, residential housing, and disturbed habitat. The study area does not support potential habitat for Stephens' kangaroo rat (SKR, *Dipodomys stephensi*). The Project would have no impact on any other special-status plant and animal species due to the lack of suitable habitat on the site and regular disturbance.

#### *Coastal California Gnatcatcher*

Coastal California gnatcatcher, a federally threatened and state species of special concern, utilizes sage scrub habitat with California sagebrush as a dominant or co-dominant species. The patches of brittlebush scrub and California buckwheat scrub within the study area lack a significant California sagebrush component and are of low quality. The habitat is considered to be of low quality due to immediate road adjacency, overall disturbed nature of the habitat, and the area being surrounded by residential housing without connectivity to larger patches of sage scrub habitats. The Project does not propose direct impacts to the habitat, as it is outside of the Project impact area. Portions of the Project alignment occur parallel to sage scrub habitat that, while low in quality, is considered potentially suitable nesting habitat; therefore, construction adjacent to these areas has the potential to disturb CAGN nesting. Implementation of mitigation measure Bio-1 would reduce potential impacts to CAGN to less than significant levels.

#### *Nesting Birds*

Trees, shrubs, and other vegetation that provide suitable nesting habitat for common birds, including raptors, protected under the MBTA and CFG Code, are present within and near the potential impact area for the Project, including staging areas. Construction of the proposed Project could result in the removal or trimming of trees and other vegetation during the general bird nesting season (February 1 to August 31 for songbirds and as early as January 15 for raptors) and, therefore, could result in impacts to nesting birds in violation of the MBTA and CFG Code. Direct impacts could occur as a result of the removal of vegetation supporting an active nest. Indirect effects could occur as a result of construction

noise near undeveloped areas supporting an active bird nest, such that the disturbance results in nest abandonment or nest failure. Impacts would be considered potentially significant. Implementation of mitigation measure Bio-1 would reduce potentially significant impacts on nesting birds, including raptors and CAGN, to less than significant levels.

### *Burrowing Owl*

Burrowing owl, a state species of special concern, has low potential to occur in the disturbed habitat that occurs along Highway 74 and in the open fields adjacent to the study area. Ground disturbance within 500 feet (150 meters) of an active burrow during the breeding season (February 1 through August 31, CDFW 2012) or within 165 feet (50 meters) of an active burrow outside the breeding season could result in impacts to BUOW in violation of the MBTA and CFG code. Direct impacts could occur from ground disturbance at a burrow. Indirect impacts could occur as a result of construction noise in the immediate vicinity, as described above, such that the disturbance results in nest/burrow abandonment or nest failure. Impacts would be considered significant. Implementation of mitigation measure Bio-2 would reduce potentially significant impacts on BUOW to less than significant levels.

### *Stephens' Kangaroo Rat*

Stephens' kangaroo rat, a federally and state threatened species, requires open areas with sparse perennial cover and loose soil. The study area is located within the Stephens' Kangaroo Rat Habitat Conservation Plan (SKR HCP, RCHCA 1996) area but outside mapped SKR habitat under this plan. EVMWD is not a member jurisdiction of the SKR HCP and is not subject to the required mitigation fee; therefore, any impacts would be addressed under Section 7 or Section 10 of the ESA. Based on HELIX's survey, the study area and adjacent areas are highly disturbed and do not support habitat for this species. Potential SKR habitat was determined to be absent from the Project impact area; therefore, no impacts to SKR are anticipated as a result of Project activities, and no mitigation measures are recommended.

## Issue 1 Mitigation Measures

### Mitigation

**Bio-1 Avoidance of Nesting Birds and Raptors.** To prevent direct impacts to nesting birds, including raptors, protected under the federal MBTA and CFG Code, the following measures shall be implemented:

Project activities requiring the removal and/or trimming of vegetation suitable for nesting birds shall occur outside of the general bird breeding season (March 15 through August 31 for songbirds and January 15 through August 31 for raptors) to the extent feasible.

If construction activities (i.e., earthwork, clearing, and grubbing) must occur during the general bird nesting season for migratory songbirds (March 15 through August 31) and raptors (January 15 through August 31), a qualified biologist shall perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds, including coastal California gnatcatcher, and raptors afforded protection under the MBTA and CFG Code. The pre-construction survey shall be performed no more than seven days before the

start of construction activities. If construction is inactive for more than seven days, an additional survey shall be conducted. The results of the pre-construction survey shall be documented by the qualified biologist.

If the qualified biologist determines that no active migratory bird or raptor nests occur, the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird, coastal California gnatcatcher, or raptor nest is present, no impacts within 300 feet (500 feet for raptors and coastal California gnatcatcher) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, as determined by the qualified biologist. The biological monitor may modify the buffer or propose other recommendations to minimize disturbance to nesting birds.

**Bio-2 Avoidance of Burrowing Owl.** To prevent direct and indirect impacts to BUOW, the following measures shall be implemented:

A pre-construction burrowing owl survey shall be conducted following with the protocol described in the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). The initial take avoidance survey shall occur no less than 14 days before initiating ground-disturbing activities, with a final survey conducted within 24 hours before initiating ground-disturbing activities. If, after the initial take avoidance survey, no suitable burrowing owl habitat, including burrows, is present, the second survey 24 hours before ground disturbance shall not be required. The Project shall avoid disturbing active burrowing owl burrows (active nests).

Per CDFW protocol for low disturbance projects, initial setback distances for avoidance of active burrows shall be 656 feet (200 meters) from April 1 to October 15 and 164 feet (50 meters) from October 16 to March 31. Exceptions can be made to the avoidance distance for areas with natural (hills, trees) or artificial (buildings, walls) barriers in place. The final avoidance buffer shall be at the discretion of the biologist. If, after consideration of a reduced buffer, an adequate avoidance buffer cannot be provided between an occupied burrow and required ground-disturbing activities, then passive relocation activities during the non-breeding season (September 1 through January 31) may be authorized in consultation with CDFW, which would include preparation, approval, and implementation of a Burrowing Owl Exclusion Plan following the protocol described in the CDFW Staff Report on Burrowing Owl Mitigation. No impacts shall occur to active burrowing owl nests.

## Issue 2: Sensitive Natural Communities

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

### Issue 2 Impact Analysis

Less than Significant Impact. Project construction could result in potentially significant indirect impacts on riparian habitat or sensitive natural communities; however, the impacts would be reduced to less than significant levels with the implementation of BMPs from the required SWPPP, as described in further detail below. The study area supports arroyo willow thickets, brittlebush scrub, California buckwheat scrub (including disturbed), and unvegetated streambed. Arroyo willow thicket and

unvegetated streambeds are considered to be riparian or jurisdictional habitats but will be avoided by Project impacts, as they are located outside of the impact area. Brittlebush scrub and California buckwheat scrub are considered to be suitable habitat for special-status avian species. These habitats are small in size, and direct impacts would be avoided by locating staging areas, spoil piles, and similar areas outside of these habitats. Project construction activities are planned to avoid direct impacts to sage scrub habitats (brittlebush scrub or California buckwheat scrub). If construction activities are limited to existing disturbed habitats and developed land, no direct impacts to riparian habitat or sensitive natural communities would occur.

To avoid indirect impacts to riparian habitats and sensitive natural communities, and as a standard construction practice and regulatory requirement, EVMWD would implement BMPs from the required SWPPP for the Project, as noted in the Project Description and Location section. The required implementation of BMPs and the Project's SWPPP would prevent indirect impacts to off-site sensitive resources and riparian habitat in the study area. No direct impacts are proposed to sensitive natural communities or riparian habitat and BMPs would avoid substantial indirect adverse effects to these vegetation communities; therefore, impacts would be less than significant.

#### Issue 2 Mitigation Measures

##### Mitigation

No mitigation is required.

### **Issue 3: Wetlands**

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

#### Issue 3 Impact Analysis

Less than Significant Impact. As discussed in Issue 2, potentially jurisdictional riparian and streambed habitats occur within the study area. The Project design was refined to avoid impacting jurisdictional wetlands and waters and these resources are located outside of the Project impact area, as shown on Figures 6a through 6i. As described in Issue 2, EVMWD would implement BMPs during construction, which would prevent indirect impacts to off-site federally protected wetlands. Therefore, impacts would be less than significant.

#### Issue 3 Mitigation Measures

No mitigation is required.

### **Issue 4: Wildlife Movement and Nursery Sites**

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

#### Issue 4 Impact Analysis

No Impact. The study area does not function as a wildlife corridor in its current condition, although birds may use trees on site. The study area is within a rural residential area. Impacts to wildlife movement and nursery sites would not occur, as wildlife using the area are subject to noise and other impacts related to residential development and traffic. The Project's above-ground impacts are temporary in nature and limited to the time frame of construction. Therefore, the Project would not interfere with wildlife movement or wildlife nursery sites and no impact would occur.

#### Issue 4 Mitigation Measures

No mitigation is required.

### **Issue 5: Local Policies and Ordinances**

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

#### Issue 5 Impact Analysis

No Impact. The Project would not conflict with any local policies or ordinances protecting biological resources. Tree removal, if required, may occur within the ornamental vegetation on the residential lots. Chapter 12.24 of the Riverside County Code of Ordinances (County 1997) prohibits the removal of any native tree at least 30 feet in height and 12 inches in diameter-at-breast height. The Project will not result in the removal of native trees. The Project would not conflict with any County policies or ordinances, and no impact would occur.

#### Issue 5 Mitigation Measures

No mitigation is required.

### **Issue 6: Adopted Conservation Plans**

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

#### Issue 6 Impact Analysis

No Impact. The study area is within the boundary of the Western Riverside MSHCP (RCTLMA 2003), with the majority of the study area being located outside areas targeted for specific conservation requirements, except for two Criteria Cells (3974 and 4078) at the south end of the study area (Figure 7, *MSHCP Criteria Cells*). The study area does not include land targeted for conservation within the cells, as discussed below. Although EVMWD is not a signatory to the MSHCP and is not required to comply with plan conditions and associated mitigation fees, the discussion below describes how the Project shows consistency with the MSHCP.

The study area is within the boundary of the SKR HCP area. Although EVMWD is not a signatory to the SKR HCP and is not required to comply with plan conditions and associated mitigation fees, the discussion below describes how the Project shows consistency with the SKR HCP.

#### MSHCP CELL CONSERVATION CRITERIA

Although EVMWD is not a signatory to the MSHCP and is not required to comply with plan conditions and associated mitigation fees, the discussion below describing Cell Conservation shows how the Project shows consistency with the MSHCP, resulting in no impact to this sensitive biological resource.

The study area includes approximately 7.67 acres of vegetation communities/habitat types within Criteria Cell 3974. This includes 0.03 acre of arroyo willow thickets, 0.03 acre of brittlebush scrub, 0.16 acre of disturbed California buckwheat scrub, 2.74 acres of disturbed habitat, 0.14 acre of non-native vegetation, 4.51 acres of developed land, and 0.05 acre of unvegetated streambed. This includes Wasson Canyon Road and Highway 74 and adjacent land in the western portion of the Cell (Figure 7). The targeted conservation for Cell 3974 is five percent of the Cell, focusing on the southern central portion of the Cell. Areas conserved will be connected to coastal sage scrub and grassland habitat proposed for conservation in Criteria Cell 4078 to the south. Portions of non-native grassland exist along Wasson Canyon Road within the study area. However, these areas are outside the Project impact area, and no impacts to these habitats are proposed.

The study area includes approximately 0.70 acre of developed areas within Criteria Cell 4078, including Wasson Canyon Road and adjacent residential development in the northwestern portion of the Cell. The targeted conservation within Cell 4078 includes 23 to 35 percent of the Cell, focusing on the riparian scrub, woodland, forest, coastal sage scrub, and grassland habitat in the central portion of the Cell. The portion of the study area within the Cell includes developed land only and is outside the targeted conservation area. No impacts to focused habitats within Cell 4078 are proposed.

#### MSHCP PLANT SURVEY REQUIREMENTS

The MSHCP includes a Narrow Endemic Plant Species (NEPS) study area and a Criteria Area Species (CAS) study area for sensitive plant species. The study area is not within the NEPS or CAS study area, and no impacts to NEPS and CAS species would occur as a result of the Project. Although EVMWD is not a signatory to the MSHCP and is not required to comply with plan conditions and associated mitigation fees, this discussion exemplifies how the Project is compliant with the MSHCP.

#### MSHCP ANIMAL SURVEY REQUIREMENTS

The study area is within the MSHCP-mapped area for BUOW. The study area was evaluated for burrowing owl habitat, and potentially suitable burrows do not occur. The MSHCP requires that BUOW surveys be conducted and that impacts to BUOW be avoided within mapped areas. Protocol BUOW surveys are not required because above-ground impacts will be temporary and will not result in habitat loss. Thus, the Project would not conflict with the BUOW requirements of the MSHCP. As stated in Issue 1, impacts to BUOW would be less than significant with mitigation. The study area is not within an MSHCP-mapped area for other special-status animal species. Although EVMWD is not a signatory to the MSHCP and is not required to comply with plan conditions and associated mitigation fees, this discussion exemplifies how the Project is compliant with the MSHCP.

## ADDITIONAL MSHCP REQUIREMENTS

The MSHCP requires a project to either avoid impacts to riparian or riverine resources, or provide documentation called a Determination of Biologically Equivalent or Superior Preservation (DBESP) to document how the Project will mitigate the impacts to those resources. The Project is designed to avoid impacts to riparian and riverine resources and, therefore, will not conflict with the MSHCP. The EVMWD would not be required to prepare a DBESP because the EVMWD is not a signatory to the MSHCP; however, as stated under Issue 2, impacts to riparian or riverine resources would be less than significant.

## SKR HCP

The study area is within the SKR HCP area, which streamlines “take” authorization under the Riverside County Habitat Conservation Agencies (RCHCA) USFWS Section 10A permit. A mitigation fee is assessed for developers within member jurisdictions; however, EVMWD is not a member jurisdiction and is not subject to the required mitigation fee. Because no impacts to SKR are anticipated due to lack of suitable habitat, the Project would not conflict with the SKR HCP, and no impacts related to conflicts with the SKR HCP would occur as a result of Project activities.

## Issue 6 Mitigation Measures

No mitigation is required as EVMWD is not a signatory to the MSHCP and is not required to comply with plan conditions or associated fees.

## FEDERAL CONFORMANCE ANALYSIS FOR BIOLOGICAL RESOURCES ISSUES

### Issue 1: Federal Endangered Species Act, Section 7

*Does the project involve any direct effects from construction activities, or indirect effects such as growth inducement that may affect federally listed threatened or endangered species or their critical habitat that are known, or have a potential, to occur on-site, in the surrounding area, or in the service area?*

#### Federally Listed Animal Species

No adverse effect. The proposed impact area does not include critical habitat for federally listed species. The study area is dominated by developed habitat and disturbed lands. The study area does not include and is not adjacent to undeveloped areas characterized by native habitat that could support animal species listed under the federal ESA. No federally listed plant species were observed during the survey, and none have more than a low potential to occur. The following federally listed endangered (FE), federally listed threatened (FT), and federal candidate for listing (FC) animal species were analyzed for their potential to occur within five miles of the study area:

- Quino checkerspot butterfly (*Euphydryas editha quino*); FE  
This species requires specific host plants for reproduction that are absent from the study area.
- Riverside fairy shrimp (*Streptocephalus woottoni*); FE  
This species requires vernal pools that are absent from the study area.

- Coastal California gnatcatcher (*Polioptila californica californica*); FT  
This species requires areas of open sage scrub habitat, which occur as sparse, isolated, and disturbed patches along the edges of the study area.
- Least Bell's vireo (*Vireo bellii pusillus*); FE  
This species requires dense riparian habitats that are absent from the study area.
- Western snowy plover (*Charadrius alexandrinus nivosus*); FT  
This species occurs on coastal and sand dune beaches, river mouths, and estuaries that do not occur in the study area.
- San Bernardino kangaroo rat (*Dipodomys merriami parvus*); FE  
This species occurs in alluvial fan sage scrub, floodplains, and sandy soils. The study area does not support suitable geomorphology or alluvial fan sage scrub habitat.
- Stephens' kangaroo rat (*Dipodomys stephensi*); FT  
This species requires an open area with sparse perennial cover and loose soils. The study area and adjacent areas are highly disturbed and do not support habitat for this species.

The study area consists of primarily developed and disturbed habitat and lacks suitable habitat for most of these species. The study area supports small patches of sage scrub habitat, including California buckwheat scrub and brittlebush scrub. Although the habitats within the study area lack a significant plant species component, California sagebrush, they are still considered marginally suitable habitat for CAGN. No impacts are proposed to this habitat, and avoidance measures are included to avoid impacting nesting CAGN; therefore, the Project would not directly or indirectly adversely affect CAGN.

Stephens' kangaroo rat requires open areas with sparse perennial cover and loose soil. The study area is located within the SKR HCP area but outside the mapped SKR habitat under this plan. EVMWD is not a member jurisdiction of the SKR HCP and is not subject to the required mitigation fee. As a result, any potential impacts would be addressed under Section 7 or Section 10 of the ESA. The study area and adjacent areas are highly disturbed and do not support habitat for this species. Potential SKR habitat was determined to be absent from the Project impact area; therefore, the Project would not directly or indirectly adversely affect SKR or other federally listed species.

#### Federally Listed Plant Species

No adverse effect. No federally listed plant species were found during the survey, and none have more than a low potential to occur. The Project will limit activities to developed land and minor impacts to disturbed habitat that has been previously impacted by human activities. The following FE and FT plant species were analyzed for their potential to occur based on a search of the USFWS IPaC database:

- California Orcutt grass (*Orcuttia californica*); FE  
This species generally requires southern basaltic claypan vernal pools and alkaline vernal pools, which are absent from the study area.

- Munz onion (*Allium munzii*); FE  
This species requires clay soils within relatively undisturbed habitats. Although the study supports some clay soils, the study area is highly disturbed and supports very little native vegetation.
- San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*); FE  
This species requires playas or vernal pools that do not occur in the study area.
- San Diego ambrosia (*Ambrosia pumila*); FE  
This species requires floodplain terraces or vernal pool margins that do not occur in the study area.
- Slender-horned spineflower (*Dodecahema leptoceras*); FE  
This species requires relict alluvial terraces and floodplain areas that support alluvial fan sage scrub habitat. The study area does not support these habitats.
- Spreading navarretia (*Navarretia fossalis*); FT  
This species occurs in vernal pools that are absent from the study area.
- Thread-leaved brodiaea (*Brodiaea filifolia*); FT  
This species occurs in mud flats and vernal pools that do not occur in the study area.

The study area lacks suitable habitat, soils, and/or hydrology for listed plant species. Therefore, no adverse effects on federally listed plant species are anticipated to occur as a result of the proposed Project.

## **Issue 2: Magnuson-Stevens Fishery Conservation and Management Act, Essential Fish Habitat**

*Does the project involve any direct effects from construction activities, or indirect effects such as growth inducement that may adversely affect essential fish habitat?*

No adverse effect. The proposed Project would be constructed within developed upland areas that lack marine resources and Essential Fish Habitat regulated under the Magnuson-Stevens Fishery Conservation and Management Act. Therefore, the proposed Project would not adversely affect Essential Fish Habitat and would be in conformance with the Magnuson-Stevens Fishery Conservation and Management Act.

## **Issue 3: Coastal Zone Management Act**

*Is any portion of the project site located within the coastal zone?*

No adverse effect. No portion of the Project site is located within the coastal zone. Therefore, the proposed Project would not affect resources protected under the Coastal Zone Management Act.

#### **Issue 4: Migratory Bird Treaty Act**

*Will the project affect protected migratory birds that are known, or have a potential, to occur on-site, in the surrounding area, or in the service area?*

No adverse effect. Construction of the Project may require the removal or trimming of trees and shrubs within developed areas during the general bird nesting season (January 15 through September 15) and/or raptor nesting season (January 15 through July 31), which could result in potential adverse effects on nesting birds and raptors in violation of the MBTA. Indirect effects could occur as a result of construction noise near the vicinity of undeveloped areas supporting an active bird nest, such that the disturbance results in nest abandonment or nest failure.

With the implementation of mitigation measures Bio-1 and Bio-2, the proposed action is not likely to adversely affect nesting birds, and the Project would be in conformance with the MBTA.

#### **Issue 5: Protection of Wetlands**

*Does any portion of the project boundaries contain areas that should be evaluated for wetland delineation or require a permit from the USACE?*

No adverse effect. The preliminary aquatic resource assessment found that aquatic resources potentially subject to USACE jurisdiction occur within the study area. The Project design was refined to avoid jurisdictional impacts. Potential runoff and increase in pollutants associated with construction activities near storm drains would be controlled and reduced through the implementation of BMPs and other protective measures incorporated into the Project as mandatory requirements for regulatory compliance and SWPPP implementation. All sensitive wetland habitats would be flagged in the field and shown as avoidance areas on construction plans. With the incorporation of the protective measures, the Project would not result in any adverse effects on federally protected wetlands outside of the impact footprint and would result in conformance with the CWA. The proposed Project would not adversely affect USACE jurisdictional resources, and the Project would be in conformance with the CWA.

#### **Issue 6: Wild and Scenic Rivers Act**

*Is any portion of the project located within a wild and scenic river?*

No adverse effect. None of the proposed Project impacts are planned on or in the immediate vicinity of areas designated as Wild and Scenic River. Therefore, the proposed Project would not adversely affect any areas designated as Wild and Scenic River and would be in conformance with the Wild and Scenic Rivers Act.

## CLOSING

We appreciate the opportunity to provide you with this letter report. Please do not hesitate to contact me at (619) 462-1515 or [LindsayW@helixepi.com](mailto:LindsayW@helixepi.com) if you have any questions or require further assistance.

Sincerely,



Lindsay Willrick  
Senior Biology Project Manager

## Enclosures:

Figure 1: Regional Location  
Figure 2: USGS Topography  
Figure 3: Aerial Photograph  
Figure 4: Proposed Pipe Alignment  
Figure 5a-i: Vegetation Communities  
Figure 6a-i: Preliminary Aquatic Resource Assessment  
Figure 7: MSHCP Criteria Cells

Attachment A: APN List  
Attachment B: IPaC Report  
Attachment C: Representative Photographs  
Attachment D: Plant Species Observed  
Attachment E: Animal Species Observed or Detected  
Attachment F: Special-Status Plant Species with Potential to Occur  
Attachment G: Special-Status Animal Species with Potential to Occur  
Attachment H: Explanation of Status Codes for Plant and Animal Species

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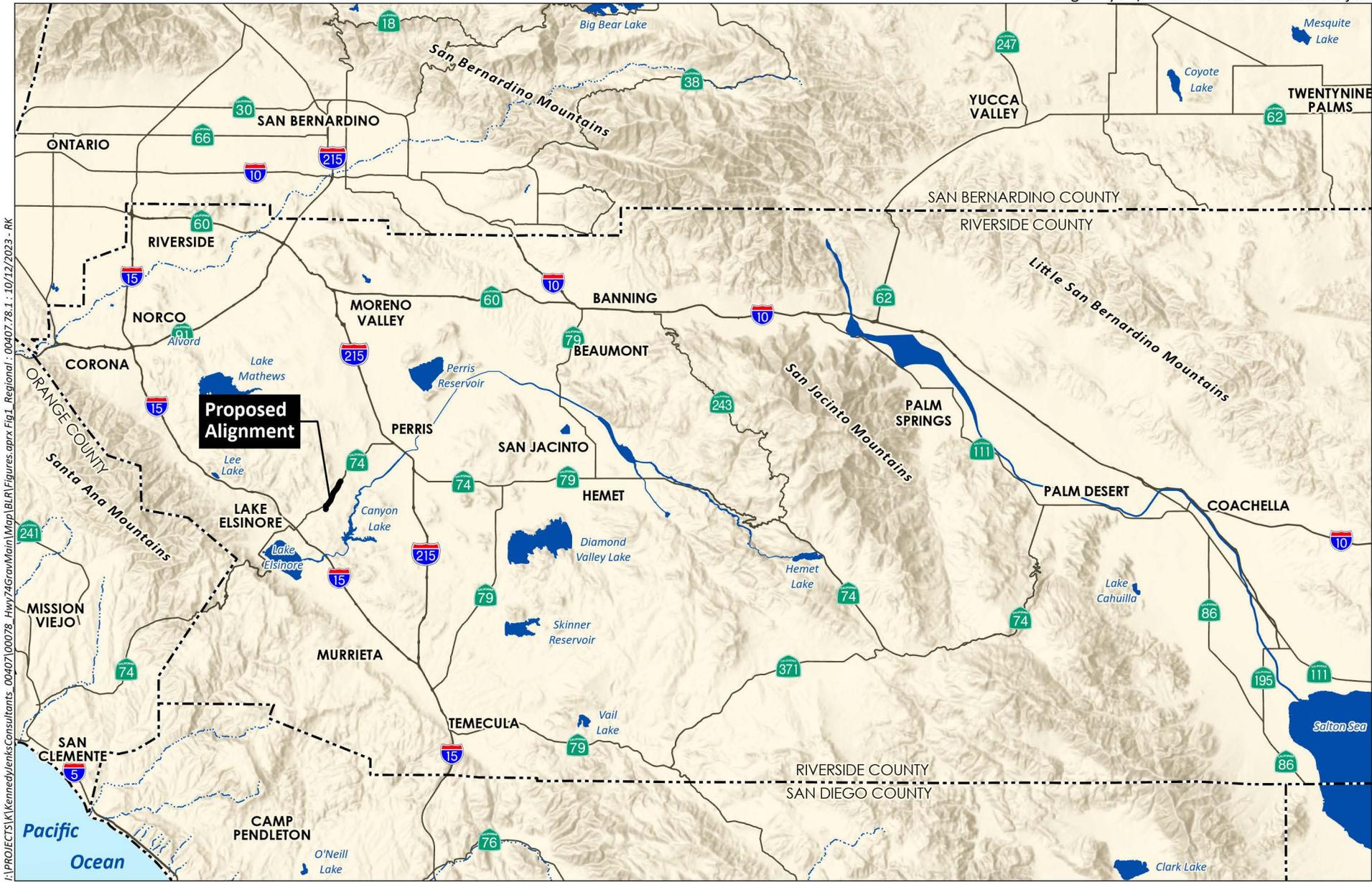
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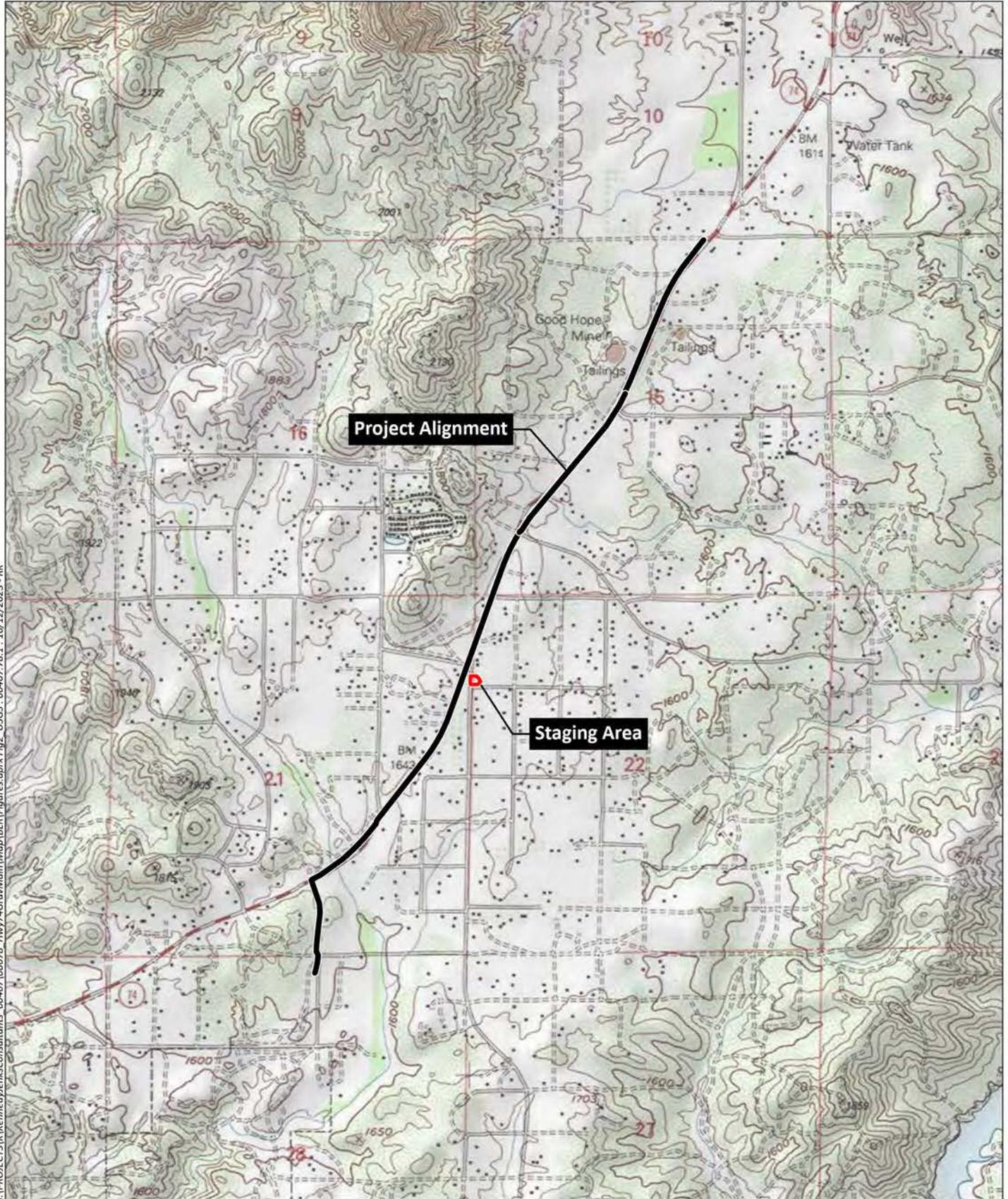
## Figures

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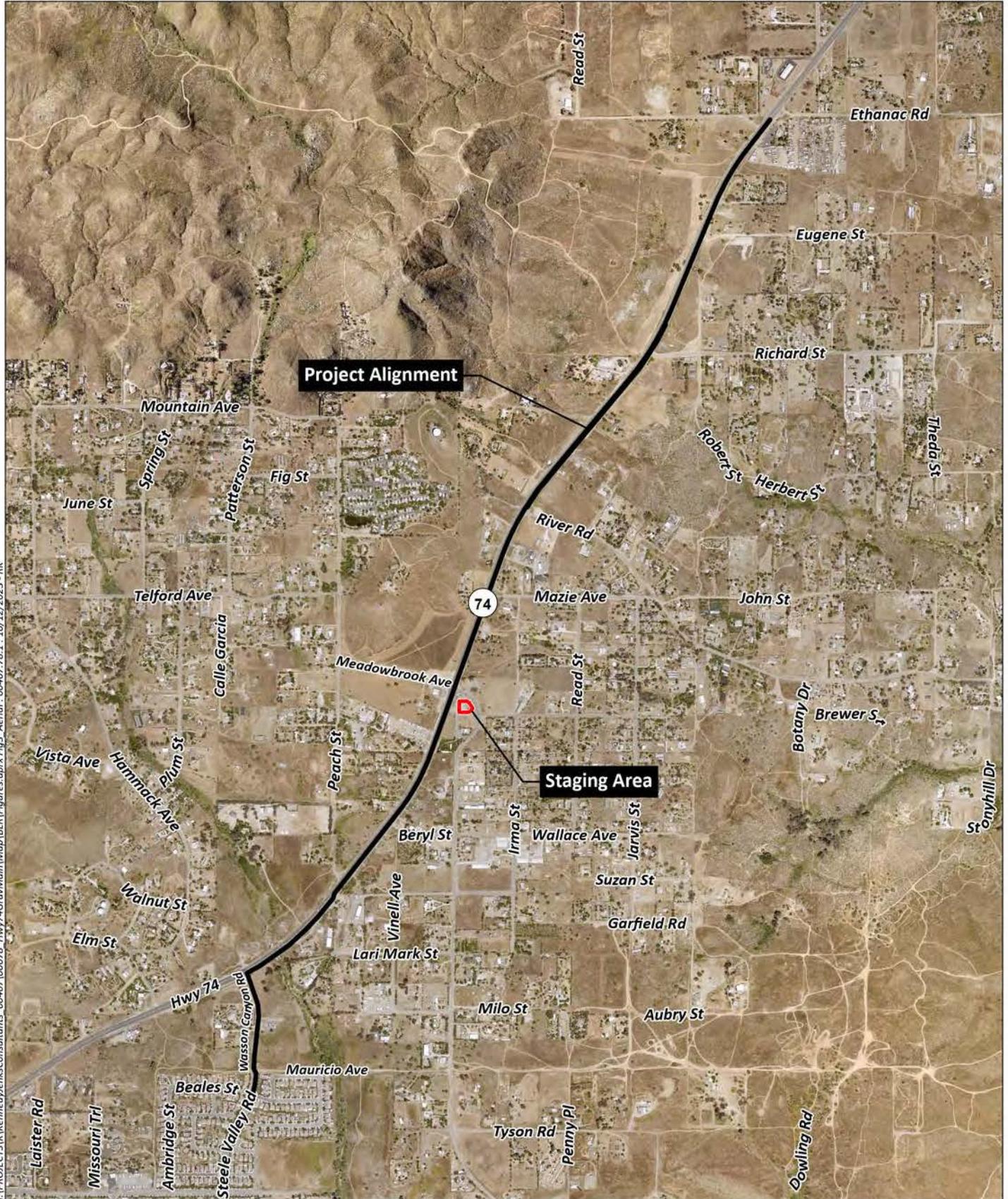
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Source: Base Map Layers (ESRI, 2013)



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Source: Lake Elsinore 7.5' Quad (USGS)

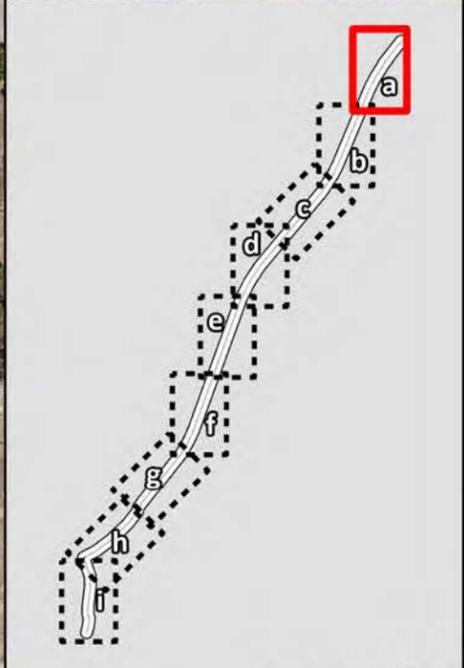


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Source: Aerial (County of Riverside, 2020)

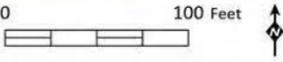


-  Study Area
-  Proposed Impact Area
-  Proposed Alignment
-  Staging Area
- Vegetation Communities**
-  Disturbed Habitat
-  Developed

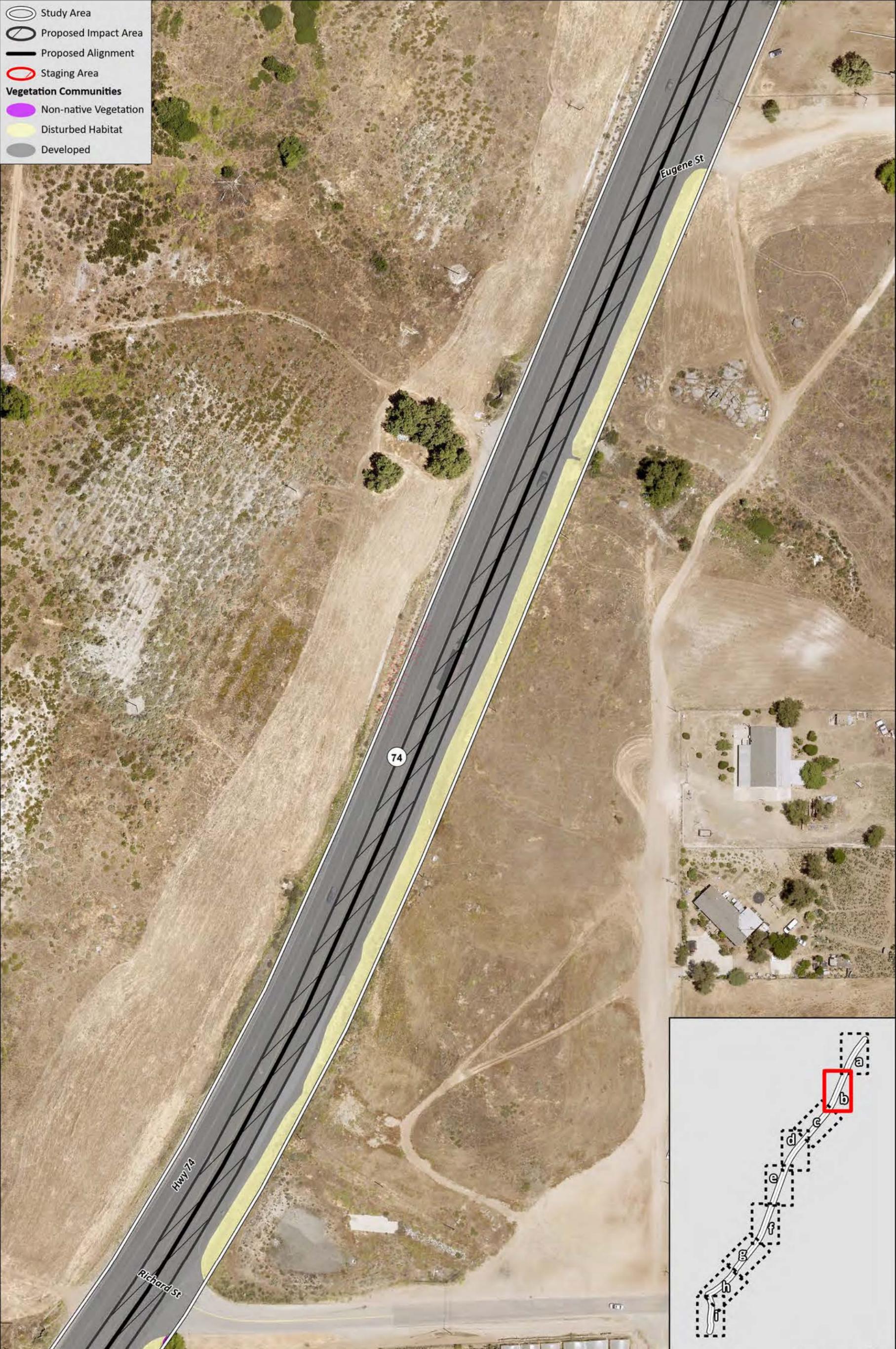


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Source: Aerial (RCIT, 2020)



-  Study Area
-  Proposed Impact Area
-  Proposed Alignment
-  Staging Area
- Vegetation Communities**
-  Non-native Vegetation
-  Disturbed Habitat
-  Developed

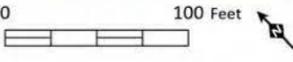


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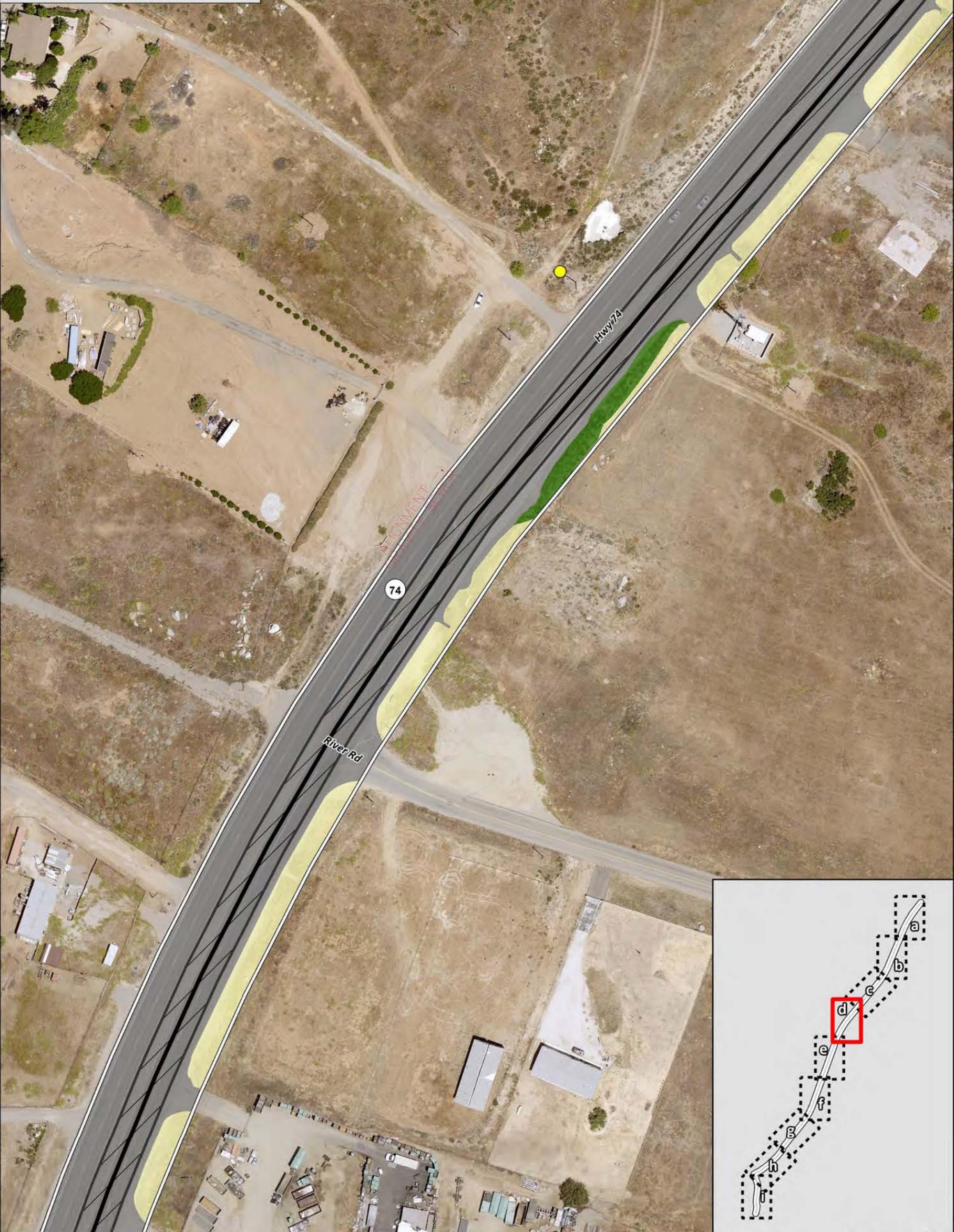


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Source: Aerial (RCIT, 2020)

-  Study Area
-  Proposed Impact Area
-  Proposed Alignment
-  Staging Area
-  Paniculate Tarplant (*Deinandra paniculata*)  
21 Count
- Vegetation Communities**
-  California Buckwheat Scrub
-  Disturbed Habitat
-  Developed



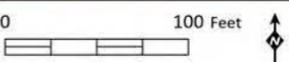
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Source: Aerial (RCIT, 2020)

-  Study Area
-  Proposed Impact Area
-  Proposed Alignment
-  Staging Area
- Vegetation Communities**
-  Non-native Vegetation
-  Disturbed Habitat
-  Developed



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Source: Aerial (RCIT, 2020)

-  Study Area
-  Proposed Impact Area
-  Proposed Alignment
-  Staging Area
- Vegetation Communities**
-  Non-native Vegetation
-  Disturbed Habitat
-  Developed



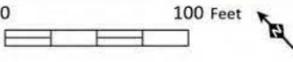
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Source: Aerial (RCIT, 2020)

-  Study Area
-  Proposed Impact Area
-  Proposed Alignment
-  Staging Area
- Vegetation Communities**
-  California Buckwheat Scrub
-  California Buckwheat Scrub - Disturbed
-  Arroyo Willow Thickets
-  Disturbed Habitat
-  Developed



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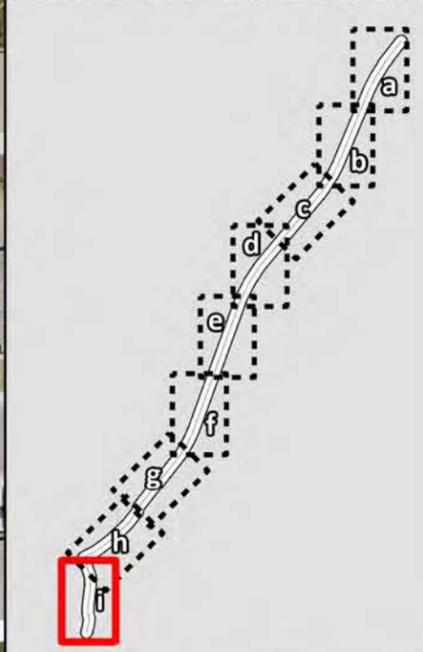
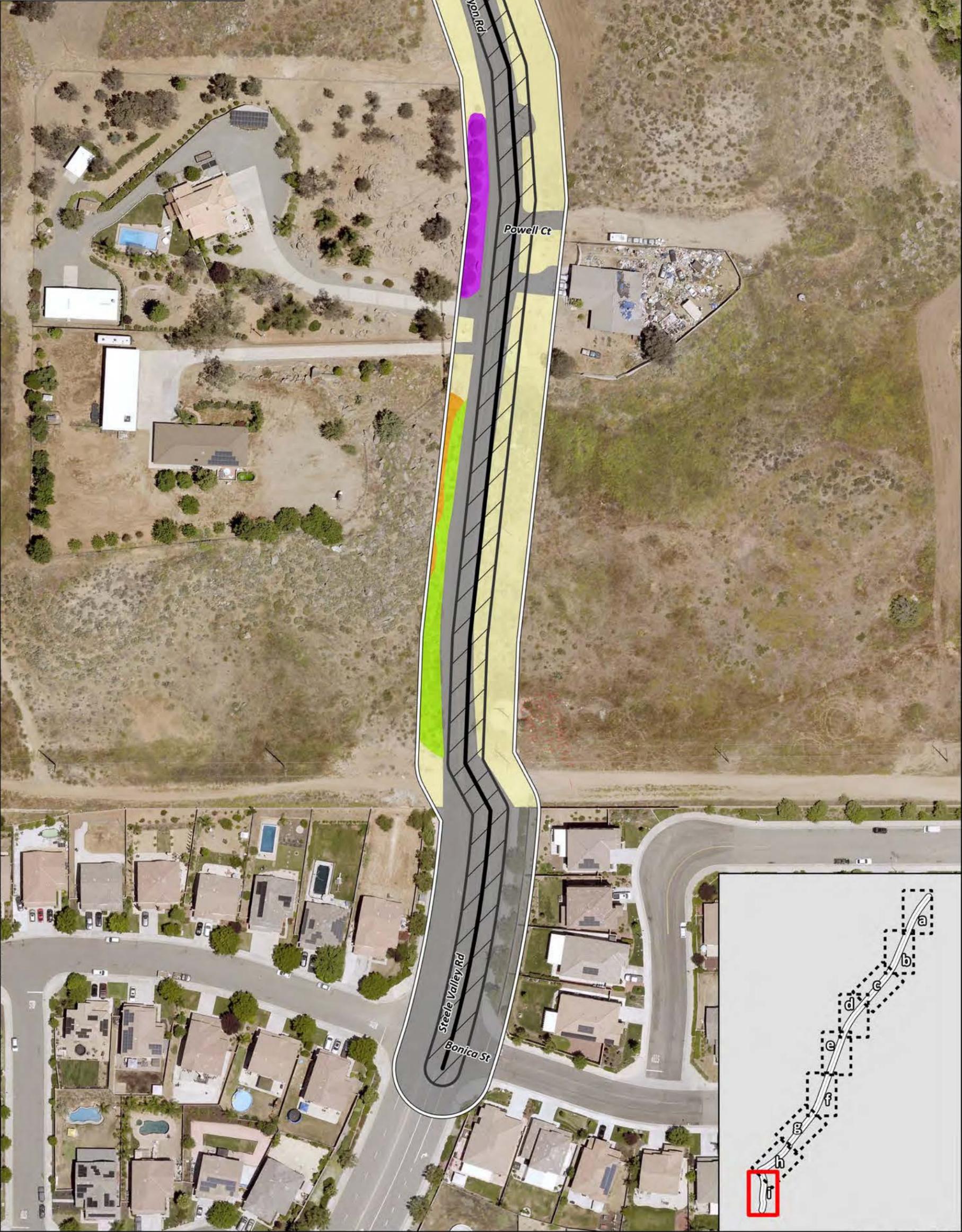
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-  Unvegetated Streambed
-  Non-native Vegetation
-  Disturbed Habitat
-  Developed



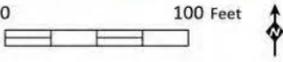
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Source: Aerial (RCIT, 2020)

-  Study Area
-  Proposed Impact Area
-  Proposed Alignment
-  Staging Area
- Vegetation Communities**
-  Brittlebush Scrub
-  California Buckwheat Scrub - Disturbed
-  Non-native Vegetation
-  Disturbed Habitat
-  Developed

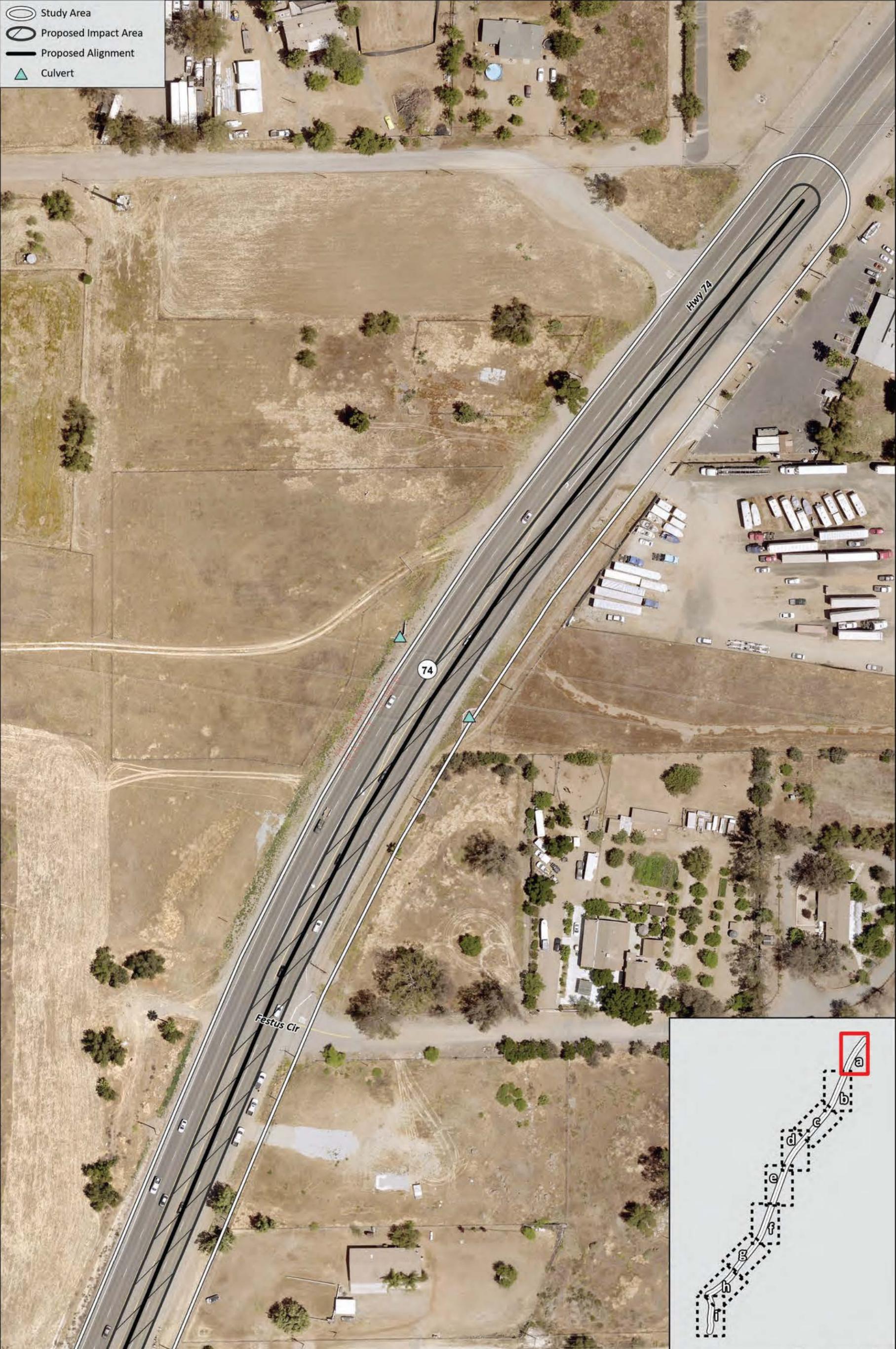


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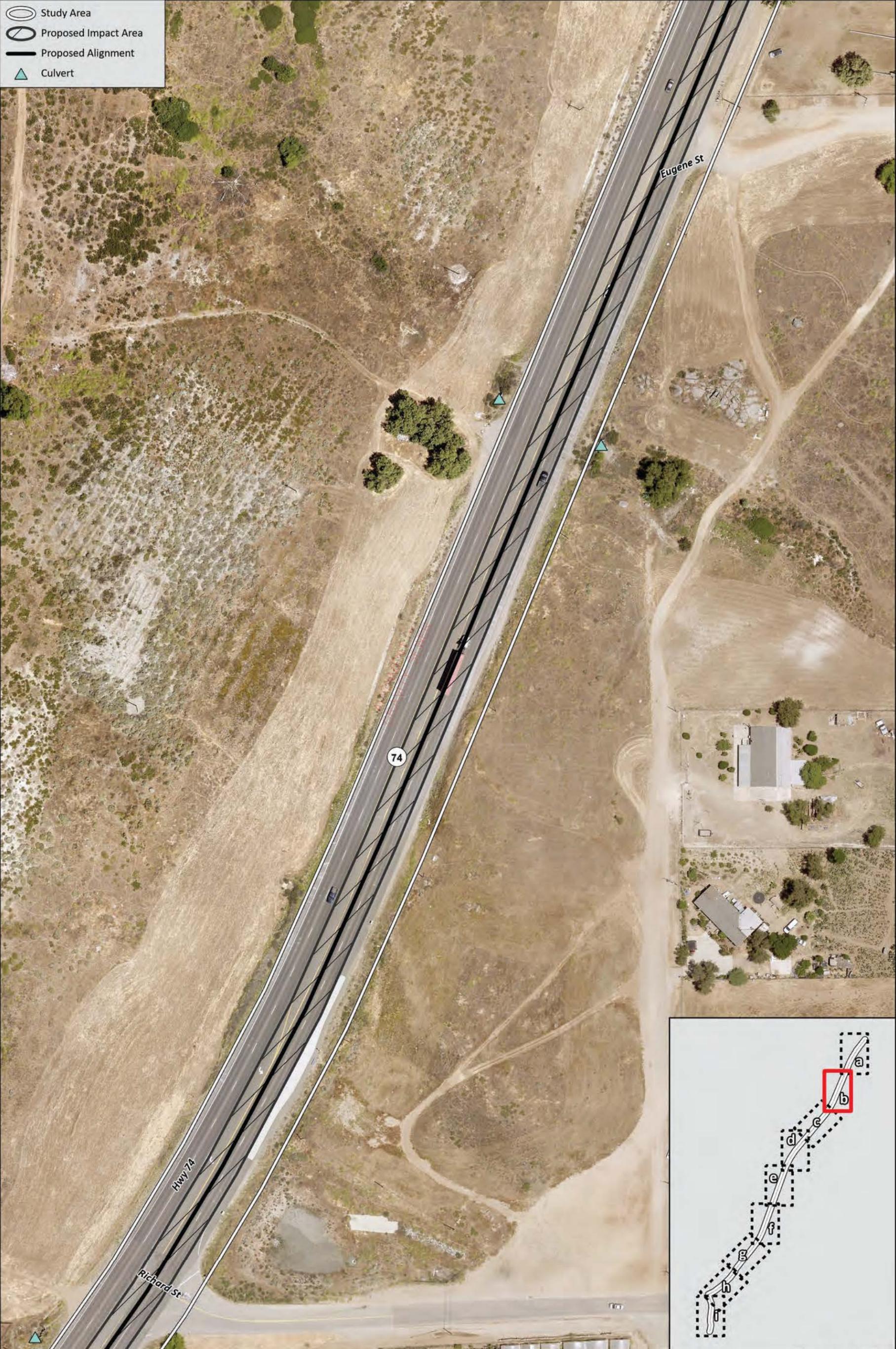
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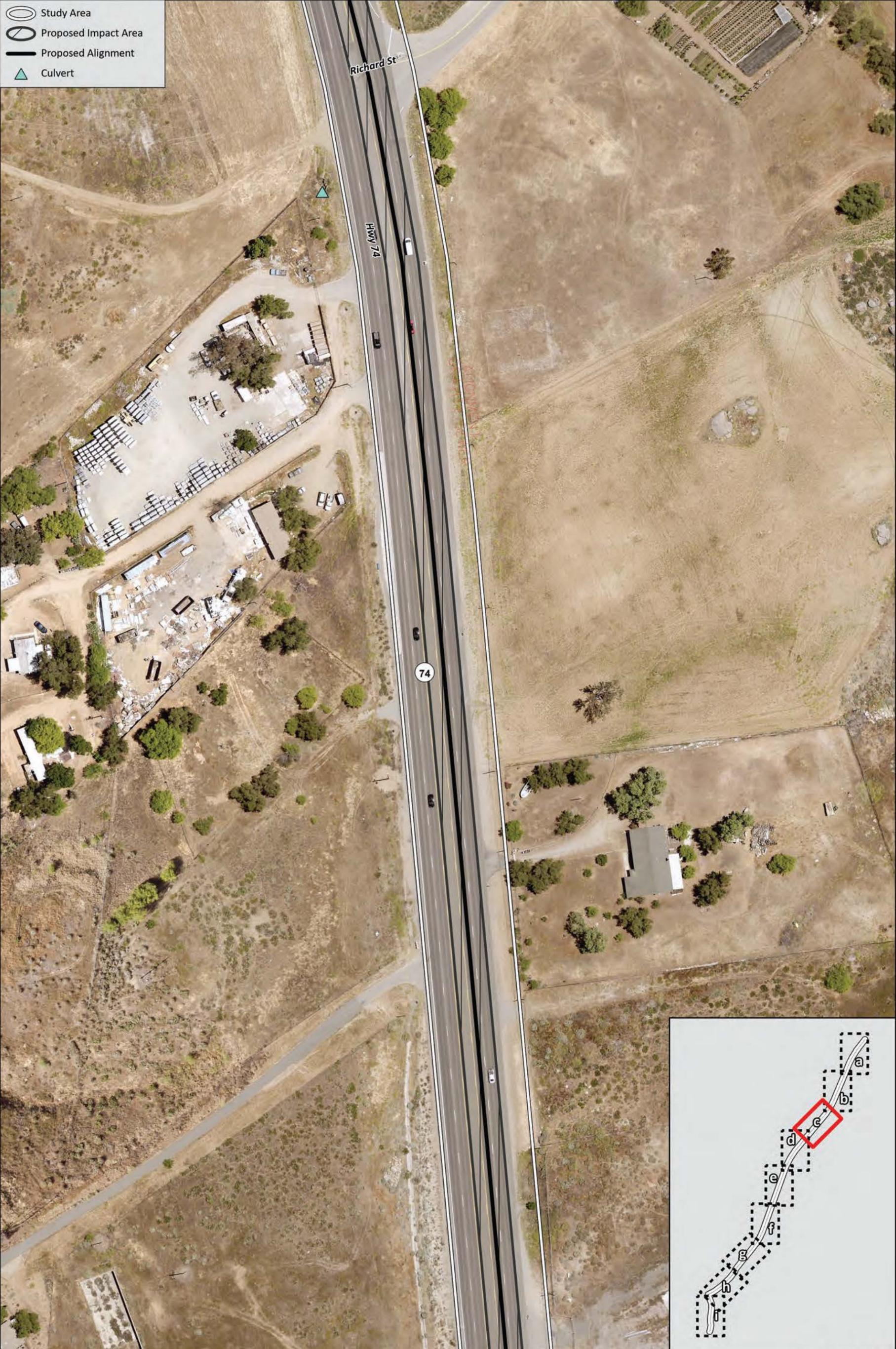
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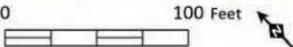
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-  Culvert

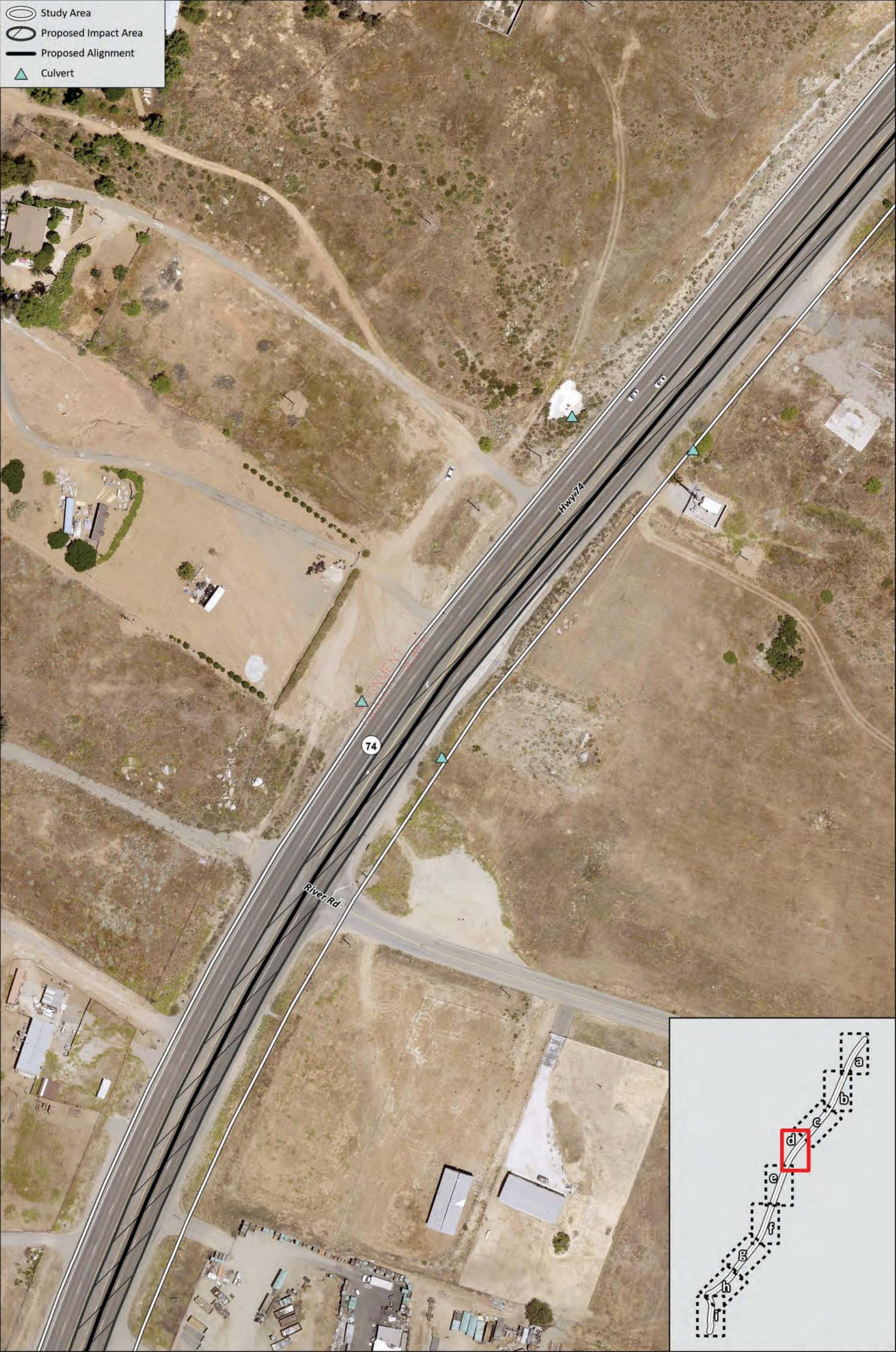


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-  Study Area
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-  Culvert



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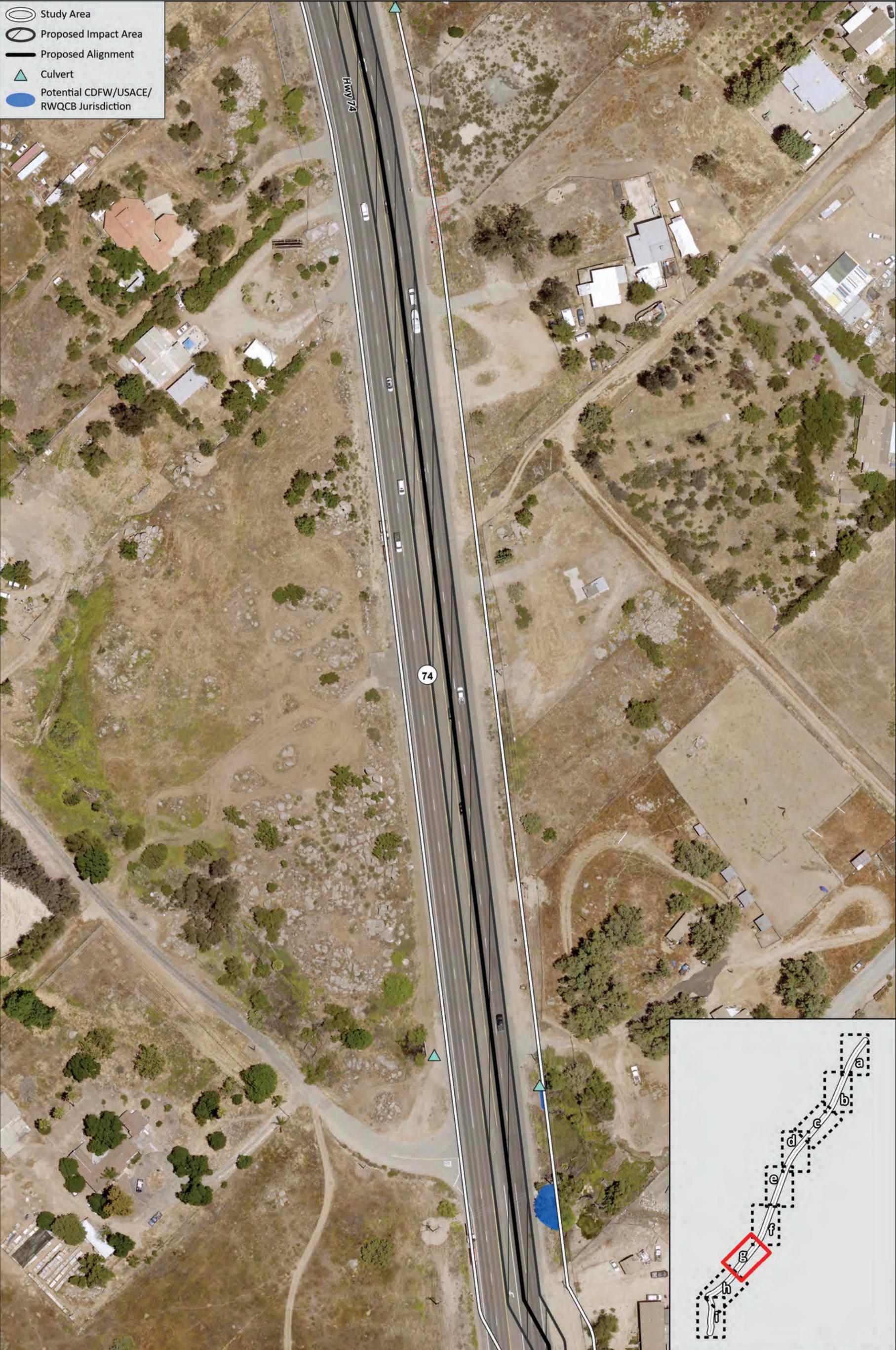
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-  Staging Area
-  Culvert



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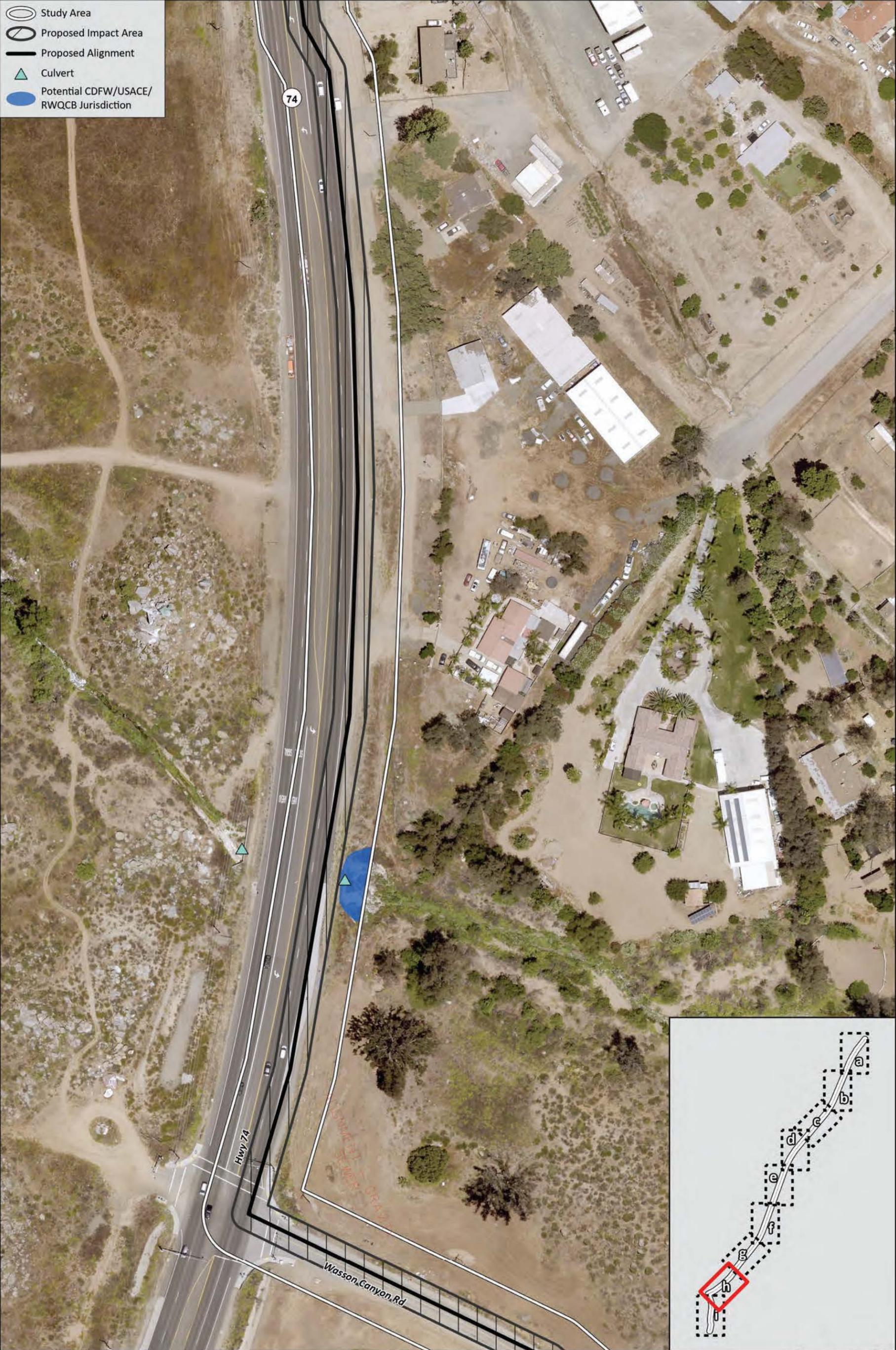
-  Study Area
-  Proposed Impact Area
-  Proposed Alignment
-  Culvert
-  Potential CDFW/USACE/RWQCB Jurisdiction



PROJECTS\K\Kennedy\enr\consultants - 00407\00078 Hwy74\GranMain\Map\B\A\Figures.aprx Fig6 AquaticResources - 00407.78.1 - 10/17/2023 - RK

Source: Aerial (RCIT, 2020)

-  Study Area
-  Proposed Impact Area
-  Proposed Alignment
-  Culvert
-  Potential CDFW/USACE/RWQCB Jurisdiction



J:\PROJECTS\K\Kennedy\enr\consultants - 00407\00078 Hwy74\GranMain\Map\BLR\Figures.aprx Fig6 AquaticResources - 00407.78.1 - 10/20/2023 - RK

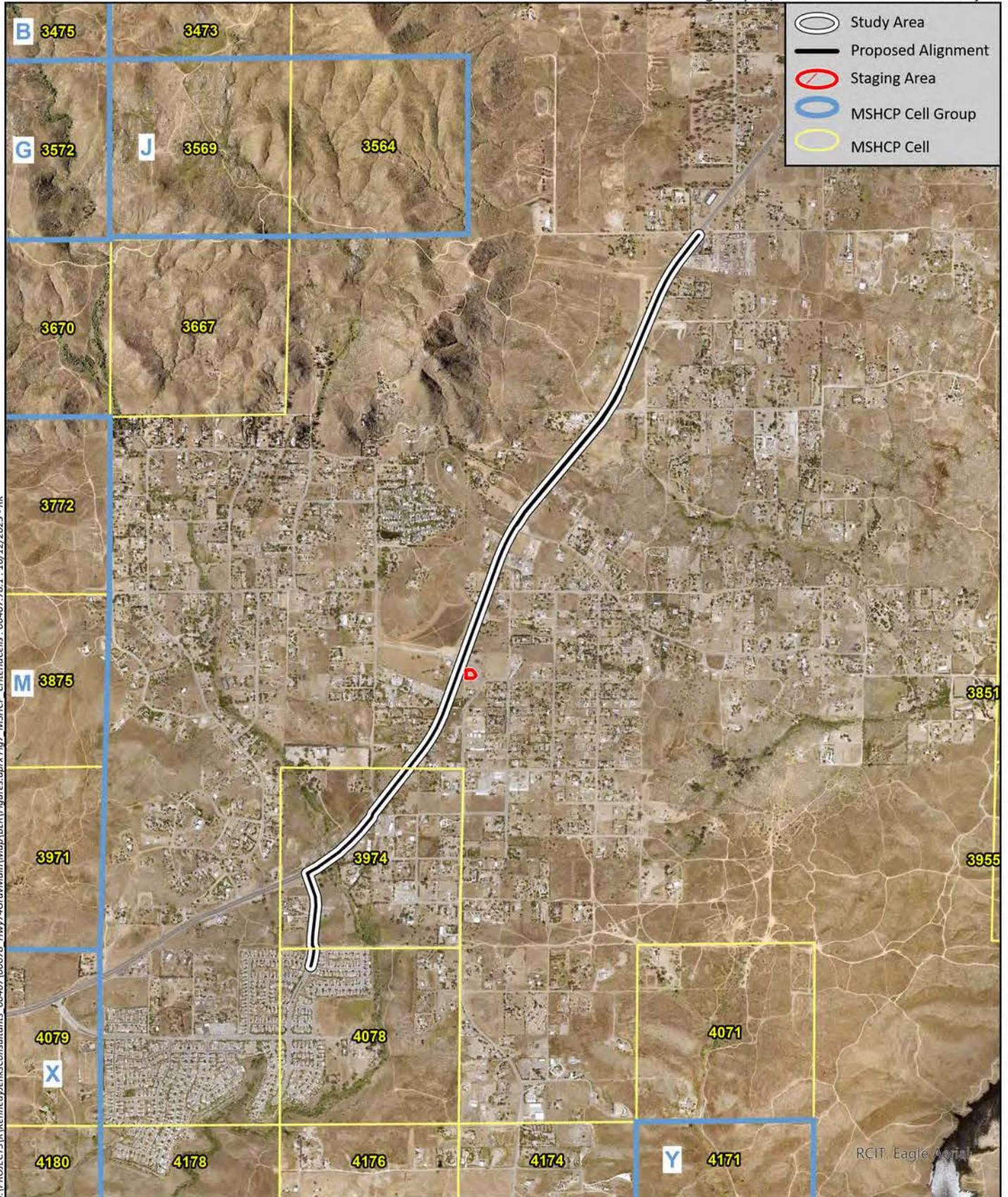
Source: Aerial (RCIT, 2020)

-  Study Area
-  Proposed Impact Area
-  Proposed Alignment



F:\PROJECTS\K\Kennedy\env\consultants - 00407\00078 Hwy74\GranMain\Map\BLR\Figures.aprx Fig6 AquaticResources - 00407.78.1 - 10/17/2023 - RK

Source: Aerial (RCIT, 2020)



I:\PROJECTS\K\Kennedy\enks\consultants\_00407\00078\_Hwy74GravMain\Map\BLR\Figures.aprx Fig7\_MSHCP\_CriteriaCells : 00407.78.1 : 10/12/2023 - RK

Source: Base Map Layers (SanGIS, 2016)

# Attachment A

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APN List

<b>APN within Study Area</b>
345210030
345220080
345220085
349342033
349342030
349090017
349090023
349090024
349090025
349524029
349342026
349342027
349522017
349342023
349342032
349342031
349520008
349522003
349524001
349522001
349522004
349522002
345210033
345150005
345220087
345220088
345220093
345220094
349100042
349342028
349342029
349090008
349090016
349090019
349090018
349090014

# Attachment B

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IPaC Report

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Riverside County, California



## Local office

Carlsbad Fish And Wildlife Office

☎ (760) 431-9440

📠 (760) 431-5901

2177 Salk Avenue - Suite 250

2777 Santa Avenida Suite 200  
Carlsbad, CA 92008-7385

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Mammals

NAME	STATUS
<p>San Bernardino Merriam's Kangaroo Rat <i>Dipodomys merriami parvus</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/2060">https://ecos.fws.gov/ecp/species/2060</a></p>	Endangered
<p>Stephens' Kangaroo Rat <i>Dipodomys stephensi</i> (incl. <i>D. cascus</i>) Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/3495">https://ecos.fws.gov/ecp/species/3495</a></p>	Threatened

## Birds

NAME	STATUS
<p>Coastal California Gnatcatcher <i>Polioptila californica californica</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8178">https://ecos.fws.gov/ecp/species/8178</a></p>	Threatened
<p>Least Bell's Vireo <i>Vireo bellii pusillus</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5945">https://ecos.fws.gov/ecp/species/5945</a></p>	Endangered
<p>Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/6749">https://ecos.fws.gov/ecp/species/6749</a></p>	Endangered

**Western Snowy Plover** *Charadrius nivosus nivosus* **Threatened**  
 There is **final** critical habitat for this species. Your location does not overlap the critical habitat.  
<https://ecos.fws.gov/ecp/species/8035>

## Insects

NAME	STATUS
<b>Monarch Butterfly</b> <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	<b>Candidate</b>
<b>Quino Checkerspot Butterfly</b> <i>Euphydryas editha quino</i> (=E. e. wrighti) Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5900">https://ecos.fws.gov/ecp/species/5900</a>	<b>Endangered</b>

## Crustaceans

NAME	STATUS
<b>Riverside Fairy Shrimp</b> <i>Streptocephalus woottoni</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8148">https://ecos.fws.gov/ecp/species/8148</a>	<b>Endangered</b>
<b>Vernal Pool Fairy Shrimp</b> <i>Branchinecta lynchi</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a>	<b>Threatened</b>

## Flowering Plants

NAME	STATUS
<b>California Orcutt Grass</b> <i>Orcuttia californica</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4923">https://ecos.fws.gov/ecp/species/4923</a>	<b>Endangered</b>

<b>Munz's Onion</b> <i>Allium munzii</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/2951">https://ecos.fws.gov/ecp/species/2951</a>	Endangered
<b>San Diego Ambrosia</b> <i>Ambrosia pumila</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8287">https://ecos.fws.gov/ecp/species/8287</a>	Endangered
<b>San Jacinto Valley Crownscale</b> <i>Atriplex coronata</i> var. notatior Wherever found There is <b>final</b> critical habitat for this species. However, no <i>actual</i> acres or miles were designated due to exemptions or exclusions. See Federal Register publication for details. <a href="https://ecos.fws.gov/ecp/species/4353">https://ecos.fws.gov/ecp/species/4353</a>	Endangered
<b>Slender-horned Spineflower</b> <i>Dodecahema leptoceras</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4007">https://ecos.fws.gov/ecp/species/4007</a>	Endangered
<b>Spreading Navarretia</b> <i>Navarretia fossalis</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/1334">https://ecos.fws.gov/ecp/species/1334</a>	Threatened
<b>Thread-leaved Brodiaea</b> <i>Brodiaea filifolia</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/6087">https://ecos.fws.gov/ecp/species/6087</a>	Threatened

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

## Bald & Golden Eagles

Bald and golden eagles are protected under the [Bald and Golden Eagle Protection Act](#) and the [Migratory Bird Treaty Act](#).

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

**There are bald and/or golden eagles in your project area.**

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON

**Bald Eagle** *Haliaeetus leucocephalus*

Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

**Golden Eagle** *Aquila chrysaetos*

Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence ( )

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the

probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

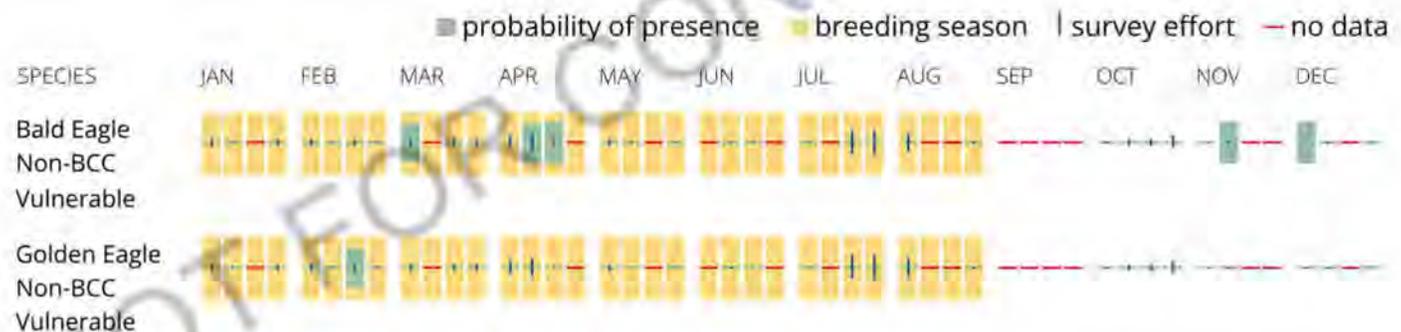
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



**What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?**

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

**What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

**The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location.** To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date

range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p><b>Allen's Hummingbird</b> <i>Selasphorus sasin</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9637">https://ecos.fws.gov/ecp/species/9637</a></p>	Breeds Feb 1 to Jul 15
<p><b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Jan 1 to Aug 31
<p><b>Belding's Savannah Sparrow</b> <i>Passerculus sandwichensis beldingi</i>            This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/8">https://ecos.fws.gov/ecp/species/8</a></p>	Breeds Apr 1 to Aug 15
<p><b>Black-chinned Sparrow</b> <i>Spizella atrogularis</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9447">https://ecos.fws.gov/ecp/species/9447</a></p>	Breeds Apr 15 to Jul 31
<p><b>Bullock's Oriole</b> <i>Icterus bullockii</i>            This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Mar 21 to Jul 25
<p><b>California Thrasher</b> <i>Toxostoma redivivum</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Jan 1 to Jul 31

<p><b>Common Yellowthroat</b> <i>Geothlypis trichas sinuosa</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p><a href="https://ecos.fws.gov/ecp/species/2084">https://ecos.fws.gov/ecp/species/2084</a></p>	<p>Breeds May 20 to Jul 31</p>
<p><b>Golden Eagle</b> <i>Aquila chrysaetos</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a></p>	<p>Breeds Jan 1 to Aug 31</p>
<p><b>Lawrence's Goldfinch</b> <i>Carduelis lawrencei</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9464">https://ecos.fws.gov/ecp/species/9464</a></p>	<p>Breeds Mar 20 to Sep 20</p>
<p><b>Nuttall's Woodpecker</b> <i>Picoides nuttallii</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p><a href="https://ecos.fws.gov/ecp/species/9410">https://ecos.fws.gov/ecp/species/9410</a></p>	<p>Breeds Apr 1 to Jul 20</p>
<p><b>Oak Titmouse</b> <i>Baeolophus inornatus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9656">https://ecos.fws.gov/ecp/species/9656</a></p>	<p>Breeds Mar 15 to Jul 15</p>
<p><b>Wrentit</b> <i>Chamaea fasciata</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	<p>Breeds Mar 15 to Aug 10</p>

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey

effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (🟡)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

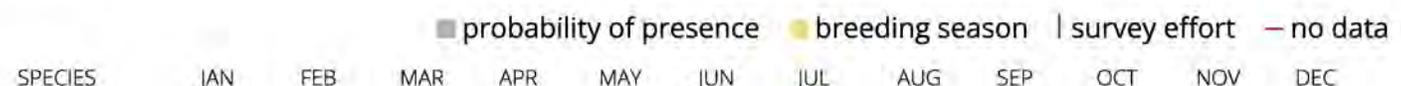
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

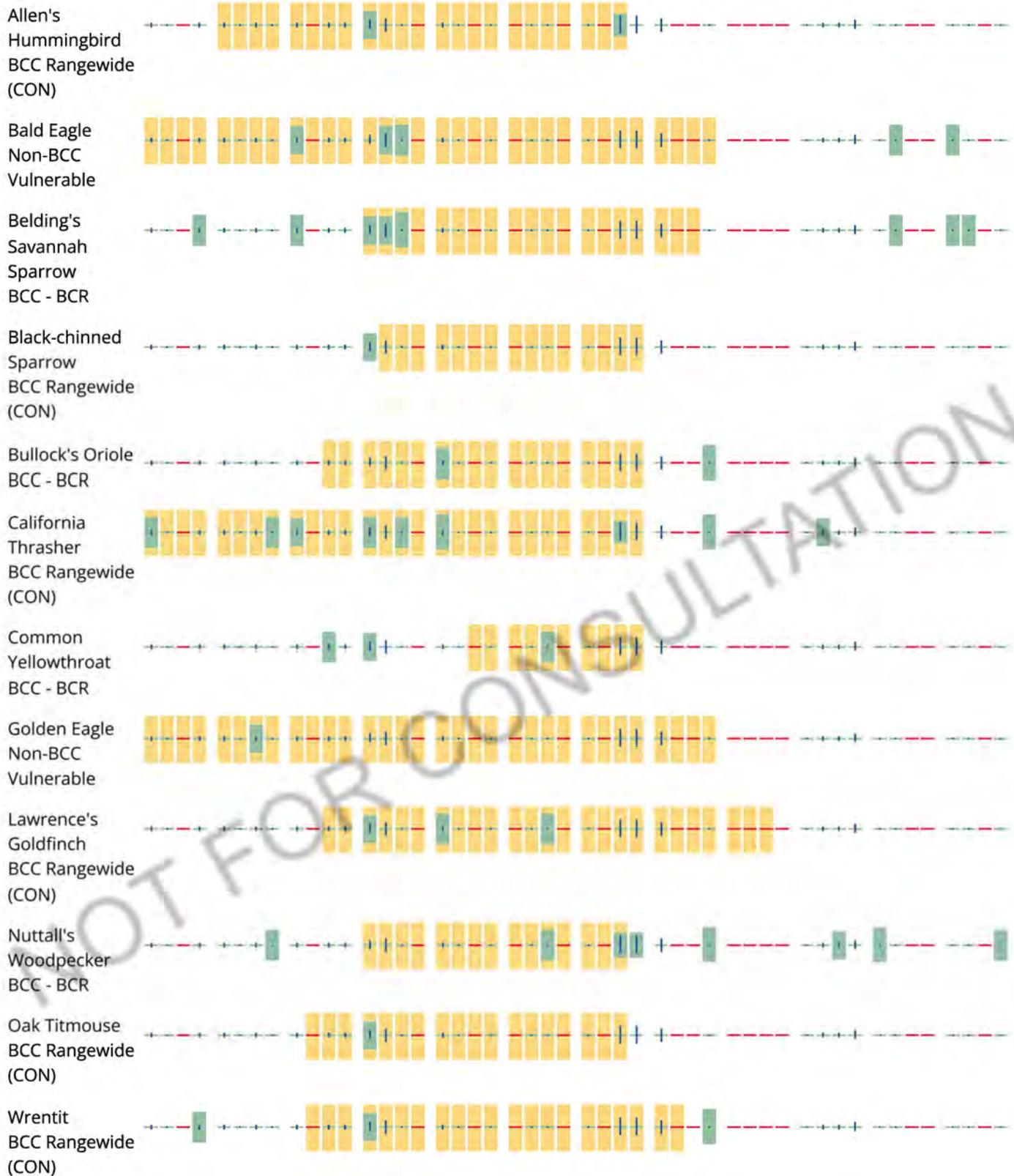
### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure.

To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

### **What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

### **What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

### **How do I know if a bird is breeding, wintering or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### **What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in

offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### **Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### **What if I have eagles on my list?**

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### **Proper Interpretation and Use of Your Migratory Bird Report**

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

# Facilities

## National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

## Fish hatcheries

There are no fish hatcheries at this location.

## Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

[R4SBA](#)

[R4SBC](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

**NOTE:** This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

# Attachment C

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## Representative Photographs



Photo 1. A box culvert adjacent to the northern portion of the study area, facing approximately southeast. The culvert is located outside of the study area.

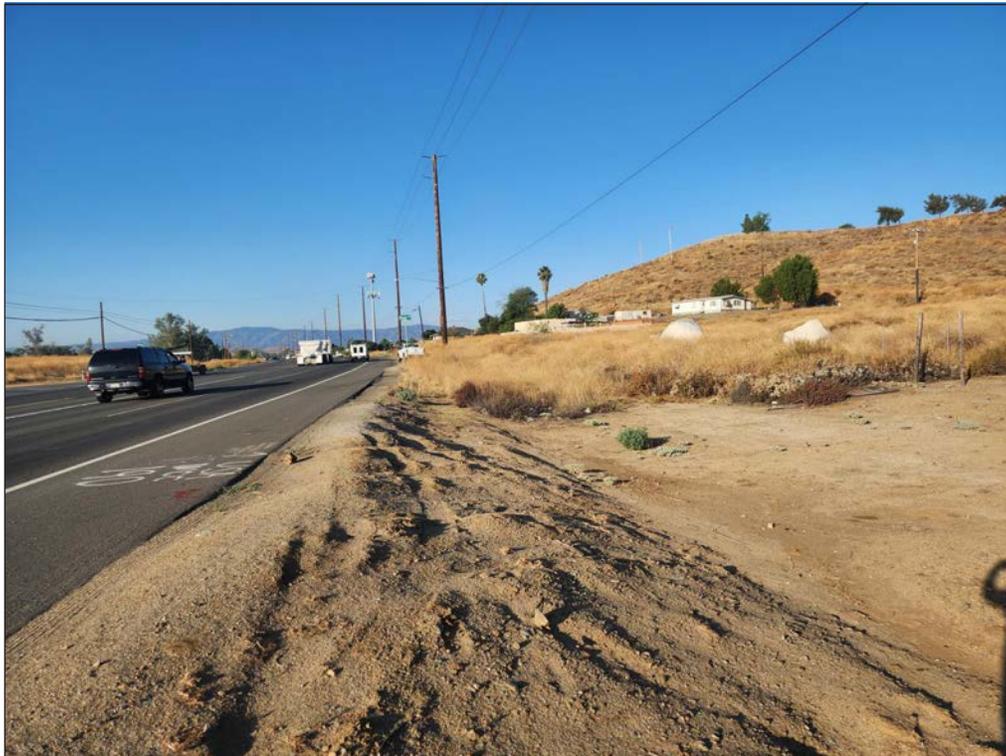


Photo 2. Disturbed roadside area in the northern portion of the study area, facing approximately southwest. Non-native grassland and some California buckwheat can be seen in the background.

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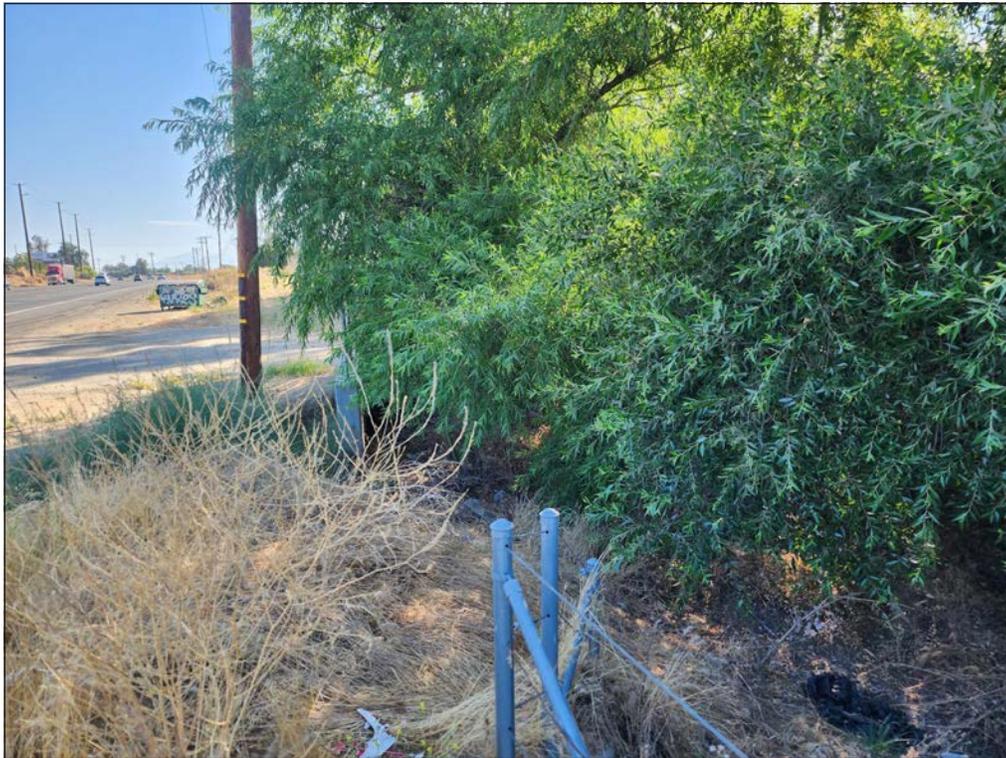


Photo 3. Arroyo willow thickets in the southern portion of the study area, facing approximately north. Non-native vegetation can be seen in the foreground.



Photo 4. Disturbed California buckwheat scrub along Wasson Canyon Road in the southern portion of the study area, facing approximately north.

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# Attachment D

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Plant Species Observed

Family	Scientific Name	Common Name
<b>GYMNOSPERMS - CONIFERS</b>		
Pinaceae	<i>Pinus halepensis</i> *	Aleppo pine
<b>ANGIOSPERMS - EUDICOTS</b>		
Anacardiaceae	<i>Schinus molle</i> *	Peruvian pepper tree
	<i>Schinus terebinthifolius</i> *	Brazilian pepper tree
	<i>Searsia lancea</i> *	African sumac
Apiaceae	<i>Foeniculum vulgare</i> *	fennel
Asteraceae	<i>Ambrosia acanthicarpa</i>	annual burweed
	<i>Ambrosia psilostachya</i>	ragweed
	<i>Baccharis salicifolia</i>	mule fat
	<i>Centaurea melitensis</i> *	tocalote
	<i>Cirsium vulgare</i> *	bullthistle
	<i>Corethrogyne filaginifolia</i>	common sandaster
	<i>Deinandra fasciculata</i>	clustered tarweed
	<i>Deinandra paniculata</i> †	paniculate tarplant
	<i>Encelia californica</i>	bush sunflower
	<i>Encelia farinosa</i>	brittlebush
	<i>Erigeron canadensis</i>	Canada horseweed
	<i>Helianthus annuus</i>	hairy leaved sunflower
	<i>Heterotheca grandiflora</i>	telegraph weed
	<i>Lactuca serriola</i> *	prickly lettuce
	<i>Oncosiphon piluliferum</i> *	stinknet
<i>Sonchus asper</i> *	spiny sowthistle	
<i>Stephanomeria exigua</i>	small wirelettuce	
Boraginaceae	<i>Heliotropium curassavicum</i>	salt heliotrope
Brassicaceae	<i>Hirschfeldia incana</i> *	shortpod mustard
Brassicaceae	<i>Sisymbrium irio</i> *	London rocket
Chenopodiaceae	<i>Salsola tragus</i> *	Russian thistle
Euphorbiaceae	<i>Croton setiger</i>	turkey-mullein
Fabaceae	<i>Acmispon glaber</i>	deerweed
	<i>Caesalpinia gilliesii</i> *	bird-of-paradise
	<i>Parkinsonia aculeata</i> *	Mexican palo verde
Lamiaceae	<i>Rosmarinus officinalis</i> *	rosemary
Lythraceae	<i>Punica granatum</i> *	pomegranate
Myrtaceae	<i>Eucalyptus camaldulensis</i> *	red gum
Phrymaceae	<i>Diplacus aurantiacus</i>	orange bush monkeyflower
	<i>Erythranthe guttata</i>	yellow monkey flower
Platanaceae	<i>Platanus xhispanica</i> *	London plane tree
Polygonaceae	<i>Eriogonum fasciculatum</i>	California buckwheat
<b>ANGIOSPERMS - MONOCOTS</b>		
Arecaceae	<i>Washingtonia robusta</i> *	Mexican fan palm
Cyperaceae	<i>Cyperus eragrostis</i>	tall cyperus
Juncaceae	<i>Juncus mexicanus</i>	Mexican rush
Poaceae	<i>Arundo donax</i> *	giant reed
	<i>Avena fatua</i> *	wildoats
	<i>Bromus madritensis</i> *	foxtail chess
	<i>Cynodon dactylon</i> *	Bermuda grass
	<i>Hordeum murinum</i> *	foxtail barley
	<i>Lamarckia aurea</i> *	goldentop

Family	Scientific Name	Common Name
Poaceae (cont.)	<i>Pennisetum setaceum</i> *	fountain grass
	<i>Phalaris aquatica</i> *	bulbous canarygrass
	<i>Polypogon monspeliensis</i> *	annual beard grass
Salicaceae	<i>Populus fremontii</i>	Fremont cottonwood
	<i>Salix gooddingii</i>	Goodding's willow
	<i>Salix laevigata</i>	red willow
Simaroubaceae	<i>Ailanthus altissima</i> *	tree-of-heaven
Solanaceae	<i>Datura wrightii</i>	jimsonweed
	<i>Nicotiana glauca</i> *	tree tobacco
Tamaricaceae	<i>Tamarix aphylla</i> *	athel tamarisk
	<i>Tamarix ramosissima</i> *	tamarisk
Zygophyllaceae	<i>Tribulus terrestris</i> *	puncture vine

\* Non-native species

† California Rare Plant Rank 4.2 species

# Attachment E

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Animal Species Observed or  
Detected

Order	Family	Scientific Name	Common Name
<b>INVERTEBRATES</b>			
Lepidoptera	Pieridae	<i>Pieris rapae</i>	cabbage white
<b>REPTILES</b>			
Squamata	Phrynosomatidae	<i>Sceloporus occidentalis</i>	western fence lizard
<b>BIRDS</b>			
Accipitriformes	Cathartidae	<i>Cathartes aura</i>	turkey vulture
Passeriformes	Corvidae	<i>Corvus brachyrhynchos</i>	American crow
	Passerellidae	<i>Pipilo maculatus</i>	spotted towhee
Columbiformes	Columbidae	<i>Columba livia</i>	rock pigeon
<b>MAMMALS</b>			
Carnivora	Canidae	<i>Canis latrans</i>	coyote
Rodentia	Sciuridae	<i>Otospermophilus beecheyi</i>	California ground squirrel

# Attachment F

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Special-Status Plant Species with  
Potential to Occur

Species Name	Common Name	Status <sup>1,2</sup>	Habitat, Ecology, and Life History	Potential to Occur <sup>3</sup>
<i>Allium munzii</i>	Munz's onion	FE/ST CRPR 1B.1	Perennial herb. Grows in mesic areas on clay soils within grassland, coastal scrub, chaparral, cismontane woodland, and pinyon-juniper woodland. Flowering period: March to May. Elevation: 974-3,510 feet (297 -1,070 meters).	<b>Not Likely to Occur.</b> Some marginal non-native grassland and coastal scrub habitat is present along the edges of the study area, and there are mapped clays soils that overlap with the study area. There are CNDDDB recorded observations of this species within the vicinity of the study area. These records occur within relatively undisturbed hills and mountains to the west. The study area is highly disturbed and supports very low amounts of native vegetation. Therefore, this species is not likely to occur.
<i>Ambrosia pumila</i>	San Diego ambrosia	FE/-- CNPS 1B.1	Perennial rhizomatous herb. Occurs in alkaline, clay, disturbed, loam and sandy soils. Found in stream floodplain terraces and vernal pool margins. Flowering period: April to October Elevation: 65-1,360 feet (20-415 meters).	<b>Not Likely to Occur.</b> The study area does not support floodplain terraces or vernal pool habitat.
<i>Atriplex coronata</i> var. <i>notatior</i>	San Jacinto Valley crownscale	FE/-- CNPS 1B.1	Annual herb. Found in alkaline soil in playas, valley and foothill grassland and vernal pools. Flowering period: April to August. Elevation: 455-1,640 feet (139-500 meters).	<b>Not Likely to Occur.</b> Suitable grassland or vernal pool habitats within alkaline soil are not present in the study area.
<i>Brodiaea filifolia</i>	thread-leaved brodiaea	FT/SE CRPR 1B.1	Perennial herb. Often associated with vernal pools. Also occurs within playas, grasslands, coastal scrub, openings in chaparral, and cismontane woodland; often on clay soils. Flowering period: March to June. Elevation: 80-3,675 feet (25-1,120 meters).	<b>Not Likely to Occur.</b> The study area does not support vernal pool or playa habitats.

Species Name	Common Name	Status <sup>1,2</sup>	Habitat, Ecology, and Life History	Potential to Occur <sup>3</sup>
<i>Caulanthus simulans</i>	Payson's jewelflower	--/-- CRPR 4.2	Annual herb. Occurs within coastal sage scrub, chaparral, and pinyon-juniper woodlands. Typically on slopes and ridgelines with sandy granitic soils. Flowering period: February to June. Elevation: 295-7,220 feet (90-2,200 meters).	<b>Not Likely to Occur.</b> The study area does not support slopes or ridgelines with sandy granitic soils.
<i>Centromadia pungens</i> ssp. <i>laevis</i>	smooth tarplant	--/-- CRPR 1B.1	Annual herb. Occurs on alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland. Flowering period: April to September. Elevation: below 2,100 feet (640 meters).	<b>Not Likely to Occur.</b> The study area does not support alkaline soils. This species is readily identifiable and was not observed during the field survey.
<i>Chorizanthe leptotheca</i>	Peninsular spineflower	--/-- CRPR 4.2	Annual herb. Occurs on alluvial fans and sandy and gravelly soils within coastal sage scrub, chaparral, and coniferous forests. Flowering period: May to August. Elevation: 980-6,235 feet (300-1,900 meters).	<b>Not Likely to Occur.</b> Suitable alluvial fan habitat is not present within the study area.
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower	--/-- CRPR 1B.1	Annual herb. Occurs in sandy soil on flats and foothills in mixed grassland, coastal sage scrub, and chaparral. Flowering period: April to June. Elevation: 900-4,005 feet (275-1,220 meters).	<b>Low Potential to Occur.</b> Some marginal non-native grassland and coastal scrub habitat is present along the edges of the study area.
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	long-spined spineflower	--/-- CRPR 1B.2	Annual herb. Occurs in chaparral, coastal scrub, and native grassland, often on clay soils. Flowering period: April to July. Elevation: 95-5,020 feet (30-1,530 meters).	<b>Low Potential to Occur.</b> Some marginal non-native grassland and coastal scrub habitat is present along the edges of the study area, and there are mapped clays soils that overlap with the study area. However, the study area is highly disturbed.

Species Name	Common Name	Status <sup>1,2</sup>	Habitat, Ecology, and Life History	Potential to Occur <sup>3</sup>
<i>Convolvulus simulans</i>	small-flowered morning-glory	--/-- CRPR 4.2	Annual herb. Occurs within wet clay serpentine soils in openings within chaparral, coastal scrub, and native grassland. Flowering period: April to June. Elevation: 95-2,430 feet (30-740 meters).	<b>Not Likely to Occur.</b> The study area does not support wet clay serpentine soils.
<i>Deinandra paniculata</i>	paniculate tarplant	--/-- CRPR 4.2	Annual herb. Occurs in vernal mesic areas, sometimes sandy soils, in coastal scrub, valley and foothill grassland, and vernal pools with sandy soil. Flowering period: March to December. Elevation: 80-3,100 feet (25-940 meters).	<b>Low Potential to Occur.</b> Twenty-one paniculate tarplant individuals were observed adjacent to the study area southwest of the Kimes Way and Highway 74 intersection. The individuals were located approximately 150 from the study area. Although potentially suitable habitat is present, individuals were not observed within the study area.
<i>Dodecahema leptoceras</i>	slender-horned spineflower	FE/SE CRPR 1B.1	Annual herb. Found in flood-deposited terraces and washes that support alluvial fan sage scrub within coastal sage scrub, chaparral, and woodlands. Flowering period: April to June. Elevation: 655-2,500 feet (200-760 meters).	<b>Not Likely to Occur.</b> The study area supports a small wash associated with a culvert crossing under Highway 74, northwest of Wasson Canyon Road. However, this habitat is highly disturbed and supports little to no native vegetation. Slender-horned spineflower generally occurs within relict alluvial terrace and floodplain areas that are more stable, support alluvial fan sage scrub habitat, and are not prone to frequent scouring or washout.
<i>Dudleya multicaulis</i>	many-stemmed dudleya	--/-- CRPR 1B.2	Perennial herb. Found in clay soils and sandstone outcrops associated with coastal sage scrub, chaparral, and valley grasslands. Flowering period: April to July. Elevation: 45-2,590 feet (15-790 meters).	<b>Not Likely to Occur.</b> The study area does not support sandstone outcrops. This species is readily identifiable and was not observed during the field survey which was conducted during the flowering period for the species.

Species Name	Common Name	Status <sup>1,2</sup>	Habitat, Ecology, and Life History	Potential to Occur <sup>3</sup>
<i>Harpagonella palmeri</i>	Palmer's grapplinghook	--/-- CRPR 4.2	Annual herb. Grows on clay soils within openings of grasslands, coastal sage scrub, and chaparral. Flowering period: March to May. Elevation: 65-3,135 feet (20-955 meters).	<b>Low Potential to Occur.</b> Some marginal non-native grassland and coastal scrub habitat is present along the edges of the study area, and there are mapped clays soils that overlap with the study area. However, the study area is highly disturbed.
<i>Hordeum intercedens</i>	vernal barley	--/-- CRPR 3.2	Annual herb. Occurs in vernal pools, alkaline flats, and dry, saline streambeds. Also found in saline flats and depressions within grasslands. Flowering period: March to June. Elevation: below 3,280 feet (1,000 meters).	<b>Not Likely to Occur.</b> The study area does not support vernal pools, alkaline flats, or saline streambeds.
<i>Juglans californica</i>	Southern California black walnut	--/-- CRPR 4.2	Perennial tree. Grows in alluvial soils within coastal sage scrub, chaparral, riparian woodlands, and cismontane woodlands. Flowering period: March to August. Elevation: 165-2,955 feet (50-900 meters).	<b>Not Likely to Occur.</b> This perennial tree species is readily identifiable and was not observed during the field survey.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	--/-- CRPR 1B.1	Annual herb. Grows in vernal pools, playas, and saline habitats within alkali sinks, coastal salt marshes, and wetland habitats. Flowering period: April to May. Elevation: below 4,005 feet (1,220 meters).	<b>Not Likely to Occur.</b> The study area does not support vernal pools, playas, or saline habitats.
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper-grass	--/-- CRPR 4.3	Annual herb. Grows in openings of sage scrub and chaparral at the coastal and foothill elevations throughout California. Typically observed in relatively dry, exposed locales rather than beneath a shrub canopy. Also, found in disturbed areas. Flowering period: March to June. Elevation: below 9,186 feet (2,800 meters).	<b>Low Potential to Occur.</b> Some marginal non-native grassland and coastal scrub habitat is present along the edges of the study area.

Species Name	Common Name	Status <sup>1,2</sup>	Habitat, Ecology, and Life History	Potential to Occur <sup>3</sup>
<i>Microseris douglasii</i> ssp. <i>platycarpha</i>	small-flowered microseris	--/-- CRPR 4.2	Annual herb. Found on clay soils within coastal sage scrub, woodlands, and grasslands. Often near vernal pools or serpentine outcrops. Flowering period: March to May. Elevation: 49-3,510 feet (15-1,070 meters).	<b>Not Likely to Occur.</b> The study area does not support vernal pools or serpentine outcrops.
<i>Myosurus minimus</i> ssp. <i>apus</i>	little mousetail	--/-- CRPR 3.1	Annual herb. Occurs in alkaline vernal pools within native grassland. Flowering period: March to June. Elevation: 65-2,100 feet (20 -640 meters).	<b>Not Likely to Occur.</b> The study area does not support alkaline vernal pools.
<i>Navarretia fossalis</i>	spreading navarretia	FT/-- CRPR 1B.1	Annual herb. Occurs in vernal pools, vernal swales, or roadside depressions. Population size is strongly correlated with rainfall. Depth of pool appears to be a significant factor as this species is rarely found in shallow pools. Flowering period: April to June. Elevation: 100-2,150 feet (30-655 meters).	<b>Not Likely to Occur.</b> The study area does not support vernal pools, vernal swales, or roadside depressions.
<i>Orcuttia californica</i>	California Orcutt grass	FE/SE CRPR 1B.1	Annual herb. Occurs in vernal pools. Tends to grow in wetter portions of the vernal pool basins but does not show much growth until the basins become somewhat desiccated. Flowering period: April to August. Elevation: 45-2,165 feet (15-660 meters).	<b>Not Likely to Occur.</b> The study area does not support vernal pools.
<i>Romneya coulteri</i>	Coulter's matilija poppy	--/-- CRPR 4.2	Perennial herb. Occurs in dry washes and canyons within coastal scrub chaparral, often in burned areas. Flowering period: March to August. Elevation: 65-3,900 feet (20-1,200 meters).	<b>Not Likely to Occur.</b> The study area does not support canyons. There is a small wash associated with a culvert crossing under Highway 74, northwest of Wasson Canyon Road. This species is readily identifiable and was not observed during the field survey which was conducted during the flowering period of the species.

Species Name	Common Name	Status <sup>1,2</sup>	Habitat, Ecology, and Life History	Potential to Occur <sup>3</sup>
<i>Viguiera laciniata</i>	San Diego County viguiera	--/-- CNPS Rank 4.2	Perennial shrub. Chaparral, coastal scrub on slopes and ridges. Flowering period: February to June. Elevation: 195-2,460 feet (60-750 meters).	<b>Not Likely to Occur.</b> The study area does not support slopes or ridges.

<sup>1</sup> Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; R = Rare

<sup>2</sup> CNPS = California Native Plant Society Rare Plant Rank (CRPR): 1A—presumed extirpated in California and either rare or extinct elsewhere; 1B—rare, threatened, or endangered in California and elsewhere; 2A—presumed extirpated in California, but more common elsewhere; 2B—rare, threatened, or endangered in California, but more common elsewhere; 3—more information needed; 4—watch list for species of limited distribution. CRPR Extension codes: .1—seriously endangered; .2—moderately endangered; .3—not very endangered.

<sup>3</sup> **Not Likely to Occur**—There are no present or historical records of the species occurring on or in the immediate vicinity, (within 3 miles) of the study area and the diagnostic habitats strongly associated with the species do not occur on or in the immediate vicinity of the study area.

**Low Potential to Occur**—There is a historical record of the species in the vicinity of the study area and potentially suitable habitat is present, but existing conditions, such as density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, isolation, substantially reduce the possibility that the species may occur. The study area is above or below the recognized elevation limits for this species.

**Moderate Potential to Occur**—The diagnostic habitats associated with the species occur on or in the immediate vicinity of the study area, but there is not a recorded occurrence of the species within the immediate vicinity (within 3 miles). Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity.

**High Potential to Occur**—There is both suitable habitat associated with the species and a historical record of the species on or in the immediate vicinity of the study area (within 3 miles).

**Species Present**—The species was observed on the study area at the time of the survey or during a previous biological survey.

# Attachment G

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Special-Status Animal Species with  
Potential to Occur

Scientific Name	Common Name	Status <sup>1</sup>	Habitat Associations	Potential to Occur <sup>2</sup>
<b>INVERTEBRATES</b>				
<b>Crustaceans</b>				
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	FE/--	Endemic to Western Riverside, Orange, and San Diego Counties. Typically found in deep vernal pools and seasonal wetlands at least 30 centimeters deep.	<b>Not Likely to Occur.</b> The study area does not support vernal pools are depressional areas.
<b>Insects</b>				
<i>Bombus crotchii</i>	Crotch's bumblebee	--/SC	Coastal California east to the Sierra-Cascade crest and south into Mexico and is associated with grassland and scrub habitats near the coast. Species' food genera include <i>Antirrhinum</i> spp., <i>Clarkia</i> spp., <i>Dendromecon</i> spp., <i>Eriogonum</i> spp., <i>Eschscholzia</i> spp., <i>Lupinus</i> spp., <i>Medicago</i> spp., <i>Phacelia</i> spp., and <i>Salvia</i> spp. Nests are underground and commonly consist of abandoned rodent nests.	<b>Low Potential to Occur.</b> Some open coastal scrub is present along the edges of the study area. The study area is highly disturbed.
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	FE/--	Open, sunny areas within chaparral and coastal sage scrub. Host plants are <i>Plantago</i> spp., <i>Antirrhinum coulterianum</i> , and <i>Cordylanthus rigidus</i> .	<b>Not Likely to Occur.</b> Host plants not observed.
<b>VERTEBRATES</b>				
<b>Amphibians</b>				
<i>Spea hammondi</i>	western spadefoot	--/SSC	Occurs in open coastal sage scrub, chaparral, and grassland, along sandy or gravelly washes, floodplains, alluvial fans, or playas; require temporary pools for breeding and friable soils for burrowing; generally excluded from areas with bullfrogs ( <i>Rana catesbiana</i> ) or crayfish ( <i>Procambarus</i> spp.)	<b>Not Likely to Occur.</b> The study area does not appear to support temporary pools or areas that can hold water long enough to support western spadefoot toad breeding.

Scientific Name	Common Name	Status <sup>1</sup>	Habitat Associations	Potential to Occur <sup>2</sup>
<b>Reptiles</b>				
<i>Anniella stebbinsi</i>	Southern California legless lizard	--/SSC	Broad-leaved upland forest, chaparral, coastal dunes and coastal scrub. Occurs in sandy or loose soils under sparse vegetation. Generally, prefers soils with a high moisture content.	<b>Not Likely to Occur.</b> Although the study area supports some coastal scrub habitat along the edges of the study area, sandy or loose soil with high moisture content and leaf litter was not observed. The study area is highly disturbed.
<i>Arizona elegans occidentalis</i>	California glossy snake	--/SSC	Occurs in arid scrub, rocky washes, grasslands, chaparral, barren desert, and pinyon-juniper, oak, or pine woodlands. Generally, prefers open areas and loose soil within these habitats.	<b>Low Potential to Occur.</b> Some open coastal scrub and non-native grassland is present along the edges of the study area. The study area is highly disturbed and project impacts would be limited to existing paved roads and disturbed road shoulders.
<i>Aspidoscelis hyperthrus</i>	orange-throated whiptail	--/SSC	Suitable habitat includes coastal sage scrub, chaparral, juniper woodland, oak woodland, and grasslands along with alluvial fan scrub and riparian areas. Occurrence of the species correlated with the presence perennial plants (such as California buckwheat, California sagebrush, black sage, or chaparral) to provide a food base for its major food source, termites.	<b>Low Potential to Occur.</b> Some open coastal scrub and non-native grassland is present along the edges of the study area. The study area is highly disturbed.
<i>Aspidoscelis tigris stejnegeri</i>	coastal whiptail	--/WL	Occurs in open coastal sage scrub, chaparral, and woodlands. Frequently found along the edges of dirt roads traversing its habitats. Important habitat components include open, sunny areas, shrub cover with accumulated leaf litter, and an abundance of insects, spiders, or scorpions.	<b>Low Potential to Occur.</b> Some open coastal scrub is present along the edges of the study area. The study area is highly disturbed.

Scientific Name	Common Name	Status <sup>1</sup>	Habitat Associations	Potential to Occur <sup>2</sup>
<i>Crotalus ruber</i>	red-diamond rattlesnake	--/SSC	Occurs in a wide variety of arid and semiarid habitats that provide dense vegetation or rocky cover. It retreats into rodent burrows, into cracks in rocks or under surface cover objects.	<b>Low Potential to Occur.</b> Some open coastal scrub is present along the edges of the study area. There is a CNDDDB recorded occurrence of this species that overlaps the study area. However, no date of observation or specific location information is provided. The study area is highly disturbed .
<i>Emys marmorata</i>	western pond turtle	--/SSC	Almost entirely aquatic; occurs in freshwater marshes, creeks, ponds, rivers, streams, and other bodies of water greater than six feet deep. Requires adjacent basking sites and egg laying areas.	<b>Not Likely to Occur.</b> The study area does not support bodies of water greater than six feet deep.
<i>Phrynosoma coronatum</i>	coast horned lizard	--/SSC	Occupies coastal sage scrub and open areas in chaparral, oak ( <i>Quercus</i> sp.) woodlands, and coniferous forests with sufficient basking sites, adequate scrub cover, and areas of loose soil; require native ants, especially harvester ants ( <i>Pogonomyrmex</i> spp.), and are generally excluded from areas invaded by Argentine ants ( <i>Linepithema humile</i> ).	<b>Low Potential to Occur.</b> Some open coastal scrub is present along the edges of the study area. The study area is highly disturbed.
<i>Salvadora hexalepis virgultea</i>	coast patch-nosed snake	--/SSC	Occurs in desert scrub, grassland, chaparral, sagebrush plains, and pinyon-juniper woodlands in the southwestern United States south into Baja California and Mexico, from below sea level to 7,000 feet.	<b>Low Potential to Occur.</b> Some open coastal scrub and non-native grassland is present along the edges of the study area. The study area is highly disturbed.

Scientific Name	Common Name	Status <sup>1</sup>	Habitat Associations	Potential to Occur <sup>2</sup>
<b>Birds</b>				
<i>Accipiter cooperii</i>	Cooper's hawk	--/WL	This raptor species requires mature forest, open woodlands, and river groves habitat.	<b>Not Likely to Occur.</b> Forest and woodlands do not occur in study area. Potentially suitable foraging habitat is adjacent to the study area.
<i>Aimophila ruficeps</i>	rufous-crowned sparrow	--/WL	Generally found on moderate to steep slopes vegetated with grassland, coastal sage scrub, and chaparral. Generally absent from areas with dense stands of coastal sage scrub or chaparral. May occur on steep grassy slopes without shrubs if rock outcrops are present.	<b>Low Potential to Occur.</b> Some open coastal scrub is present along the edges of the study area. The study area is highly disturbed.
<i>Artemisiospiza belli</i>	Bell's sparrow	--/WL	Breeds in dry coastal sage scrub and chaparral, desert scrub, and similar other open, scrubby habitats. In foothill chaparral, they tend toward younger, less dense stands that are recovering from recent fires; less common in older, taller stands that have remained unburned.	<b>Low Potential to Occur.</b> Some open coastal scrub is present along the edges of the study area. The study area is highly disturbed.
<i>Athene cunicularia</i>	burrowing owl	--/SSC	Occurs in open, treeless areas with low, sparse vegetation, usually on gently sloping terrain. The owls can be found in grasslands, deserts, and steppe environments; on golf courses, pastures, agricultural fields, airport medians, and road embankments; in cemeteries and urban vacant lots. They are often associated with high densities of burrowing mammals such as prairie dogs, ground squirrels, and tortoises.	<b>Low Potential to Occur.</b> There is one CNDDDB record occurrence of this species from 1999 that overlap the study area. Suitable habitat and potential burrows and burrow surrogates (i.e., culverts) are present within the study area.
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	FT/SSC	Requires sandy, gravelly, or friable soils for nesting at beaches, dunes, salt flats, and large lakes.	<b>Not Likely to Occur.</b> The study area does not support beaches, dunes, salt flats, or large lakes.

Scientific Name	Common Name	Status <sup>1</sup>	Habitat Associations	Potential to Occur <sup>2</sup>
<i>Elanus leucurus</i>	white-tailed kite	--/FP	Nests in trees with dense canopies within open grasslands, woodlands, and marshes. Forages for small mammals within lightly grazed/ ungrazed pastures and grasslands.	<b>Low Potential to Occur.</b> There are large trees suitable for nesting within and adjacent to the study area. Potentially suitable foraging habitat is adjacent to the study area.
<i>Eremophila alpestris</i>	horned lark	--/WL	Inhabits a wide variety of open habitats with low, sparse vegetation where trees and large shrubs are generally absent. Suitable habitats include grasslands along the coast, deserts within the inland regions, shrub habitat at higher elevations, and agricultural areas.	<b>Low Potential to Occur.</b> Some sparsely vegetated areas are present along the edges of the study area.
<i>Icteria virens</i>	yellow-breasted chat	--/SSC	Summer resident of mature riparian woodlands. Nests are placed in low, dense vegetation, such as willows ( <i>Salix</i> sp.), blackberry ( <i>Rubus</i> sp.), and wild grape ( <i>Vitis californica</i> ).	<b>Not Likely to Occur.</b> The study area does not support mature riparian woodlands.
<i>Plegadis chihi</i>	white-faced ibis	--/SSC	Uncommon summer resident in sections of southern California and a rare visitor in the Central Valley. Local wintering visitor along coast. Prefers to feed in fresh emergent wetlands, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. Nests in dense, fresh emergent wetland.	<b>Not Likely to Occur.</b> The study area does not support wetland, lacustrine waters, muddy ground of wet meadows, or irrigated or flooded pastures and croplands.

Scientific Name	Common Name	Status <sup>1</sup>	Habitat Associations	Potential to Occur <sup>2</sup>
<i>Polioptila californica californica</i>	coastal California gnatcatcher	FT/SSC	Typically occurs in arid, open sage scrub habitats on gently slopes hillsides to relatively flat areas at elevations below 3,000 feet. Composition of sage scrub in which gnatcatchers are found varies though California sagebrush present as dominant or co-dominant species. Mostly absent from areas dominated by black sage ( <i>Salvia mellifera</i> ), white sage ( <i>Salvia apiana</i> ), or lemonade berry ( <i>Rhus integrifolia</i> ), though may occur more regularly in inland regions dominated by black sage.	<b>Low Potential to Occur.</b> There are two CNDDDB record occurrences of this species from 1999 that overlap the study area. Some open coastal scrub is present along the edges of the study area. The study area is highly disturbed and habitat occurs in small isolated patches, adjacent to existing roads making it unsuitable to support this species.
<i>Vireo bellii pusillus</i>	least Bell's vireo	FE/SE	Breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging. Dominant species within breeding habitat includes cottonwood and willows with mule fat, oaks, and sycamore, and mesquite ( <i>Prosopis glandulosa</i> ) and arrowweed ( <i>Pluchea sericea</i> ) within desert habitats. The species can be tolerant of the presence of non-native species such as tamarisk.	<b>Not Likely to Occur.</b> The study area supports a small area of arroyo willow thickets (0.03 acre). Riparian habitat within and adjacent to the study area is of very low quality and does not contain the structurally diverse canopy that this species requires nesting, foraging, and breeding. Additionally, riparian habitat within the study area is isolated and is not contiguous with riparian habitat in the vicinity.

Scientific Name	Common Name	Status <sup>1</sup>	Habitat Associations	Potential to Occur <sup>2</sup>
<b>Mammals</b>				
<i>Chaetodipus fallax fallax</i>	northwestern San Diego pocket mouse	--/SSC	Herbaceous openings within coastal sage scrub, chaparral, grasslands, and desert scrub. Often associated with sandy, rocky, or gravelly substrates.	<b>Not Likely to Occur.</b> Some open coastal scrub and non-native grassland is present along the edges of the study area. The study area is highly disturbed, adjacent to existing paved roads and disturbed road shoulders with compacted soils.
<i>Dipodomys merriami parvus</i>	San Bernardino kangaroo rat	FE/SC	Generally associated with alluvial fan sage scrub, but also occurs in sage scrub, chaparral, and grassland in proximity to alluvial fan sage scrub habitats.	<b>Not Likely to Occur.</b> The study area and adjacent areas do not support alluvial fan sage scrub habitat.
<i>Dipodomys stephensi</i>	Stephen's kangaroo rat	FE/ST	Primarily occurs in sparsely vegetated areas within grassland habitats, but also found in open coastal scrub habitat. Feeds on filaree ( <i>Erodium</i> sp.) and brome ( <i>Bromus</i> sp.) seeds. Dig burrows in firm soil or use abandoned pocket gopher burrows.	<b>Not Likely to Occur.</b> There are CNDDDB recorded occurrences of this species that overlap the study area; however, these records are from over 24 years ago. Some open coastal scrub and non-native grassland is present along the edges of the study area. The study area is highly disturbed and includes existing paved roads and disturbed road shoulders with compacted soils.
<i>Eumops perotis californicus</i>	western mastiff bat	--/SSC	Roosts under exfoliating rock slabs on cliff faces and occasionally in large boulder crevices and building cracks. Forages in a variety of open areas, including washes, floodplains, chaparral, coastal sage scrub, woodlands, ponderosa pine forests, grassland, and agricultural areas.	<b>Not Likely to Occur.</b> The study area does not support suitable roosting habitat (e.g., cliff faces, boulder crevices, building cracks). Potentially suitable foraging habitat is adjacent to the study area.

Scientific Name	Common Name	Status <sup>1</sup>	Habitat Associations	Potential to Occur <sup>2</sup>
<i>Lasiurus xanthinus</i>	western yellow bat	--/SSC	Found in desert regions in wooded areas and desert scrub, but expanding their range due to ornamental palm trees in landscaping. Roosts in foliage, particularly in thorny vegetation, palms, and other desert riparian habitats.	<b>Not Likely to Occur.</b> Desert scrub and riparian habitats are not present within the study area. There are small palm trees adjacent to the study area; however, these individuals are associated with a nursery operation.
<i>Onychomys torridus ramona</i>	southern grasshopper mouse	--/SSC	Sandy valley floors within desert scrub habitat with low to moderate shrub cover and friable soils, but also found in coastal scrub and chaparral habitats.	<b>Not Likely to Occur.</b> Some open coastal scrub and non-native grassland is present along the edges of the study area. The study area is highly disturbed and project impacts would be limited to existing paved roads and disturbed road shoulders with compacted soils.

<sup>1</sup> Listing codes are as follows: FE = Federally Endangered; FT = Federally Threatened; FC= Federal Candidate; BCC = Birds of Conservation Concern; SE = State of California Endangered; FP = State of California Fully Protected; SC = State Candidate; SSC = State of California Species of Special Concern.

<sup>2</sup> **Not Likely to Occur** - There are no present or historical records of the species occurring on or in the immediate vicinity, (within 3 miles) of the study area and the diagnostic habitats strongly associated with the species do not occur on or in the immediate vicinity of the study area.

**Low Potential to Occur** - There is a historical record of the species in the vicinity of the study area and potentially suitable habitat is present, but existing conditions, such as density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, isolation, substantially reduce the possibility that the species may occur. The study area is above or below the recognized elevation limits for this species.

**Moderate Potential to Occur** - The diagnostic habitats associated with the species occur on or in the immediate vicinity of the study area, but there is not a recorded occurrence of the species within the immediate vicinity (within 3 miles). Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity.

**High Potential to Occur** - There is both suitable habitat associated with the species and a historical record of the species on or in the immediate vicinity of the study area (within 3 miles).

**Species Present** - The species was observed on the study area at the time of the survey or during a previous biological survey.

# Attachment H

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Explanation of Status Codes for Plant  
and Animal Species

## FEDERAL AND STATE CODES

### U.S. Fish and Wildlife Service (USFWS)

BCC	Bird of Conservation Concern
FE	Federally listed endangered
FT	Federally listed threatened

#### USFWS Birds of Conservation Concern (BCC)

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

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

#### USFWS Federal Candidate (FC) Species

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

#### USFWS Federal Proposed Endangered (FPE) Species

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

## USFWS Federal Proposed Threatened (FPT) Species

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

## USFWS Bald and Golden Eagle Protection Act (BGEPA)

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

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

## California Department of Fish and Wildlife (CDFW)

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

## California Environmental Quality Act (CEQA)

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

## OTHER CODES AND ABBREVIATIONS

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

#### Lists

- 1A = Presumed extirpated in California and either rare or extinct elsewhere. Eligible for state listing.
- 1B = Rare, threatened, or endangered in California and elsewhere. Eligible for state listing.
- 2A = Presumed extirpated in California but common elsewhere. Eligible for state listing.
- 2B = Rare, threatened, or endangered in California but more common elsewhere. Eligible for state listing.
- 3 = Review List: Plants about which more information is needed. Some eligible for state listing.
- 4 = Watch List: Plants of limited distribution. Needs monitoring for changes in population status. Few (if any) eligible for state listing.

#### List/Threat Code Extensions

- .1 = Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- .2 = Moderately threatened in California (20 to 80 percent of occurrences threatened/moderate degree and immediacy of threat)
- .3 = Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)
- A “CA Endemic” entry corresponds to those taxa that only occur in California.
- All List 1A (presumed extinct in California) and some List 3 (need more information; a review list) plants lacking threat information receive no extension. Threat Code guidelines represent only a starting point in threat level assessment. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Code.

# IS/MND Appendix C

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Cultural Resources Survey  
(confidential; bound separately)

# IS/MND Appendix D

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## Geotechnical Evaluation

Draft Geotechnical Evaluation  
Elsinore Valley Municipal Water District  
Highway 74/Ethanac Sewer Extension  
Highway 74 and Wasson Canyon Road  
Riverside County, California

Kennedy Jenks

38977 Sky Canyon Drive, Suite 100 | Murrieta, California 92563

September 11, 2023 | Project No. 109589001



Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

**Ninyo & Moore**

Geotechnical & Environmental Sciences Consultants

Draft Geotechnical Evaluation  
Elsinore Valley Municipal Water District  
Highway 74/Ethanac Sewer Extension  
Highway 74 and Wasson Canyon Road  
Riverside County, California

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CTF/ZH/JTK/GTF/mp

# CONTENTS

<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>2</b>	<b>SCOPE OF SERVICES</b>	<b>1</b>
<b>3</b>	<b>SITE AND PROJECT DESCRIPTION</b>	<b>1</b>
<b>4</b>	<b>FIELD EXPLORATIONS</b>	<b>2</b>
<b>4.1</b>	<b>Subsurface Evaluation and Laboratory Testing</b>	<b>2</b>
<b>4.2</b>	<b>Seismic Refraction Survey</b>	<b>3</b>
4.2.1	Methods and Equipment	3
4.2.2	Velocities and Rippability	4
4.2.3	Data Analysis	5
4.2.4	Seismic Results and Conclusions	5
<b>5</b>	<b>GEOLOGY</b>	<b>7</b>
<b>5.1</b>	<b>Regional Geology</b>	<b>7</b>
<b>5.2</b>	<b>Site Geology</b>	<b>7</b>
5.2.1	Encountered Pavements	8
5.2.2	Fill	8
5.2.3	Old Alluvium	8
5.2.4	Residual Soil	9
5.2.5	Granitic Rock	10
<b>5.3</b>	<b>Groundwater</b>	<b>10</b>
<b>5.4</b>	<b>Faulting and Seismicity</b>	<b>10</b>
5.4.1	Surface Ground Rupture	10
5.4.2	Strong Ground Motion	
5.4.3	Liquefaction and Seismically Induced Settlement	11
5.4.4	Landslides	11
5.4.5	Tsunamis	11
<b>6</b>	<b>CONCLUSIONS</b>	<b>11</b>
<b>7</b>	<b>RECOMMENDATIONS</b>	<b>12</b>
<b>7.1</b>	<b>General</b>	<b>12</b>
<b>7.2</b>	<b>Earthwork</b>	<b>13</b>
7.2.1	Site Preparation	13
7.2.2	Excavation Characteristics	13

7.2.3	Temporary Excavations and Shoring	14
7.2.4	Construction Dewatering	15
7.2.5	Excavation Bottom Stability	16
7.2.6	Pipe Bedding and Modulus of Soil Reaction ( $E'$ )	16
7.2.7	Pipe Zone Backfill	17
7.2.8	Trench Zone Backfill	17
7.2.9	Materials for Fill	17
7.2.10	Compacted Fill	18
7.2.11	Trenchless Construction	19
7.2.12	Lateral Pressures for Thrust Blocks and Jacking	20
<b>7.3</b>	<b>Preliminary Flexible Pavement Design</b>	<b>20</b>
<b>7.4</b>	<b>Soil Corrosivity</b>	<b>21</b>
<b>7.5</b>	<b>Concrete Placement</b>	<b>21</b>
<b>7.6</b>	<b>Pre-Construction Conference</b>	<b>21</b>
<b>7.7</b>	<b>Plan Review and Construction Observation</b>	<b>22</b>
<b>8</b>	<b>LIMITATIONS</b>	<b>23</b>
<b>9</b>	<b>REFERENCES</b>	<b>24</b>

## TABLES

1	Qualitative Rippability Classification	5
2	Refraction (P) Wave and Shear (S) Wave Velocity Survey Results	6
3	Encountered Pavement Section Thicknesses	8
4	Summary of Boring Depths	9
5	Loading on Trenchless Segments of Pipeline	19
5	Recommended Preliminary Flexible Pavement Sections	20

## FIGURES

1	Alignment Location
2A through 2D	Exploration Locations
3	Geology
4	Geologic Cross Section A-A'
5	Lateral Earth Pressures for Braced Excavation
6	Thrust Block Lateral Earth Pressure Diagram

## APPENDICES

- A – Boring Logs
- B – Geotechnical Laboratory Testing
- C – Third-Party Laboratory Testing
- D – Seismic Refraction Survey Results

DRAFT

# 1 INTRODUCTION

In accordance with your authorization, we have performed a geotechnical evaluation for the Elsinore Valley Municipal Water District Highway 74/Ethanac Sewer Extension project located along Highway 74 and Wasson Canyon Road in Riverside County, California (Figure 1). The objectives of this study were to assess the soil conditions at the site, evaluate the engineering properties of the soils encountered, and provide recommendations relative to the geotechnical aspects of the proposed project. This draft report presents the results of our field explorations and laboratory testing, as well as our conclusions regarding the geotechnical conditions at the site and our recommendations for the design and construction of this project.

## 2 SCOPE OF SERVICES

The scope of services for this evaluation included the following:

- Reviewing background information, including geologic and fault maps, topographic maps, groundwater data, and available published and in-house geotechnical literature pertaining to the project alignment.
- Obtaining a Right-Of-Way permit from the County of Riverside.
- Performing a geologic reconnaissance of the site to observe the general site conditions, as well as marking the field explorations for utility clearance by Underground Service Alert (USA).
- Performing a seismic refraction survey consisting of ten seismic refraction lines along the project alignment to evaluate the rippability (excavatability) of bedrock materials.
- Performing a subsurface exploration consisting of the drilling, sampling, and logging of twenty small-diameter borings (B-1 through B-20) using a truck-mounted drill rig equipped with hollow stem augers to depths up to approximately 34½ feet. Bulk and in-place samples were obtained at selected intervals from the borings. The soil samples were transported to our in-house geotechnical laboratory for testing.
- Performing geotechnical laboratory testing on representative samples to evaluate their pertinent soil characteristics.
- Compiling and performing an engineering analysis of the information obtained from our background review, subsurface exploration, and laboratory testing.
- Preparing this draft report presenting our findings, conclusions, and recommendations regarding the geotechnical aspects of the design and construction of the project.

## 3 SITE AND PROJECT DESCRIPTION

The proposed sewer extension project is located along Highway 74 and Wasson Canyon Road in Riverside County, California (Figures 1 and 2A through 2D). The project includes the

construction of approximately 12,500 feet of new 15-inch diameter sewer main (Figures 2A through 2D). Surface topography along the alignment ranges from approximately 1623 feet above mean sea level (MSL) to approximately 1688 feet above MSL. Based on a review of the 30% design submittal (Kennedy Jenks, 2023), the pipeline invert is between approximately 3 and 31 feet below the existing grade and pipeline invert elevations will range from approximately 1612 feet above MSL to approximately 1680 feet above MSL. The global site coordinates within the central portion of the site is approximately 33.727697°N Latitude and 117.291000°W Longitude.

The project was initially designed as a gravity sewer main, however, the depths to the pipeline invert were reduced and a lift station and force main will be installed by others in the future. The pipeline along Highway 74 and the north end of Wasson Canyon Road is anticipated to be installed using traditional cut-and-cover trenching techniques. However, trenchless installation methods are anticipated to be employed along the southern portion of the pipeline alignment on Wasson Canyon Road.

## **4 FIELD EXPLORATIONS**

Our field exploration activities for this evaluation included performance of a subsurface exploration program and seismic refraction survey. Descriptions of these tasks are provided in the following sections.

### **4.1 Subsurface Evaluation and Laboratory Testing**

Our subsurface exploration was performed between July 5 and 10, 2023 and consisted of the exploration, logging, and sampling of twenty small-diameter soil borings (B-1 through B-20). Prior to commencing the subsurface exploration, USA was notified to markout the existing utilities. The purpose of the explorations was to evaluate subsurface conditions and to collect samples for geotechnical laboratory testing.

The soil borings were drilled to depths of up to approximately 34½ feet using a truck-mounted drill rig equipped with hollow-stem augers. The borings were logged and sampled by Ninyo & Moore personnel. Representative bulk and relatively undisturbed soil samples were obtained at selected depths within the borings and were then transported to our in-house geotechnical laboratory for analysis. The boring logs are presented in Appendix A. The borings locations are presented on Figures 2A through 2D.

Geotechnical laboratory testing was performed on representative soil samples collected from our subsurface exploration. Testing included an evaluation of in-situ dry density and moisture content, sieve (gradation) analysis, shear strength, soil corrosivity, R-value, and sand equivalent. The results of the in-situ dry density and moisture content tests are presented at the corresponding depths on the excavation logs presented in Appendix A. The results of the other laboratory tests and a description of the test methods used are presented in Appendix B. Additionally, we utilized a third-party laboratory testing firms to perform soil abrasion testing (SAT) and petrographic analysis of samples from the tunnel portion of the alignment. The SAT and petrographic analysis results are pending as of the issuance of this draft report. Results of the third-party laboratory testing, once complete, will be presented in Appendix C.

## **4.2 Seismic Refraction Survey**

As part of our scope of services, we performed a geophysical evaluation, which consisted of performing ten seismic refraction survey lines that were each approximately 230 feet in length. The seismic refraction survey lines were conducted to evaluate the approximate depth to, and rippability (excavatability) of, the granitic bedrock along the pipeline alignment. The locations of the seismic refraction lines are shown on Figures 2A through 2D. Further description of the methodology and the results of our geophysical survey are presented in the following sections.

### **4.2.1 Methods and Equipment**

Ninyo & Moore personnel collected seismic refraction data along ten survey lines, denoted as SL-1 through SL-10 (Figures 2A through 2D). The locations of the seismic refraction surveys were dependent on the field conditions encountered. The seismic data was collected using a 24-channel Geode exploration seismograph coupled with 24 vertical component, 14 Hertz geophones. A 16-pound hammer and aluminum plate were used as the energy source for the seismic refraction survey. Field data acquisition included stacking multiple shots at each shot location in order to increase the quality of the data and reduce noise. The seismic refraction method uses recognition of first-arrival times of refracted seismic waves in units of milliseconds to evaluate the thickness and seismic velocities of subsurface layers. Seismic waves generated by the hammer impacting the ground surface at a given “shot” point are refracted at boundaries separating materials of contrasting material velocities. These refracted seismic waves are then detected by a series of surface geophones and recorded with a seismograph. Each hammer shot is recorded as time zero. The elapsed time, in milliseconds, that the seismic compressional wave (P-wave) signals take to travel to each geophone is recorded through the record length. This information is

used in conjunction with the known shot-to-geophone horizontal distances to obtain the approximate thickness and velocity information about the subsurface materials.

The refraction method generally necessitates that subsurface velocities (and therefore material densities and modulus of rigidity) increase with depth. A layer having a velocity lower than that of the layer above it will not be detectable by the seismic refraction method and, therefore, could lead to errors in the depth calculations of subsequently deeper layers. This is known as a “velocity inversion” problem. In addition, relatively significant lateral variations in velocity, such as those which occur at open, or tightly spaced jointed or fractured rock, discontinuous caliche deposits, and nested subsurface cobbles and boulders, can also result in misinterpretation of the subsurface conditions when using this method.

#### **4.2.2 Velocities and Rippability**

In general, seismic wave velocities can be correlated to material density and/or rock hardness. The relationship between rippability and seismic velocity is empirical and assumes a homogenous mass for each detected layer. Possible areas of differing composition, texture, or structure may affect both the measured data and the actual rippability of the mass. The rippability of a mass is also dependent on the excavation equipment used and the skill and experience of the equipment operator. The rippability characteristics in Table 1 are based on our experience with similar materials. The rippability of a particular material assumes that a Caterpillar D-9 dozer ripping with a single shank is used. We emphasize that the cutoffs in this classification scheme are approximate and that soil characteristics can play a significant role in estimating excavation rates and rippability. In addition, where excavations encounter or penetrate weathered, fresh bedrock or cemented bedrock, the degree of weathering, degree of cementation (if any), or the presence or absence of fractures and/or joints, and fracture/joint spacing and orientation, also play a significant role in evaluating rock rippability. These soil and rock characteristics may also vary with location and depth. Our evaluation did not characterize the presence and nature of bedrock fractures, joints, or bedding planes which can have an effect on rippability rate and excavation efforts.

<b>P-Wave Velocity Range (Feet/Second)</b>	<b>Qualitative Rippability</b>
0 to 2000 ft/s	Easy Ripping
2000 to 4000 ft/s	Moderate Ripping
4000 to 5500 ft/s	Difficult Ripping, Possible Blasting
5500 to 7000 ft/s	Very Difficult Ripping, Probable Blasting
Greater than 7000 ft/s	Blasting Generally Needed

It should be noted that the rippability estimates presented in Table 1 are slightly more conservative than those published in Edition 49 of the Caterpillar Performance Handbook (Caterpillar, 2019). Accordingly, the above classification scheme should be used with discretion, and contractors should not be relieved of making their own independent evaluation of the rippability of the onsite materials prior to submitting their bids. It should also be noted that, as a general rule of thumb, the effective depth of evaluation for a seismic refraction traverse is approximately one-third to one-fifth the length of the refraction line.

### **4.2.3 Data Analysis**

The obtained refraction data were processed using SeisImager processing software. Initially, data were grouped as all shot points in each line and first arrival picks were made manually in Pickwin™ v. 7.1.0.1. Once data were grouped as first arrival picks, a travel time curve was constructed and calculations were performed to derive approximate minimum and maximum velocities. Relative topography data collected in the field were incorporated with travel time data to account for topography effects. An initial velocity model of the surface was developed for each profile using a delay-time technique and velocity inversion in Plotrefa™ v. 5.0.0.4. These models were used for each profile to develop a more detailed tomographic profile depicting approximate lateral and vertical changes in P-wave velocity across each seismic line.

### **4.2.4 Seismic Results and Conclusions**

The tomographic models of our profile generally indicate surficial fill soils and alluvium underlain by granitic bedrock. The profiles indicate some amount of undulations in the interpreted layers. This could be the result of varying amounts of fill soils, alluvium, and varying degrees of granitic bedrock weathering. The velocity profiles of seismic lines SL-1 through SL-10 is presented in Appendix D. Table 2 summarizes the findings of the seismic velocity survey.

Table 2 – Refraction (P) Wave and Shear (S) Wave Velocity Survey Results			
Location	Depth (ft)	Approximate P-wave Velocity Range (ft/s)	Comments
SL-1	0 – 10	2,750-3,250	Moderate Ripping
	10 – 20	3,000-3,500	Moderate Ripping
SL-2	0 – 10	1,500-3,750	Easy Ripping to Moderate Ripping
	10 – 20	2,500-4,500	Moderate Ripping to Difficult Ripping, Possible Blasting
SL-3	0 – 10	1,500-3,250	Easy Ripping to Moderate Ripping
	10 – 20	2,500-3,500	Moderate Ripping
SL-4	0 – 10	2,000-3,500	Moderate Ripping
	10 – 20	2,250-4,000	Moderate Ripping
SL-5	0 – 10	2,500-4,000	Moderate Ripping
	10 – 20	2,500-4,000	Moderate Ripping
SL-6	0 – 10	2,250-3,250	Moderate Ripping
	10 – 20	2,500-3,750	Moderate Ripping
SL-7	0 – 10	2,000-3,000	Moderate Ripping
	10 – 20	2,250-3,500	Moderate Ripping
SL-8	0 – 10	2,000-3,750	Moderate Ripping
	10 – 20	2,500-4,250	Moderate Ripping to Difficult Ripping, Possible Blasting
SL-9	0 – 10	2,500-3,000	Moderate Ripping
	10 – 20	2,500-3,000	Moderate Ripping
	20 – 30	2,750-3,250	Moderate Ripping
	30 – 40	3,000-3,750	Moderate Ripping
SL-10	0 – 10	2,250-2,750	Moderate Ripping
	10 – 20	2,250-3,000	Moderate Ripping
	20 – 30	2,500-3,250	Moderate Ripping
	30 – 40	2,750-3,500	Moderate Ripping

In general, the seismic refraction surveys performed along the project alignment indicate that easy to moderate ripping conditions are anticipated in the upper 10 feet with moderate to difficult ripping conditions, with a possible need for rock breaking and/or coring, are anticipated to be encountered in excavations extending below 10 feet. However, based on the potential for less weathered, resistant “corestones” to be present within the granitic rock at the site, difficult to very difficult ripping, with a possible/probable need for rock breaking and/or coring, should be anticipated to be encountered during excavations. Variability in rippability of subsurface materials situated at lateral distances away from seismic traverse can be expected.

## 5 GEOLOGY

Our findings regarding regional and site geology at the project location are provided in the following sections.

### 5.1 Regional Geology

The project area is situated in the Peninsular Ranges Geomorphic Province. This geomorphic province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California (Norris and Webb 1990; Harden, 2004). The province varies in width from approximately 30 to 100 miles and generally consists of rugged mountains underlain by Jurassic metavolcanic and metasedimentary rocks, and Cretaceous igneous rocks of the southern California batholith (Figure 3).

The Peninsular Ranges Province is traversed by a group of sub-parallel faults and fault zones trending roughly northwest (Jennings, 2010). Several of these faults are considered to be active. The San Jacinto and San Andreas faults are active fault systems located northeast of the project area and the Elsinore and Newport-Inglewood-Rose Canyon faults are active faults located west of the project site. Major tectonic activity associated with these and other faults within this regional tectonic framework consists primarily of right-lateral, strike-slip movement. The Glen Ivy segment of the Elsinore Fault Zone, the nearest active fault system, has been mapped approximately 5 miles southwest of the project site.

### 5.2 Site Geology

The project site is mapped as being underlain by old alluvium and Cretaceous-aged tonalite (Morton and Weber, 2003; Figure 3). Geologic units encountered during our subsurface exploration fill, old alluvium, and undifferentiated granitic rock. Generalized descriptions of the encountered pavement sections and earth units encountered during our field reconnaissance and subsurface exploration are provided in the subsequent sections. Additional descriptions of the subsurface units are provided on the logs of the excavations in Appendix A. A geologic cross section along the tunnel portion of the alignment along Wasson Canyon Road is presented in Figure 4.

## 5.2.1 Encountered Pavements

Pavement sections consisting of asphalt concrete (AC) were encountered in each boring location during our subsurface exploration. Table 3 summarizes the pavement sections encountered during our subsurface exploration.

Exploration Location	Encountered AC Thickness (inches)	Exploration Location	Encountered AC Thickness (inches)
B-1	7½	B-11	8½
B-2	8¼	B-12	9½
B-3	8	B-13	8½
B-4	7½	B-14	8½
B-5	8¼	B-15	8½
B-6	7¼	B-16	8½
B-7	8	B-17	2½
B-8	8	B-18	2½
B-9	8¼	B-19	2½
B-10	8	B-20	2½

**Note:**  
AC = asphalt concrete

## 5.2.2 Fill

Fill material was encountered underlying the AC pavements in each boring location during our subsurface exploration. The fill soils extended to depths of up to approximately 4 feet. As encountered, the fill material consisted of various shades of brown, gray, and yellow, moist, medium dense to dense, silty sand. Scattered amounts of gravel were encountered in the fill soils. Documentation regarding fill placement was not available for our review.

## 5.2.3 Old Alluvium

Materials mapped as old alluvium were encountered underlying the fill material in borings B-1, B-2, B-5, B-9, B-13 through B-15, B-17 through B-19 and extended to depths of up to approximately 9 feet. As encountered, these materials generally consisted of various shades of brown and yellow, medium dense to dense, silty sand, and stiff to very stiff, sandy lean clay. Scattered amounts of gravel were encountered in the old alluvium.

## 5.2.4 Residual Soil

While not mapped as underlying the site, materials identified as residual soil were encountered in boring B-19 underlying the fill materials and extended to an approximate depth of 6½ feet. Where encountered, the residual soil consisted of light reddish brown,

moist, medium dense, silty sand. Based on the road cut adjacent to Wasson Canyon Road, the residual soil appears to be derived from intensely weathered to decomposed granitic rock.

### 5.2.5 Granitic Rock

Granitic bedrock materials were encountered underlying the fill materials and old alluvium at each boring location. In general, granitic rock was encountered at depths between approximately 4 and 9 feet. Where encountered, the granitic rock materials generally consisted of various shades of brown, gray, red, and yellow, moist, weathered to decomposed, coarse-grained granitic rock. Drilling refusal was encountered on unweathered granitic rock in borings B-13, B-14, B-19, and B-20 at depths of approximately 10.9, 14.0, 34.5, and 30.3, respectively. A summary of the boring depths and pipeline invert depths are presented in Table 4 below.

Exploration Location	Approximate Station Location	Depth of Boring (feet)	Depth of Pipeline Invert (feet)	Drilling Refusal Encountered
B-1	127+70	15.8	9	--
B-2	120+70	20.3	14	--
B-3	113+90	20.5	13	--
B-4	106+85	20.3	11	--
B-5	99+85	20.5	12	--
B-6	92+80	20.2	12	--
B-7	85+80	20.3	14	--
B-8	78+80	15.5	7	--
B-9	71+55	20.4	12	--
B-10	64+75	20.3	13	--
B-11	57+65	21.5	11	--
B-12	50+75	15.8	9	--
B-13	43+70	10.9	9	Yes
B-14	36+60	14.0	10	Yes
B-15	28+90	15.3	7	--
B-16	16+70	15.5	7	--
B-17	13+00	20.5	11	--
B-18	11+20	25.3	15	--
B-19	7+40	34.5	31	Yes
B-20	4+50	30.3	20	Yes

**Note:**  
 -- = refusal not encountered

### 5.3 Groundwater

Groundwater seepage was encountered during our subsurface evaluation in boring B-15 at a depth of approximately 12 feet. Groundwater levels can fluctuate due to seasonal variations, groundwater withdrawal or injection, and other factors. Additionally, perched water conditions may be present at the site due to the geologic contact with the underlying granitic rock, and the presence of trench backfill and bedding materials for underground utilities, as these materials tend to act as a conduit for perched water conditions.

### 5.4 Faulting and Seismicity

Based on our review of the referenced geologic maps and stereoscopic aerial photographs, the site is not underlain by known active or potentially active faults (i.e., faults that exhibit evidence of ground displacement in the last 11,000 years and 2,000,000 years, respectively). The site is not located within a State of California Earthquake Fault Zone (EFZ) (formerly known as an Alquist-Priolo Special Studies Zone) (Hart and Bryant, 2007). However, like the majority of Southern California, the site is located in a seismically active area and the potential for strong ground motion is considered significant during the design life of the proposed improvements. The nearest known active fault is the Glen Ivy segment of the Elsinore Fault Zone, located approximately 5 miles southwest of the site (USGS, 2023).

#### 5.4.1 Surface Ground Rupture

Based on our review of the referenced literature and our site reconnaissance, active faults are not known to cross the project vicinity. Therefore, the potential for ground surface rupture due to faulting at the site is considered low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

#### 5.4.2 Strong Ground Motion

The 2022 California Building Code (CBC) specifies that the potential for liquefaction and soil strength loss be evaluated, where applicable, for the Maximum Considered Earthquake Geometric Mean ( $MCE_G$ ) peak ground acceleration with adjustment for site class effects in accordance with the American Society of Civil Engineers (ASCE) 7-16 Standard. The  $MCE_G$  peak ground acceleration is based on the geometric mean peak ground acceleration with a 2 percent probability of exceedance in 50 years. The  $MCE_G$  peak ground acceleration with adjustment for site class effects ( $PGA_M$ ) was calculated as 0.79g using Applied Technology Council web-based seismic design tool

(ATC, 2023) that yielded a mapped  $MCE_G$  peak ground acceleration of 0.66g for the site and a site coefficient ( $F_{PGA}$ ) of 1.2 for a Site Class C.

### **5.4.3 Liquefaction and Seismically Induced Settlement**

Liquefaction of cohesionless soils can be caused by strong vibratory motion due to earthquakes. Research and historical data indicate that loose granular soils and non-plastic silts that are saturated by a relatively shallow groundwater table are susceptible to liquefaction. Based on the dense nature of the underlying granitic rock materials, along with the observed lack of a static groundwater surface, the potential for liquefaction and seismically induced settlement is not a design consideration for the project.

### **5.4.4 Landslides**

Landslides, slope failures, and mudflows of earth materials generally occur where slopes are steep and/or the earth materials are too weak to support themselves. Based on the relatively level topography of the site, the potential for landslides or slope failure to affect the project site is considered low.

### **5.4.5 Tsunamis**

Tsunamis are long wavelength seismic sea waves (long compared to the ocean depth) generated by sudden movements of the ocean bottom during submarine earthquakes, landslides, or volcanic activity. Based on the inland location and elevation of the site, the potential for a tsunami to affect the site is not a design consideration.

## **6 CONCLUSIONS**

Based on the results of our geotechnical evaluation, the following preliminary conclusions are provided for the proposed project:

- The areas of the proposed alignment is generally underlain by fill soils, old alluvium, residual soil, and granitic rock. Fill was encountered in our borings to depths up to approximately 4 feet and old alluvium was encountered to depths up to approximately 9 feet. The residual soil in boring B-19 was encountered to a depth of approximately 6½ feet.
- Groundwater seepage was encountered during our subsurface exploration in boring B-15 at a depth of approximately 12 feet.
- The existing fill, old alluvium, and residual soil encountered onsite should be generally excavatable with heavy-duty earth moving equipment in good working condition. However, scattered amounts of gravel were encountered in our excavations. Due to the presence of

gravel and cobbles within the fill, old alluvium, and residual soils onsite, the contractor should anticipate encountered difficulties when performing onsite excavations.

- Excavations that extend into the granitic rock may encounter very difficult excavation characteristics and additional efforts including heavy ripping and/or rock breaking should be anticipated. Based on the possibility of unweathered rock/corestones, as well as gravel and cobble, processing of the onsite soils (including screening and/or crushing) should be anticipated.
- Soils derived from onsite excavations are generally considered suitable for reuse as trench zone backfill, provided they are processed to meet the recommendations of this report. However, excavations into the granitic rock will likely generate oversized materials that are greater than 4 inches in diameter and not suitable for reuse in engineered fills unless crushing to less than 4-inch diameter is performed.
- There are no known active faults or potentially active faults crossing at the site, and the potential for surface ground rupture is considered low.
- Based on the results of our geotechnical laboratory testing presented in Appendix B, as compared to the Caltrans corrosion criteria (Caltrans, 2021), the onsite soils would be considered non-corrosive.

## 7 RECOMMENDATIONS

Based on our understanding of the project, the following recommendations are provided for the design and construction of the project. The proposed site improvements should be constructed in accordance with the requirements of the applicable governing agencies.

### 7.1 General

It is our understanding that the majority of the proposed pipeline will be installed using conventional cut-and-cover methods. We also understand that a portion of the pipeline will be installed along Wasson Canyon Road using jack-and-bore, tunneling, or other trenchless methods. As noted above, there is a potential for less weathered, resistant “corestones” to be present within the granitic rock at the site. These “corestones” can affect trenchless operations in that they can deflect the trenchless drill bit and casing during the drilling of the pilot hole. This can result in the trenchless portion of the pipeline to be installed at an orientation/inclination that can deviate from that which is planned. It has been our experience that microtunneling methods, which utilize the advancement of a small-scale tunnel boring machine with a cutting bit, can be advanced through such obstructions as “corestones”, thus reducing the potential for deviation from the pipeline’s design orientation.

It is anticipated that the existing underground utilities in the project area are sensitive to excessive external pressures. Because trenchless methods may incorporate the drilling of a pilot hole and the subsequent jacking of pipe (larger in diameter than the pilot hole) through the hole, this method

could impose additional earth pressures on nearby buried structures. Microtunneling methods, which utilize the advancement of a tunnel boring machine and the subsequent installation of casing, can be expected to exert less pressure on nearby structures during pipeline installation.

We consider both jack-and-bore and microtunneling to be viable methods to install the proposed pipeline. However, considerations associated with the possible presence of “corestones” suggest that jack-and-bore methods may be a more complicated procedure. Consequently, we recommend that consideration be given to the use of microtunneling over the use of jack-and-bore methods to install the trenchless portions of the pipeline.

We recommend that the selected method (i.e. jack-and-bore or microtunneling) be performed by a specialty contractor experienced in conditions similar to those that exist at the site, and that he/she is aware of the above considerations. In light of the above information, the following sections provide geotechnical recommendations for the conventional cut-and-cover pipeline installation, along with those relating to design and construction of the trenchless pipeline installation along Wasson Canyon Road using both jack-and-bore and microtunneling methods.

## **7.2 Earthwork**

In general, earthwork should be performed in accordance with the recommendations presented in this report. Ninyo & Moore should be contacted for questions regarding the recommendations or guidelines presented herein.

### **7.2.1 Site Preparation**

Prior to performing site excavations, the project alignment should be cleared of vegetation, surface obstructions, rubble and debris, abandoned utilities and foundations, and other deleterious materials. Existing utilities within the project limits, if any, should be re-routed or protected from damage by construction activities. Obstructions that extend below finish grade, if any, should be removed and the resulting holes filled with compacted soils. Materials generated from the clearing operations should be removed from the project site and disposed of at a legal dumpsite.

### **7.2.2 Excavation Characteristics**

The result of our field exploration program indicates that the project site is underlain by fill soils, old alluvium, and granitic rock. Excavations of the fill soils and old alluvium should be generally excavatable with heavy-duty earth moving equipment in good working condition. Excavations within upper portions of granitic rock can generally be expected to be

accomplished with heavy-duty excavation equipment and drilling equipment in good operating condition. However, zones containing more resistant, less weathered rock and “corestones” should be anticipated in the granitic rock. Consequently, the contractor should expect to encounter difficult to very difficult excavating conditions when performing the trench excavations along the project alignments. Specifically, portions of the granitic rock, boulders, or “corestones” may necessitate removal by systematic fragmentation of the material using mechanical means such as drilling, pneumatic hole punchers, or rock breakers. The contractor should be prepared to use heavy ripping and/or rock breaking equipment that may include an excavator equipped with rock teeth or a rock wheel. Note, the excavation characteristics are anticipated to vary as boulders and/or “corestones” may be present in the granitic rock and is dependent on the degree of weathering within the granitic rock. Section 4.2.4 of this report provides further discussion of anticipated rippability of the subsurface materials in the vicinity of the proposed improvements

Additionally, onsite excavations are anticipated to generate oversize materials that are not suitable for reuse within the trench zone backfill materials. Oversize material should be processed and removed from materials for reuse as trench zone backfill, which may include screening and/or rock picking.

### **7.2.3 Temporary Excavations and Shoring**

For temporary excavations, we recommend that the following Occupational Safety and Health Administration (OSHA) soil classifications be used:

<i>Fill, old alluvium, and residual soil</i>	<i>Type C</i>
<i>Granitic Rock</i>	<i>Type A</i>

Upon making the excavations, the soil classifications and excavation performance should be evaluated in the field by the geotechnical consultant in accordance with the OSHA regulations. Temporary excavations should be constructed in accordance with OSHA recommendations. For trenches or other excavations, OSHA requirements regarding personnel safety should be met using appropriate shoring (including trench boxes) or by laying back the slopes to no steeper than 1.5:1 (horizontal to vertical) in the fill, old alluvium, and residual soil. A ¾:1 temporary slope may be constructed in granitic rock. Temporary excavations that encounter seepage may be shored or stabilized by placing sandbags or gravel along the base of the seepage zone. Excavations encountering seepage should be evaluated on a case-by-case basis. On-site safety of personnel is the responsibility of the contractor.

We understand a shoring system may be incorporated to support the excavation sidewalls and protect existing utilities during construction. Shoring design parameters are presented

below. Particular caution should be used near existing underground utilities. Existing utilities that are located within a zone based on a 1:1 plane projected up from the bottom outside edge of the new trench should be considered at risk. The type of shoring and sequence of shoring installation should be designed to protect utilities and surface improvements.

Lateral earth pressures exerted on restrained shoring systems are indicated on Figure 5. The recommended design earth pressures are based on the assumptions that: (a) the shoring system is constructed without raising the ground surface elevation behind the shoring, (b) there are no surcharge loads, such as soil stockpiles, construction materials, or vehicular traffic, and (c) no loads act above a 1:1 plane extending up and back from the base of the shoring system. For shoring subjected to the above-mentioned surcharge loads, the contractor should include the effect of these loads on lateral earth pressures acting on the shoring wall.

Settlement of the ground surface may occur behind the shoring wall system during excavation. The amount of settlement depends on the type of shoring system, the quality of contractor's workmanship, and soil conditions. Settlement may cause distress to adjacent structures, if present. To reduce the potential for distress to adjacent structures, we recommend that the shoring system be designed to limit the ground settlement behind the shoring to ½ inch or less. Possible causes of settlement that should be addressed include vibration during installation of the sheet piling, excavation for construction, construction vibrations, dewatering, and removal of the support system. We recommend that the potential settlement distress be evaluated carefully by the contractor prior to construction.

The contractor should retain a qualified and experienced engineer to design the shoring system. The shoring parameters presented in this report are for preliminary design purposes and the contractor should evaluate the adequacy of these parameters and make appropriate modifications for their design. We recommend that the contractor take appropriate measures to protect workers. OSHA requirements pertaining to worker safety should be observed. We further recommend that the construction methods provided herein be carefully evaluated by a qualified specialty contractor prior to commencement of the construction.

#### **7.2.4 Construction Dewatering**

As noted previously, seepage was encountered in our boring B-15 at a depth of approximately 12 feet. Where groundwater, seepage, and/or perched water conditions are encountered, dewatering measures during excavation operations should be prepared by the contractor's engineer and reviewed by the design engineer. The appropriate dewatering

method(s) should be evaluated by the contractor; however, we anticipate potential dewatering methods could include (but are not limited to) well points, as well as sumps and trenches. Considerations for construction dewatering should include anticipated drawdown, piping of soils, volume of pumping, potential for settlement, and groundwater discharge. Disposal of groundwater should be performed in accordance with guidelines of the Regional Water Quality Control Board (RWQCB).

### **7.2.5 Excavation Bottom Stability**

Excavation bottoms that expose granitic rock are anticipated to be generally stable and should provide suitable support to the proposed pipeline. However, if unstable excavation bottom conditions are exposed, they may be mitigated by overexcavating the excavation bottom to suitable depths and replacing with a layer of compacted  $\frac{3}{4}$ - to  $1\frac{1}{2}$ -inch crushed gravel encased in a non-woven geotextile (e.g., Mirafi® 140N geotextile or an approved equivalent). Recommendations for stabilizing excavation bottoms should be based on evaluation in the field by the geotechnical consultant at the time of construction.

During excavation of granitic rock to the design bottom elevations, removal of larger rock fragments could result in an irregular surface along the excavation bottom that could contain voids and fractures. In these areas, the contractor can consider the placement of a 3-sack sand-cement slurry upon the bottom of the excavation in order to provide a suitable working surface for proposed improvements and associated earthwork.

### **7.2.6 Pipe Bedding and Modulus of Soil Reaction ( $E'$ )**

We recommend that new pipelines, where constructed in an open excavation, be supported on 6 or more inches of granular bedding material. Granular pipe bedding should be provided to distribute vertical loads around the pipe. Bedding material should conform to the most recent edition of the Standard Specifications for Public Works Construction (Building News, 2021), and compaction requirements should be in accordance with the recommendations contained in this report. Pipe bedding typically consists of graded aggregate with a coefficient of uniformity of three or greater.

The modulus of soil reaction ( $E'$ ) is used to characterize the stiffness of soil backfill placed at the sides of buried flexible pipes for the purpose of evaluating deflection caused by the weight of the backfill over the pipe (Hartley and Duncan, 1987). A soil reaction modulus of 1,600 pounds per square inch (psi) may be used for an excavation depth of up to approximately 5 feet when backfilled with granular soil compacted to a relative compaction

of 90 percent as evaluated by the ASTM International (ASTM) D 1557. A soil reaction modulus of 2,200 psi may be used for trenches deeper than 5 feet.

### **7.2.7 Pipe Zone Backfill**

The pipe zone backfill extends from the top of the pipe bedding material and continues to extend to 1 foot or more above the top of the pipe in accordance with the recent edition of the Standard Specifications for the Public Works Construction (“Greenbook”). Pipe zone backfill should have a Sand Equivalent (SE) of 30 or greater, and be placed around the sides and top of the pipe. Special care should be taken not to allow voids beneath and around the pipe. Compaction of the pipe zone backfill should proceed up both sides of the pipe.

It has been our experience that the voids within a crushed rock material are sufficiently large to allow fines to migrate into the voids, thereby creating the potential for sinkholes and depressions to develop at the ground surface. If open-graded gravel is utilized as pipe zone backfill, this material should be separated from the adjacent trench sidewalls and overlying trench backfill with a geosynthetic filter fabric.

### **7.2.8 Trench Zone Backfill**

Based on our subsurface evaluation, granular onsite materials should be generally suitable for reuse as trench zone backfill, provided they do not contain rocks or lumps over 3 inches, and not more than 30 percent larger than  $\frac{3}{4}$  inch. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or disposed of offsite. Trench zone backfill should be moisture-conditioned to generally at or slightly above the laboratory optimum. Trench zone backfill should be compacted to a relative compaction of 90 percent as evaluated by ASTM D 1557, except for the upper 12 inches of the backfill beneath vehicular pavements that should be compacted to a relative compaction of 95 percent as evaluated by ASTM D 1557. Lift thickness for backfill will depend on the type of compaction equipment utilized, but fill should generally be placed in lifts not exceeding 8 inches in loose thickness. Special care should be exercised to avoid damaging the pipe during compaction of the backfill.

### **7.2.9 Materials for Fill**

In general, the existing onsite materials are considered suitable for reuse as fill, provided that the oversize materials (i.e., materials with dimensions in excess of those outlined herein) are removed from the soil mass prior to reuse. Fill material should be free of trash,

debris or other deleterious materials. Material for use as fill should not contain rocks or lumps greater than approximately 4 inches in size.

Imported fill material, if used, should generally be granular soils with a very low expansion potential (i.e., an expansion index [EI] of 20 or less evaluated in accordance with ASTM D 4829. Import material should also be non-corrosive in accordance with the California amended (Caltrans, 2021) corrosion criteria. Ninyo & Moore should evaluate materials for use as fill prior to filling or importing.

#### **7.2.10 Compacted Fill**

Prior to placement of compacted fill, the contractor should request an evaluation of the exposed ground surface by the project geotechnical consultant. Unless otherwise recommended, the exposed ground surface should then be scarified to a depth of approximately 8 inches and watered or dried, as needed, to achieve moisture contents generally at or slightly above the optimum moisture content. The scarified materials should then be compacted to a relative compaction of 90 percent as evaluated in accordance with ASTM D 1557. The evaluation of compaction by the geotechnical consultant should not be considered to preclude any requirements for observation or approval by governing agencies. It is the contractor's responsibility to notify the geotechnical consultant and the appropriate governing agency when project areas are ready for observation, and to provide reasonable time for that review.

Fill materials should be moisture conditioned to generally at or slightly above the laboratory optimum moisture content prior to placement. The optimum moisture content will vary with material type and other factors. Moisture conditioning of fill soils should be generally consistent within the soil mass.

Prior to placement of additional compacted fill material following a delay in the grading operations, the exposed surface of previously compacted fill should be prepared to receive fill. Preparation may include scarification, moisture conditioning, and recompaction.

Compacted fill should be placed in horizontal lifts of approximately 8 inches in loose thickness. Prior to compaction, each lift should be watered or dried as needed to achieve a moisture content generally at or slightly above the laboratory optimum, mixed, and then compacted by mechanical methods, to a relative compaction of 90 percent as evaluated by ASTM D 1557. The upper 12 inches of street subgrade and aggregate materials beneath pavement areas should be compacted to a relative compaction of 95 Percent as evaluated

by ASTM D 1557. Successive lifts should be treated in a like manner until the desired finished grades are achieved.

### 7.2.11 Trenchless Construction

We understand that trenchless construction methods are anticipated for the installation of a portion of the pipeline along Wasson Canyon Road. Based on our understanding of the project and the materials encountered in our subsurface exploration, we anticipate that granitic rock may be encountered at the anticipated elevations of the proposed trenchless segments of the pipeline. The contractor should take appropriate measures to reduce the loss of material at the casing head. Depending on the depth of the access pits and seasonal variations in the groundwater seepage, the access pits may require dewatering during excavation. While not encountered in our subsurface exploration, it should be anticipated that more resistant, unweathered zones may be present within the granitic rock and that excavation in such zones would necessitate heavy ripping, rock breaking, or coring. In addition, cemented zones could affect the installation of the jacked portions of the pipelines by deflecting the bore-and-jack equipment away from its design alignment. We recommend that an experienced specialty contractor be used for the trenchless construction operations.

Minor ground surface settlements may occur from the trenchless construction operations. However, these settlements are not anticipated to impact surface improvements and underground utilities, provided an experienced contractor performs the work. In order to evaluate the load factors on 36-inch sleeves for the proposed alignment, the loading presented in the following table should be used.

Approximate Depth from Existing Ground Surface to Top of Pipeline (feet)	Load on 36" Diameter Sleeve (pounds/lineal foot of pipe)
5	570
10	860
15	1,020
20	1,100
25	1,140
30	1,170
35	1,180

**Note:**  
 Linear interpolation may be used to obtain loading between the depths shown. Loading may need to be modified for different sleeve sizes.  
 Reference: McCarthy, David F., 2002, Essentials of Soils Mechanics and Foundations: Basic Geotechnics, Prentice Hall, Sixth Edition.

### 7.2.12 Lateral Pressures for Thrust Blocks and Jacking

Thrust restraint for buried pipelines and lateral pressures for jacking may be achieved by transferring the thrust force to the soil outside the pipe through a thrust block. Thrust blocks may be designed using the lateral passive earth pressures presented on Figure 6. Thrust blocks should be backfilled with granular backfill material and compacted in accordance with recommendations presented in this report.

## 7.3 Preliminary Flexible Pavement Design

We understand that the project will include the construction of new pavements. Our laboratory testing of near surface soil samples at the project site indicated R-values between 50 and 61. We have used an R-value of 50 for preliminary design of the pavement. This R-value, along with estimated design Traffic Indices (TI) of 7.0, 9.0, and 11.0 (County of Riverside, 2023b), has been the basis of our preliminary flexible pavement design. Actual pavement recommendations should be based on R-value tests performed on bulk samples of the soils that are exposed at the finished subgrade elevations across the site at the completion of the grading operations. The preliminary recommended flexible pavement sections are presented in Table 5.

Traffic Index (Pavement Usage)	Design R-Value	Asphalt Concrete Thickness (inches)	Aggregate Base Thickness (inches)
7.0 (Collector)	50	4	6
9.0 (Major Highway)	50	5½	6
11.0 (Expressway)	50	8	9

As indicated, these values assume TIs of 11.0 or less for project pavements. If traffic loads or TI determination are different from those assumed, the pavement design should be re-evaluated. We anticipate that trench excavations in existing pavement areas will involve resurfacing along the trench alignment. In general, trench resurfacing should be performed in accordance with the 2023 County of Riverside Road Standards – Standard Drawing No. 818 and other applicable guidelines. We recommend that the upper 12 inches of the subgrade and aggregate base materials be compacted to a relative compaction of 95 percent as evaluated by the current version of ASTM D 1557. Additionally, we recommend that AC materials be compacted to 95 percent relative compaction as compared to the laboratory evaluated Hveem density. We

recommend that the geotechnical consultant re-evaluate the pavement design, based on the R-value of the subgrade material exposed at the time of construction.

#### **7.4 Soil Corrosivity**

Laboratory testing was performed on a representative sample of the onsite earth materials to evaluate pH and electrical resistivity, as well as chloride and sulfate contents. The pH and electrical resistivity tests were performed in accordance with California Test (CT) 643 and the sulfate and chloride content tests were performed in accordance with CT 417 and CT 422, respectively. These laboratory test results are presented in Appendix B.

The results of our corrosivity testing indicated electrical resistivities between 3,500 and 6,200 ohm-centimeter (ohm-cm), soil pH values between 6.5 and 7.6, chloride contents between 80 and 125 parts per million (ppm), and sulfate contents between 0.001 and 0.006 percent (i.e., 10 and 60 ppm). Based on the laboratory test results, American Concrete Institute (ACI) 318, and Caltrans (2021) corrosion criteria, the project site would not be classified as corrosive. A corrosive soil environment defined as having earth materials with more than 500 ppm chlorides, more than 0.15 percent sulfates (i.e., 1,500 ppm), an electrical resistivity of 1,100 ohm-cm or less, or a pH of 5.5 or less.

#### **7.5 Concrete Placement**

Concrete in contact with soil or water that contains high concentrations of water-soluble sulfates can be subject to premature chemical and/or physical deterioration. As noted above, the soil samples tested during this evaluation indicated water-soluble sulfate contents between 0.001 and 0.006 percent by weight (i.e., about 10 and 60 ppm). Based on the ACI 318 criteria, the site soils would correspond to exposure class S0. For this exposure class, ACI 318 recommends that normal weight concrete in contact with soil possess a compressive strength of 2,500 psi or more. Due to the potential for variability of site soils, we recommend that normal weight concrete in contact with soil use Type II, II/V, or V cement.

#### **7.6 Pre-Construction Conference**

We recommend that a pre-construction meeting be held prior to commencement of grading. The owner or their representative, the agency representatives, the civil engineer, Ninyo & Moore, and the contractor should attend to discuss the plans, the project, and the proposed construction schedule.

## 7.7 Plan Review and Construction Observation

The conclusions and recommendations presented in this report are based on analysis of observed conditions in widely spaced exploration locations. If conditions are found to vary from those described in this report, Ninyo & Moore should be notified, and additional recommendations will be provided upon request. Ninyo & Moore should review the final project drawings and specifications prior to the commencement of construction. Ninyo & Moore should perform the needed observation and testing services during construction operations.

The recommendations provided in this report are based on the assumption that Ninyo & Moore will provide geotechnical observation and testing services during construction. In the event that it is decided not to utilize the services of Ninyo & Moore during construction, we request that the selected consultant provide the client with a letter (with a copy to Ninyo & Moore) indicating that they fully understand Ninyo & Moore's recommendations, and that they are in full agreement with the design parameters and recommendations contained in this report. Construction of proposed improvements should be performed by qualified subcontractors utilizing appropriate techniques and construction materials.

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## 8 LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein.

This report is intended to present characterization of the anticipated soil, rock, and groundwater conditions at the time of evaluation. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

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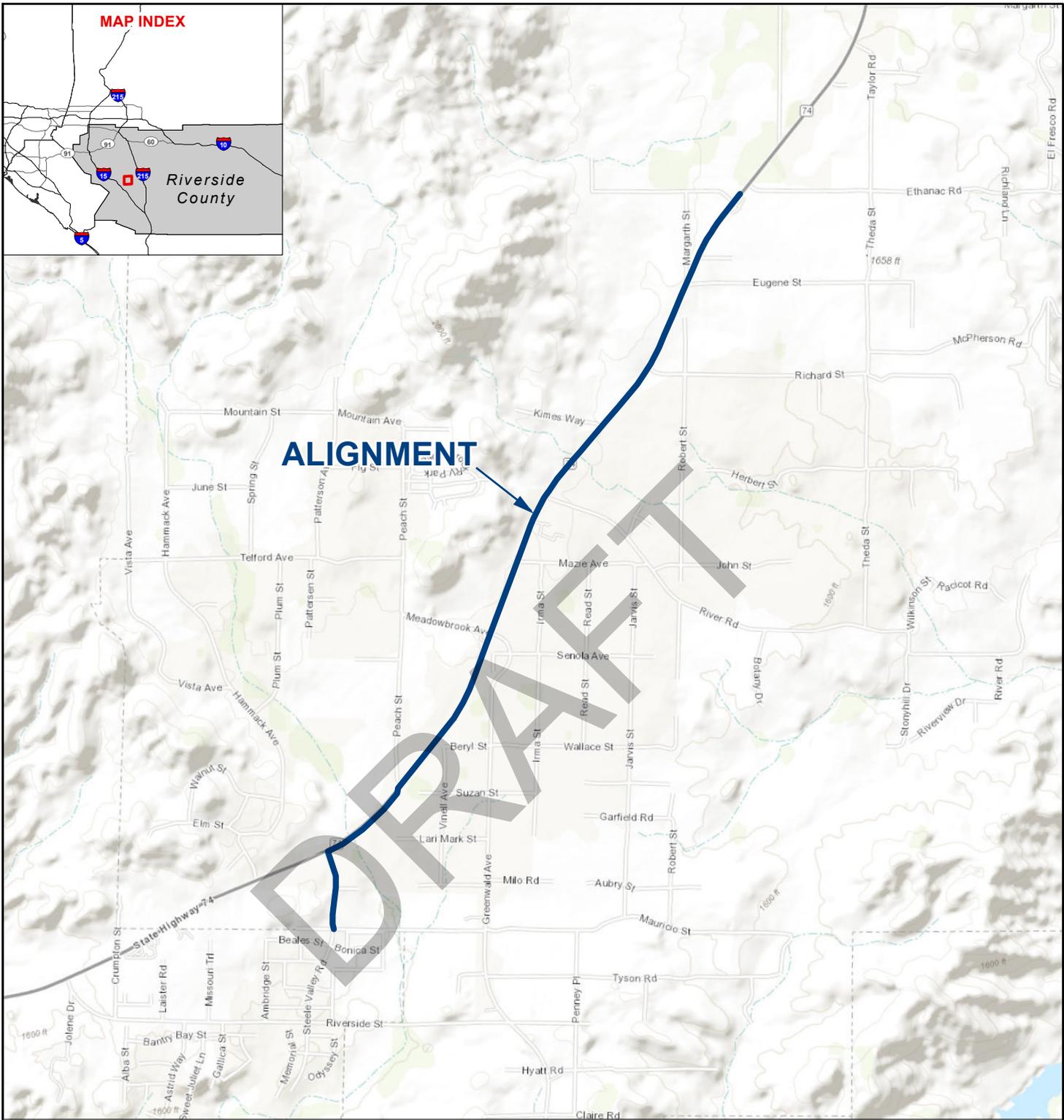
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# FIGURES

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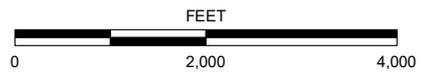


MAP INDEX

Riverside County

ALIGNMENT

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NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: ESRI WORLD TOPO, 2023

FIGURE 1

**ALIGNMENT LOCATION**

EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
 HIGHWAY 74 AND WASSON CANYON ROAD  
 RIVERSIDE COUNTY, CALIFORNIA

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**Ninyo & Moore**

Geotechnical & Environmental Sciences Consultants

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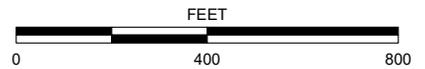
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**LEGEND**

- ALIGNMENT LOCATION
- B-5** BORING  
TD=20.5 TD=TOTAL DEPTH IN FEET
- SL-2** SEISMIC LINE

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: GOOGLE EARTH, 2023



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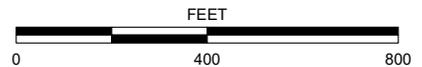
**FIGURE 2A**



**LEGEND**

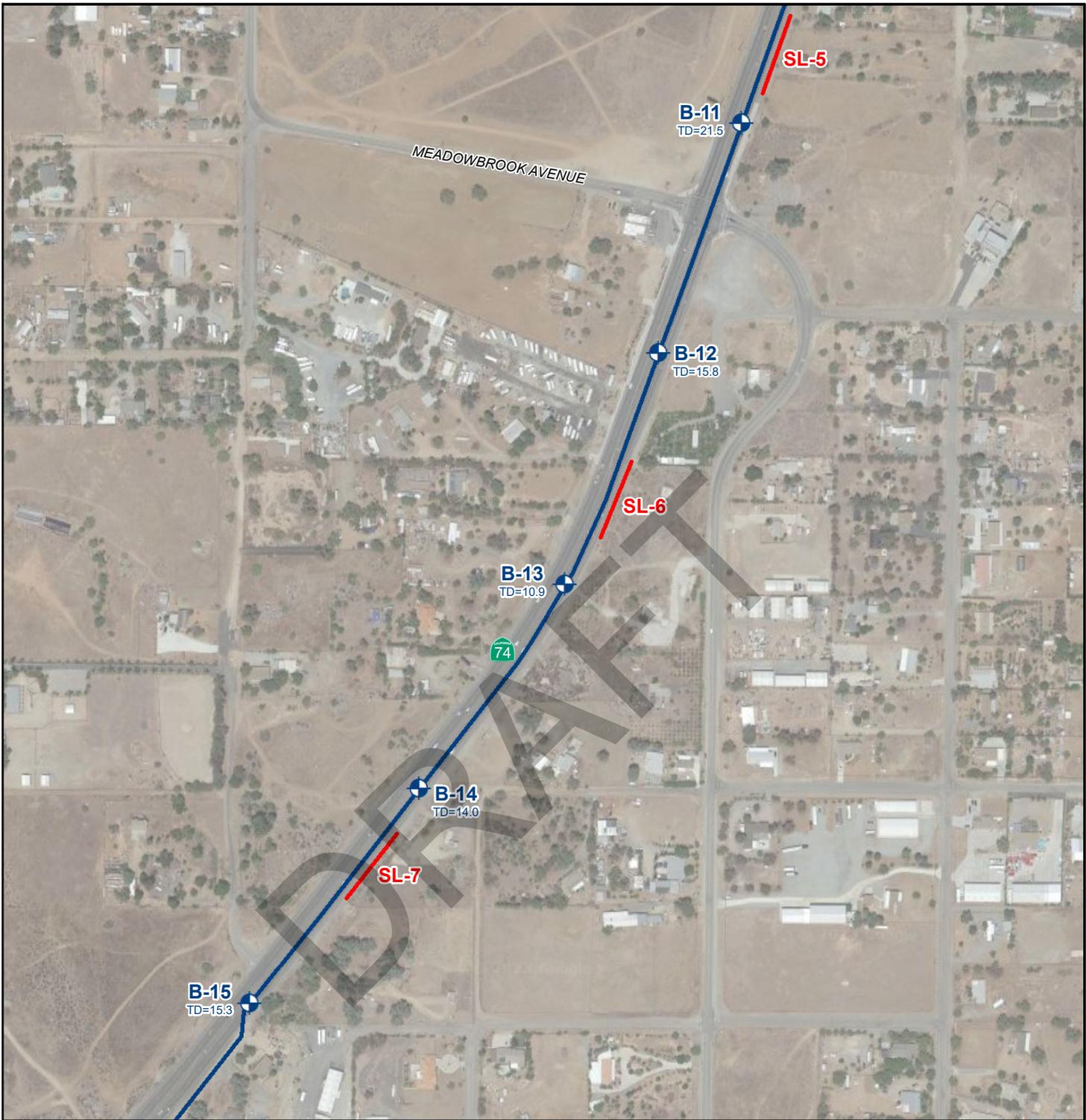
-  ALIGNMENT LOCATION
-  **B-10** BORING  
TD=20.3 TD=TOTAL DEPTH IN FEET
-  **SL-4** SEISMIC LINE

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: GOOGLE EARTH, 2023



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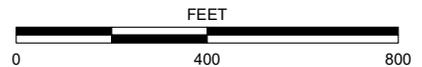
**FIGURE 2B**



**LEGEND**

-  ALIGNMENT LOCATION
-  **B-15** BORING  
TD=15.3 TD=TOTAL DEPTH IN FEET
-  **SL-7** SEISMIC LINE

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: GOOGLE EARTH, 2023



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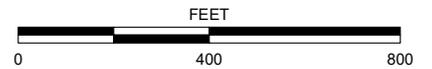
**FIGURE 2C**



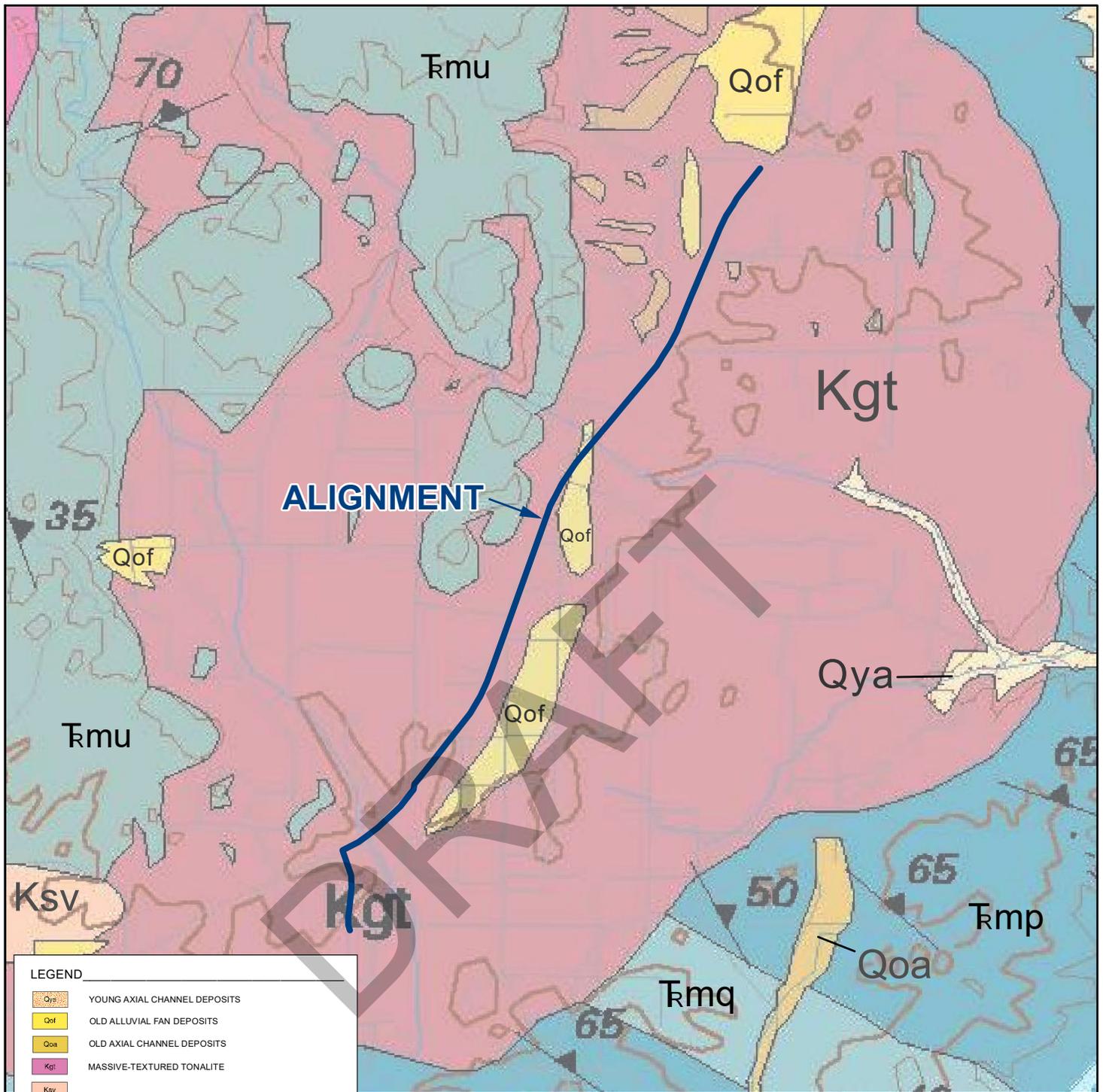
**LEGEND**

-  ALIGNMENT LOCATION
-  **B-20** BORING  
TD=30.3 TD=TOTAL DEPTH IN FEET
-  **SL-10** SEISMIC LINE
-  GEOLOGIC CROSS SECTION

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: GOOGLE EARTH, 2023



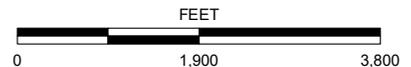
**FIGURE 2D**



**LEGEND**

- Qya YOUNG AXIAL CHANNEL DEPOSITS
  - Qof OLD ALLUVIAL FAN DEPOSITS
  - Qoa OLD AXIAL CHANNEL DEPOSITS
  - Kgt MASSIVE-TEXTURED TONALITE
  - Ksv INTERMIXED ESTELLE MOUNTAIN VOLCANICS OF HERZIG
  - Kvs
  - Tmu ROCKS OF MENIFEE VALLEY
  - Tmq QUARTZ RICH ROCKS
  - Tmp PHYLLITE
- 70 Fault - Solid where accurately located; dashed where approximately located; dotted where concealed. U = upthrown block, D = downthrown block. Arrow and number indicate direction and angle of dip of fault plane.
- 70 Strike and dip of beds
- 70 Strike and dip of metamorphic foliation
- 65 Inclined

REFERENCE: KENNEDY, M.P., TAN, S.S., 2008, GEOLOGIC MAP OF THE SAN DIEGO 30 X 60-MINUTE QUADRANGLE, CALIFORNIA



NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

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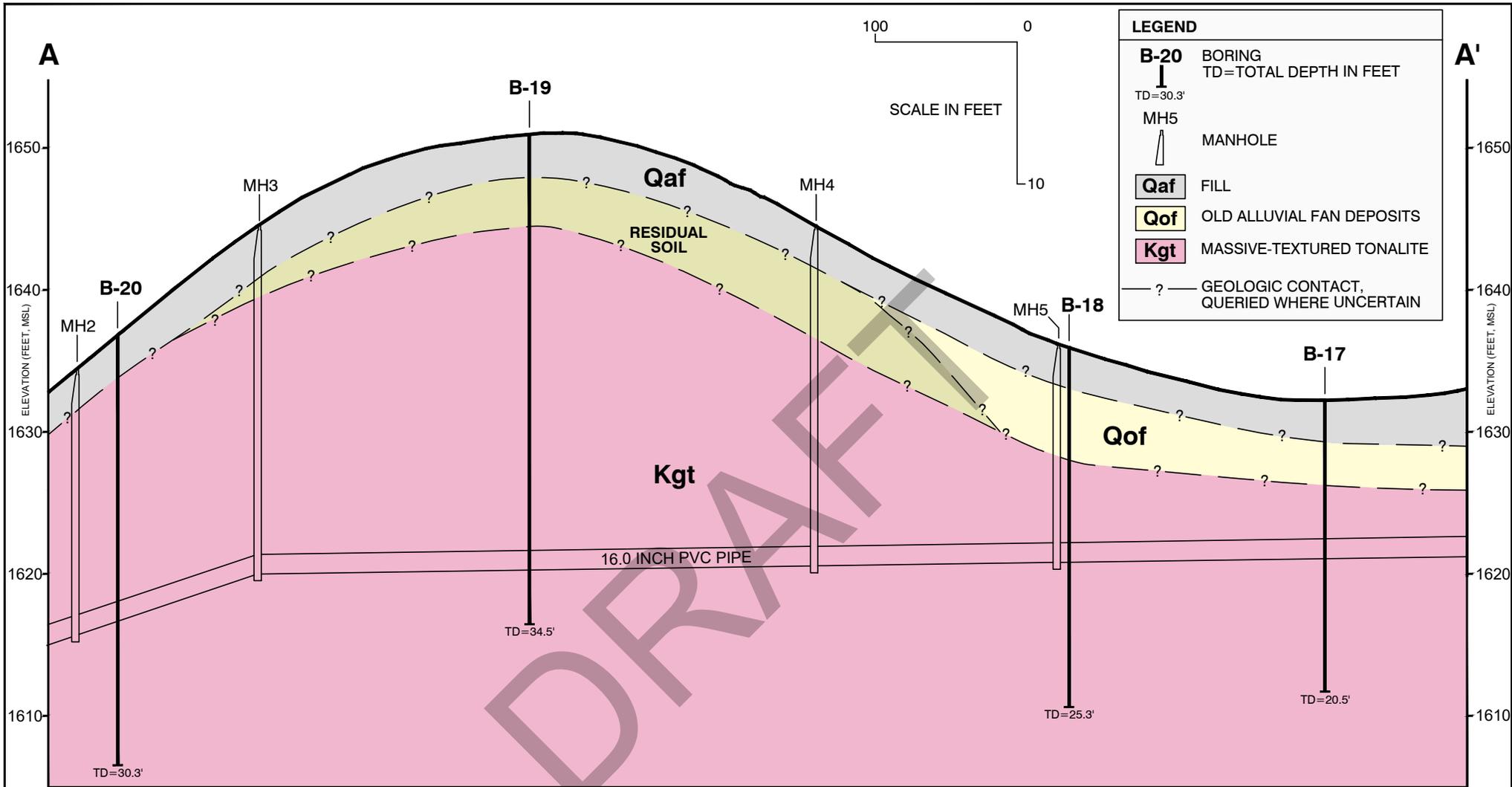
**FIGURE 3**

**GEOLOGY**

EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD  
RIVERSIDE COUNTY, CALIFORNIA

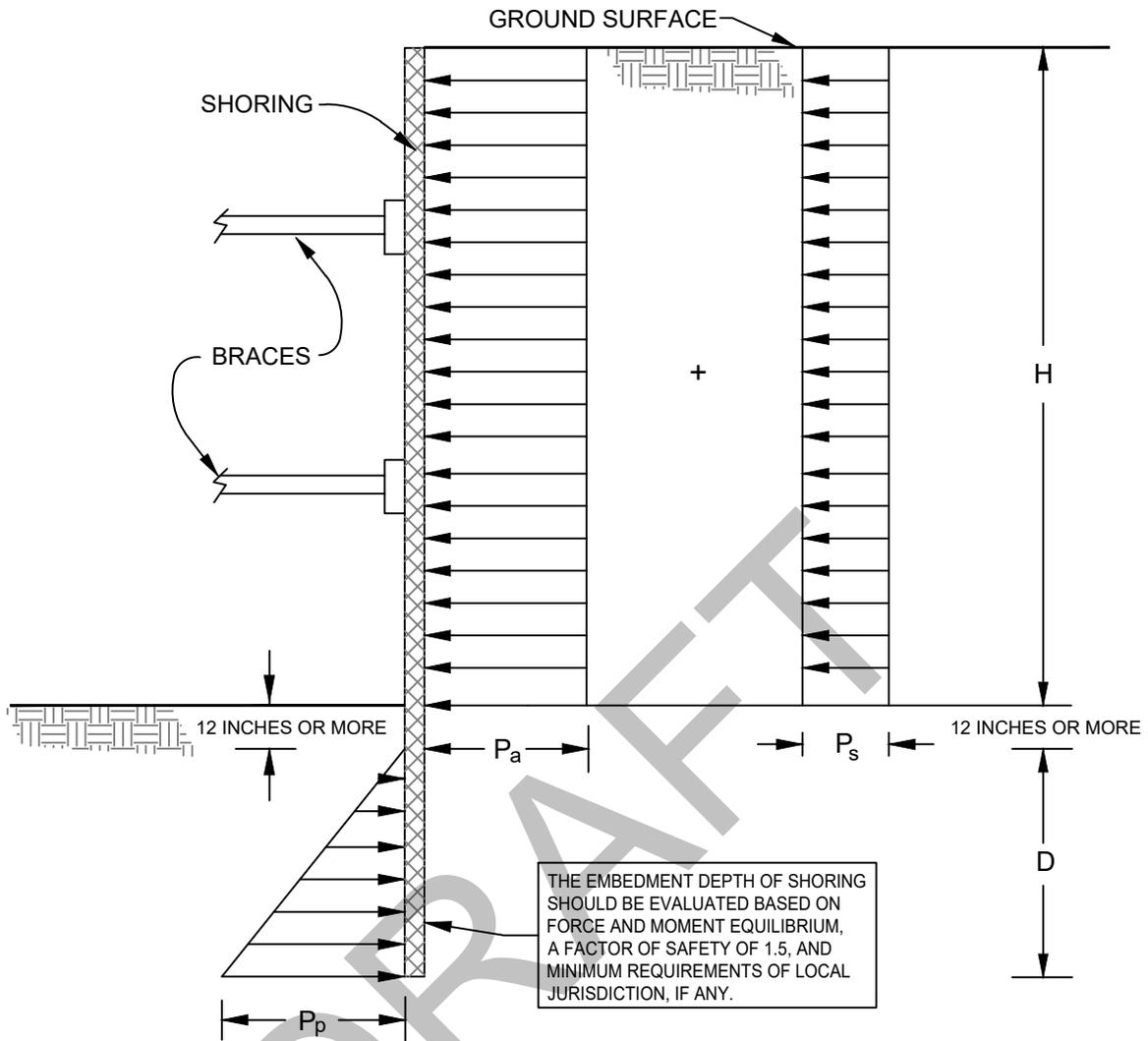
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NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

FIGURE 4



**NOTES:**

1. APPARENT LATERAL EARTH PRESSURE,  $P_a$   
 $P_a = 23 H$  psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE,  $P_s$   
 $P_s = 120$  psf
3. PASSIVE LATERAL EARTH PRESSURE,  $P_p$   
 $P_p = 450 D$  psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. SURCHARGES FROM EXCAVATED SOIL OR CONSTRUCTION MATERIALS ARE NOT INCLUDED
6. H AND D ARE IN FEET

NOT TO SCALE

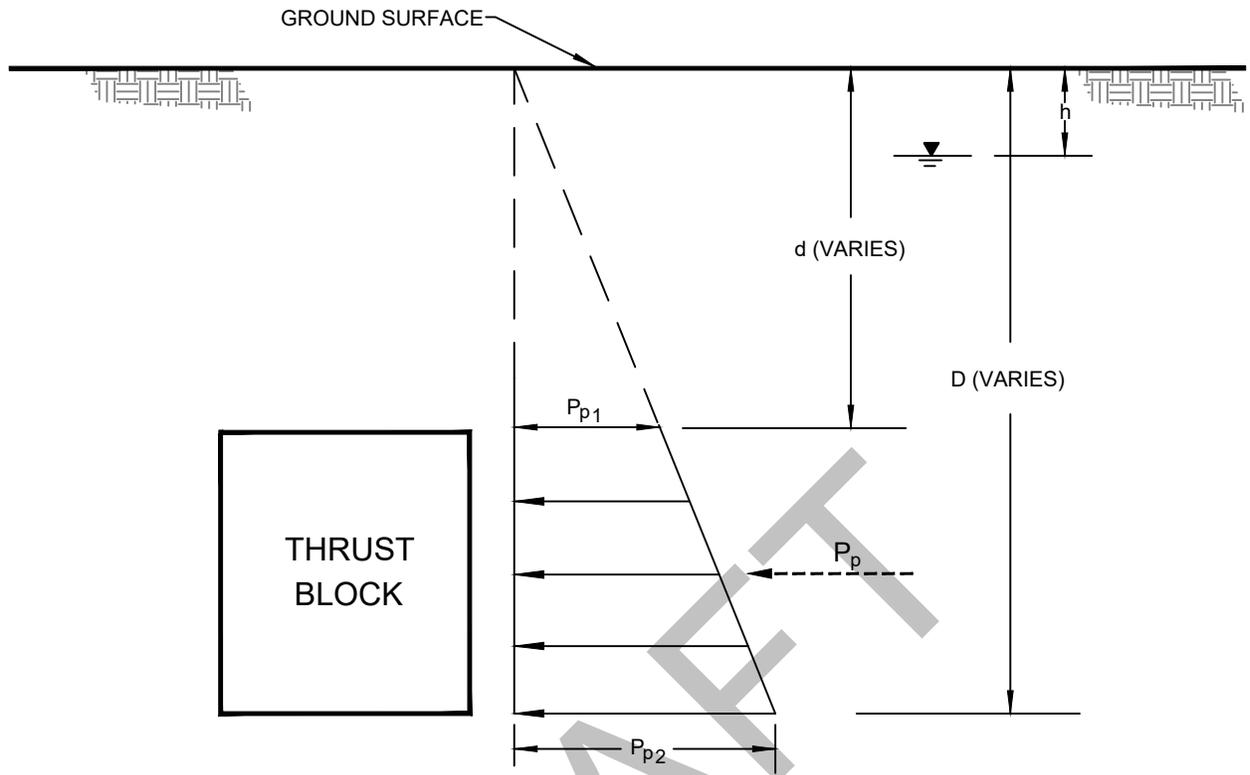
**FIGURE 5**

**LATERAL EARTH PRESSURES FOR BRACED EXCAVATION**

EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD  
RIVERSIDE COUNTY, CALIFORNIA

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109589001 DETAIL FIGURES.DWG AOB



**NOTES:**

1. GROUNDWATER BELOW BLOCK  

$$P_p = 200 (D^2 - d^2) \text{ lb/ft}$$
2. GROUNDWATER ABOVE BLOCK  

$$P_p = 1.8 (D - d)[124.8h + 62 (D + d)] \text{ lb/ft}$$
3. ASSUMES BACKFILL IS GRANULAR MATERIAL
4. ASSUMES THRUST BLOCK IS ADJACENT TO COMPETENT MATERIAL
5. D, d AND h ARE IN FEET
6. GROUNDWATER TABLE

NOT TO SCALE

**FIGURE 6**

**THRUST BLOCK LATERAL EARTH PRESSURE DIAGRAM**

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EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
 HIGHWAY 74 AND WASSON CANYON ROAD  
 RIVERSIDE COUNTY, CALIFORNIA

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XXXXXX001\_LEP-TB.dwg XXXXX/2023



# APPENDIX A

## Boring Logs

# BORING LOG EXPLANATION SHEET

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	
	Bulk	Driven						
0	XX/XX							Bulk sample. Modified split-barrel drive sampler. No recovery with modified split-barrel drive sampler. Sample retained by others. Standard Penetration Test (SPT). No recovery with a SPT. Shelby tube sample. Distance pushed in inches/length of sample recovered in inches. No recovery with Shelby tube sampler. Continuous Push Sample. Seepage. Groundwater encountered during drilling. Groundwater measured after drilling.
5								
10								
15						 	SM MAJOR MATERIAL TYPE (SOIL): Solid line denotes unit change. CL Dashed line denotes material change.	Attitudes: Strike/Dip b: Bedding c: Contact j: Joint f: Fracture F: Fault cs: Clay Seam s: Shear bss: Basal Slide Surface sf: Shear Fracture sz: Shear Zone sbs: Shear Bedding Surface
20								The total depth line is a solid line that is drawn at the bottom of the boring.

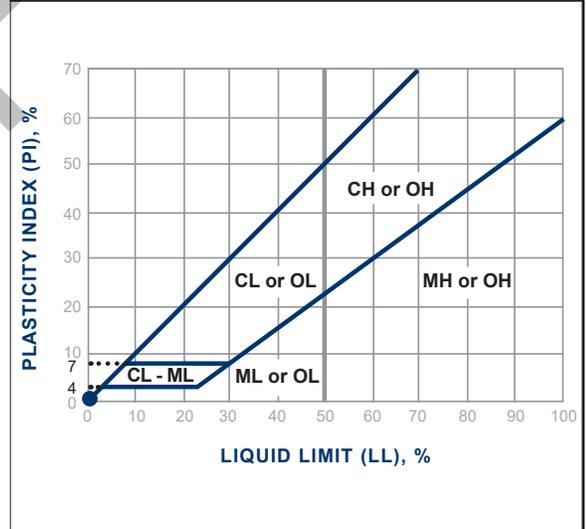
## Soil Classification Chart Per ASTM D 2488

Primary Divisions		Secondary Divisions			
		Group Symbol	Group Name		
<b>COARSE-GRAINED SOILS</b> more than 50% retained on No. 200 sieve	<b>GRAVEL</b> more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL less than 5% fines	GW	well-graded GRAVEL	
			GP	poorly graded GRAVEL	
		GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines	GW-GM	well-graded GRAVEL with silt	
			GP-GM	poorly graded GRAVEL with silt	
			GW-GC	well-graded GRAVEL with clay	
			GP-GC	poorly graded GRAVEL with clay	
			GM	silty GRAVEL	
		GRAVEL with FINES more than 12% fines	GC	clayey GRAVEL	
			GC-GM	silty, clayey GRAVEL	
	SW		well-graded SAND		
	SP		poorly graded SAND		
	<b>SAND</b> 50% or more of coarse fraction passes No. 4 sieve	CLEAN SAND less than 5% fines	SW	well-graded SAND	
			SP	poorly graded SAND	
		SAND with DUAL CLASSIFICATIONS 5% to 12% fines	SW-SM	well-graded SAND with silt	
			SP-SM	poorly graded SAND with silt	
			SW-SC	well-graded SAND with clay	
			SP-SC	poorly graded SAND with clay	
			SM	silty SAND	
SAND with FINES more than 12% fines		SC	clayey SAND		
		SC-SM	silty, clayey SAND		
	CL	lean CLAY			
<b>FINE-GRAINED SOILS</b> 50% or more passes No. 200 sieve	<b>SILT and CLAY</b> liquid limit less than 50%	INORGANIC	ML	SILT	
			CL-ML	silty CLAY	
			OL (PI > 4)	organic CLAY	
		ORGANIC	OL (PI < 4)	organic SILT	
			CH	fat CLAY	
			MH	elastic SILT	
	<b>SILT and CLAY</b> liquid limit 50% or more	INORGANIC	OH (plots on or above "A"-line)	organic CLAY	
			OH (plots below "A"-line)	organic SILT	
			PT	Peat	
		Highly Organic Soils			

## Grain Size

Description	Sieve Size	Grain Size	Approximate Size
Boulders	> 12"	> 12"	Larger than basketball-sized
Cobbles	3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	Thumb-sized to fist-sized
	Fine	#4 - 3/4"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	Rock-salt-sized to pea-sized
	Medium	#40 - #10	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	Flour-sized to sugar-sized
Fines	Passing #200	< 0.0029"	Flour-sized and smaller

## Plasticity Chart



## Apparent Density - Coarse-Grained Soil

Apparent Density	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Loose	≤ 4	≤ 8	≤ 3	≤ 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

## Consistency - Fine-Grained Soil

Consistency	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
Stiff	9 - 15	11 - 20	6 - 10	7 - 13
Very Stiff	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

# APPENDIX A

## BORING LOGS

### **Field Procedure for the Collection of Disturbed Samples**

Disturbed soil samples were obtained in the field using the following methods.

#### **Bulk Samples**

Bulk samples of representative earth materials were obtained from the exploratory excavations. The samples were bagged and transported to the laboratory for testing.

#### **The Standard Penetration Test (SPT) Sampler**

Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 1-3/8 inches. The sampler was driven into the ground 12 to 18 inches with a 140-pound hammer free-falling from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.

### **Field Procedure for the Collection of Relatively Undisturbed Samples**

Relatively undisturbed soil samples were obtained in the field using the following method.

#### **The Modified Split-Barrel Drive Sampler**

The sampler, with an external diameter of 3 inches, was lined with 1-inch-long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/7/23	B-1				
								GROUND ELEVATION	1653± (MSL)	SHEET	1	OF	1
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
0								ASPHALT CONCRETE: Approximately 7-1/2 inches.					
							SM	FILL: Reddish gray, moist, medium dense, silty SAND; trace gravel.					
							SM	OLD ALLUVIUM: Reddish brown, moist, medium dense, silty SAND; coarse sand.					
5			16	7.0	112.2			GRANITIC ROCK: Reddish brown, moist, weathered to decomposed GRANITIC ROCK.					
10			50/5"	3.4	118.1			Light brown to reddish brown.					
15			50/5"					Total Depth = 15.8 feet. Groundwater not encountered during drilling. Backfilled and patched on 7/7/23 shortly after drilling.					
								<p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
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**FIGURE A- 1**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>7/7/23</u> BORING NO. <u>B-2</u>	
	Bulk	Driven						GROUND ELEVATION <u>1657± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Diameter Hollow Stem Auger (Baja Exploration)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto Trip)</u> DROP <u>30"</u>	
								SAMPLED BY <u>CMH</u> LOGGED BY <u>CMH</u> REVIEWED BY <u>ZH</u>	
								<b>DESCRIPTION/INTERPRETATION</b>	
0								ASPHALT CONCRETE: Approximately 8-1/4 inches.	
							SM	FILL: Reddish gray to brown, moist, medium dense, silty SAND.	
5			22	16.6	107.3		CL	OLD ALLUVIUM: Reddish brown, moist, very stiff, sandy lean CLAY.	
10			88/8"	4.7	129.8			GRANITIC ROCK: Yellowish brown to gray, moist, weathered to decomposed GRANITIC ROCK.	
15			50/5"						
20									

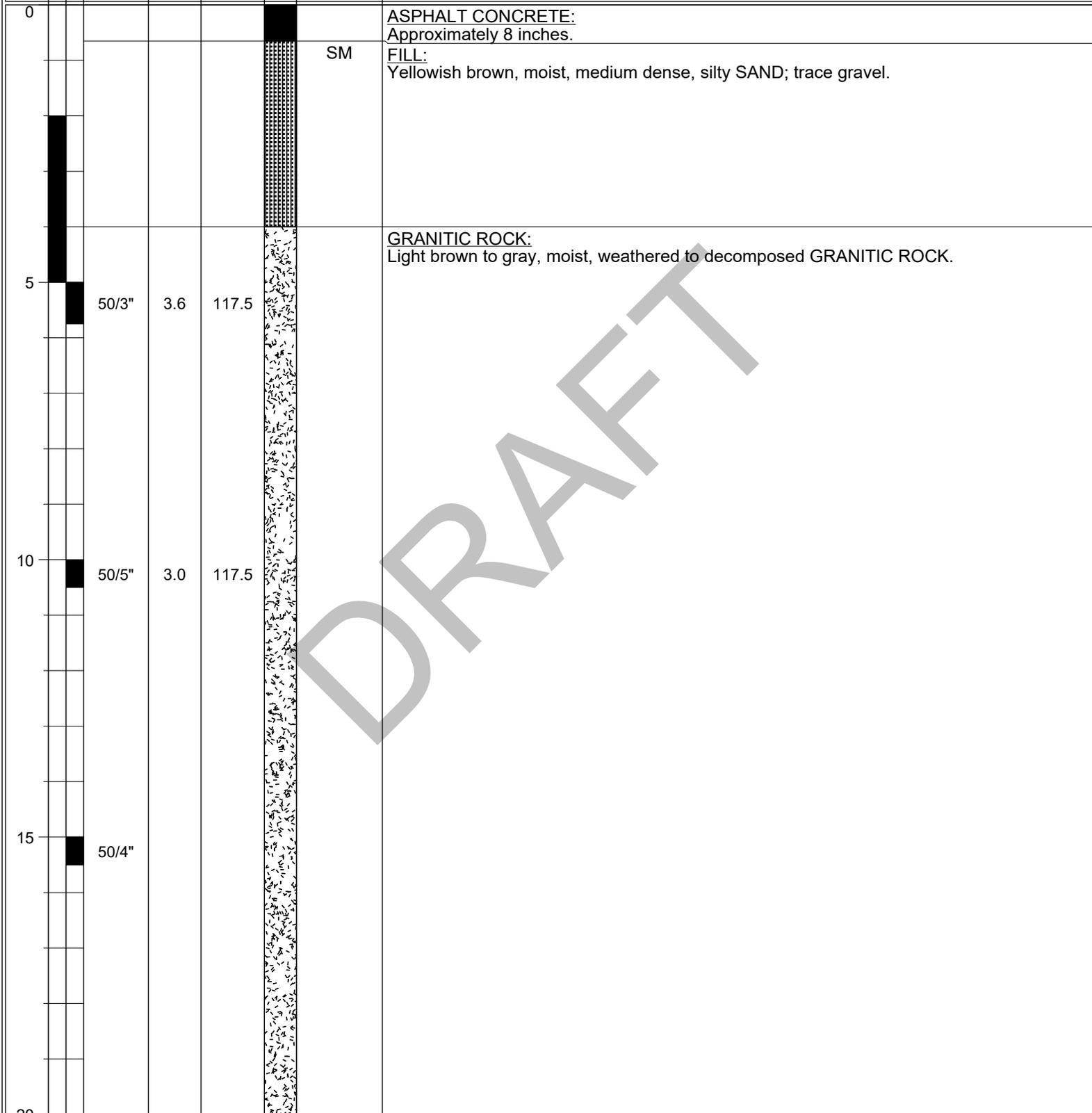
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**FIGURE A- 2**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/7/23	B-2				
								GROUND ELEVATION	1657± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
<b>DESCRIPTION/INTERPRETATION</b>													
20			50/4"					<p><b>GRANITIC ROCK: (CONTINUED)</b>            Yellowish brown, moist, weathered GRANITIC ROCK.            Total Depth = 20.3 feet.            Groundwater not encountered during drilling.            Backfilled and patched on 7/7/23 shortly after drilling.</p> <p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
25								<div style="font-size: 4em; opacity: 0.2; transform: rotate(-45deg); pointer-events: none;">DRAFT</div>					
30													
35													
40													

**FIGURE A- 3**

DEPTH (feet)	Bulk	BLOWNS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>7/7/23</u> BORING NO. <u>B-3</u>
	Driven						GROUND ELEVATION <u>1655± (MSL)</u> SHEET <u>1</u> OF <u>2</u>
							METHOD OF DRILLING <u>8" Diameter Hollow Stem Auger (Baja Exploration)</u>
							DRIVE WEIGHT <u>140 lbs. (Auto Trip)</u> DROP <u>30"</u>
							SAMPLED BY <u>CMH</u> LOGGED BY <u>CMH</u> REVIEWED BY <u>ZH</u>



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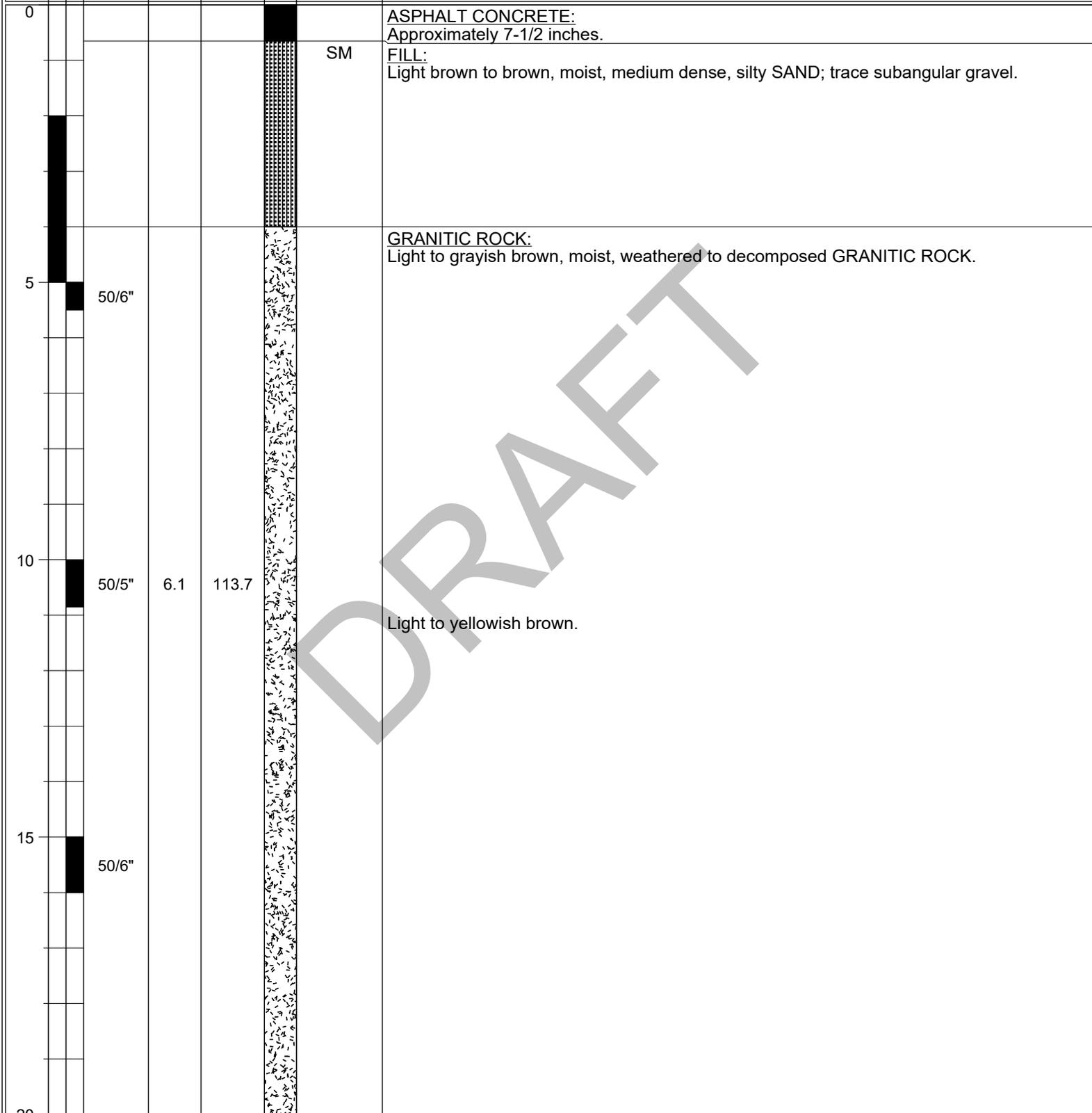
**FIGURE A- 4**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/7/23	B-3				
								GROUND ELEVATION	1655± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/6"					<p><b>GRANITIC ROCK: (CONTINUED)</b>            Light brown to gray, moist, weathered GRANITIC ROCK.            Total Depth = 20.5 feet.            Groundwater not encountered during drilling.            Backfilled and patched on 7/7/23 shortly after drilling.</p> <p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
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**FIGURE A- 5**

DEPTH (feet)	Bulk	BLOWNS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>7/6/23</u>	BORING NO. <u>B-4</u>	
	Driven						GROUND ELEVATION <u>1650± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>	
							METHOD OF DRILLING <u>8" Diameter Hollow Stem Auger (Baja Exploration)</u>		
							DRIVE WEIGHT <u>140 lbs. (Auto Trip)</u>	DROP <u>30"</u>	
							SAMPLED BY <u>CMH</u>	LOGGED BY <u>CMH</u>	REVIEWED BY <u>ZH</u>

**DESCRIPTION/INTERPRETATION**



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**FIGURE A- 6**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/6/23	B-4				
								GROUND ELEVATION	1650± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/4"					<p>GRANITIC ROCK: (Continued)            Yellowish brown to light brown, moist, weathered GRANITIC ROCK.            Total Depth = 20.3 feet.            Groundwater not encountered during drilling.            Backfilled and patched on 7/6/23 shortly after drilling.</p> <p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
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30													
35													
40													

**FIGURE A- 7**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/6/23	B-5				
								GROUND ELEVATION	1651± (MSL)	SHEET	1	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
0								<b>ASPHALT CONCRETE:</b> Approximately 8-3/4 inches.					
							SM	<b>FILL:</b> Reddish gray, moist, medium dense, silty SAND; trace gravel.					
							SM	<b>OLD ALLUVIUM:</b> Grayish brown, moist, dense, silty SAND.					
5			45					Dense.					
								<b>GRANITIC ROCK:</b> Reddish to light brown, moist, weathered to decomposed GRANITIC ROCK.					
10			78/11"										
15			50/5"										
20													

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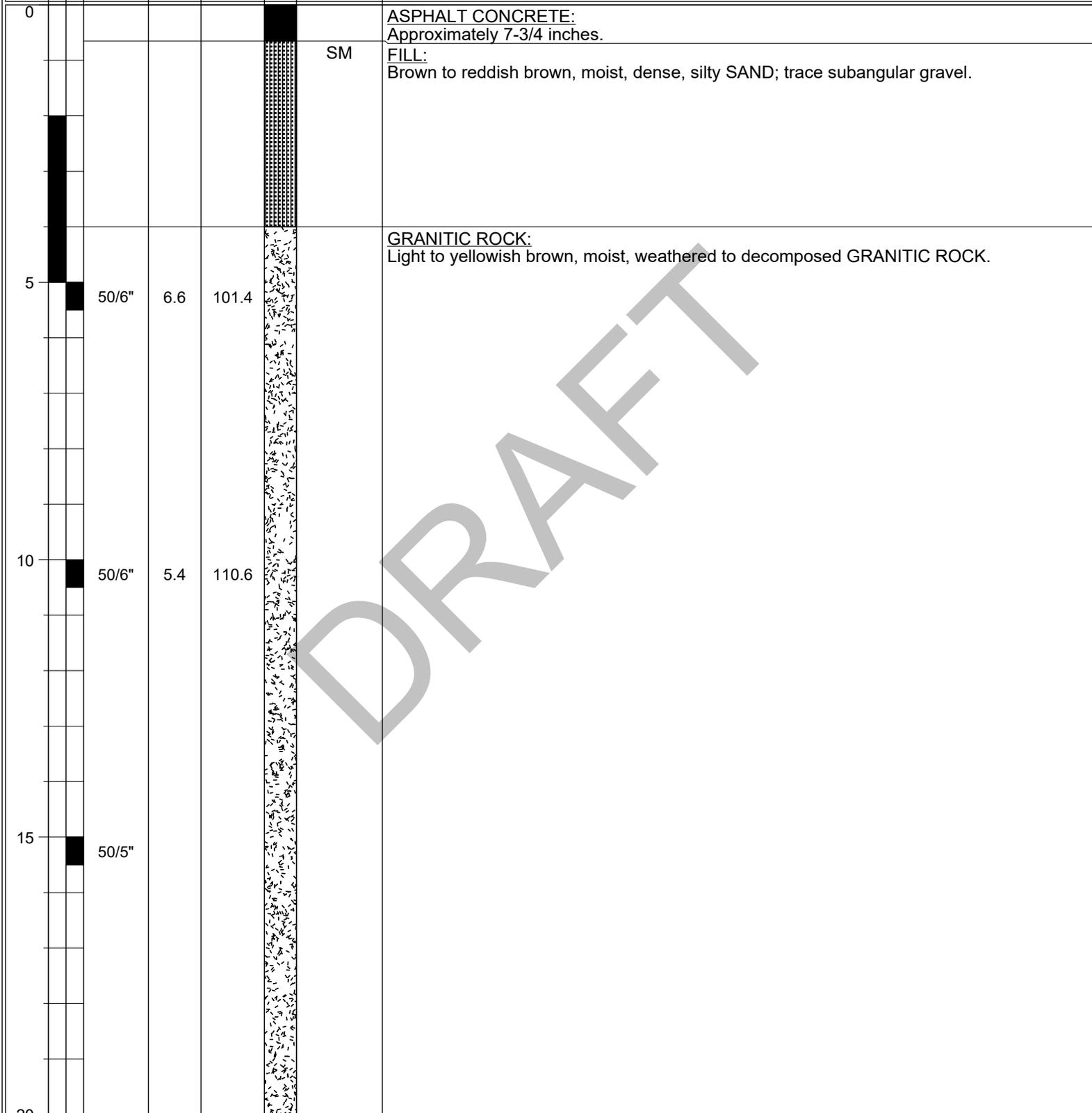
**FIGURE A- 8**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/6/23	B-5				
								GROUND ELEVATION	1651± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/6"					<p><b>GRANITIC ROCK: (Continued)</b>            Light to reddish brown, moist, weathered to decomposed GRANITIC ROCK.            Total Depth = 20.5 feet.            Groundwater not encountered during drilling.            Backfilled and patched on 7/6/23 shortly after drilling.</p> <p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
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35													
40													

**FIGURE A- 9**

DEPTH (feet)	Bulk	SAMPLES	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>7/6/23</u>	BORING NO. <u>B-6</u>	
	Driven							GROUND ELEVATION <u>1661± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>	
								METHOD OF DRILLING <u>8" Diameter Hollow Stem Auger (Baja Exploration)</u>		
								DRIVE WEIGHT <u>140 lbs. (Auto Trip)</u>	DROP <u>30"</u>	
								SAMPLED BY <u>CMH</u>	LOGGED BY <u>CMH</u>	REVIEWED BY <u>ZH</u>

**DESCRIPTION/INTERPRETATION**



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**FIGURE A- 10**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/6/23	B-6				
								GROUND ELEVATION	1661± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/2"					<p>GRANITIC ROCK: (Continued)            Light to yellowish brown, moist, weathered to decomposed GRANITIC ROCK.            Total Depth = 20.2 feet.            Groundwater not encountered during drilling.            Backfilled and patched on 7/6/23 shortly after drilling.</p> <p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
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30													
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40													

**FIGURE A- 11**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>7/6/23</u> BORING NO. <u>B-7</u>	
	Bulk	Driven						GROUND ELEVATION <u>1678± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Diameter Hollow Stem Auger (Baja Exploration)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto Trip)</u> DROP <u>30"</u>	
								SAMPLED BY <u>CMH</u> LOGGED BY <u>CMH</u> REVIEWED BY <u>ZH</u>	
								<b>DESCRIPTION/INTERPRETATION</b>	
0								ASPHALT CONCRETE: Approximately 8 inches.	
							SM	FILL: Brown to reddish gray, moist, dense, silty SAND; trace gravel.	
5			50/5"	4.9	108.2			GRANITIC ROCK: Light brown to yellowish brown, moist, weathered GRANITIC ROCK.	
10			50/3"	4.1	107.3			Weathered to decomposed.	
15			50/3"						
20									

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**FIGURE A- 12**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/6/23	B-7				
								GROUND ELEVATION	1678± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/3"					<p><b>GRANITIC ROCK: (Continued)</b>            Light to yellowish brown, moist, weathered to decomposed GRANITIC ROCK.            Total Depth = 20.3 feet.            Groundwater not encountered during drilling.            Backfilled and patched on 7/6/23 shortly after drilling.</p> <p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
25								DRAFT					
30													
35													
40													

**FIGURE A- 13**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/6/23	B-8				
								GROUND ELEVATION	1687± (MSL)	SHEET	1	OF	1
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
0								<b>ASPHALT CONCRETE:</b> Approximately 8 inches.					
							SM	<b>FILL:</b> Dark brown to reddish gray, moist, dense, silty SAND; trace subangular gravel.					
5			50/3"	6.8	112.4			<b>GRANITIC ROCK:</b> Light to yellowish brown, moist, weathered GRANITIC ROCK.					
10			50/6"					Total Depth = 15.5 feet. Groundwater not encountered during drilling. Backfilled and patched on 7/6/23 shortly after drilling.  <u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
15			50/6"										
20													

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**FIGURE A- 14**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/6/23	B-9				
								GROUND ELEVATION	1686± (MSL)	SHEET	1	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
<b>DESCRIPTION/INTERPRETATION</b>													
0								<b>ASPHALT CONCRETE:</b> Approximately 8-3/4 inches.					
							SM	<b>FILL:</b> Brown, moist, medium dense, silty SAND; trace subangular gravel.					
							SM	<b>OLD ALLUVIUM:</b> Reddish brown, moist, medium dense, silty SAND.					
5			30	8.5	114.8			<b>GRANITIC ROCK:</b> Reddish yellow, moist, weathered GRANITIC ROCK.					
10			50/4"	2.9	113.3			Red to light brown, weathered to decomposed.					
15			50/6"										
20													

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**FIGURE A- 15**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/6/23	B-9				
								GROUND ELEVATION	1686± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/5"					<p><b>GRANITIC ROCK: (Continued)</b>            Brown to light brown, moist, weathered to decomposed GRANITIC ROCK.            Total Depth = 20.4 feet.            Groundwater not encountered during drilling.            Backfilled and patched on 7/6/23 shortly after drilling.</p> <p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
25								DRAFT					
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**FIGURE A- 16**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/5/23	B-10				
								GROUND ELEVATION	1681± (MSL)	SHEET	1	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
0								ASPHALT CONCRETE: Approximately 8 inches.					
							SM	FILL: Reddish gray, moist, medium dense, silty SAND; trace gravel.					
5			41	10.1	112.2			GRANITIC ROCK: Light to reddish brown, moist, strongly weathered GRANITIC ROCK.					
10			50/6"					Brown to light brown.					
15			50/5"										
20													

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**FIGURE A- 17**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/5/23	B-10				
								GROUND ELEVATION	1681± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/3"					<p><b>GRANITIC ROCK: (Continued)</b>            Light brown, moist, strongly weathered GRANITIC ROCK.            Total Depth = 20.3 feet.            Groundwater not encountered during drilling.            Backfilled and patched on 7/5/23 shortly after drilling.</p> <p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
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**FIGURE A- 18**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/5/23	B-11				
								GROUND ELEVATION	1674± (MSL)	SHEET	1	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
0								<b>ASPHALT CONCRETE:</b> Approximately 8-1/2 inches.					
							SM	<b>FILL:</b> Brown to reddish, moist, dense, silty SAND; trace gravel.					
5			50/5"	4.5	125.7			<b>GRANITIC ROCK:</b> Light to reddish brown, moist, strongly weathered GRANITIC ROCK.					
10			50/5"					<div style="font-size: 4em; opacity: 0.2; transform: rotate(-45deg); pointer-events: none;">DRAFT</div>					
15			50/3"										
20													

**FIGURE A- 19**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/5/23	B-11				
								GROUND ELEVATION	1674± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			56					GRANITIC ROCK: (Continued) Light brown, moist, weathered GRANITIC ROCK.					
25								Total Depth = 21.5 feet. Groundwater not encountered during drilling. Backfilled and patched on 7/5/23 shortly after drilling.  <u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
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35													
40													

**FIGURE A- 20**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/5/23	B-12				
								GROUND ELEVATION	1665± (MSL)	SHEET	1	OF	1
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
0								ASPHALT CONCRETE: Approximately 9-1/2 inches.					
							SM	FILL: Reddish yellow, moist, dense, silty SAND with silt; trace gravel.					
5			50/5"	5.4	122.2			GRANITIC ROCK: Brown to reddish brown, moist, strongly weathered GRANITIC ROCK.					
10			50/5"	2.9	113.5			DRAFT					
15			50/4"										
20								Total Depth = 15.8 feet. Groundwater not encountered during drilling. Backfilled and patched on 7/5/23 shortly after drilling.					
								<p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					

**FIGURE A- 21**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>7/5/23</u> BORING NO. <u>B-13</u>	
	Bulk	Driven						GROUND ELEVATION <u>1655± (MSL)</u>	SHEET <u>1</u> OF <u>1</u>
								METHOD OF DRILLING <u>8" Diameter Hollow Stem Auger (Baja Exploration)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto Trip)</u> DROP <u>30"</u>	
								SAMPLED BY <u>CMH</u> LOGGED BY <u>CMH</u> REVIEWED BY <u>ZH</u>	
								<b>DESCRIPTION/INTERPRETATION</b>	
0								ASPHALT CONCRETE: Approximately 8-1/2 inches.	
							SM	FILL: Brown, moist, medium dense, silty SAND; trace subangular gravel.	
5			29	8.0	123.4		SM	OLD ALLUVIUM: Reddish brown, moist, medium dense, silty SAND.	
10			50/5"	4.3	125.3			GRANITIC ROCK: Light to reddish brown, moist, weathered GRANITIC ROCK.	
								Refusal on fresh granitic rock.	
								Total Depth = 10.9 feet. (Refusal) Groundwater not encountered during drilling. Backfilled and patched on 7/5/23 shortly after drilling.	
								<p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>	
15									
20									

**FIGURE A- 22**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/5/23	B-14				
								GROUND ELEVATION	1644± (MSL)	SHEET	1	OF	1
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
0								ASPHALT CONCRETE: Approximately 8-1/2 inches.					
							SM	FILL: Reddish gray, moist, dense, silty SAND; trace gravel.					
							SM	OLD ALLUVIUM: Grayish brown, moist, medium dense, silty SAND; trace gravel.					
5			50/5"	9.2	119.0			GRANITIC ROCK: Light to reddish brown, moist, strongly weathered GRANITIC ROCK.					
10			71					Refusal on fresh granitic rock.					
15								Total Depth = 14.0 feet. (Refusal) Groundwater not encountered during drilling. Backfilled and patched on 7/5/23 shortly after drilling.					
								<p>Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
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**FIGURE A- 23**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.										
	Bulk	Driven						7/5/23	B-15										
								GROUND ELEVATION	1633± (MSL)	SHEET	1	OF	1						
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)										
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"								
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH						
								<b>DESCRIPTION/INTERPRETATION</b>											
0								ASPHALT CONCRETE: Approximately 8-1/2 inches.											
							SM	FILL: Brown, moist, dense, silty SAND; trace gravel.											
			43	14.9	117.5		SM	OLD ALLUVIUM: Brown, moist, dense, silty SAND.											
5								DRAFT											
														GRANITIC ROCK: Brown to light brown, moist, strongly weathered GRANITIC ROCK.					
10			50/5"	12.8	120.9														
								Total Depth = 15.3 feet. Groundwater seepage encountered at 12 feet during drilling. Backfilled and patched on 7/5/23 shortly after drilling.											
15			50/3"					<u>Note:</u> Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.											
								The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.											
20																			

**FIGURE A- 24**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/5/23	B-16				
								GROUND ELEVATION	1628± (MSL)	SHEET	1	OF	1
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
0								ASPHALT CONCRETE: Approximately 8-1/2 inches.					
							SM	FILL: Brown, moist, dense, silty SAND; trace gravel.					
5			82/9"					GRANITIC ROCK: Brown to light brown, moist, weathered to decomposed GRANITIC ROCK.					
10			50/1"					Weathered.					
15			50/6"					Total Depth = 15.5 feet. Groundwater not encountered during drilling. Backfilled and patched on 7/5/23 shortly after drilling.					
								<u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
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**FIGURE A- 25**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>7/7/23</u> BORING NO. <u>B-17</u>	
	Bulk	Driven						GROUND ELEVATION <u>1633± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Diameter Hollow Stem Auger (Baja Exploration)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto Trip)</u> DROP <u>30"</u>	
								SAMPLED BY <u>CMH</u> LOGGED BY <u>CMH</u> REVIEWED BY <u>ZH</u>	
<b>DESCRIPTION/INTERPRETATION</b>									
0							SM	<b>ASPHALT CONCRETE:</b> Approximately 2-1/2 inches. <b>FILL:</b> Reddish brown, moist, dense, silty SAND; trace gravel; trace clay.	
5			49	8.0	118.5		SM	<b>OLD ALLUVIUM:</b> Reddish yellow, moist, dense, silty SAND.	
10			50/4"	4.5	118.9			<b>GRANITIC ROCK:</b> Light brown to gray, moist, weathered to decomposed GRANITIC ROCK.	
15			50/3"	3.8	111.7				
20									

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**FIGURE A- 26**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/7/23	B-17				
								GROUND ELEVATION	1633± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/3" 50/3"					<p><b>GRANITIC ROCK: (CONTINUED)</b>            Light brown to gray, moist, weathered GRANITIC ROCK.            Total Depth = 20.5 feet.            Groundwater not encountered during drilling.            Backfilled and patched on 7/7/23 shortly after drilling.</p> <p><u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
25								DRAFT					
30													
35													
40													

**FIGURE A- 27**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>7/7/23</u> BORING NO. <u>B-18</u>	
	Bulk	Driven						GROUND ELEVATION <u>1636± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Diameter Hollow Stem Auger (Baja Exploration)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto Trip)</u> DROP <u>30"</u>	
								SAMPLED BY <u>CMH</u> LOGGED BY <u>CMH</u> REVIEWED BY <u>ZH</u>	
<b>DESCRIPTION/INTERPRETATION</b>									
0							SM	ASPHALT CONCRETE: Approximately 2-1/2 inches.	
								FILL: Brown, moist, medium dense, silty SAND; trace gravel.	
5			13				SM	OLD ALLUVIUM: Brown to reddish brown, moist, medium dense, silty SAND; fine sand.	
10			92/11"	5.8	123.7			GRANITIC ROCK: Light brown to reddish yellow, moist, weathered to decomposed GRANITIC ROCK.	
15			50/4"	4.4	121.1				
20									

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**FIGURE A- 28**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/7/23	B-18				
								GROUND ELEVATION	1636± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/3"	4.0	121.9			GRANITIC ROCK: (CONTINUED) Light to yellowish brown, moist, weathered to decomposed GRANITIC ROCK.					
25			50/3"	3.4	92.5			Light brown to gray. Total Depth = 25.3 feet. Groundwater not encountered during drilling. Backfilled and patched on 7/7/23 shortly after drilling.  <u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
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35													
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**FIGURE A- 29**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/10/23	B-19				
								GROUND ELEVATION	1651± (MSL)	SHEET	1	OF	2
								METHOD OF DRILLING 8" Diameter Hollow Stem Auger (Baja Exploration)					
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
<b>DESCRIPTION/INTERPRETATION</b>													
0							SM	ASPHALT CONCRETE: Approximately 2-1/2 inches.					
								FILL: Brown to reddish brown, moist, medium dense, silty SAND; trace subangular gravel.					
5			22	4.4	117.3		SM	RESIDUAL SOIL: Light reddish brown, moist, medium dense, silty SAND.					
10			50/4"	6.9	118.2			GRANITIC ROCK: Light to reddish brown, moist, weathered to decomposed GRANITIC ROCK.					
15			50/5"	5.1	118.0								
20													

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**FIGURE A- 30**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/10/23	B-19				
								GROUND ELEVATION	1651± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/3"					GRANITIC ROCK: (CONTINUED) Light brown to reddish brown, moist, weathered to decomposed GRANITIC ROCK.					
25			50/5"	3.2	107.6			Light to reddish brown to gray.					
30			50/1"					Refusal on fresh granitic rock.					
35			50/0"					Total Depth = 34.5 feet. (Refusal) Groundwater not encountered during drilling. Backfilled and patched on 7/10/23 shortly after drilling.  <u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
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**FIGURE A- 31**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>7/10/23</u> BORING NO. <u>B-20</u>	
	Bulk	Driven						GROUND ELEVATION <u>1637± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Diameter Hollow Stem Auger (Baja Exploration)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto Trip)</u> DROP <u>30"</u>	
								SAMPLED BY <u>CMH</u> LOGGED BY <u>CMH</u> REVIEWED BY <u>ZH</u>	
								<b>DESCRIPTION/INTERPRETATION</b>	
0							SM	ASPHALT CONCRETE: Approximately 2-1/2 inches. FILL: Reddish brown, moist, dense, silty SAND; trace gravel.	
5			52	2.8	123.2			GRANITIC ROCK: Light to reddish brown, moist, weathered to decomposed GRANITIC ROCK.	
10			81/11"	2.4	124.8			Weathered.	
15			50/4"	3.8	114.5				
20									

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**FIGURE A- 32**

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						7/10/23	B-20				
								GROUND ELEVATION	1637± (MSL)	SHEET	2	OF	2
								METHOD OF DRILLING	8" Diameter Hollow Stem Auger (Baja Exploration)				
								DRIVE WEIGHT	140 lbs. (Auto Trip)	DROP	30"		
								SAMPLED BY	CMH	LOGGED BY	CMH	REVIEWED BY	ZH
								<b>DESCRIPTION/INTERPRETATION</b>					
20			50/3"	3.0	155.9			GRANITIC ROCK: (CONTINUED) Light to reddish brown, moist, weathered to decomposed GRANITIC ROCK.					
25			50/4"					<p style="font-size: 48px; opacity: 0.3; transform: rotate(-30deg);">DRAFT</p>					
30			50/3"										
35													
40													

**FIGURE A- 33**



# APPENDIX B

## Geotechnical Laboratory Testing

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# APPENDIX B

## GEOTECHNICAL LABORATORY TESTING

### **Classification**

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory excavations in Appendix A.

### **In-Place Moisture and Density Tests**

The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory excavations in Appendix A.

### **Gradation Analysis**

Gradation analysis tests were performed on selected representative soil samples in general accordance with ASTM D 422. The grain-size distribution curves are shown on Figures B-1 through B-10. These test results were utilized in evaluating the soil classifications in accordance with the USCS.

### **Direct Shear Test**

Direct shear tests were performed on relatively undisturbed samples in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of the selected material. The samples were inundated during shearing to represent adverse field conditions. The results are shown on Figures B-11 through B-18.

### **Soil Corrosivity Tests**

Soil pH and electrical resistivity tests were performed on a representative sample in general accordance with CT 643. The sulfate and chloride contents of the selected sample were evaluated in general accordance with CT 417 and CT 422, respectively. The test results are presented on Figure B-19.

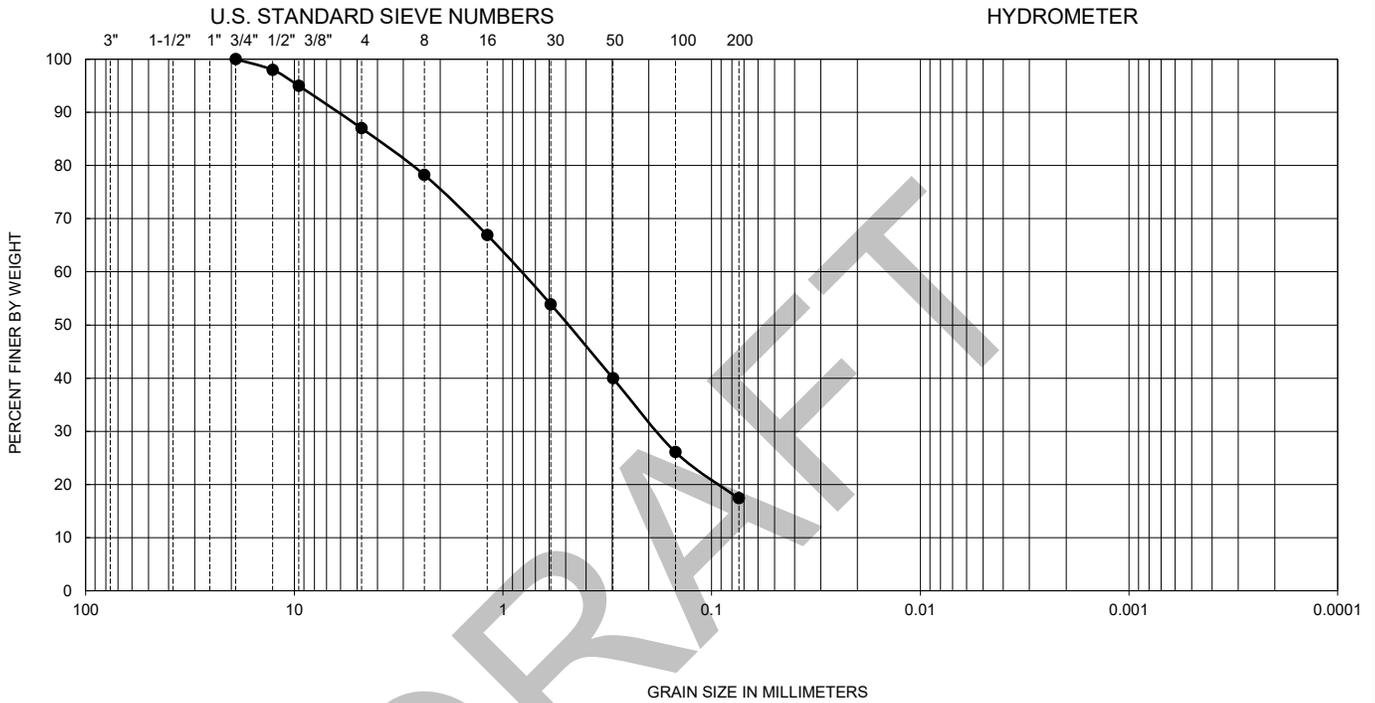
### **R-Value**

The resistance value, or R-value, for site soils was evaluated in general accordance with California Test (CT) 301. Samples were prepared and evaluated for exudation pressure and expansion pressure. The equilibrium R-value is reported as the lesser or more conservative of the two calculated results. The test results are shown on Figure B-20.

### **Sand Equivalent**

Sand equivalent (SE) tests were performed on selected representative samples in general accordance with California Test (CT) 217/American Association of State Highway and Transportation Officials (AASHTO) T 176. The SE values reported on Figures B-21 and B-22 is the ratio of the coarse- to fine-grained particles in the selected samples.

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (percent)	USCS
●	B-3	2.0-5.0	--	--	--	--	--	--	--	--	17	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

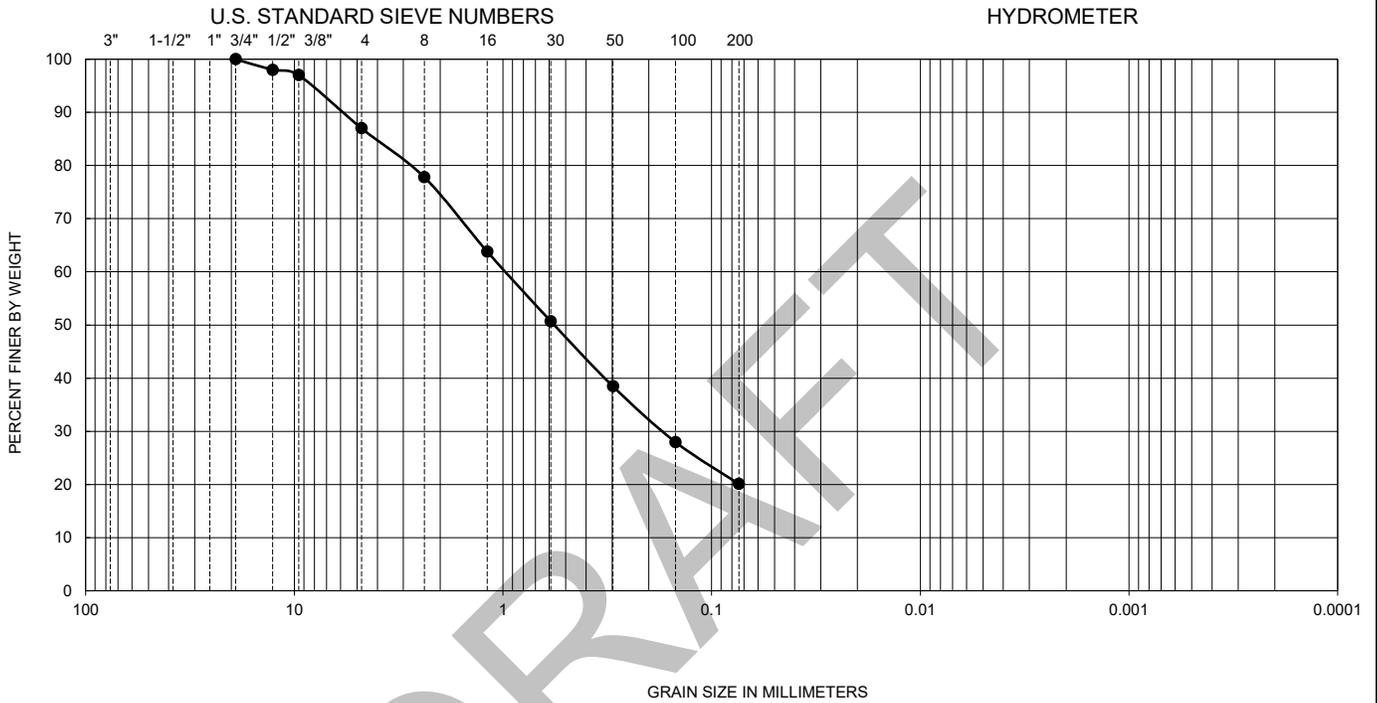
FIGURE B-1

GRADATION TEST RESULTS



EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD, RIVERSIDE COUNTY, CALIFORNIA

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (percent)	USCS
●	B-4	2.0-5.0	--	--	--	--	--	--	--	--	20	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

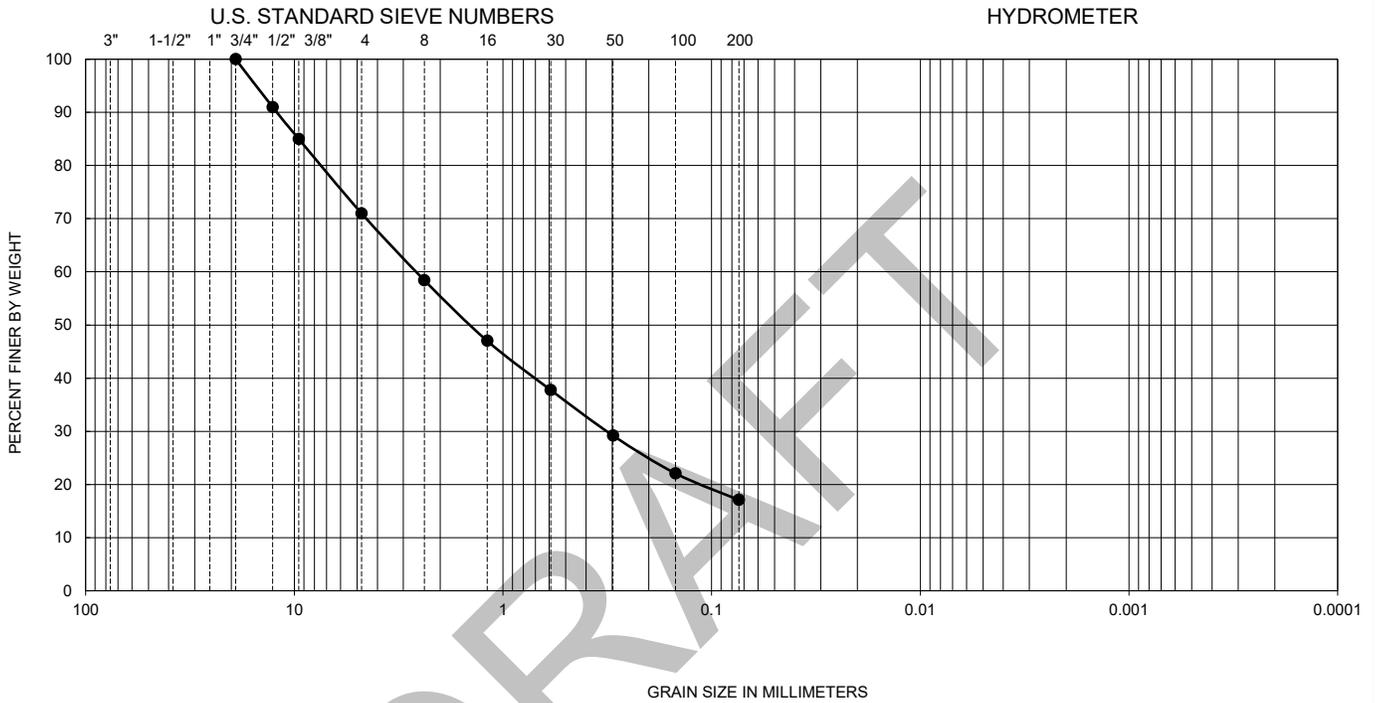
FIGURE B-2

GRADATION TEST RESULTS



EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD, RIVERSIDE COUNTY, CALIFORNIA

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (percent)	USCS
●	B-6	2.0-5.0	--	--	--	--	--	--	--	--	17	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

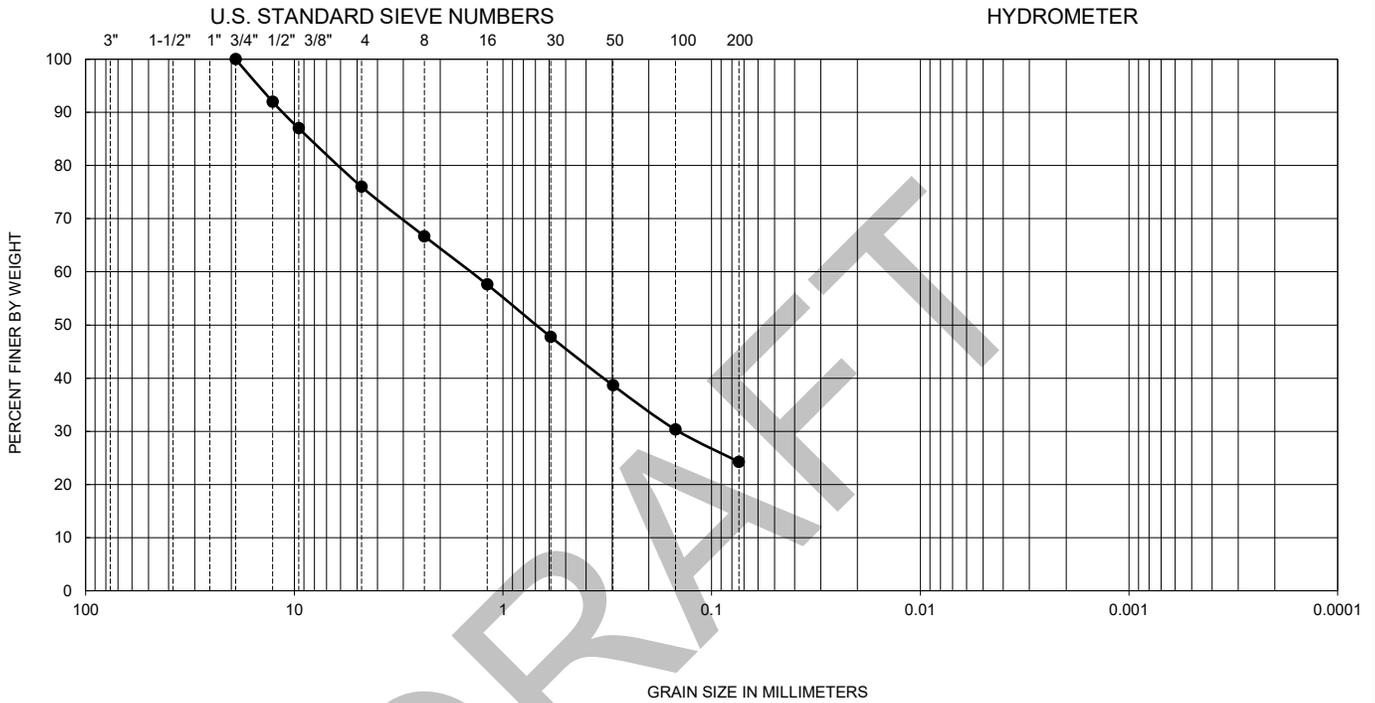
FIGURE B-3

GRADATION TEST RESULTS



EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD, RIVERSIDE COUNTY, CALIFORNIA

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (percent)	USCS
●	B-9	2.0-5.0	--	--	--	--	--	--	--	--	24	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

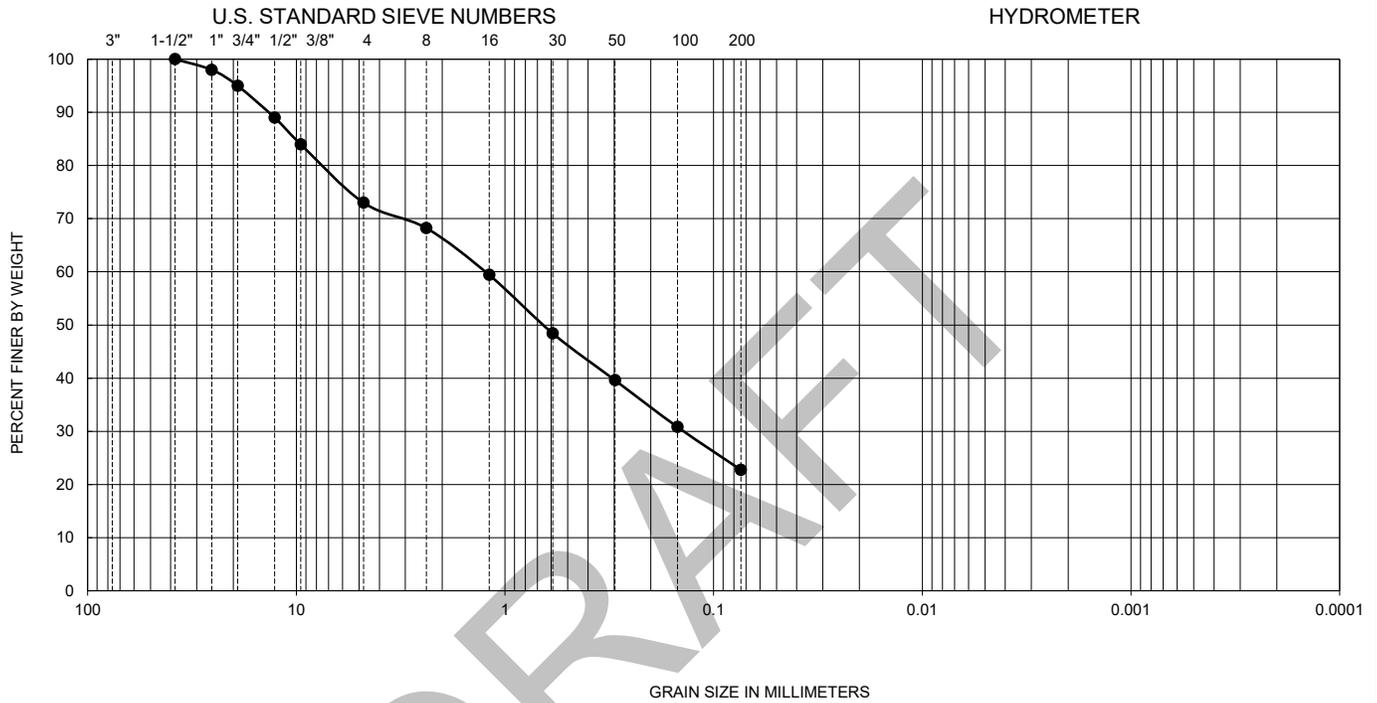
FIGURE B-4

GRADATION TEST RESULTS



EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD, RIVERSIDE COUNTY, CALIFORNIA

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (percent)	USCS
●	B-10	2.0-5.0	--	--	--	--	--	--	--	--	23	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

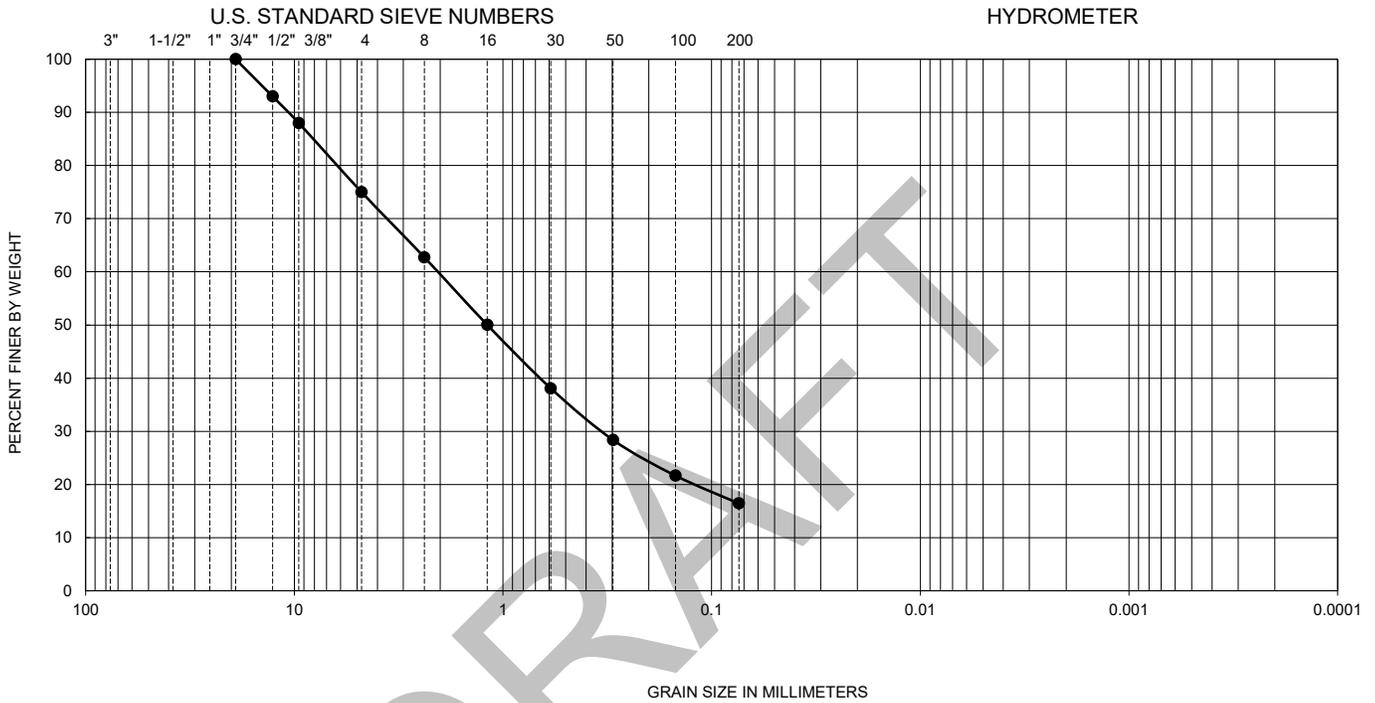
FIGURE B-5

GRADATION TEST RESULTS



EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD, RIVERSIDE COUNTY, CALIFORNIA

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (percent)	USCS
●	B-12	2.0-5.0	--	--	--	--	--	--	--	--	16	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

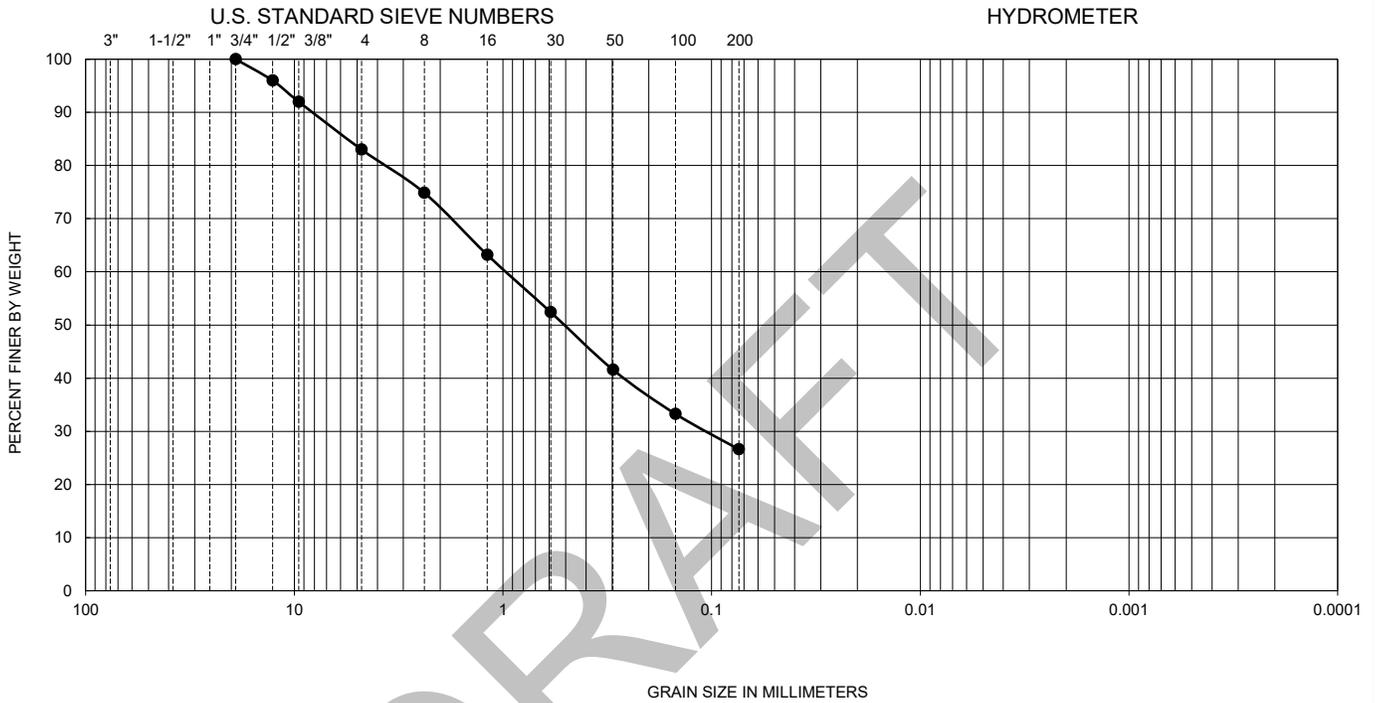
FIGURE B-6

GRADATION TEST RESULTS



EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD, RIVERSIDE COUNTY, CALIFORNIA

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (percent)	USCS
●	B-13	2.0-5.0	--	--	--	--	--	--	--	--	27	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

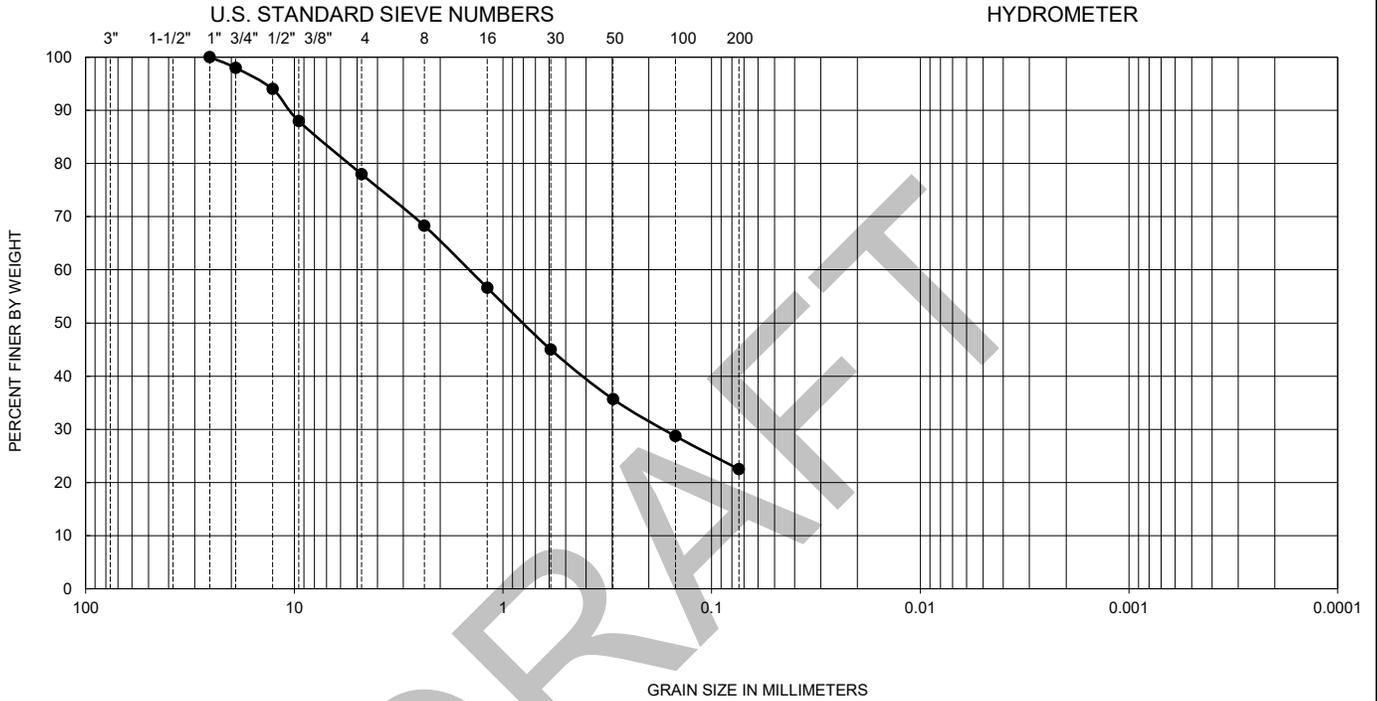
FIGURE B-7

GRADATION TEST RESULTS



EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD, RIVERSIDE COUNTY, CALIFORNIA

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (percent)	USCS
●	B-14	2.0-5.0	--	--	--	--	--	--	--	--	22	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

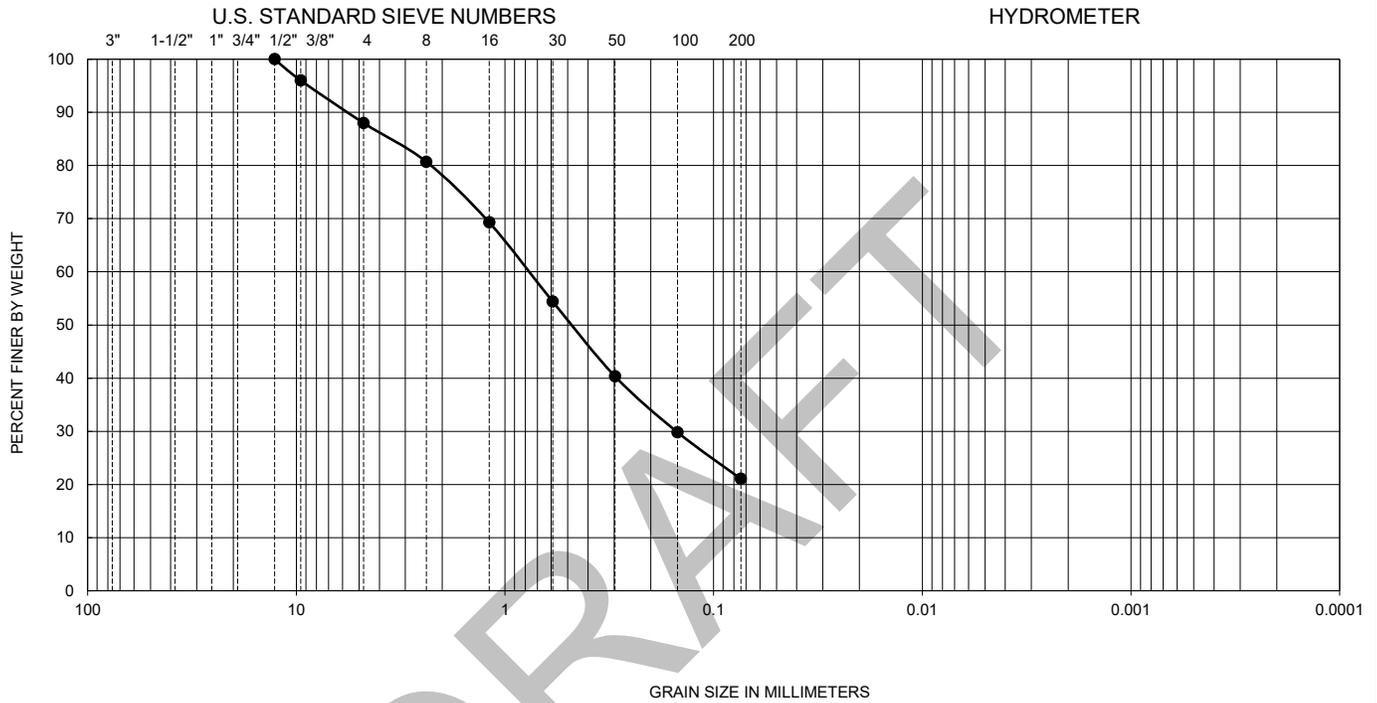
FIGURE B-8

GRADATION TEST RESULTS



EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD, RIVERSIDE COUNTY, CALIFORNIA

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (percent)	USCS
●	B-15	2.0-5.0	--	--	--	--	--	--	--	--	21	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

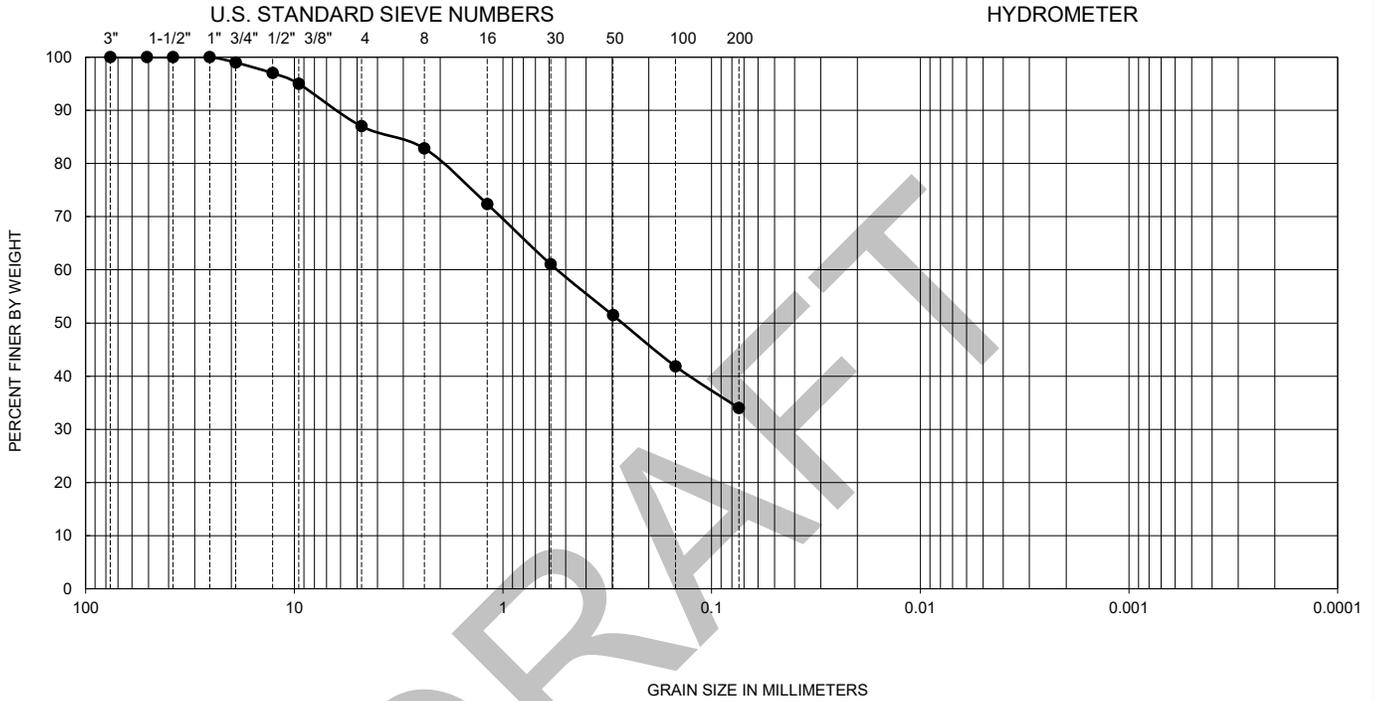
**FIGURE B-9**

**GRADATION TEST RESULTS**



EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD, RIVERSIDE COUNTY, CALIFORNIA

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (percent)	USCS
●	B-20	2.0-5.0	--	--	--	--	--	--	--	--	34	SM

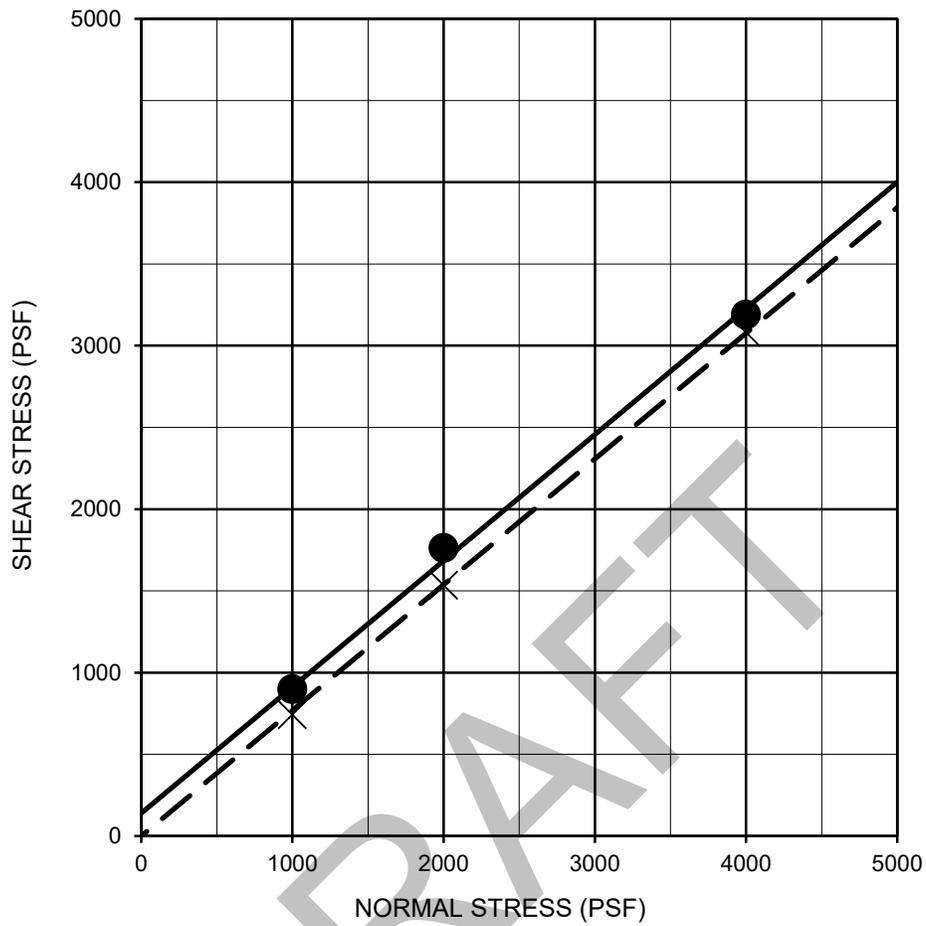
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

**FIGURE B-10**

**GRADATION TEST RESULTS**



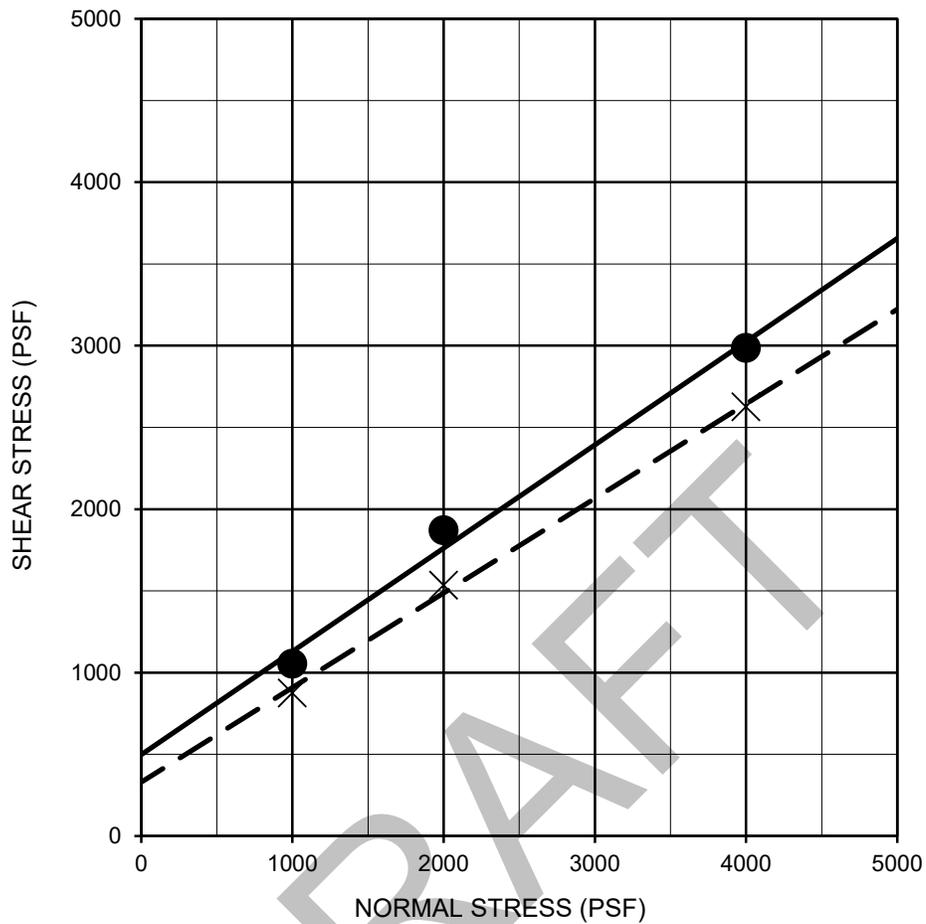
EVMWD HIGHWAY 74/ETHANAC SEWER EXTENSION  
HIGHWAY 74 AND WASSON CANYON ROAD, RIVERSIDE COUNTY, CALIFORNIA



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
Silty SAND	—●—	B-17	5.0-6.5	Peak	140	38	SM
Silty SAND	- - X - -	B-17	5.0-6.5	Ultimate	0	38	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

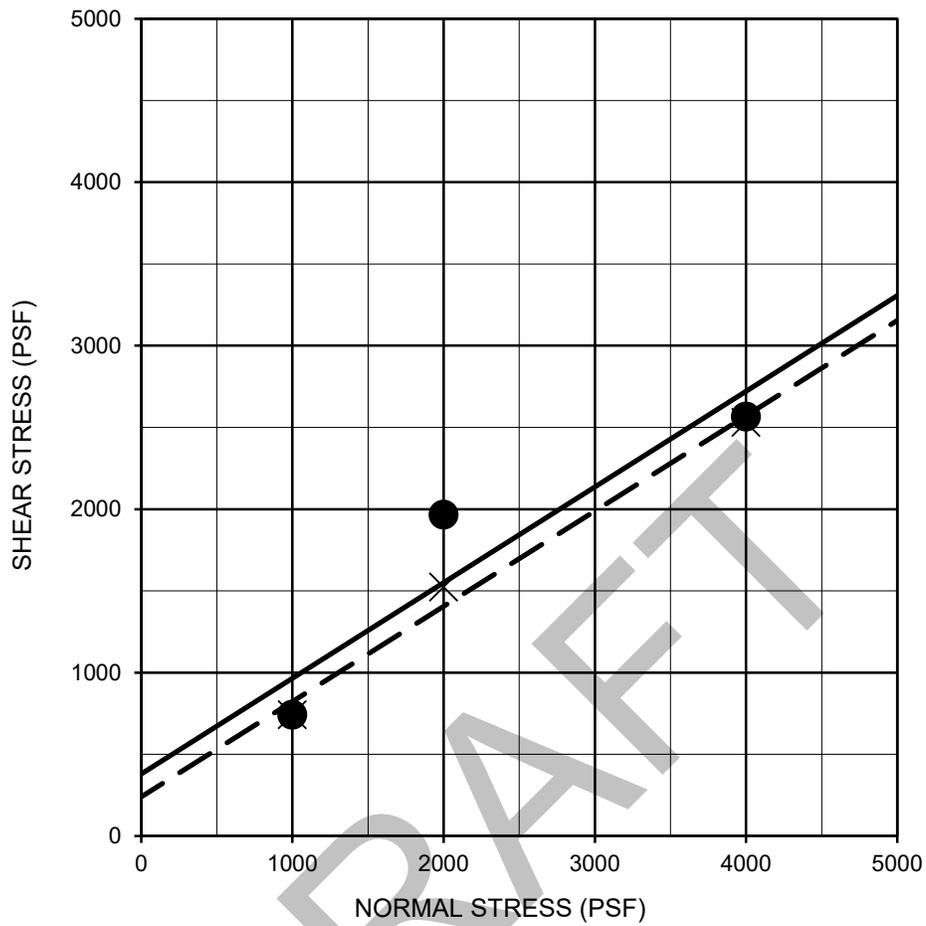
**FIGURE B-11**



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
GRANITIC ROCK	—●—	B-17	10.0-10.8	Peak	500	32	Bedrock
GRANITIC ROCK	- - X - -	B-17	10.0-10.8	Ultimate	330	30	Bedrock

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

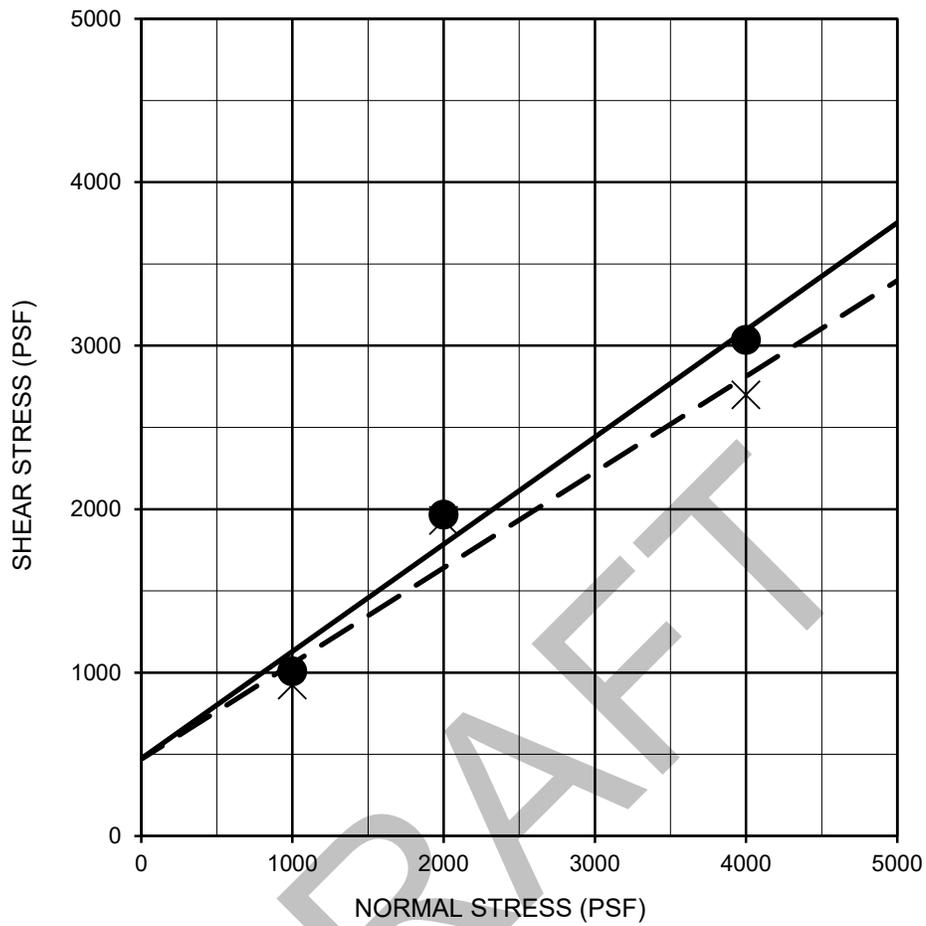
**FIGURE B-12**



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
GRANITIC ROCK	—●—	B-17	15.0-15.3	Peak	380	30	Bedrock
GRANITIC ROCK	- - X - -	B-17	15.0-15.3	Ultimate	240	30	Bedrock

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

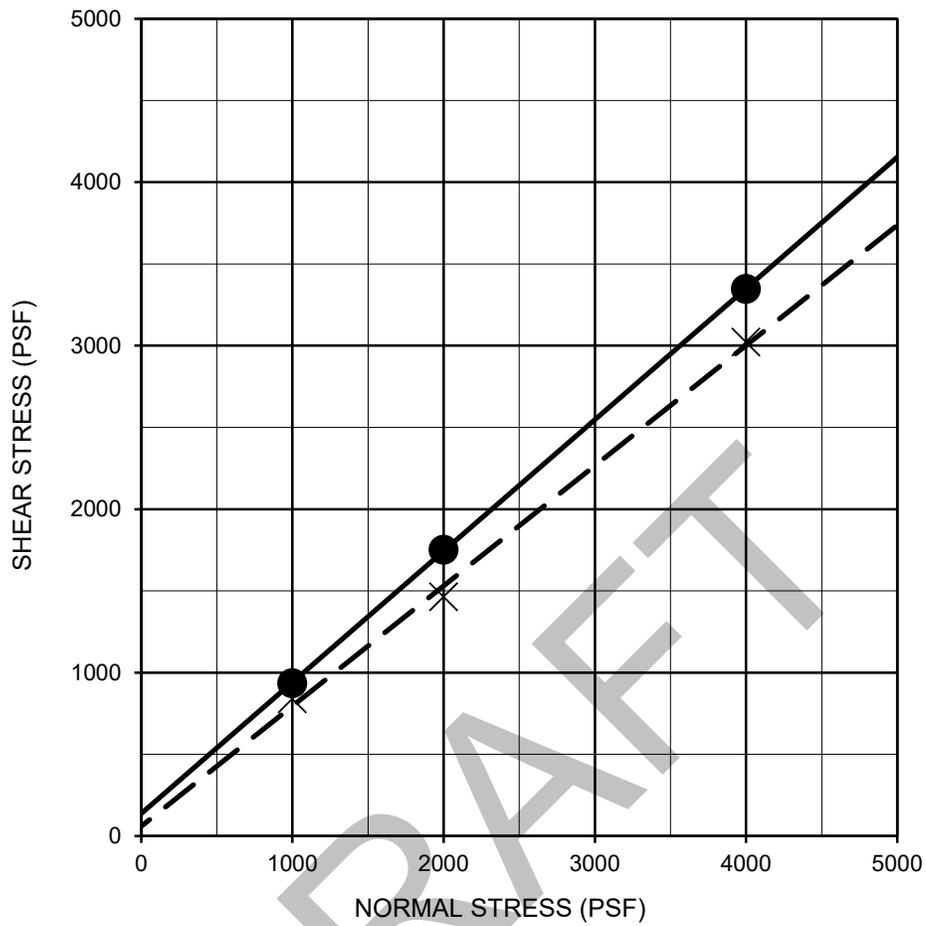
**FIGURE B-13**



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
GRANITIC ROCK	—●—	B-18	10.0-11.4	Peak	470	33	Bedrock
GRANITIC ROCK	- - X - -	B-18	10.0-11.4	Ultimate	470	30	Bedrock

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

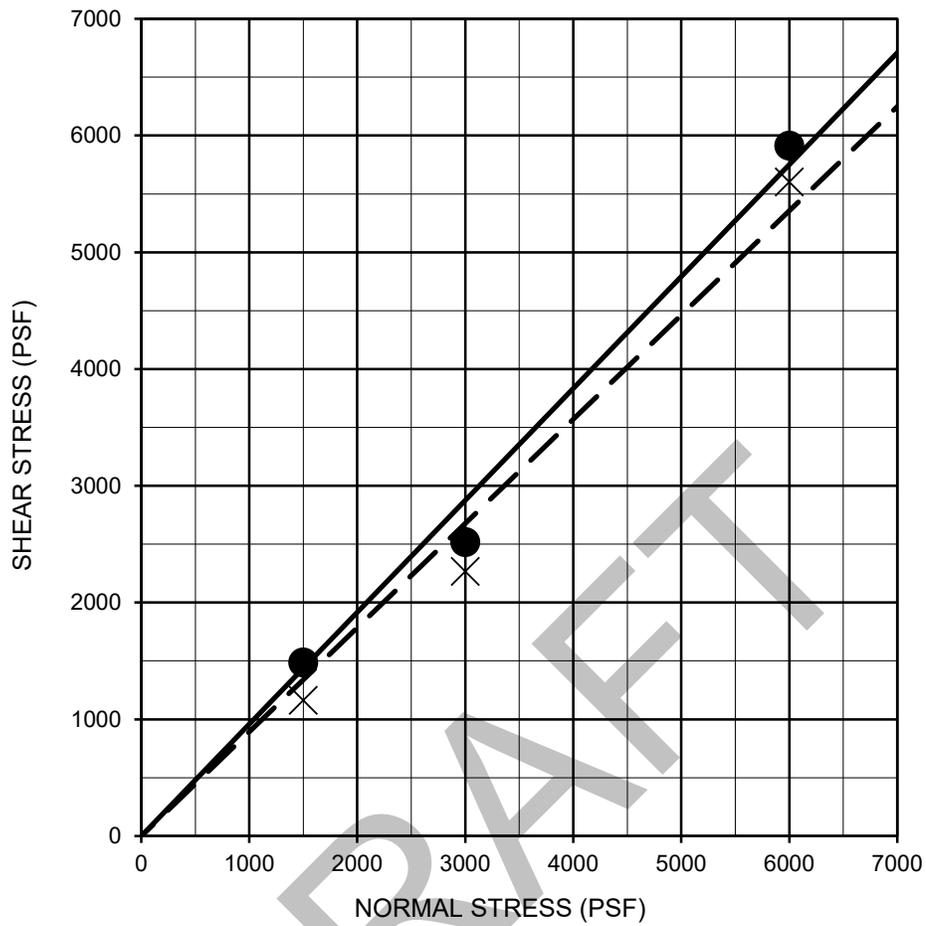
**FIGURE B-14**



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
GRANITIC ROCK	—●—	B-18	15.0-15.8	Peak	140	39	Bedrock
GRANITIC ROCK	- - X - -	B-18	15.0-15.8	Ultimate	60	36	Bedrock

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

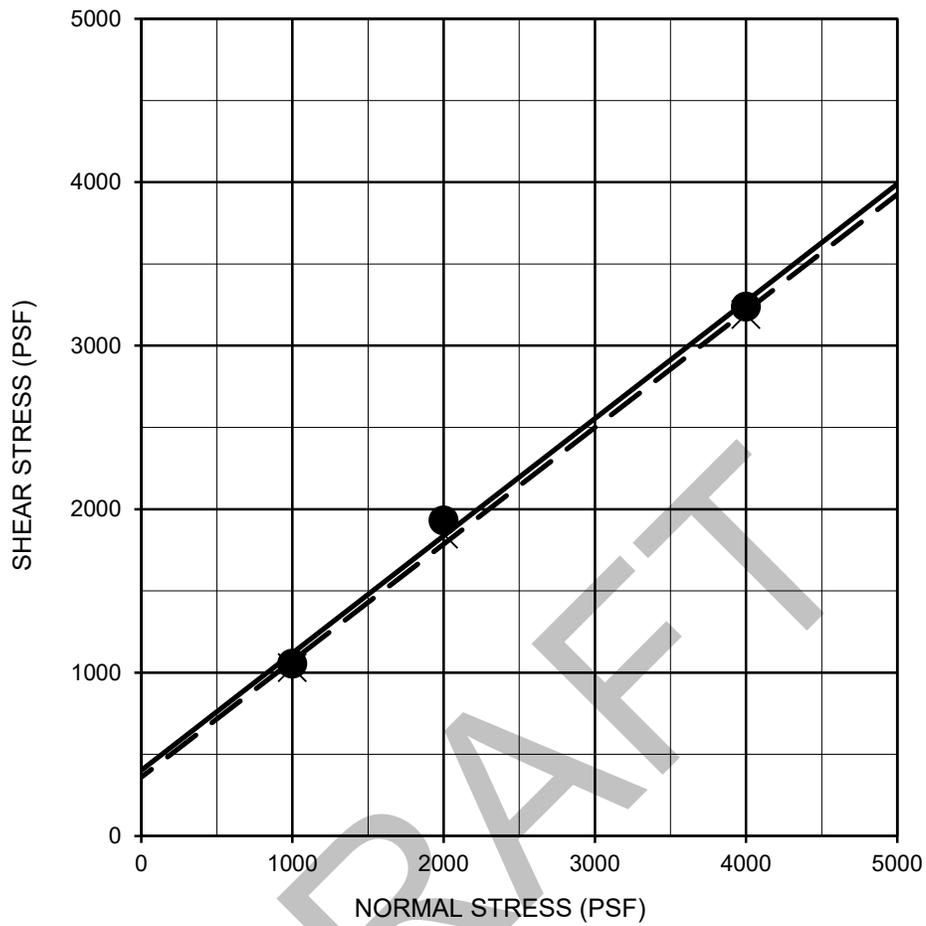
**FIGURE B-15**



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
GRANITIC ROCK	—●—	B-18	20.0-20.8	Peak	0	44	Bedrock
GRANITIC ROCK	- - X - -	B-18	20.0-20.8	Ultimate	0	42	Bedrock

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

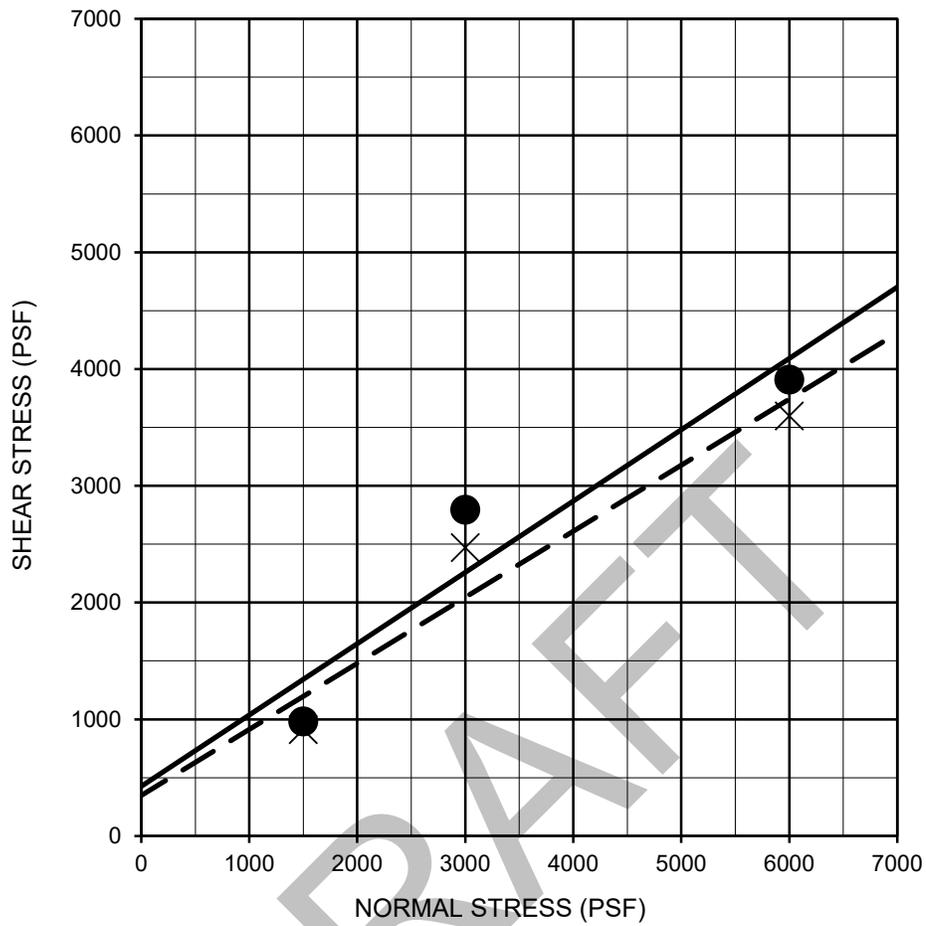
**FIGURE B-16**



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
Silty SAND	—●—	B-19	5.0-6.5	Peak	420	36	SM
Silty SAND	- - X - -	B-19	5.0-6.5	Ultimate	360	35	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

**FIGURE B-17**



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
GRANITIC ROCK	—●—	B-19	25.0-25.4	Peak	430	31	Bedrock
GRANITIC ROCK	- - X - -	B-19	25.0-25.4	Ultimate	350	29	Bedrock

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

**FIGURE B-18**

SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH <sup>1</sup>	RESISTIVITY <sup>1</sup> (ohm-cm)	SULFATE CONTENT <sup>2</sup>		CHLORIDE CONTENT <sup>3</sup> (ppm)
				(ppm)	(%)	
B-2	2.0-5.0	7.6	6,200	10	0.001	105
B-7	2.0-5.0	6.5	3,600	60	0.006	125
B-12	2.0-5.0	7.3	3,700	50	0.005	80
B-19	2.0-5.0	6.9	3,500	10	0.001	125

<sup>1</sup> PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643

<sup>2</sup> PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417

<sup>3</sup> PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

**FIGURE B-19**

SAMPLE LOCATION	SAMPLE DEPTH (ft)	SOIL TYPE	R-VALUE
B-1	2.0-5.0	Silty SAND (SM)	50
B-5	2.0-5.0	Silty SAND (SM)	56
B-8	2.0-5.0	Silty SAND (SM)	53
B-11	2.0-5.0	Silty SAND (SM)	52
B-20	2.0-5.0	Silty SAND (SM)	61

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2844/CT 301

**FIGURE B-20**

**R-VALUE TEST RESULTS**

SAMPLE LOCATION	SAMPLE DEPTH (ft)	SOIL TYPE	SAND EQUIVALENT
B-3	2.0-5.0	SM	23
B-4	2.0-5.0	SM	21
B-6	2.0-5.0	SM	21
B-9	2.0-5.0	SM	20
B-10	2.0-5.0	SM	20
B-12	2.0-5.0	SM	22
B-13	2.0-5.0	SM	23
B-14	2.0-5.0	SM	22

PERFORMED IN GENERAL ACCORDANCE WITH AASHTO T176/CT 217

FIGURE B-21

**SAND EQUIVALENT VALUE**

SAMPLE LOCATION	SAMPLE DEPTH (ft)	SOIL TYPE	SAND EQUIVALENT
B-15	2.0-5.0	SM	29
B-16	2.0-5.0	SM	28
B-20	2.0-5.0	SM	27

PERFORMED IN GENERAL ACCORDANCE WITH AASHTO T176/CT 217

**FIGURE B-22**

**SAND EQUIVALENT VALUE**



# APPENDIX C

## Third-Party Laboratory Testing

**DRAFT**

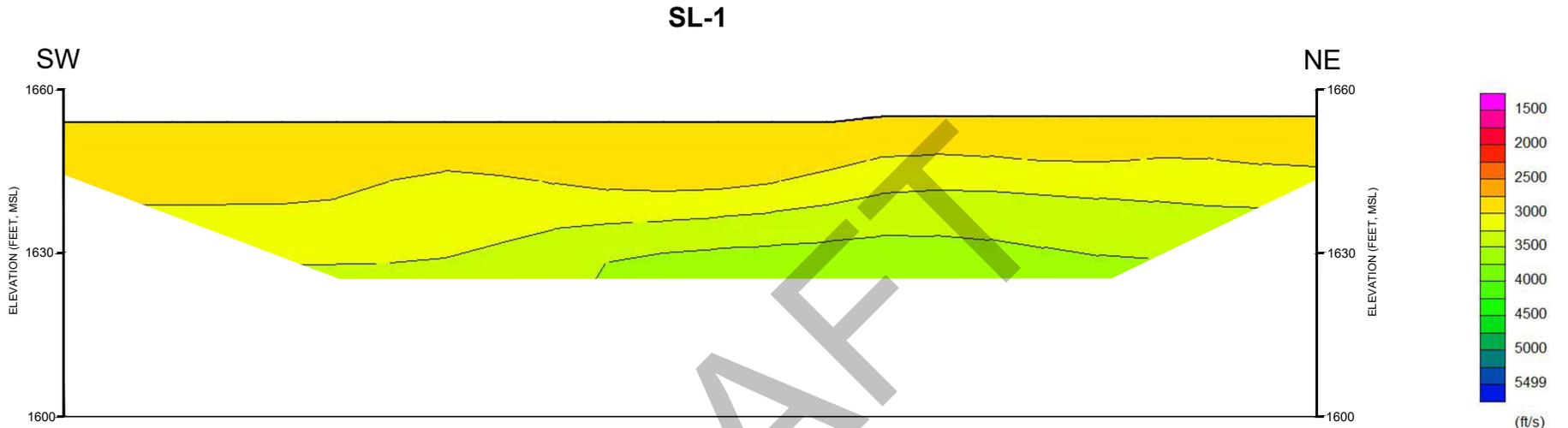


# APPENDIX D

## Seismic Refraction Survey Results

DRYTEXT

109589001 SEISMIC LINES.DWG AOB



DRAFT

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

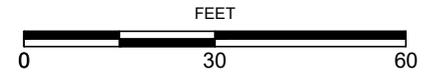
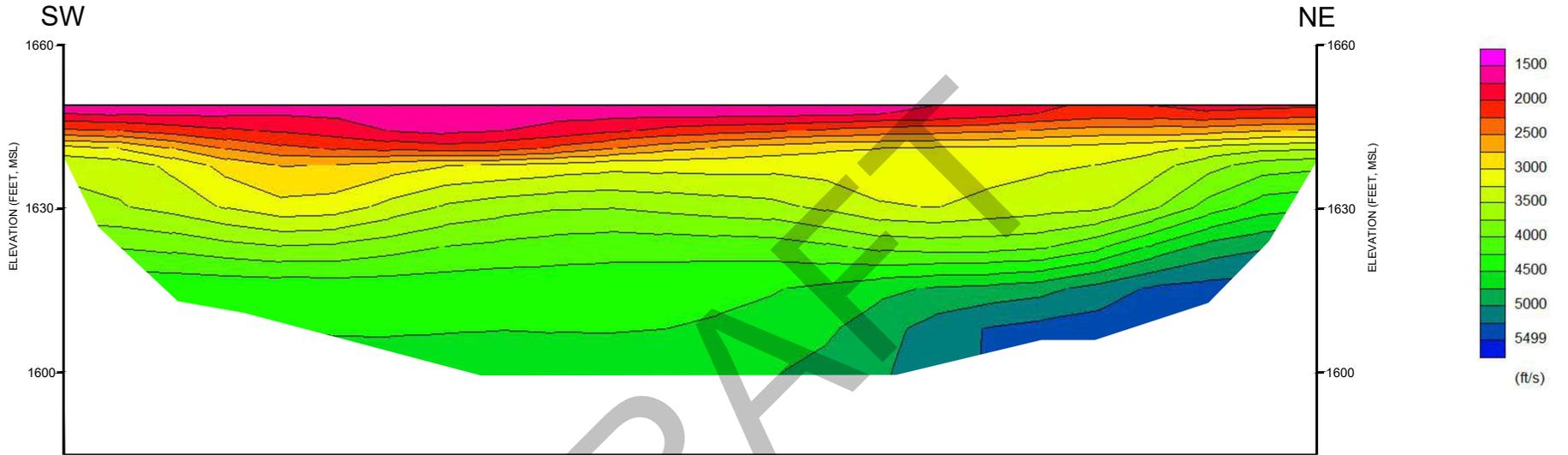


FIGURE D-1

109589001 SEISMIC LINES.DWG AOB

### SL-2



DRAFT

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

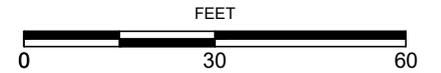
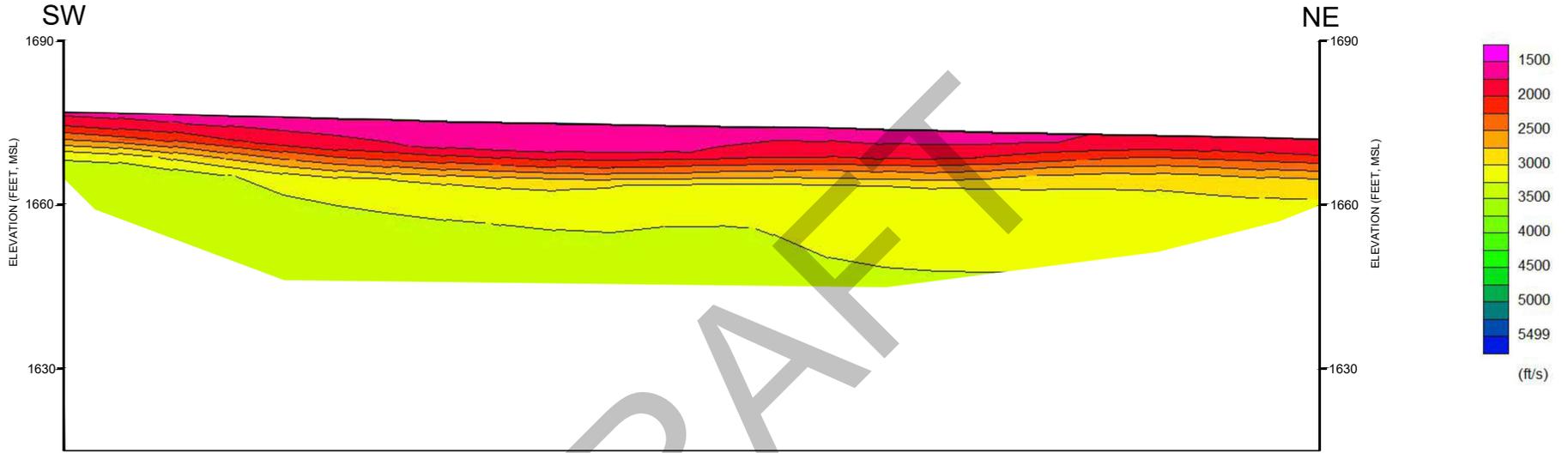


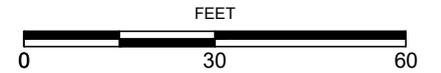
FIGURE D-2

109589001 SEISMIC LINES.DWG AOB

### SL-3



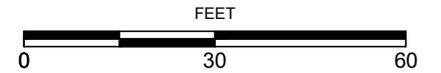
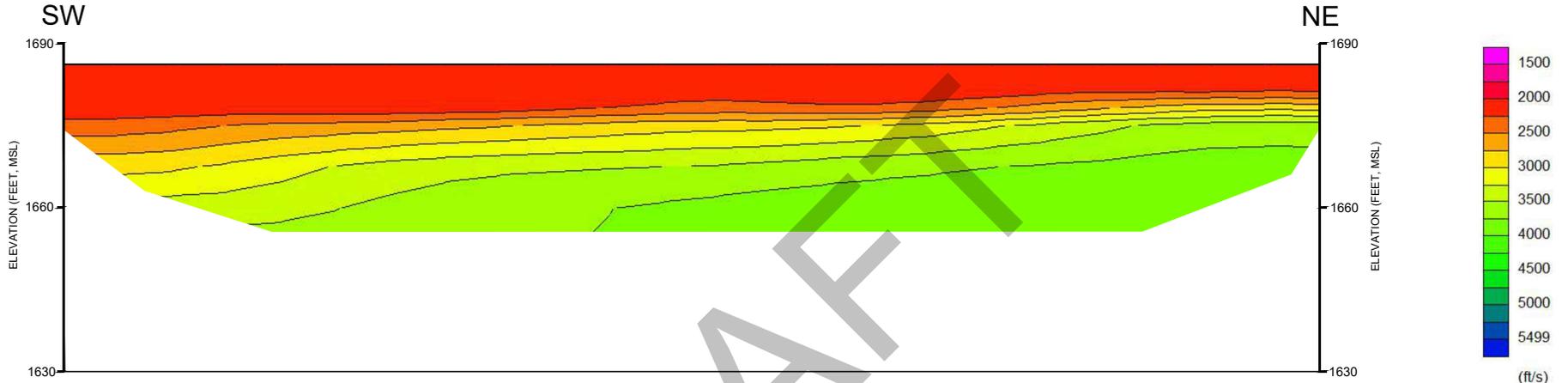
NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.



**FIGURE D-3**

109589001 SEISMIC LINES.DWG AOB

### SL-4

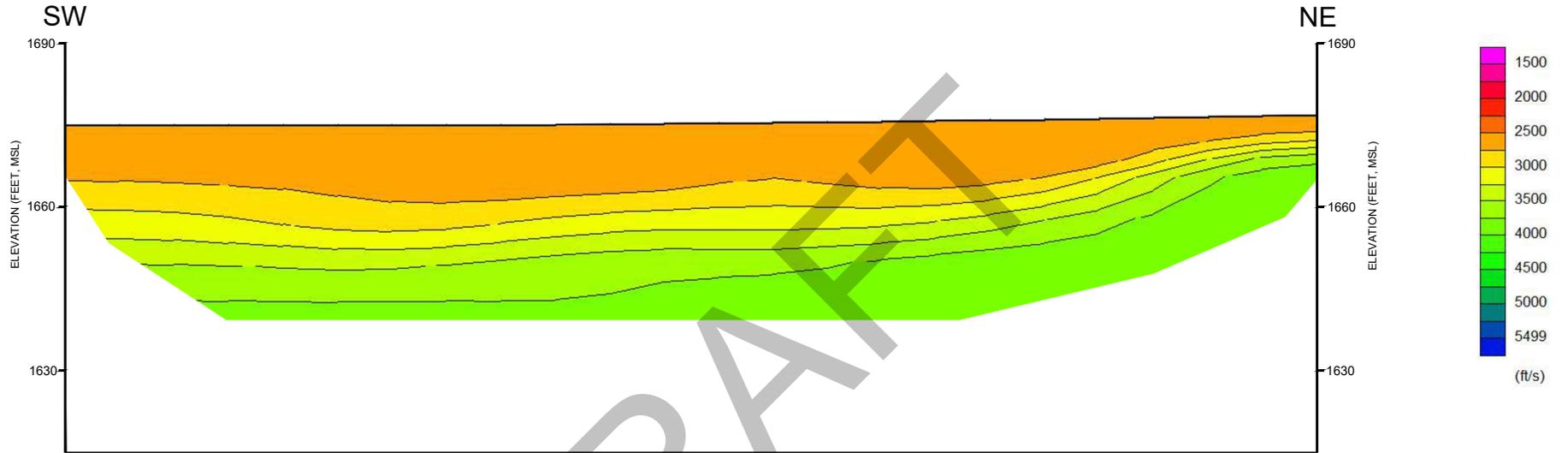


NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

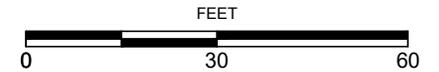
**FIGURE D-4**

109589001 SEISMIC LINES.DWG AOB

### SL-5



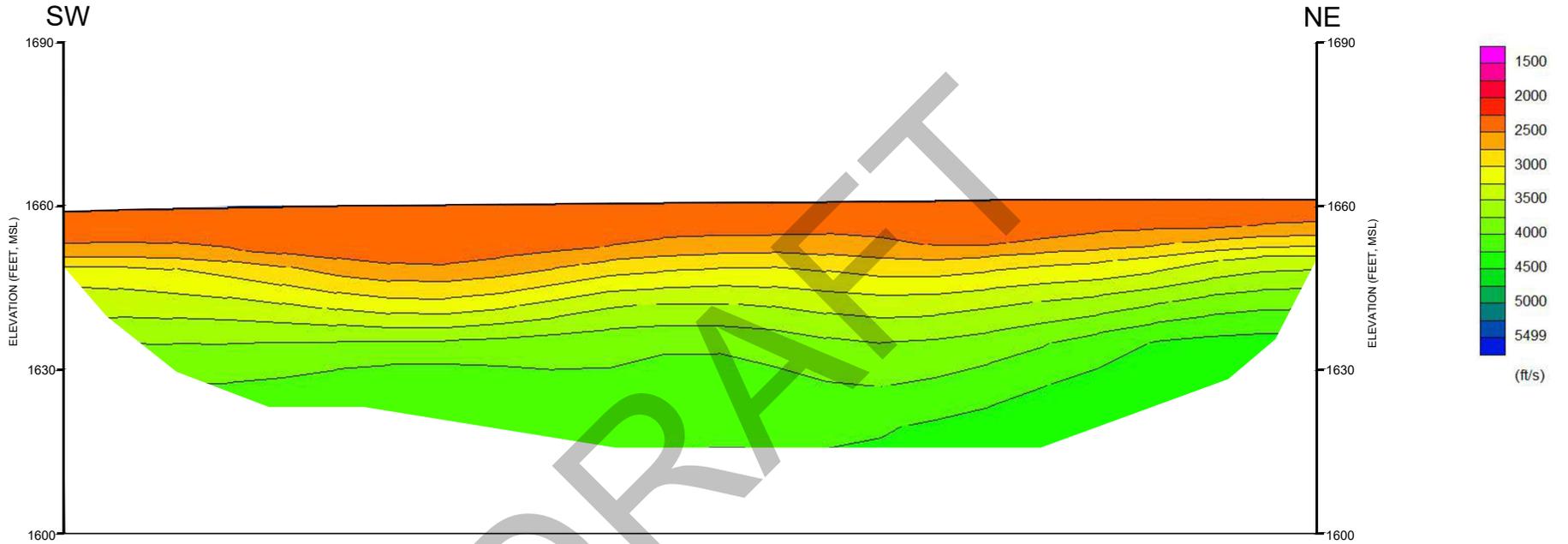
NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.



**FIGURE D-5**

109589001 SEISMIC LINES.DWG AOB

### SL-6



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

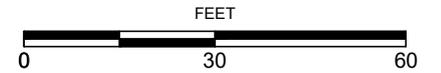
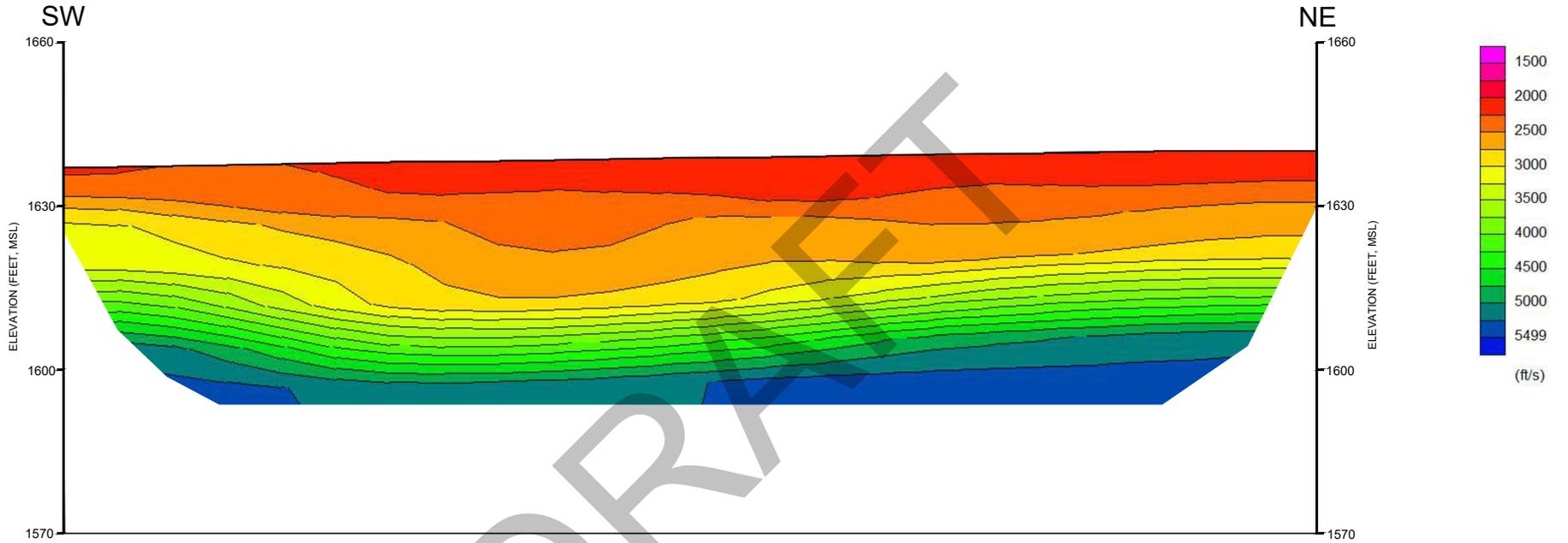


FIGURE D-6

109589001 SEISMIC LINES.DWG AOB

### SL-7



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

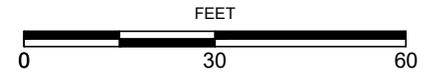
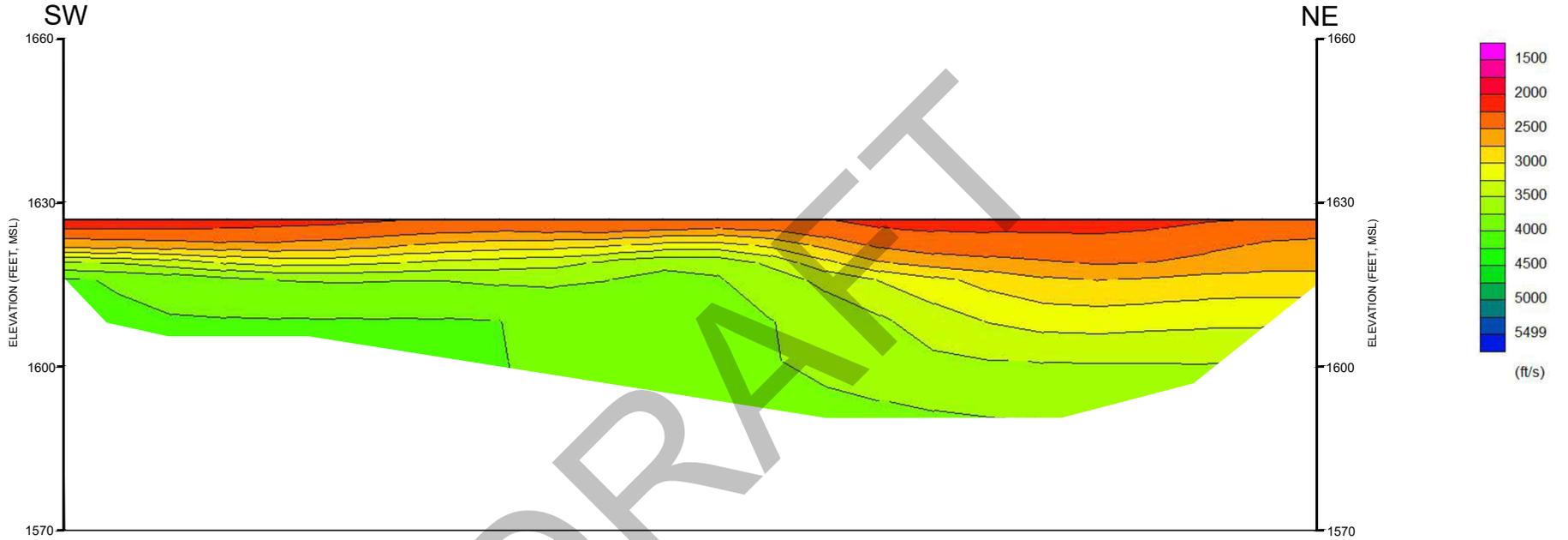


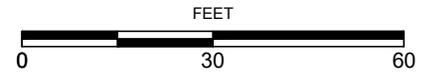
FIGURE D-7

109589001 SEISMIC LINES.DWG AOB

### SL-8



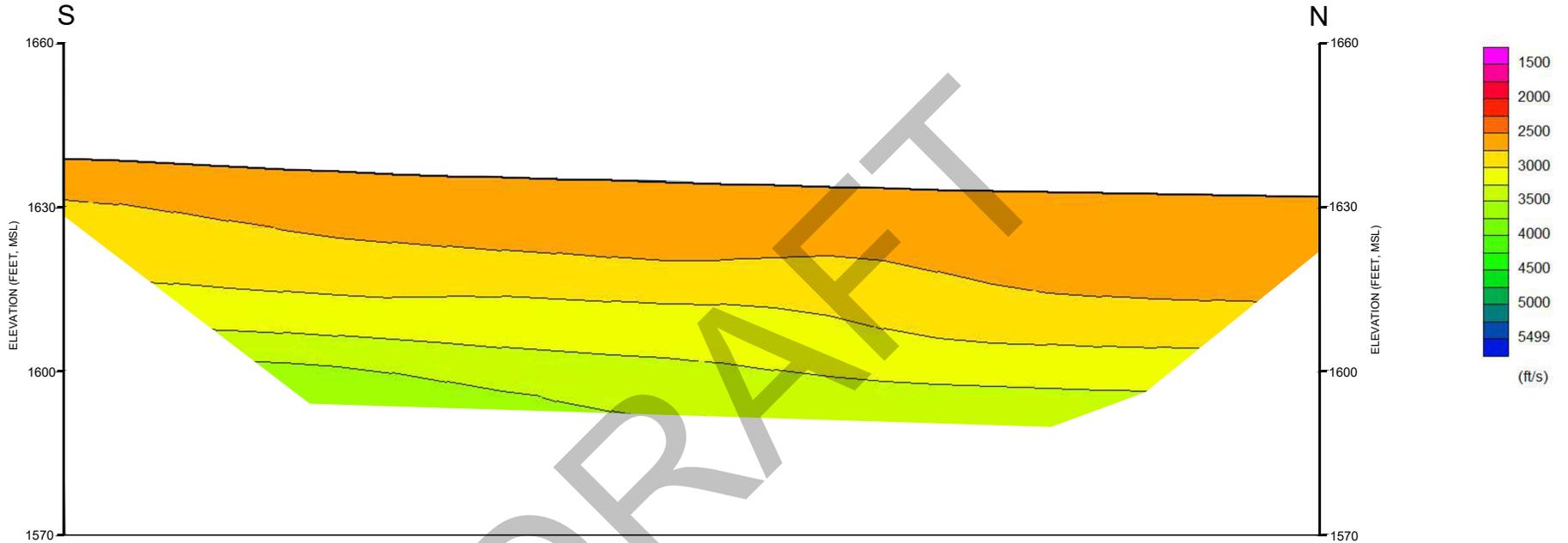
NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.



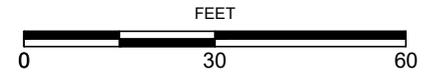
**FIGURE D-8**

109589001 SEISMIC LINES.DWG AOB

### SL-9



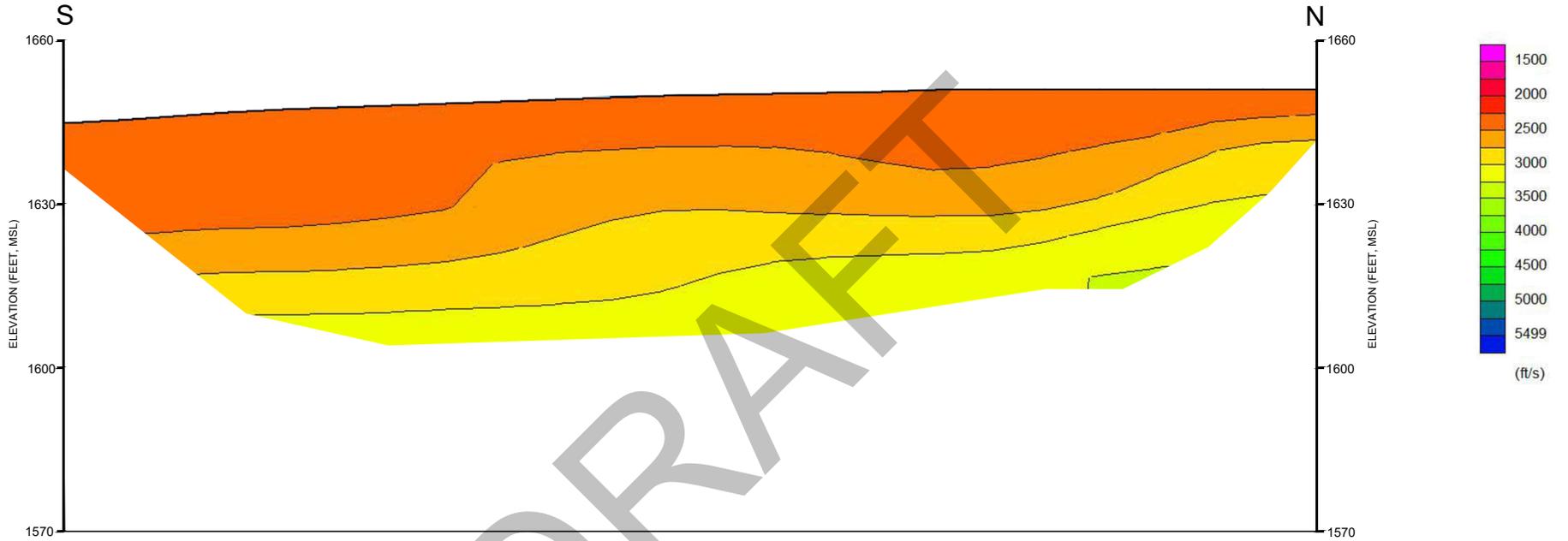
NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.



**FIGURE D-9**

109589001 SEISMIC LINES.DWG AOB

### SL-10



DRAFT

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

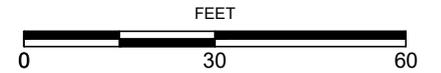


FIGURE D-10

AET



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# IS/MND Appendix E

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Paleontological Resources Assessment  
(confidential; bound separately)