BEAUMONT-CHERRY VALLEY WATER DISTRICT
NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR
2017 WATER PIPELINE REPLACEMENT PROJECT
NOTICE OF PUBLIC HEARING
NOTICE OF PUBLIC REVIEW OF A PROPOSED MITIGATED NEGATIVE DECLARATION

Notice is Hereby Given: The Beaumont-Cherry Valley Water District (District) is the lead agency on the below-described project and has prepared a Mitigated Negative Declaration (MND) for the proposed **2017 WATER PIPELINE REPLACEMENT PROJECT** (Project) pursuant to the California Environmental Quality Act (CEQA). The District has determined that the Project will have a less than significant effect on the environment, with mitigation and therefore the MND was prepared. The complete Project description, location and the potential environmental effects are contained in the MND, which is available to the public for review.

Project Title: 2017 WATER PIPELINE REPLACEMENT PROJECT

Project Location and Description: Various. Specific locations can be reviewed at www.bcvwd.org

Mitigations Measures: The District has incorporated the project mitigation measures for potentially significant project impacts related to biological and cultural resources. The mitigation measures are included in the MND.

Document Availability and Public Review Timeline: The review period for the MND will be from October 7, 2019 to November 7, 2019. Copies of the MND and construction drawings can be reviewed at the Beaumont-Cherry Valley Water District Main Office building located at 560 Magnolia Avenue, Beaumont, CA 92223. Copies can also be viewed at the District's website at the following address: www.bcvwd.org. Please submit your written comments to Mark Swanson, Senior Engineer, Beaumont-Cherry Valley Water District, 560 Magnolia Avenue, Beaumont, CA 92223, email mark.swanson@bcvwd.org, (951) 845-9581.

Public Hearing: The Beaumont-Cherry Valley Water District Board of Directors will consider adoption of the Proposed Mitigated Negative Declaration for this project on **November 13, 2019 at 6:00 p.m. in the Board Room at the Beaumont-Cherry Valley Water District Main Office, 560 Magnolia Avenue, Beaumont, Ca 92223**. You are invited to attend this meeting and present public testimony regarding this project. Inquiries should be directed to Mark Swanson, Senior Engineer, Beaumont-Cherry Valley Water District by email: mark.swanson@bcvwd.org or by phone: (951) 845-9581.

If you would like to view the District Board Agenda and Staff Report on this matter, please visit the Beaumont-Cherry Valley Water District Website at www.bcvwd.org. Select "Board Information" and then "Board Meeting Agendas." The Agenda and Reports are published to the website 72 hours immediately preceding the Board meeting when these matters will be heard.

If you challenge this project in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the District at, or prior to, the public hearing.

ADMINISTRATIVE DRAFT
INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

BCVWD Replacement Pipeline Project

(Apple Tree Lane – Avenida Altejo Bella – Egan Avenue Alley)

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JN 164160

September 2019

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1.0 INTRODUCTION

Following preliminary review of the proposed Water Pipeline Replacement Project (proposed project), the Beaumont-Cherry Valley Water District (District and/or BCVWD) has determined that the project is subject to the guidelines and regulations of the California Environmental Quality Act (CEQA). This Initial Study has been prepared to address potential impacts associated with the project, as described below. This Initial Study addresses the potential direct, indirect, and cumulative environmental effects associated with implementation of the proposed project.

1.1 STATUTORY AUTHORITY AND REQUIREMENTS

In accordance with CEQA (Public Resources Code Sections 21000–21177) and pursuant to Section 15063 of the California Code of Regulations (CCR), the District, acting in the capacity of lead agency, is required to undertake the preparation of an Initial Study to determine if the proposed project would have a significant environmental impact. If the District finds that there is no evidence that the project, either as proposed or as modified to include the mitigation measures identified in this Initial Study, may cause a significant effect on the environment, the District shall find that the proposed project would not have a significant effect on the environment and shall prepare a Negative Declaration or Mitigated Negative Declaration for the project. Such a determination may be made only if "there is no substantial evidence in light of the whole record before the lead agency" that such impacts may occur (Public Resources Code Section 21080(c)).

This document has been prepared to provide an environmental basis for subsequent discretionary actions for the project, to inform the District prior to taking action on the project, and to provide responsible agencies, trustee agencies, other affected agencies, and the general public with information regarding the project and its potential environmental effects. As discussed further in Section 2.5, the discretionary actions anticipated to be required for the proposed project by the District are the adoption of a Mitigated Negative Declaration and approval of Encroachment Permits from the City of Beaumont and the County of Riverside, and a pipeline separation variance from the State Water Resources Control Board.

The following environmental documentation and supporting analysis is subject to a 30-day public review period. During this review, comments on the document relative to environmental issues should be addressed to BCVWD. Following review of comments received, the District will consider the comments as part of the project's environmental review process.

1.2 PURPOSE

The purpose of the Initial Study/Mitigated Negative Declaration (IS/MND) is to (1) identify potential environmental impacts; (2) provide the lead agency with information to use as the basis for deciding whether to prepare an Environmental Impact Report (EIR) or Negative Declaration (including a Mitigated Negative Declaration); (3) enable an applicant or the lead agency to modify a project, mitigating adverse impacts before an EIR is prepared; (4) facilitate environmental assessment early in the design of the project; (5) provide documentation of the factual basis for the finding in a Negative Declaration that a project would not have a significant environmental effect; (6) eliminate needless EIRs; (7) determine whether a previously prepared EIR could be used for the project; and (8) assist in the preparation of an EIR, if required, by focusing the EIR on the effects determined to be significant, identifying the effects determined not to be significant, and explaining the reasons for determining that potentially significant effects would not be significant. As discussed further below, BCVWD has determined that the project will not result in significant environmental impacts with the incorporated mitigation and has circulated this draft IS/MND for public review and comment.

Section 15063 of the CEQA Guidelines identifies specific disclosure requirements for inclusion in an Initial Study. Pursuant to those requirements, an Initial Study shall include (1) a description of the project, including the location of the project; (2) an identification of the environmental setting; (3) an identification of the environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries; (4) a discussion of ways to mitigate significant effects identified, if any; (5) an examination of whether the project is compatible with existing zoning, plans, and other applicable land use controls; and (6) the name of the person or persons who prepared or participated in the preparation of the Initial Study.

1.3 CONSULTATION

As soon as the lead agency has determined that an Initial Study would be required for the project, the lead agency is directed to consult informally with responsible agencies and trustee agencies that are responsible for resources affected by the project, in order to obtain the recommendations of those agencies as to whether an EIR or Negative Declaration should be prepared for the project. Following receipt of any written comments from those agencies, the lead agency would consider any recommendations of those agencies in the formulation of the preliminary findings. Following preparation of this Initial Study, BCVWD will initiate formal consultation with these and other governmental agencies, as required under CEQA and its implementing guidelines.

1.4 INCORPORATION BY REFERENCE

Pertinent documents relating to this IS/MND have been cited and incorporated, in accordance with Sections 15148 and 15150 of the CEQA Guidelines. The following references were utilized during preparation of this Initial Study and are available for review on the City of Beaumont and County of Riverside websites:

- City of Beaumont General Plan and Zoning Ordinance, 2007
- County of Riverside General Plan and The Pass Area Plan and General Plan EIR, 2015
- County of Riverside Ordinance No. 348
- Western Riverside County Multiple Species Habitat Conservation Plan

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND SETTING

The proposed project is located in the City of Beaumont and within County of Riverside unincorporated area in Riverside County, California; refer to Exhibit 1, *Regional Location Map*, and Exhibit 2, *Site Vicinity Map*. Specifically, the project is located along portions of the existing roadways and easements in unincorporated Riverside County, which include Apple Tree Lane, Oak Glen Road, Avenida Altejo Bella, and Whispering Pines Road. Roadways within the City of Beaumont include the alley southeast of Egan Avenue, California Avenue, and 5th Street. Roadways in the County of Riverside include Oak Glen Road, Avenida Altejo Bella, Whispering Pines, and private roadways of Apple Tree Lane.

Apple Tree Lane

Apple Tree Lane is located north of the City of Beaumont in the community of Cherry Valley, within Riverside County unincorporated area. Apple Tree Lane is accessed east of Oak Glen Road. The water pipeline alignment will extend through the entire Apple Tree Lane easement and then extend northward within the Oak Glen Road right-of-way. Refer to Exhibit 3, *Apple Tree Lane Conceptual Alignment*.

According to the County of Riverside General Plan, the parcels adjacent to the project alignment are designated as Rural Community – Very Low Density Residential land use.

Avenida Altejo Bella

Avenida Altejo Bella is located north of the City of Beaumont in the community of Cherry Valley, within Riverside County unincorporated area. The water pipeline alignment will extend from Avenida Altejo Bella roadway right-of-way, through easements of private properties, and end within Whispering Pines Road right-of-way. Refer to Exhibit 4, *Avenida Altejo Bella Conceptual Alignment*.

According to the County of Riverside General Plan, the parcels adjacent to the project alignment are designated as Rural Community – Very Low Density Residential land use.

Egan Avenue Alley

The Egan Avenue Alley is located north of the Interstate 10 (I-10) freeway and southeast of Egan Avenue between California Avenue and Egan Avenue, in the City of Beaumont. The water pipeline alignment will extend from California Avenue roadway right-of-way, through the Egan Avenue Alley right-of-way, cross 6th Street, continue through the Egan Avenue Alley, and end within the 5th Street roadway right-of-way. Refer to Exhibit 5, *Egan Avenue Alley Conceptual Alignment*.

According to the City of Beaumont General Plan, the parcels adjacent to the project alignment is designated as General Commercial land use.

Water pipeline is a permitted utility within these land use designations. As a public water agency, BCVWD is exempt from local land use control for projects involving the storage, treatment or distribution of potable water, pursuant to Government Code Section 53091(e).

2.2 BACKGROUND

In March of 1919, the Beaumont Irrigation District was formed by a vote of the people in the community under the Wright Act of 1897, which through the years has eventually become the Beaumont-Cherry Valley Water District. Pursuant to the general water system description of the District indicated in the BCVWD's 2015 Urban Water Management Plan (January 2017), BCVWD provides potable and non-potable water service to approximately 16,799 active accounts in the City of Beaumont and the unincorporated community of Cherry Valley in Riverside and San Bernardino counties. The District's present service area covers approximately 28 square miles, mostly in Riverside County, and includes the City of Beaumont and the community of Cherry Valley. BCVWD owns 1,524 acres of watershed land in Edgar Canyon in San Bernardino County where the District operates a number of wells and several reservoirs.

2.3 PROJECT OBJECTIVES

The objective of the proposed project is to replace existing old and distressed potable water pipelines that serve the relevant community within BCVWD's existing water system and to provide adequate water flow for fire protection. With implementation of this replacement pipeline project, water pressure, water quality, and fire flow within the BCVWD system would be improved. The project would also allow staff better access to the pipelines for repairs should the need arise.

2.4 PROJECT CHARACTERISTICS

BCVWD proposes to replace and upgrade existing aged portions of their water distribution system including pipelines and appurtenances. BCVWD has identified three separate segments (Apple Tree Lane, Avenida Altejo Bella, and Egan Avenue Alley) of the system that are problematic and have a history of failures and repairs. The pipeline sections identified for replacement in this project range from 2 to 6 inches in diameter. All sections of the pipeline replacements would be increased in size to the District's minimum standard of 8 inches. Some of the existing pipeline would remain in place and be abandoned and other portions would be removed and replaced, as necessary. Project construction would occur over approximately six months beginning in Fall 2020. Construction activities include site mobilization, trenching, pipe installation, backfill of trench materials, and installation of asphalt or earthen materials.

The proposed improvements for each of the three pipeline alignments/segments is provided below.

Apple Tree Lane

This segment of the project would connect to an existing water pipeline at the northern portion of Apple Tree Lane and extend within the entire length of the Apple Tree Lane easement. The new replacement pipeline would be approximately 1,800 linear feet of 8-inch diameter pipe. At the intersection of Apple Tree Lane and Oak Glen Road, the new pipeline would extend to the north approximately 760 linear feet of 8-inch diameter pipe on the east side the Oak Glen Road right-of-way and connect to an existing water pipeline in Oak Glen Road. Construction activities would include, but not be limited to, trenching, pipe lay down/install, backfilling the trench with extracted material, and providing an asphalt (or similar material) trench cover. Refer to Exhibit 3, *Apple Tree Lane Conceptual Alignment*.

Avenida Altejo Bella

This segment of the project would connect to an existing water pipeline within the Avenida Altejo Bella right-of-way, extending approximately 2,250 linear feet of 8-inch diameter water pipeline through easements of various private properties and eventually connecting to an existing pipeline within Whispering Pines Road right-of-way. A portion of this alignment would include an approximate 225 linear feet 4-inch diameter lateral water pipeline that would connect to existing water meters located on private property. The majority of the pipeline is located on private property and the District has been, and would continue to be, in direct communication with the affected property owners. Construction activities would include, but not be limited to, trenching, pipe lay down/install, backfilling the trench with extracted material, and providing an asphalt (or similar material) trench cover over roadway areas. Some of the trench cover would consist of earthen material depending on the location of the trenching being constructed through a hard surface or through private yard landscaped areas. Refer to Exhibit 4, *Avenida Altejo Bella Conceptual Alignment*.

Egan Avenue Alley

This segment of the project would connect to an existing water pipeline located within North California Avenue right-of-way near the intersection of West 7th Street and North California Avenue. The alignment would extend south within the entire length of the Egan Avenue Alley right-of-way, cross West 6th Street and connect to an existing water pipeline within the West 5th Street right-of-way. The new replacement pipeline would be approximately 800 linear feet of 8-inch diameter pipe. Construction will include, but not be limited to, trenching, pipe lay down/install, possible temporary high-line to facilitate interim construction phasing, backfilling the trench with extracted material, and providing an asphalt (or similar material) trench cover. Refer to Exhibit 5, *Egan Avenue Alley Conceptual Alignment*.

2.5 AGREEMENTS, PERMITS, AND APPROVALS

The following permits and approvals are anticipated for the proposed project:

Table 2.5-1
Required Permit Approvals

Agreements, Permits, and Approvals	Granting Agency
IS/MND Approval	BCVWD
Encroachment Permit	City of Beaumont
Encroachment Permit	County of Riverside
Pipeline Separation Variance	State Water Resources Control Board Division of Drinking Water

2.6 INITIAL STUDY CHECKLIST

2.6.1 BACKGROUND

1.	**Project Title:** BCVWD Pipeline Replacement Project
2.	**Lead Agency Name and Address:** Beaumont-Cherry Valley Water District 560 Magnolia Avenue Beaumont, CA 92223
3.	**Contact Person and Phone Number:** Mark Swanson (951) 845-9581 (Ext: 218)
4.	**Project Location:** The proposed project is located in the City of Beaumont and County of Riverside unincorporated area (Cherry Valley) along portions of Apple Tree Lane, Avenida Altejo Bella and Egan Avenue Alley. (See Exhibits 2, 3 and 4 herein).
5.	**Project Sponsor's Name and Address:** Beaumont-Cherry Valley Water District 560 Magnolia Avenue Beaumont, CA 92223
6.	**General Plan Designation:** Apple Tree Lane and Avenida Altejo Bella are located within the County of Riverside unincorporated area. The County of Riverside's General Plan designates the parcels adjacent to these project alignments as Rural Community – Very Low Density Residential land use. Egan Avenue Alley is located within the City of Beaumont. The City of Beaumont's General Plan designates the parcels adjacent to the project alignment as General Commercial land use.
7.	**Zoning:** Apple Tree Lane and Avenida Altejo Bella are located within the County of Riverside unincorporated area. The County of Riverside's Zoning designates the parcels adjacent to these project alignments as Residential Agricultural (R-A-1). Egan Avenue Alley is located within the City of Beaumont. The City of Beaumont's Zoning Map designates the parcels adjacent to the project alignment as Commercial Community (CC).
8.	**Description of the Project:** Refer to Section 2.4, *Project Characteristics*. The project proposes the replacement/upgrade of existing water pipelines. Some existing pipeline would remain in place and be abandoned, other portions of the existing pipeline would be removed and replaced by 8-inch water pipeline, as necessary.
9.	**Surrounding Land Uses and Setting:** The lands surrounding the project alignment are existing residential uses for Apple Tree Lane and Avenida Altejo Bella. The lands surrounding the project alignment for Egan Avenue Alley are existing commercial.
10.	**Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement).** A. State Water Resources Control Board Division of Drinking Water, City of Beaumont and County of Riverside.

	B. Local Tribes that requested consultation per AB 52.
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.?** In compliance with AB 52, BCVWD distributed letters to 34 Native American tribes informing them of the project in May of 2019. The Agua Caliente Band of Cahuilla Indians and the Morongo Band of Mission Indians both requested to participate in a formal consultation and asked for additional information. On July 15,2019, BCVWD sent formal consultation letters with the requested information to the Agua Caliente Band of Cahuilla Indians and the Morongo Band of Mission Indians. On August 20,2019, BCVWD received a response from the Agua Caliente Band of Cahuilla Indians stating that their concerns had been addressed with proper mitigation measures, however BCVWD received no further correspondence from the Morongo Band of Mission Indians. Given the level of previous disturbance within the project site, as well as proposed mitigation measures, it is not expected that any tribal cultural resources as defined in Public Resources Code Section 21074 would occur within the project area. Therefore, the proposed project would not have a significant impact to a historical resource, as defined in PRC Section 5020.1(k). Thus, impacts to a listed or eligible resource under the California Register of Historical Resources or a local register as defined under Public Resources Code section 5020.1(k) are anticipated to be less than significant.

2.6.2 EVALUATION OF ENVIRONMENTAL IMPACTS

This section analyzes the potential environmental impacts associated with the proposed project. The issue areas evaluated in this Initial Study include:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by the State CEQA Guidelines, Appendix G, and is used by BCVWD in its environmental review process. For the preliminary environmental assessment undertaken as part of this Initial Study's preparation, a determination that there is a potential for significant effects indicates the need to fully analyze the project's impacts and to identify mitigation.

For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated with appropriate answers provided according to the analysis undertaken as part of the Initial Study. The analysis considers the project's long-term, direct, indirect, and cumulative impacts. To each question, there are four possible responses:

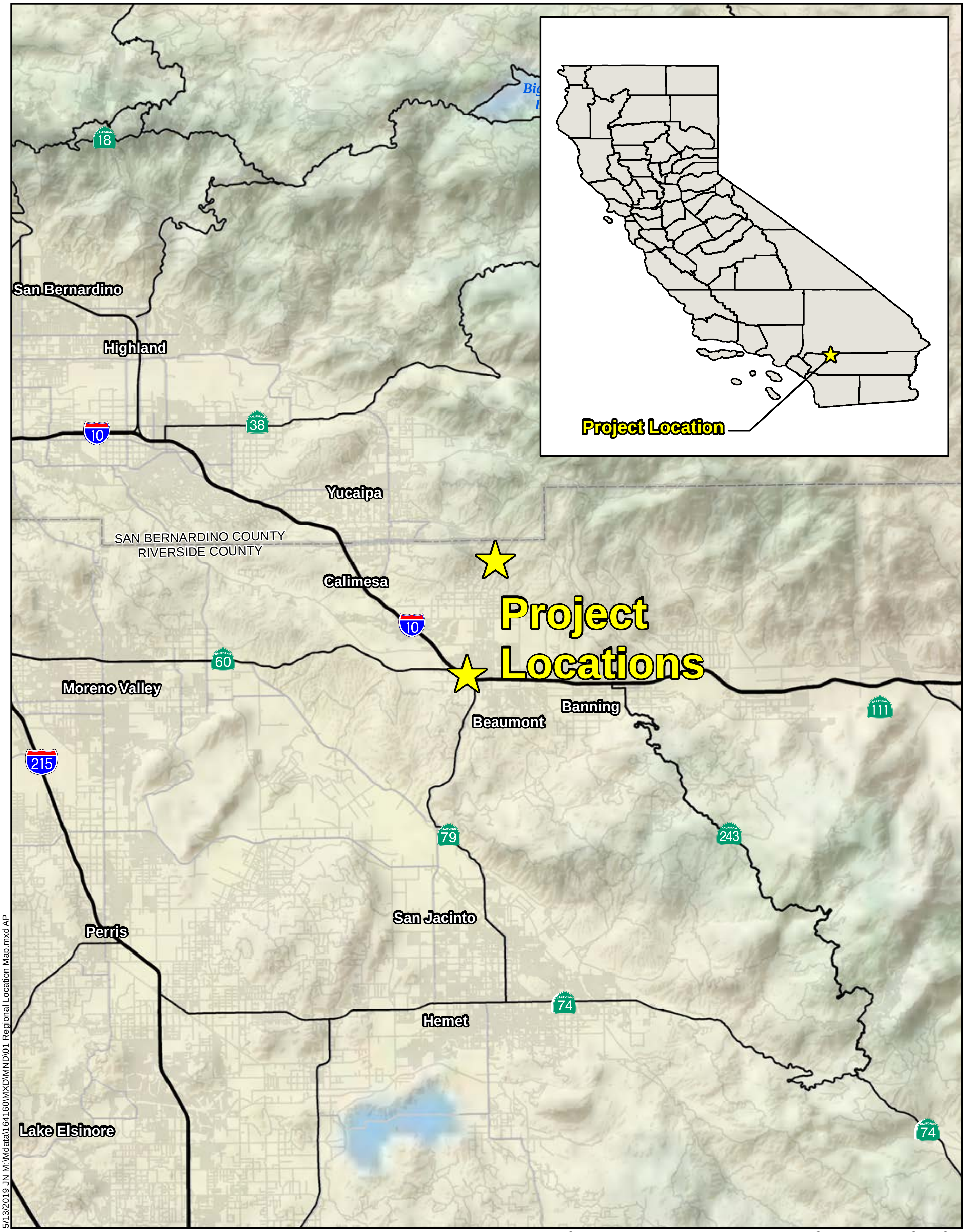
- **No Impact.** The project will not have any measurable environmental impact on the environment.

- **Less Than Significant Impact.** The project will have the potential for impacting the environment, although this impact will be below established thresholds that are considered to be significant.
- **Less Than Significant with Mitigation Incorporated.** The project will have the potential to generate impacts that may be considered as a significant effect on the environment, although mitigation measures or changes to the project's physical or operational characteristics can reduce these impacts to levels that are less than significant.
- **Potentially Significant Impact**. The project will have impacts that are considered significant, and additional analysis is required to identify mitigation measures that could reduce these impacts to less than significant levels. Where potential impacts are anticipated to be significant, mitigation measures will be required, so that impacts may be avoided or reduced to insignificant levels.

2.6.3 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," as indicated by the checklist on the following pages.

	Aesthetics		Mineral Resources
	Agriculture and Forestry Resources	X	Noise
	Air Quality		Population and Housing
X	Biological Resources		Public Services
X	Cultural Resources		Recreation
	Energy		Transportation/Traffic
	Geology and Soils	x	Tribal Cultural Resources
	Greenhouse Gas Emissions		Utilities and Service Systems
	Hazards and Hazardous Materials		Wildfire
	Hydrology and Water Quality	X	Mandatory Findings of Significance
	Land Use and Planning		



5/13/2019 JN M:\Mdata\164160\MXD\MND\01 Regional Location Map.mxd AP

Michael Baker INTERNATIONAL

0 2.5 5 Miles

Source: ESRI Relief Map, National Highway Planning Network

BCVWD WATER PIPELINE REPLACEMENT PROJECT
MITIGATED NEGATIVE DECLARATION (MND)

Regional Location Map

Exhibit 1

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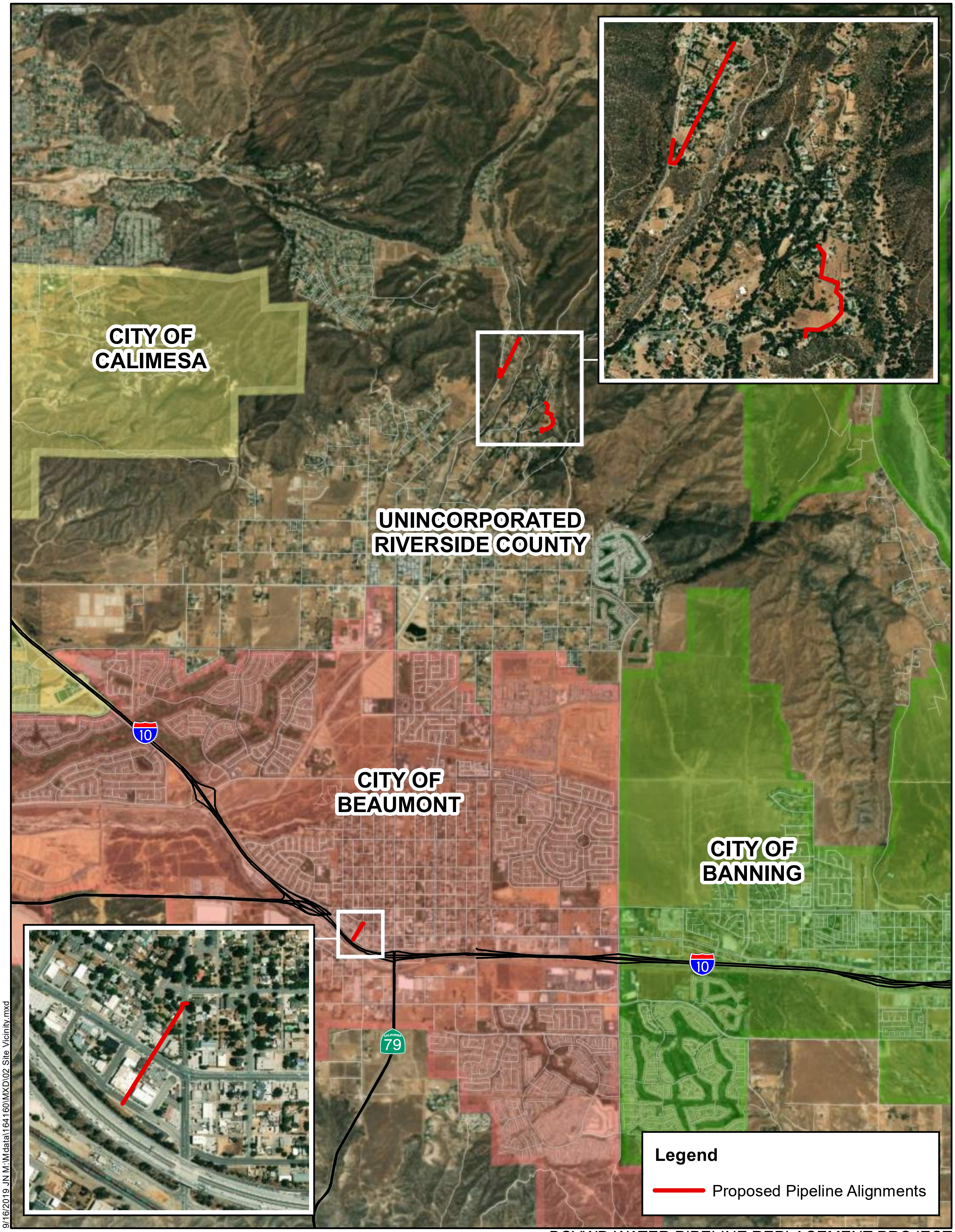

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BCVWD WATER PIPELINE REPLACEMENT PROJECT
MITIGATED NEGATIVE DECLARATION (MND)

Site Vicinity

Michael Baker INTERNATIONAL

0 1 2 Miles

Source: Riverside County, ESRI Basemap

Exhibit 2

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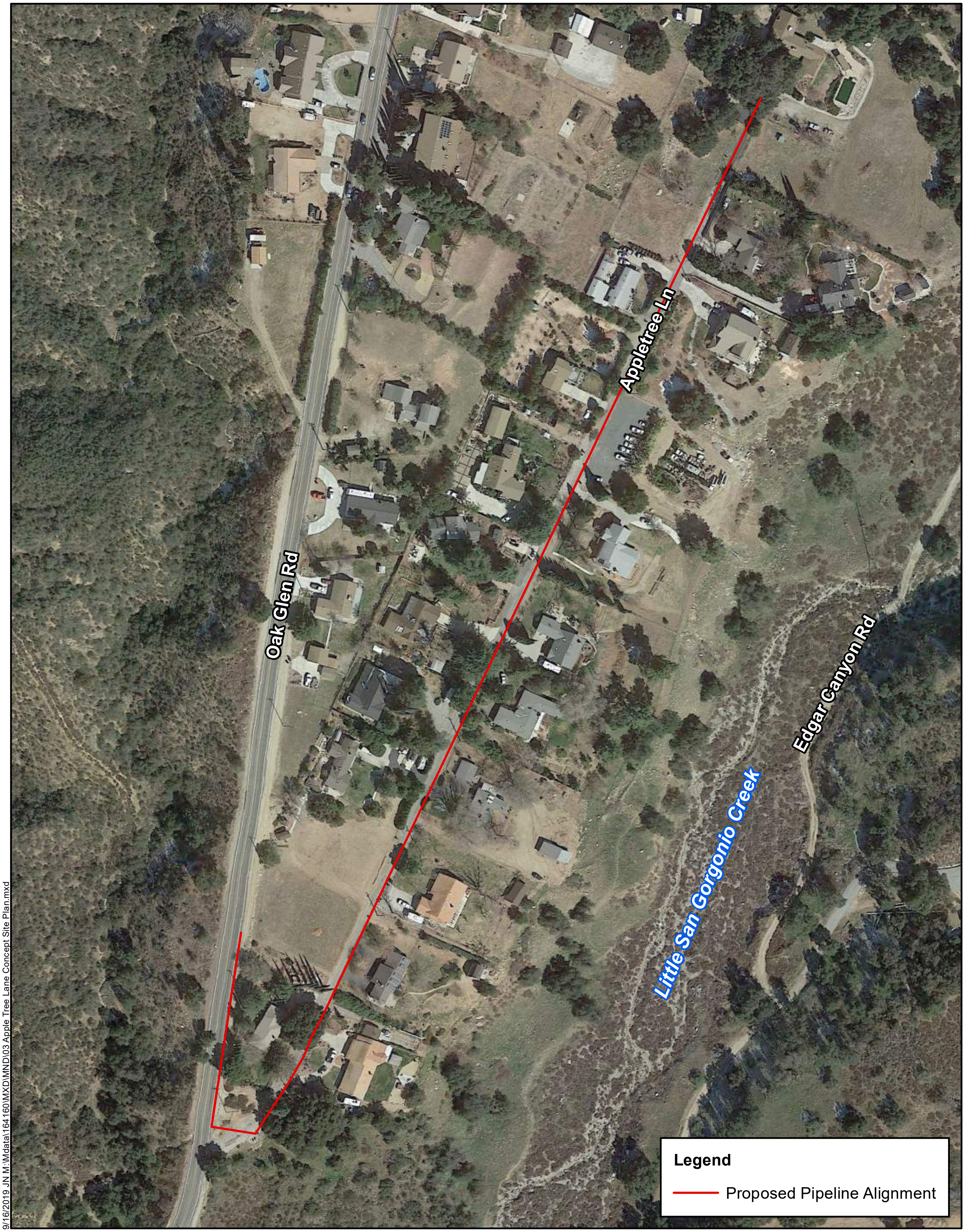

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BCVWD WATER PIPELINE REPLACEMENT PROJECT
MITIGATED NEGATIVE DECLARATION (MND)

Apple Tree Lane
Conceptual Alignment

Michael Baker INTERNATIONAL

0 200 400 Feet

Source: Google Imagery

Exhibit 3

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BCVWD WATER PIPELINE REPLACEMENT PROJECT
MITIGATED NEGATIVE DECLARATION (MND)

Michael Baker INTERNATIONAL

0 200 400 Feet

Source: Google Imagery

Avenida Altejo Bella Conceptual Alignment

Exhibit 4

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BCVWD WATER PIPELINE REPLACEMENT PROJECT
MITIGATED NEGATIVE DECLARATION (MND)

Michael Baker INTERNATIONAL

0 100 200 Feet

Source: Google Imagery

Eagan Avenue Alley Conceptual Alignment

Exhibit 5

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3.0 ENVIRONMENTAL ANALYSIS

The following evaluation provides responses to the questions in the CEQA Environmental Checklist. A brief explanation for each question in the checklist is provided to support each impact determination. All responses consider the whole of the action involved, including construction and operational impacts, as well as direct and indirect impacts. Environmental factors potentially affected by the proposed project are presented below and organized according to the provided checklist format. Evaluation of the following resources was based on review of preliminary alignment plans and other sources listed in Section 4.0, *References*, of this analysis.

3.1 AESTHETICS

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
1. AESTHETICS – Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☐	☑
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☑
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑	☐

Would the project:

a) *Have a substantial adverse effect on a scenic vista?* ***Determination: No Impact.***

A scenic vista is generally defined as a view of undisturbed natural lands exhibiting a unique or unusual feature that comprises an important or dominant portion of the view shed. Scenic vistas may also be represented by a particular distant view that provides visual relief from less attractive views of nearby features. Other designated federal and State lands, as well as local open space or recreational areas, may also offer scenic vistas if they represent a valued aesthetic view within the surrounding landscape of nearby features.

The City of Beaumont and the community of Cherry Valley's natural setting offers a variety of scenic views. The mountains to the north of all three project alignments are considered to be significant natural features, and public views of these features should be protected.

The pipeline facilities will be buried within existing pipeline easements. The existing pipeline easements are within private residential properties and existing roadway right-of-way. The existing and replacement pipeline will not be visible to the surrounding community once short-term construction is complete. No impacts to scenic vistas would occur.

b) *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?* ***Determination: No Impact.***

According to the California Department of Transportation (Caltrans) Scenic Highway Mapping System, the project area does not contain any officially designated scenic highways. The nearest officially designated state scenic highway is State Route 243 (SR-243), which is located approximately 6 miles east of the project area. Because the pipeline would be buried and not visible to the surrounding community, and due to the distance of SR-243 from the project alignments, no impact would occur.

c) *Substantially degrade the existing visual character or quality of the site and its surroundings?* ***Determination: No Impact.***

Short-term visual impacts associated with project construction activities would occur due to the presence of construction equipment and work vehicles, materials and temporary debris piles, and general construction activities; however, these impacts would be temporary and limited to the short-term construction duration of the project.

Long-term operational impacts to the existing visual character of the project area would not occur with project implementation since the replacement pipeline would be buried underground and would not be visible to the surrounding community. The project would not result in permanent visual changes associated with the minor fill to cover the replacement pipelines. No impact would occur.

d) *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?* ***Determination: Less Than Significant Impact.***

Temporary glare from construction activities (including construction equipment and related materials) is possible. However, due to the nature of a pipeline replacement project and the anticipated small-sized construction crew and short-term construction duration, it is anticipated that no new substantial sources of light or glare would result from the project. Construction would occur mainly during daylight hours. Should nighttime construction be necessary, any nighttime lighting would be directed downward and would be shielded to avoid spillover onto adjacent properties. As such, substantial impacts related to light or glare are not anticipated during project construction. Impacts are considered less than significant.

3.2 AGRICULTURE AND FORESTRY RESOURCES

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURE RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. 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 nonagricultural use?	☐	☐	☐	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☑	☐
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 forestland to non-forest use?	☐	☐	☐	☑
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to nonagricultural use or conversion of forestland to non-forest use?	☐	☐	☐	☑

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 nonagricultural use?* ***Determination: No Impact.***

According to the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP), California Important Farmland Finder interactive mapping system, the project alignments are not located in an area identified as Prime Farmland, Unique Farmland or Farmland of Statewide Importance. Along the affected pipeline alignments, all adjoining lands are designated as Urban and Built-Up Land, Other Land or Farmland of Local Importance. All improvements proposed with the project would occur within the existing easements and roadway right-of-way and would not encroach onto or interfere with any activities on these adjacent lands. Therefore, the project would not convert farmland to non-agricultural use. No impact would occur.

b) *Conflict with existing zoning for agricultural use, or a Williamson Act contract?* ***Determination: Less Than Significant Impact.***

Refer to Impact 3.2(a), above. Portions of the project would be buried within lands located in the County of Riverside that are zoned as rural agricultural (R-A-1). However, the pipelines would be buried below ground and once the pipeline trenches are backfilled, the area of temporary disturbance would return to the existing condition. According the Riverside County Parcel Report system, the project alignments in Riverside County unincorporated area are not located in an agricultural preserve. Impacts are considered less than significant in this regard.

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))?* ***Determination: No Impact.***

According to the City of Beaumont and the County of Riverside's General Plan, the proposed project alignments would not be located adjacent to areas designated or zoned as forest land. Therefore, implementation of the proposed project would not conflict with existing zoning of forest land, timberland, or timberland production, and no impact would occur.

d) *Result in the loss of forestland or conversion of forest land to non-forest use?* ***Determination: No Impact.***

Refer to Impact 3.2(c), above. 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 nonagricultural use?* ***Determination: No Impact.***

Refer to Impacts 3.2(a) and 3.2(b), above. No impact would occur.

3.3 AIR QUALITY

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
3. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management 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?	☐	☐	☑	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☑	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☑	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐

Air quality and greenhouse gas emissions modeling was prepared for the proposed project (Michael Baker International 2019). Refer to Appendix A, *Air Quality/Greenhouse Gas Data*.

Would the project:

a) *Conflict with or obstruct implementation of the applicable air quality plan?* ***Determination: Less Than Significant Impact.***

The project is located within the South Coast Air Basin (Basin), which is governed by the South Coast Air Quality Management District (SCAQMD). The federal Clean Air Act (CAA) requires the SCAQMD to reduce emissions of criteria pollutants for which the Basin is in nonattainment: ozone (O_3), coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).[1] O_3, PM_{10}, and $PM_{2.5}$ are considered criteria pollutants because they are three of several prevalent air pollutants known to be hazardous to human health.

The SCAQMD prepared its *2016 Air Quality Management Plan for the South Coast Air Basin* (2016 AQMP) to reduce emissions of criteria pollutants for which the Basin is in non-attainment. The 2016 AQMP was adopted by the SCAQMD Governing Board on March 3, 2017 and incorporates the latest scientific and technical information and planning assumptions, including the latest applicable growth assumptions, Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and updated emission inventory methodologies for various source categories. Consistency with the 2016 AQMP means that a project is consistent with the goals, objectives, and assumptions set forth in the 2016 AQMP that are designed to achieve federal and State air

[1] An area designated as “nonattainment” for an air pollutant is an area that does not achieve national and/or State ambient air quality standards for that pollutant.

quality standards. According to the SCAQMD *CEQA Air Quality Handbook*, the Criteria for determining consistency with the 2016 AQMP is defined by the following indicators:

- *Consistency Criterion No. 1:* The proposed project will not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.
- *Consistency Criterion No. 2:* The proposed project will not exceed the assumptions in the AQMP based on the years of project buildout phase.

The objective of the proposed project is to replace existing old and distressed potable water pipelines that serve the relevant community within Beaumont-Cherry Valley Water District's (BCVWD) existing water system and to provide adequate water flow for fire protection. As indicated in Impact 4.3(b) below, based on the project's limited scope, project implementation with mitigation would not exceed short-term construction standards and thus would not violate any air quality standards. The project would not generate operational-related emissions and therefore would not exceed the SCAQMD's thresholds of significance.

Further, as a utility improvement project, the project would not conflict with any existing general plan land use or zoning designations within the County of Riverside and City of Beaumont jurisdiction surrounding the project site; refer to Section 3.11, *Land Use and Planning*. The proposed improvements would be consistent with current designations, and project implementation would not induce population growth either directly or indirectly; refer to Section 3.14, *Population and Housing*. Therefore, the proposed project is consistent with the 2016 AQMP and impacts would be less than significant in this regard.

b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation?* ***Determination: Less than Significant Impact.***

Short-Term Construction Emissions

Project construction would occur over approximately six months beginning in Fall 2020. The proposed improvements would replace the existing old and distressed potable water pipelines within three separate segments (Apple Tree Lane, Avenida Altejo Bella, and Egan Avenue Alley) of the system that are problematic and have a history of failures and repairs. Construction activities associated with the project would include site mobilization, trenching, pipe installation, backfill of trench materials, and installation of asphalt or earthen materials. Specific construction activities within each segment is provided below.

Egan Avenue Alley Segment

Construction activities would include, but not be limited to, trenching, pipe lay down/install, possible high-lining in interim construction phasing, backfilling the trench with extracted material, and providing an asphalt (or similar material) trench cover.

Avenida Altejo Bella Segment

Construction activities would include, but not be limited to, trenching, pipe lay down/install, backfilling the trench with extracted material, and providing an asphalt (or similar material) trench cover over roadway areas. Some of the trench cover would consist of earthen material depending on the location of the trenching being constructed through a hard surface or through private yard landscaped areas.

Apple Tree Lane Segment

Construction activities would include, but not be limited to, trenching, pipe lay down/install, backfilling the trench with extracted material, and providing an asphalt (or similar material) trench cover.

The SCAQMD has established methods to quantify air emissions associated with construction activities, such as those generated by operation of on-site construction equipment, fugitive dust emissions related to grading and site work activities, and mobile (tailpipe) emissions from construction worker vehicles and haul/delivery truck trips. Emissions would vary from day to day, depending on the level of activity, the specific type of construction activity occurring, and, for fugitive dust, prevailing weather conditions.

The project's estimated construction emissions are identified in Table 3.3-1, *Maximum Short-Term Construction Emissions*.[2] Concerning the proposed project, particulate matter (PM_{10} and $PM_{2.5}$) emissions would occur from small quantities of fugitive dust and from construction equipment exhaust. Emitted pollutants would include reactive organic gases (ROG), carbon monoxide (CO), nitrogen oxides (NO_X), sulfur oxides (SO_X), PM_{10}, and $PM_{2.5}$. As identified in Table 3.3-1, all construction-generated air emissions would not exceed the SCAQMD's criteria pollutant significance thresholds. Nonetheless, the project would adhere to all standard SCAQMD regulations, such as maintaining all construction equipment in proper tune, shutting down equipment when not in use for extended periods of time, and implementing SCAQMD Rule 403 (Fugitive Dust) and Rule 402 (Nuisance). SCAQMD Rule 403 is intended to reduce PM emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. SCAQMD Rule 402 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Conformance with standard SCAQMD regulations would ensure the project's construction-related impacts are less than significant.

2 Emissions were calculated using the California Emissions Estimator Model (CalEEMod), a statewide land use emissions computer model developed in coordination with the SCAQMD.

Table 3.3-1
Maximum Short-Term Construction Emissions

Emissions Source	Pollutant (pounds/day)[1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction Emissions	3.59	35.44	23.10	0.05	5.52	3.11
Construction Emissions with SCAQMD Rules and Regulations[2,3,]	3.59	35.44	23.10	0.05	3.28	2.23
Total Mitigated Emissions	**3.59**	**35.44**	**23.10**	**0.05**	**3.28**	**2.23**
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***

Notes:
1. Emissions were calculated using California Emission Estimator Model (CalEEMod), as recommended by the South Coast Air Quality Management District (SCAQMD).
2. The reduction/credits for construction emission mitigations are based on mitigation included in the CalEEMod model and as typically required by the SCAQMD. The mitigation includes the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.

Refer to Appendix A, Air Quality/Greenhouse Gas Data, for assumptions used in this analysis.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, Federal, and international agencies and was identified as a toxic air contaminant by the California Air Resources Board (CARB) in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. These activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report*, serpentinite and ultramafic rocks are not known to occur within the project site.[3] Thus, there would be no impact in this regard.

Long-Term Operational Emissions

As a pipeline replacement project, project operations would not involve new buildings or uses which would introduce new permanent stationary or mobile sources of emissions within the project area. The proposed improvements identified in Section 2.0, *Project Description* would continue to serve existing uses and there would be no increase in capacity that would result in an

3 California Department of Conservation, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos*, August 2000.

increase of vehicular trips to and from the project site. The project would result in nominal operational emissions. No impacts would result in this regard.

Air Quality Health Impacts[4]

All criteria pollutants generated by the project would be associated with some form of health risk (e.g., asthma, lung disease, bronchitis). Adverse health effects induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, and the number and character of exposed individual [e.g., age, gender]). In particular, ozone precursors (volatile organic compounds [VOCs] and NO_x) affect air quality on a regional scale. Health effects related to ozone are therefore the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and, as such, translating project-generated criteria pollutants to specific health effects or additional days of nonattainment would produce meaningless results. In other words, the project's less than significant increases in regional air pollution from criteria air pollutants would have nominal or negligible impacts on human health.

Further, as noted in the *Brief of Amicus Curiae* by the SCAQMD (April 6, 2015), the SCAQMD acknowledged it would be extremely difficult, if not impossible to quantify health impacts of criteria pollutants for various reasons including modeling limitations as well as where in the atmosphere air pollutants interact and form. Furthermore, as noted in the *Brief of Amicus Curiae* by the San Joaquin Valley Air Pollution Control District (SJVAPCD) (April 13, 2015), SJVAPCD has acknowledged that currently available modeling tools are not equipped to provide a meaningful analysis of the correlation between an individual development project's air emissions and specific human health impacts.

Additionally, the SCAQMD acknowledges that health effects quantification from ozone, as an example is correlated with the increases in ambient level of ozone in the air (concentration) that an individual person breathes. SCAQMD's *Brief of Amicus Curiae* goes on to state that it would take a large amount of additional emissions to cause a modeled increase in ambient ozone levels over the entire region. The SCAQMD states that based on their own modeling in the SCAQMD's *2012 Air Quality Management Plan*, a reduction of 432 tons (864,000 pounds) per day of NO_x and a reduction of 187 tons (374,000 pounds) per day of VOCs would reduce ozone levels at highest monitored site by only nine parts per billion. As such, the SCAQMD concludes that it is not currently possible to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects (defined as projects with regional scope) due to photochemistry and regional model limitations. However, based on the project's less than significant increases to regional air pollution from criteria air pollutants, the project is expected to have a nominal or negligible impact on human health. A less than significant impact would occur in this regard.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? ***Determination: Less than Significant Impact.***

[4] On May 27, 2014 Fifth Appellate District court Friant Ranch decision concluded that an Environmental Impact Report (EIR) should disclose and evaluate public health consequences associated with increasing air pollutants.

Cumulative Short-Term Construction Impacts

With respect to the proposed project's construction-period air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the 2016 AQMP pursuant to Federal Clean Air Act mandates. As such, the proposed project would comply with SCAQMD Rule 403 requirements to ensure project-related emissions would not contribute to an exceedance of the State and Federal Ambient Air Quality Standards or further exacerbate concentrations of existing non-attainment pollutants (i.e., ozone and $PM_{2.5}$). SCAQMD Rule 403 requires that fugitive dust be controlled with the best available control measures to reduce dust so that it does not remain visible in the atmosphere beyond the project's property line.

The project, as well as cumulative construction projects throughout the Basin, would also be subject to compliance with all other applicable SCAQMD rules and regulations. As a result, it can be reasonably inferred that project-related construction emissions, in combination with those from other projects in the area, would not substantially deteriorate local air quality. A less than significant impact would occur in this regard.

Cumulative Long-Term Operational Impacts

As a pipeline replacement project, the proposed project would not result in long-term air quality impacts. As a result, project operations would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant and no cumulative operational impacts associated with project operations would occur.

d) Expose sensitive receptors to substantial pollutant concentrations? ***Determination: Less than Significant Impact.***

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. The CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over age 65, children under age 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptor to each pipeline segment is identified below.

Egan Avenue Alley Segment

The closest sensitive receptors to the Egan Avenue Alley segment are adjacent residences (approximately 10 feet).

Avenida Altejo Bella Segment

The closest sensitive receptors to the Avenida Altejo Bella segment are adjacent residences (approximately 20 feet).

Apple Tree Lane Segment

The closest sensitive receptors to the Apple Tree Lane segment are adjacent residences (approximately 30 feet).

Short-Term Construction Impacts

Project construction would entail incidental amounts of toxic substances such as oils, solvents, paints, adhesives, and coatings. The use and application of these substances would be subject to conformance with all applicable SCAQMD rules and regulations for their use, storage, and disposal.

The significance of localized emissions impacts depends on whether ambient levels in the vicinity of a given proposed project are above or below State standards. In the case of CO and NO_X, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or Federal standard, project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$, both of which are nonattainment pollutants.

Localized significance thresholds (LSTs) were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized air quality impacts. The SCAQMD provides the LST lookup tables for one, two, and five-acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors. The SCAQMD look-up tables are intended for projects less than or equal to five acres in size and provide standards for projects that are one, two, and five acres. The project is located within Source Receptor Area (SRA) 29, Banning Airport.

Based on the SCAQMD guidance on applying CalEEMod to LSTs, the project would disturb a total of approximately 0.29-acre of land. Therefore, the LST thresholds for one acre was utilized for the construction LST analysis. As discussed above, the nearest sensitive receptors are adjacent residences located approximately 10 feet from the Egan Avenue Alley Segment; therefore, the LST thresholds for the closest distance of 25 meters was used in cooperation with the LST guidance. As depicted in Table 3.3-2, *Localized Significance of Construction Emissions*, the mitigated construction emissions would not exceed the LST's thresholds. Additionally, the project would adhere to all standard SCAQMD regulations which would ensure best available control measures are implemented during project construction to reduce dust so that it does not remain visible in the atmosphere beyond the project's property line. Conformance with SCAQMD regulations would ensure that construction-related impacts to sensitive receptors would be less than significant.

Table 3.3-2
Localized Significance of Construction Emissions

Source	Pollutant (pounds/day)1			
	NOX	**CO**	**PM10**	**PM2.5**
On-Site Unmitigated Emissions – Construction	35.31	22.02	5.19	3.02
On-Site Mitigated Emissions – Construction	35.31	22.02	3.01	2.16
Localized Significance Threshold	103	1,000	6	4
Thresholds Exceeded after mitigation?	***No***	***No***	***No***	***No***

Notes:

1. The Localized Significance Threshold was determined using Appendix C of the SCAQMD *Final Localized Significant Threshold Methodology* guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold was based on the anticipated disturbance for construction (approximately 0.29 acres; therefore, the thresholds for 1 acre was used), the distance to sensitive receptors (approximately 10 feet, therefore, the thresholds for 25 meters were used), and the source receptor area (SRA 29).

<u>Long-Term Operational Impacts</u>

According to SCAQMD localized significance threshold methodology, LSTs would apply to the operational phase of a project if the project includes stationary sources or attracts mobile sources that may spend extended periods queuing and idling at the site (e.g., warehouse or transfer facilities). The proposed project does not include such uses; thus, due to the lack of such emissions, no long-term localized significance threshold analysis is needed. No operational LST impacts would result in this regard.

e) *Create objectionable odors affecting a substantial number of people?* ***Determination: Less than Significant Impact.***

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses identified by the SCAQMD as being associated with odors.

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust and asphalt off-gassing. These construction-related odors would be short-term in nature and would cease upon project completion. Standard construction requirements would minimize odor impacts from construction. Thus, the project's odor impacts would be less than significant.

3.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
4. BIOLOGICAL RESOURCES – 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 US Fish and Wildlife Service?	☐	☑	☐	☐
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?	☐	☐	☐	☑
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☑	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☑	☐
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?	☐	☐	☐	☑

A *Habitat Assessment* was prepared for the proposed project (Michael Baker International 2019). Refer to Appendix B, *Habitat Assessment*, for the full report.

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 US Fish and Wildlife Service?
Determination: Less than Significant with Mitigation Incorporated.

The project pipeline alignments are located within an urbanized area in the City of Beaumont and in the unincorporated community of Cherry Valley. The project area primarily consists of existing roadways, residential properties, commercial developments, and disturbed areas that are subject to routine weed abatement. These disturbances have greatly reduced, if not eliminated, the natural vegetation communities that once occurred, resulting in a majority of the project area being dominated by ornamental tree species and/or ruderal/weedy plant species.

No special-status[5] plant species were observed during the habitat assessment and are not expected to occur within the project area based on specific habitat requirements, availability and quality of habitat needed by each species, occurrence records, and known distributions. Further, no special-status vegetation communities occur within the project area.

No special-status wildlife species were observed during the habitat assessment. Based on the results of the habitat assessment, it was determined that the Avenida Altejo Bella and Apple Tree Lane areas have a high potential to support Cooper's hawk (*Accipiter cooperii*; Watch List [WL]) and a low potential to support sharp-shinned hawk (*Accipiter striatus*; WL), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*; WL), coastal whiptail (*Aspidoscelis tigris stejnegeri*; Species of Special Concern [SSC]), loggerhead shrike (*Lanius ludovicianus*; SSC), western yellow bat (*Lasiurus xanthinus*; SSC), and yellow warbler (*Setophaga petechia*; SSC). All other special-status wildlife species are not expected to occur within the project area based on specific habitat requirements, availability and quality of habitat needed by each species, occurrence records, and known distributions. Refer to Appendix B, *Habitat Assessment*.

However, the vegetation communities, including ornamental trees and unvegetated, open ground, within and surrounding the project area provides suitable nesting opportunities for a variety of year-round and seasonal bird species that may be present during the breeding season. Therefore, with implementation of the following Mitigation Measure BIO-1, impacts to nesting birds would be considered less than significant and the project would maintain compliance with the Migratory Bird Treaty Act (MBTA) and California Department of Fish and Game Code (CFGC).

Mitigation Measures:

BIO-1: If project-related activities (i.e., ground disturbance, vegetation removal) are to be initiated during the nesting season (February 1 to August 31), a pre-construction nesting bird clearance survey shall be conducted by a qualified biologist no more than three (3) days prior to the start of any vegetation removal or ground disturbing activities to ensure that birds protected under the MBTA and CFGC are not impacted. A qualified biologist shall survey all suitable nesting habitat within the survey areas, and within a biologically defensible buffer distance surrounding the survey area, for nesting birds prior to commencing project activities. Documentation of surveys and findings shall be submitted to BCVWD and the City of Beaumont for review and file. If no active nests are detected, construction may begin. If an active nest is found, the bird shall be identified to species and the approximate distance from the closest work site to the nest shall be estimated and the qualified biologist shall establish a "no-disturbance" buffer around the active nest. The distance of the "no-disturbance" buffer may be increased or decreased according to the judgement of the qualified biologist depending on the level of activity and species (i.e., listed, sensitive). The qualified biologist shall periodically monitor any active nests to determine if project-related activities occurring outside the 'no disturbance" buffer disturb the birds and if the buffer should be increased. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the "no-disturbance" buffer may occur.

[5] As used in this report, "special-status" refers to plant and wildlife species that are Federally-/State-listed, proposed, or candidates; plant species that have been designated a California Rare Plant Rank by the California Native Plant Society; wildlife species that are designated by the California Department of Fish and Wildlife as Fully Protected, Species of Special Concern, and Watch List species; and State/locally rare vegetation communities.

b) *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 California Department of Fish and Wildlife or US Fish and Wildlife Service?* ***Determination: No Impact.***

Refer to Impact 3.4(a), above. Generally, riparian habitat is defined as a vegetated ecosystem along a water body through which energy, materials, and water pass. Riparian areas characteristically have a high water table and are subject to periodic flooding and influence from the adjacent water body. These systems encompass wetlands, adjacent uplands, or some combination of these two landforms.

According to the Habitat Assessment conducted for the proposed project, no jurisdictional drainage and/or wetland features were observed within the project area, nor is the project area located within Federally-designated Critical Habitat. As such, impacts to Critical Habitat would not occur and consultation with the U.S. Fish and Wildlife Service (USFWS) for the loss or adverse modification to Critical Habitat would not be required. Therefore, the proposed project would not result in impacts to U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), or California Department of Fish and Wildlife (CDFW) jurisdictional areas and regulatory approvals would not be required. No impacts would occur.

c) *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?* ***Determination: No Impact.***

The Corps Regulatory Branch regulates discharge of dredge or fill materials into “waters of the United States” pursuant to Section 404 of the federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Additionally, the CDFW regulates alterations to streambed and bank under Fish and Wildlife Code Sections 1600 et seq., and the RWQCB regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

According to the Habitat Assessment conducted for the proposed project, no jurisdictional drainage features or isolated wetland features that would qualify as “waters of the United States” or “waters of the State” are located within the proposed project alignments. Thus, no impact would occur.

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?* ***Determination: Less than Significant with Mitigation Incorporated.***

Refer to Impact 3.4(a), above. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds, or to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States.

The project pipeline alignments are not located within any wildlife corridor or linkage as identified by the adopted Western Riverside County Multiple Species Habitat Conservation Plan (WRC MSHCP). Therefore, no native resident, migratory fish, or wildlife species or established native resident or migratory wildlife corridors are present on-site or in the project vicinity. The project would not impede any use of native wildlife nursery sites or have an adverse effect on any migratory corridors or linkages in the surrounding area. Impacts in this regard are considered less than significant.

The ornamental plant communities adjacent to the proposed pipeline replacement alignments have the potential to provide suitable nesting, foraging, and cover habitat for year-round and seasonal avian residents, and migrating songbirds that may be present in the area. Avian species may be affected by short-term project construction-related noise levels during the nesting season for breeding birds (typically January through September annually), which can result in the disruption of foraging, nesting, and reproductive activities. As such, project grading and construction activities during the nesting season for breeding birds protected by the MBTA and CFGC could result in a significant temporary, indirect impact to these species. Mitigation Measure BIO-1 would require a pre-construction clearance survey for nesting birds and nest protection actions if active avian nests are identified within or 500 feet from the project site.

With implementation of Mitigation Measure BIO-1, project implementation would not substantially interfere 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. Therefore, impacts would be less than significant with mitigation incorporated.

Mitigation Measures:

Refer to Mitigation Measure BIO-1 as discussed in Impact 3.4(a) above.

e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?* ***Determination: Less than Significant Impact.***

Implementation of the proposed project is not anticipated to affect any protected biological resources because the project alignments are within existing roadway right-of-way and within private property (refer to Impacts 3.4a through 3.4d above). Pursuant to both the City of Beaumont's Municipal Code Chapter 12.12.130, *Tree Removal*, and County of Riverside Ordinance 559, *The Removal of Trees,* the project would be exempt from obtaining permits for any tree removal or trimming (if needed) within roadway right-of-way because BCVWD is a public utility. Therefore, the project would not conflict with local ordinances or policies protecting biological resources and impacts are considered less than significant.

f) *Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan?* ***Determination: No Impact.***

A WRC MSHCP Consistency Analysis was conducted as part of the *Habitat Assessment* prepared for the proposed project. All three project alignments are located within the boundaries of the WRC MSHCP area and portions of the alignments are within a designated Criteria Cell. BCVWD is not a Permittee or a Participating Special Entity of the WRC MSHCP and as such, the plan requirements do not apply to the project. However, the WRC MSHCP was utilized for guidance for analyzing potential impacts to biological resources and was reviewed to obtain information on special-status biological resources that are known to occur in the immediate vicinity of the project area. As there were no special-status plant species or wildlife species observed during the habitat assessment, impacts regarding conflicts with conservation plans are considered less than significant.

3.5 CULTURAL RESOURCES

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
5. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☑	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☑	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☑	☐	☐

A Cultural Resources Assessment was prepared for the proposed project (BCR Consulting 2018). Refer to Appendix C, *Cultural Resources Assessment*, for the full report.

Would the project:

a) *Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?* ***Determination: Less than Significant Impact with Mitigation Incorporated.***

Historic resources generally consist of buildings, structures, improvements, and remnants associated with a significant historic event or person(s) and/or having a historically significant style, design, or achievement. Damage to or demolition of such resources is typically considered to be a significant impact. Impacts to historic resources can occur through direct impacts, such as destruction or removal, and through indirect impacts, such as a change in the setting of a historic resource.

A records search was conducted at the Eastern Information Center (EIC) in July 2018, the local clearinghouse for cultural resource records. This archival research reviewed the status of all recorded historic and prehistoric cultural resources, and survey and excavation reports completed within one mile of the project site. Additional resources reviewed included the National Register of Historic Places, the California Register of Historical Resources, and documents and inventories published by the California Office of Historic Preservation. These include the lists of California Historical Landmarks, California Points of Historical Interest, Listing of National Register Properties, and Inventory of Historic Structures.

The records search revealed that 35 cultural resources studies have taken place within one mile of the project alignments and 22 cultural resources have been recorded. Of the 14 previous studies, none have assessed the project alignments and no cultural resources have been previously recorded within any of the project alignments.

During the field survey, no cultural resources were identified within or near any of the proposed impact areas. Surface visibility was approximately 70 percent at the proposed Apple Tree Lane and Avenida Altejo Bella pipeline alignments, and zero percent at the Egan Avenue Alley Avenue pipeline alignment due to paving. No cultural resources, including prehistoric or historic period archaeological sites or historic period buildings were identified during the field survey. All three project alignments had been subject to severe disturbances related to excavation for road paving and utility installation.

The records search and field survey did not identify any cultural resources within any of the three project alignments. No impacts related to archaeological or historical resources are anticipated and no further investigations are recommended unless the project description and alignments are substantially revised. However, ground-disturbing activities have the potential to reveal buried deposits not observed on the surface during previous surveys and as such, project construction activities could result in potentially significant impacts to cultural resources. Therefore, Mitigation Measure CR-1 is provided to mitigate impacts to less than significant levels.

MITIGATION MEASURES:

CR-1 Prior to ground-disturbing activities, a qualified archaeologist shall conduct a pre-construction cultural resources worker sensitivity training to inform construction personnel of the types of cultural resources that may be encountered, and to bring awareness to personnel of actions to be taken in the event of a cultural resources discovery. BCVWD shall ensure that construction personnel are made available for and attend the training and shall retain documentation demonstrating attendance.

In the event that construction personnel encounter buried cultural materials, work in the immediate vicinity of the find shall cease and a qualified archaeologist shall be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation as necessary. If the qualified archaeologist finds that any cultural resources present meet eligibility requirements for listing on the California Register or the National Register, plans for the treatment, evaluation, and mitigation of impacts to the find shall be developed.

b) *Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?* ***Determination: Less than Significant with Mitigation Incorporated.***

Archaeological sites are locations that contain resources associated with former human activities and may contain such resources as human skeletal remains, waste from tool manufacture, tool concentrations, and/or discoloration or accumulation of soil or food remains.

Although no known material cultural resources are present on the project alignments, the potential for unknown subsurface resources does exist. Therefore, project-related ground-disturbing and construction activities would have the potential to adversely affect such unknown resources. To ensure that an adverse change in the significance of a cultural resource does not occur, Mitigation Measure CR-1 requires the training of construction personnel should subsurface cultural resources be discovered. With incorporation of Mitigation Measure CR-1, impacts would be reduced to less than significant.

Mitigation Measures:

Refer to Mitigation Measure CR-1 as discussed in Impact 3.5(a), above.

c) *Disturb any human remains, including those interred outside of formal cemeteries?* ***Determination: Less than Significant with Mitigation Incorporated****.*

It is not anticipated that human remains or informal cemetery areas are present on the project site; however, ground-disturbing activities such as grading or excavation have the potential to disturb human remains. If human remains are found, those remains would require proper treatment, in accordance with applicable laws. California Public Resources Code Section 5097.98 and Health and Safety Code Sections 7050.5–7055 describe the general provisions regarding human remains, including the requirements if any human remains are accidentally discovered during project construction.

As required by State law, procedures set forth in Section 5097.98 of the California Public Resources Code would be implemented, including notification of the County Coroner, notification of the Native American Heritage Commission (NAHC), and consultation with the individual identified by the NAHC to be the "most likely descendant."

If human remains are found during excavation, Mitigation Measure CR-2 requires that construction activities be halted in the vicinity of the find and any area that is reasonably suspected to overlie adjacent remains until the County Coroner has been notified, and the remains have been investigated, and if determined to be Native American, the appropriate state law process has been followed, and appropriate recommendations have been made for the treatment and disposition of such remains by the Most Likely Descendant. Compliance with existing State regulations, which detail the appropriate actions necessary in the event human remains are encountered, in addition to Mitigation Measure CR-2, would ensure that potential impacts regarding undiscovered human remains are less than significant.

Mitigation Measures:

CR-2 Consistent with State CEQA Guidelines Section 15064.5, Subdivision (e), in the event of an accidental discovery or recognition of any human remains, the County Coroner shall be notified and construction activities at the affected work site shall be halted. Further, pursuant to PRC Section 5097.98(b) remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the remains are found to be Native American, the County Coroner shall notify the NAHC within 24 hours. The NAHC shall immediately notify the most likely descendant(s) under Public Resources Code Section 5097.98, and the descendants must make recommendations or state their preference for treatment within 48 hours of being granted access to the site.

3.6 ENERGY

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
6. ENERGY – 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?	☐	☐	☑	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☑	☐

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?* ***Determination: Less than Significant with Mitigation Incorporated.***

Construction Energy Use

Construction of the proposed project would involve on-site energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the sites where energy supply cannot be met via a hookup to the existing electricity grid. Project construction would not involve the use of natural gas appliances or equipment.

All construction equipment would be regulated per the CARB In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation is intended to reduce emissions from in-use, off-road, heavy-duty diesel vehicles in California by imposing limits on idling, requiring all vehicles to be reported to CARB, restricting the addition of older vehicles into fleets, and requiring fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. The project would also be subject to mandates on portable diesel generators and the EPA's strict on-road emissions standards for heavy-duty engines. Compliance with the In-Use Off-Road Diesel Vehicle Regulation and EPA regulations would ensure the off-road equipment used during project construction activities would not result in an inefficient or wasteful use of energy or excessive fuel consumption. In addition, technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid equipment, or other design changes, which could help to reduce demand on oil and emissions associated with construction in California over the next few years. As such, temporary energy use during construction of the proposed project would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies and would not result in wasteful, inefficient or unnecessary consumption of energy during project construction.

Operational Energy Use

The proposed project would allow BCVWD staff better access to the pipelines for repairs and maintenance. Anticipated maintenance activities would be minimal and similar to maintenance activities currently occurring for the existing pipelines in the area; therefore, the project's energy demand for maintenance would be similar to existing conditions. In addition, energy used for maintenance purposes would decrease over time, as worker vehicles and equipment become increasingly efficient, in accordance with the energy efficiency and GHG reduction standards. As such, energy use for maintenance purposes would not substantially change under the proposed project, and impacts would be less than significant.

b) *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?* ***Determination: Less than Significant with Mitigation Incorporated.***

The proposed project would follow applicable energy standards and regulations during the construction phases. In addition, the proposed project would be built and operated in accordance with all existing, applicable regulations at the time of construction. As such, impacts related to the project's potential to conflict with plans for renewable energy and energy efficiency would be less than significant.

3.7 GEOLOGY AND SOILS

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
7. GEOLOGY AND SOILS – Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☑	☐
ii) Strong seismic ground shaking?	☐	☐	☑	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☑	☐
iv) Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
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 offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☑	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☑	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☑	☐	☐

Would the project:

a) Expose people or structures to 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. ***Determination: Less than Significant Impact****.*

The County of Riverside and City of Beaumont, like the rest of Southern California, is located in a seismically active region as the result of being located at the junction of the Transverse

Ranges and the Peninsular Ranges. The Banning Fault is believed to be located north of the City of Beaumont in the Cherry Valley area, near the project alignments of Apple Tree Lane and Avenida Altejo Bella.

The project does not include habitable structures and is limited to the construction of buried water pipelines. These improvements are not particularly at-risk to earthquake-induced damage, and would not substantially increase the potential for human loss, injury, or death as a result of fault rupture because of required compliance with federal, state and local laws and regulations that protect the public from seismic hazards.

Development of the proposed project would include minor trenching and/or other ground-disturbing activities to allow for the proposed replacement pipelines. Project compliance with applicable local seismic-related requirements would reduce the potential for impacts to occur from the exposure of people or structures to potential substantial adverse effects as the result of fault rupture. Compliance with these seismic related requirements would ensure that project impacts relative to potential rupture of a known earthquake fault remain less than significant.

ii) Strong seismic ground shaking? ***Determination: Less than Significant Impact.***

As discussed in Impact 3.6(a)(i) above, a portion of the project site is near the Banning and Cherry Valley fault zone, which has the potential to result in strong seismic ground shaking. Therefore, the project site could be exposed to ground shaking during seismic events. Pipeline installation and the design and engineering of the replacement pipeline would be required to comply with the all requirements in place to shield infrastructure from the effects of seismic ground shaking. Additionally, all relevant pipeline replacement facilities would be constructed in compliance with the existing seismic safety regulations of the California Building Code (CBC). As described above, the project does not involve the construction of aboveground habitable structures, and its implementation would not increase the potential for human loss, injury, or death. As such, impacts would be less than significant.

iii) Seismic-related ground failure, including liquefaction? ***Determination: Less than Significant Impact.***

Liquefaction and seismically-induced settlement or ground failure is generally related to strong seismic shaking events where the groundwater table occurs at a relatively shallow depth (generally within 50 feet of the ground surface) or where lands are underlain by loose, cohesionless deposits. Liquefaction generally results in the loss of shear strength of a soil, which occurs due to the increase of pore water pressure caused by the rearrangement of soil particles induced by shaking or vibration. During liquefaction, soil strata typically behave similar to a heavy fluid.

According to the *Geotechnical Investigation* in Appendix D, the potential impact to the project from seismic-related ground failure, including liquefaction is considered low. The type of use proposed (buried water pipeline) would not significantly expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic ground failure. A less than significant impact would occur in this regard.

iv) Landslides? ***Determination: No Impact.***

The proposed project pipeline alignments are not located in areas conducive to landslides because the project alignment is through flat areas and portions of rolling hillsides with grades less than 15 percent. Further, the project does not propose the construction of buildings for human occupancy. Therefore, no impact would occur.

b) *Result in substantial soil erosion or the loss of topsoil?* ***Determination: Less than Significant Impact.***

Soil erosion is most prevalent in unconsolidated alluvium and surficial soils and in areas that have slopes. The pipeline replacement proposed under the project would occur in a generally flat and gently sloping areas within existing easements and roadway right-of-way, thus the potential for substantial soil erosion would be minimal. Nonetheless, trenching during the project's construction phase would displace soils and temporarily increase the potential for soils to be subject to wind and water erosion.

Construction activities would be required to implement and adhere to an erosion control plan as part of the Stormwater Pollution Prevention Plan (SWPPP) to mitigate the loss of soil from the proposed pipeline alignments. This erosion control plan would implement Best Management Practices (BMPs) such as the placement of silt fences, sandbags and straw around temporary stockpiles. With implementation of these BMPs and SWPPP, a less than significant impact regarding soil erosion or the loss of topsoil is anticipated to occur.

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 an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?* ***Determination: Less than Significant Impact.***

Lateral spreading is a phenomenon in which large blocks of intact, non-liquefied soil move down a slope on a liquefied soil layer. Lateral spreading is often a regional event. For lateral spreading to occur, the liquefiable soil zone must be laterally continuous, unconstrained laterally, and free to move along sloping ground. Due to the nature of the proposed pipeline improvements, project installation is not anticipated to induce lateral spreading at the site. As noted above, while liquefaction risk may be present near the project alignments, all improvements would be designed and constructed in conformance with the CBC seismic engineering standards.

Although the portions of the proposed roadway improvements would be located within a designated Alquist-Priolo Earthquake Fault Zone, the proposed project would not change the existing land use or include the provision of structures for human occupancy. As such, with implementation of the above-mentioned preventive measures that would be undertaken during project design, impacts associated with ground failure, including landslides, liquefaction, lateral spreading, and settlement, are considered to be less than significant with project compliance with the CBC and applicable local codes and construction standards. Refer also to Impacts 3.7(a)(ii) through 3.7(a)(iv), above, for additional discussion. With such measures, project impacts relative to unstable geologic units or soils would be less than significant.

d) *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?* ***Determination: Less than Significant Impact.***

Expansive soils are those that undergo volume changes as moisture content fluctuates, swelling substantially when wet or shrinking when dry. Soil expansion can damage structures by cracking foundations, causing settlement, and distorting structural elements. Project construction would be implemented based on compliance with the International Building Code, CBC and Greenbook. The project would also comply with the recommendations of a geotechnical engineer, refer to Appendix D, *Geotechnical Investigation*. Project conformance with such measures would ensure that impacts relative to expansive soils would be less than significant.

e) *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?* ***Determination: No Impact****.*

As a pipeline replacement project, the installation of septic tanks or alternative wastewater disposal systems is not proposed, and wastewater disposal would not be required. No impact would occur.

f) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?* ***Determination: Less than Significant with Mitigation Incorporated.***

Paleontological resources are the preserved fossilized remains of plants and animals. Fossils and traces of fossils are preserved in sedimentary rock units, particularly fine- to medium-grained marine, lake, and stream deposits, such as limestone, siltstone, sandstone, or shale, and in ancient soils (paleosols). Such resources are also found in coarse-grained sediments, such as conglomerates or coarse alluvium sediments. Additionally, fossils are rarely preserved in igneous or metamorphic rock units. Fossils may occur throughout a sedimentary unit and are more likely to be preserved subsurface, where they have not been damaged or destroyed by previous ground disturbance, amateur collecting, or natural causes such as erosion. In contrast, archaeological and historic resources are often recognized by surface evidence of their presence.

According to the Riverside County Paleontological Sensitivity Map, all three project alignments are located in areas of undetermined paleontological sensitivity. However, unknown paleontological resources may be unearthed during excavation/grading activities for specific projects. If previously undiscovered artifacts or remains are uncovered during excavation or construction activities, impacts would be considered significant. Mitigation Measure CR-1 requires the presence of a qualified archaeologist to train construction personnel should construction activities uncover cultural resources. With implementation of Mitigation Measure CR-1, impacts to paleontological resources would be reduced to less than significant levels.

Mitigation Measures:

Refer to Mitigation Measure CR-1 as discussed in Impact 3.5(a), in the Cultural Resources discussion above.

3.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
8. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☑	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☑	☐

Air quality and greenhouse gas emissions modeling was prepared for the proposed project (Michael Baker International 2019). Refer to Appendix A, *Air Quality/Greenhouse Gas Data.*

GLOBAL CLIMATE CHANGE

California is a substantial contributor of global greenhouse gases (GHGs), emitting over 429 million tons of carbon dioxide (CO_2) per year.[6] Climate studies indicate that California is likely to see an increase of three to four degrees Fahrenheit (ºF) over the next century. Methane is also an important GHG that potentially contributes to global climate change. GHGs are global in their effect, which is to increase the earth's ability to absorb heat in the atmosphere. As primary GHGs have a long lifetime in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission.

The impact of anthropogenic activities on global climate change is apparent in the observational record. Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO_2, methane (CH_4), and nitrous oxide (N_2O) from before the start of industrialization (approximately 1750), to over 650,000 years ago. For that period, it was found that CO_2 concentrations ranged from 180 parts per million (ppm) to 300 ppm. For the period from approximately 1750 to the present, global CO_2 concentrations increased from a pre-industrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range.

REGULATIONS AND SIGNIFICANCE CRITERIA

The Intergovernmental Panel on Climate Change (IPCC) developed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400 to 450 parts per million CO_2 equivalent[7] (CO_2eq) concentration is required to keep global mean warming below two degrees Celsius, which in turn is assumed to be necessary to avoid significant levels of climate change.

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6 California Environmental Protection Agency, *California Greenhouse Gas Emission Inventory - 2018 Edition*, https://www.arb.ca.gov/cc/inventory/data/data.htm, accessed November 21, 2018.

7 Carbon Dioxide Equivalent (CO_2eq) – A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

State of California Regulations

Executive Order S-3-05 was issued in June 2005, which established the following GHG emission reduction targets:

- 2010: Reduce GHG emissions to 2000 levels
- 2020: Reduce GHG emissions to 1990 levels
- 2050: Reduce GHG emissions to 80 percent below 1990 levels

Assembly Bill 32 (AB 32) requires that the CARB determine what the statewide GHG emissions level was in 1990 and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. CARB has approved a 2020 emissions limit of 427 million metric tons (MMT) of CO_2eq.

Executive Order B-30-15, which was issued in April 2015, requires statewide GHG emissions to be reduced 40 percent below 1990 levels by 2030. Senate Bill 32 (SB 32), signed into law in September 2016, codifies the 2030 GHG reduction target in Executive Order B-30-15. The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

Due to the nature of global climate change, it is not anticipated that any single development project would have a substantial effect on global climate change. GHG emissions from the proposed project would combine with emissions emitted across California, the United States, and the world to cumulatively contribute to global climate change.

In June 2008, the California Governor's Office of Planning and Research published a Technical Advisory, which provides informal guidance for public agencies as they address the issue of climate change in CEQA documents.[8] This is assessed by determining whether a proposed project is consistent with or obstructs the 39 Recommended Actions identified by CARB in its *Climate Change Scoping Plan* which includes nine Early Action Measures (qualitative approach). The Attorney General's Mitigation Measures identify areas where GHG emissions reductions can be achieved in order to achieve the goals of AB 32. As set forth in the California Governor's Office of Planning and Research Technical Advisory and in *CEQA Guidelines* Section 15064.4, this analysis examines whether the proposed project's GHG emissions are significant based on a qualitative and performance-based standard (*CEQA Guidelines* Section 15064.4(a)(1) and (2)).

South Coast Air Quality Management District Thresholds

At this time, there is no absolute consensus in the State of California among CEQA lead agencies regarding the analysis of global climate change and the selection of significance criteria. In fact, numerous organizations, both public and private, have released advisories and guidance with recommendations designed to assist decision-makers in the evaluation of GHG emissions given the current uncertainty regarding when emissions reach the point of significance. Lead agencies may elect to rely on thresholds of significance recommended or adopted by State or regional agencies with expertise in the field of global climate change.

The SCAQMD has formed a GHG CEQA Significance Threshold Working Group (Working Group) to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. As of the last Working Group meeting (Meeting No. 15) held in September 2010, the SCAQMD is proposing

[8] Governor's Office of Planning and Research, *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*, 2008.

to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency.[9]

With the tiered approach, the project is compared with the requirements of each tier sequentially and would not result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact. Tier 2 excludes projects that are consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. For all non-industrial projects, the SCAQMD is proposing a screening threshold of 3,000 $MTCO_2eq$ per year. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact.

Tier 4 consists of three options. Under the Tier 4 first option, the SCAQMD initially outlined that the project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. However, the Working Group did not provide a recommendation for this approach. Under the Tier 4 second option, the Working Group folded this into the third option. Under the Tier 4 third option, the project would be excluded if it was below an efficiency-based threshold of 4.8 $MTCO_2eq$ per service population (SP) per year or 3.0 $MTCO_2eq$ per SP for post-2020 projects.[10] Tier 5 would exclude projects that implement off-site mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level.

The 3,000 $MTCO_2eq$/yr non-industrial screening threshold has been selected as the significance threshold, as it is most applicable to the proposed project. The 3,000 $MTCO_2eq$ threshold is used in addition to the qualitative thresholds of significance set forth below from Section VII of Appendix G to the *CEQA Guidelines*.

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? ***Determination: Less than Significant Impact.***

Project-related GHG emissions would include emissions from construction activities. Construction-related emissions have been quantified and compared to the SCAQMD GHG threshold. The project's anticipated GHG emissions are identified in Table 3.8-1, *Estimated Greenhouse Gas Emissions*.[11] As indicated in Table 3.8-1, the total project construction would result in 246.10 $MTCO_2eq$ (8.20 $MTCO_2eq$ over 30 years), which is well below the 3,000 $MTCO_2eq$/year screening threshold.

[9] The most recent SCAQMD GHG CEQA Significance Threshold Working Group meeting was held on September 2010.

[10] The project-level efficiency-based threshold of 4.8 $MTCO_2eq$ per SP per year is relative to the 2020 target date. The SCAQMD has also proposed efficiency-based thresholds relative to the 2035 target date to be consistent with the GHG reduction target date of SB 375. GHG reductions by the SB 375 target date of 2035 would be approximately 40 percent. Applying this 40 percent reduction to the 2020 targets results in an efficiency threshold for plans of 4.1 $MTCO_2eq$ per SP per year and an efficiency threshold at the project level of 3.0 $MTCO_2eq$/year.

[11] CalEEMod outputs are contained within the Appendix A, *Air Quality/Greenhouse Gas Data*.

Table 3.8-1
Estimated Greenhouse Gas Emissions

Source	CO_2	N_2O		CH_4		Total Metric Tons of CO_2eq
	Metric tons/year	Metric tons/year	Metric tons of CO_2eq[1,2]	Metric tons/year	Metric tons of CO_2eq[1,2]	
Construction Emissions[2]						
Total Construction Emissions	244.73	0.05	1.37	0.00	0.00	246.10
Total Emissions[2]	244.73	0.05	1.37	0.00	0.00	246.10
Total Emissions (amortized over 30 years)[2]	8.16	0.00	0.05	0.00	0.00	8.20
SCAQMD Threshold	3,000 $MTCO_2eq$/year					
Is Threshold Exceeded?	*No*					

Notes:
1. CO_2 Equivalent values calculated using the U.S. EPA Website, *Greenhouse Gas Equivalencies Calculator*, https://www.epa.gov/energy/ greenhouse-gas-equivalencies-calculator, accessed January 15, 2019.
2. Totals may be slightly off due to rounding. Due to rounding, the results given by the equation calculations used in the Greenhouse Gas Equivalencies Calculator may not return the exact results shown in California Emission Estimator Model (CalEEMod).

Refer to Appendix A, *Air Quality/Greenhouse Gas Data*, for detailed model input/output data.

The project involves pipeline replacements that would not involve any new land uses or any expansion of an existing use and would not include stationary or mobile sources of GHG emissions during project operation. Thus, by its nature, the project would not generate quantifiable GHG emissions over the long-term. As GHG emissions generated during project construction would be minimal and less than the non-industrial GHG emissions threshold proposed by the SCAQMD, a less than significant impact would occur in this regard.

b) *Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?* ***Determination: Less than Significant Impact.***

The City of Beaumont (City) adopted the *Sustainable Beaumont: The City's Roadmap to Greenhouse Gas Reductions* (GHG Reduction Plan) in October 2015. The GHG Reduction Plan describes goals and measures to reduce GHG emissions within the City. Consistent with the State's adopted AB 32 GHG reduction target, the City has set a goal to reduce GHG emissions 15 percent below its 2005 levels by 2020. The City is anticipated to meet and exceed this goal subject to reduction measures that are technologically feasible and cost-effective per AB 32, through combination of state (approximately 11.2 percent) and local (approximately 37 percent) efforts. By implementing the GHG Reduction Plan, the City would reduce its community-wide GHG emissions by 48.2 percent compared to the projected 2020 emissions. In addition, the City has committed to several additional local measures: the state's low carbon fuel standard, Assembly Bill (AB) 1493 and Advanced Clean Cars, California Building Code Title 24, the Renewable Portfolio Standards (RPS), and other state measures that would significantly reduce GHG emissions in the City by 2020.

Portions of the project are also located in unincorporated Riverside County. Riverside County updated its Climate Action Plan (CAP) in July 2018. The CAP is the primary plan for the County to reduce its GHG emissions. Consistent with the State's adopted AB 32 GHG reduction target, the

County has set GHG reduction goals. By implementing the CAP, the County would reduce its community-wide GHG emissions by 38.2 percent compared to the projected 2020 emissions. In addition, the County has committed to several additional local reductions measures to encourage energy efficiency, transit-oriented planning, water conservation, and increasing waste diversion.

As a pipeline replacement project, the project would not have operational GHG emissions and would not conflict with the goals and measures listed in the GHG Reduction Plan for the City. Furthermore, the project would not stop the City from achieving its 2020 emission goal. Additionally, as identified in Table 3.8-1, project implementation would result in construction GHG emissions that are well below SCAQMD's 3,000 $MTCO_2eq$/yr non-industrial threshold. Thus, a less than significant impact would occur in this regard.

3.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
9. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☑	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☑	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☑	☐
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?	☐	☐	☑	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑	☐
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☑

Would the project:

a) *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?* ***Determination: Less than Significant Impact.***

The routine transport, use, and disposal of hazardous materials can result in hazards to the public through the potential for accidental release. Such hazards are typically associated with certain types of land uses, such as chemical manufacturing facilities, industrial processes, waste disposal, and storage and distribution facilities.

Construction of the proposed project may result in temporary hazards related to transport and use of hazardous materials, including those used for construction vehicle use and maintenance (i.e., diesel fuel, motor oil, etc.). During project construction, contractors would be required to uphold standard BMPs to ensure that all hazardous materials are stored, transported, and disposed of in accordance with federal and State law. Conformance with these standards would effectively avoid and minimize significant hazards related to the transport, use, and disposal of hazardous materials and would reduce the project's impacts to less than significant levels.

Project operations (underground water delivery pipeline) would not involve a land use creating a significant hazard to the environment due to the routine transport, use, or disposal of hazardous materials. Operation of the pipeline system would be similar to that as occurs under existing conditions. As such, the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. No significant construction or operational impacts are anticipated.

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?* ***Determination: Less than Significant Impact.***

Refer to Impact 3.9(a), above. During the short-term excavation and construction period, there is the possibility of accidental release of hazardous substances such as spilling of petroleum-based fuels, lubricants, and other materials used for construction equipment. During construction of the proposed project, contractors would be required to use standard construction safety procedures and controls that would avoid and minimize the potential for accidental release of hazardous substances into the environment. Standard construction BMPs would be observed such that any hazardous materials released are appropriately contained and remediated as required by local, State, and federal law. Conformance with these standards would reduce impacts related to the accidental release of hazardous materials into the environment to less than significant levels.

The proposed project would not alter any existing land uses along the affected segments of the water pipeline alignments. Following project implementation, the water pipeline segments would operate more reliably than it presently does under current conditions. The proposed improvements would not result in long-term operational effects related to hazardous materials release. No long-term impacts would occur in this regard.

c) *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?* ***Determination: Less than Significant Impact.***

No schools are located within one-quarter mile from each of the three water pipeline alignments.

As stated in Impact 3.9(a), minor quantities of hazardous materials used during project construction would be subject to existing standard BMPs to ensure that all hazardous materials are stored, transported, used, and disposed of in accordance with federal and State law. Operation of the proposed project would not involve the routine use of hazardous materials, and potential periodic maintenance activities would only require the use of limited quantities of potentially hazardous materials on a short-term, temporary basis when needed. A less than significant impact would occur in this regard.

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?* ***Determination: Less than Significant Impact.***

Refer to Impact 3.9(b), above. According to the California Department of Toxic Substances Control EnviroStor database (accessed on November 19, 2018), the Square D Company (1060 E 3rd St, Beaumont) is listed in the database that contained hazardous materials and has land use restrictions on the property. The site information cleanup status states, "certified O&M – land use restrictions only as of 9/7/2018" and that metals were found/other groundwater affected (uses other than drinking water), soils are potential media affected. The Apple Tree Lane and Avenida Altejo Bella alignments are located over 4.25 miles north of the Square D Company site. The Square D Company site is located approximately 0.72 mile southeast of the Egan Avenue Alley alignment. Because of the distance from the Square D Company site to the three alignments, impacts are considered less than significant.

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?* ***Determination: No Impact.***

Banning Municipal Airport is located over 7 miles east of the project alignments. The project alignments are not within an airport land use plan or within two miles of a public or public use airport. The proposed project would not result in a safety hazard for people working or residing in the proposed project alignments. Therefore, no impact would occur.

f) *For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?* ***Determination: No Impact.***

The proposed project pipeline alignments are not located within the vicinity of a private airstrip. Therefore, no impact would occur.

g) *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?* ***Determination: Less than Significant Impact.***

While the proposed project would minimally impact local traffic flow during the temporary construction period, it would not conflict with or interfere with emergency evacuation of the project area. Project construction would not substantially interfere with traffic circulation, as emergency access along the project alignments would be maintained during project construction. No revisions to an adopted emergency plan would be required as a result of the proposed project. Impacts in this regard would be less than significant.

h) *Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?* ***Determination: No Impact.***

The proposed project water pipeline alignments are not located in a wildlands fire area. No impacts associated with wildland fires are anticipated to occur.

3.10 HYDROLOGY AND WATER QUALITY

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
10. HYDROLOGY AND WATER QUALITY – Would the project:					
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☑	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☑	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or offsite?	☐	☐	☑	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☑	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☑	☐
f)	Otherwise substantially degrade water quality?	☐	☐	☑	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☑
h)	Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	☐	☐	☐	☑
i)	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☑
j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑

Would the project:

a) *Violate any water quality standards or waste discharge requirements?* ***Determination: Less than Significant Impact.***

Surface water quality is subject to federal, State, and local water quality requirements administered and enforced by the US Environmental Protection Agency (USEPA), the California State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Board (RWQCB) with cooperation from each county. The principal law governing pollution of the nation's surface waters is the Clean Water Act (formerly the Federal Water Pollution Control Act). Under the Clean Water Act, regulatory requirements for industrial and municipal dischargers were set, as well as requirements for states to adopt water quality standards.

The proposed project is required to comply with the latest adopted National Pollution Discharge Elimination System (NPDES) Permit. Compliance with the NPDES Permit would mitigate any project-level impacts to water quality to a level of less than significant.

During the trenching phase of the proposed project, potential runoff into the surrounding drainage system could cause sediment, oil, and other construction debris to contaminate downstream water bodies. The SWRCB has adopted General Permit number CAS000002-Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (General Permit). This permit applies to most construction-related runoff within the State. The General Permit requires that all grading permits for projects over one acre are required to submit a SWPPP that outlines BMPs that would be used on the project site to keep all sediment resulting from grading activities retained on-site prior to issuance of any grading or building permit. The project would be required to prepare and submit a SWPPP to the City and County's Public Works Department; refer also to Impact 3.7(b), above. Implementation of the SWPPP would reduce potential runoff and pollutants associated with project construction activities to the maximum extent feasible, thereby minimizing potential short-term water quality impacts.

With project conformance with applicable federal, State, and local regulations and requirements, as well as through project design and incorporation of the identified BMPs, the project would not violate any water quality standards or waste discharge requirements. Impacts are considered to be less than significant.

b) *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?* ***Determination: Less than Significant Impact.***

BCVWD is proposing this project to replace an aging water pipeline with new pipeline. The project does not propose groundwater recharge and no recharge area is located near the project alignments as the alignments are within private residences and roadway right-of-way. Project compliance with existing agency regulatory programs would further reduce potential impacts on groundwater supplies. Project operations would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level results. Impacts are considered less than significant.

c) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or offsite?* ***Determination: Less than Significant Impact.***

Construction impacts that may result in on- or off-site erosion or siltation would be minimized to less than significant levels by the implementation of BMPs set forth in the SWPPP; refer also to Impact 3.7(b), above. There would be no operational impacts because the pipeline alignment trenches would be restored to pre-construction conditions. Therefore, the proposed project is not anticipated to alter the existing drainage pattern of the site and would not result in substantial erosion of siltation on-site or off-site. Impacts are considered to be less than significant.

d) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?* ***Determination: Less than Significant Impact.***

Refer to Impact 3.10(c), above. The project would not result in alterations of the existing drainage pattern of the project site and would not require traversing any streams or rivers. Once complete, the topography would be restored to pre-construction conditions. A less than significant impact related to on- and off-site flooding would occur.

e) *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?* ***Determination: Less than Significant Impact.***

Refer to Impacts 3.10(a) and 3.10(c), above. The proposed project is a pipeline replacement project, which would not substantially alter the existing drainage pattern of the pipeline alignments or surrounding area. Impervious surface areas would remain the same as prior to construction and standard drainage BMPs would be implemented. Therefore, the project would not contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. Impacts would be less than significant.

f) *Otherwise substantially degrade water quality?* ***Determination: Less than Significant Impact.***

Refer to Impacts 3.10(a) and 3.10(e) above. With the implementation of BMPs and compliance with established federal, State, and local regulations, the project would not substantially degrade water quality. Thus, a less than significant impact would occur.

g) *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?* ***Determination: No Impact****.*

Housing is not proposed as part of the proposed project. No impact would occur.

h) *Place within a 100-year flood hazard area structures which would impede or redirect flood flows?* ***Determination: No Impact****.*

See Impact 3.10(g), above. The project site is not located within a 100-year flood zone. No aboveground structures are proposed with the project. Therefore, implementation of the proposed project would not result in impacts relative to placing structures that would impede or redirect flood flows. No impact would occur.

i) *Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?* ***Determination: No Impact.***

Refer to Impacts 3.10(g) and (h), above. In regard to levee or dam failure, the project alignments are not located downstream of a levee or dam. No impacts are anticipated in this regard.

j) *Inundation by seiche, tsunami, or mudflow?* ***Determination: No Impact.***

The proposed project site is located over 50 miles inland from the Pacific Ocean and is divided by many various types of mountainous and hilly terrain. There are no large bodies of water in close proximity to the proposed pipeline alignments. As such, the possibility for the occurrence of seiche or tsunami impacting the project area is considered to be remote. Further, the project alignments are located within a generally flat to gentle sloping/hilly areas, and the risk of mudflows and seiche is considered to have a very low risk potential for damage. No impact would occur.

3.11 LAND USE AND PLANNING

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
11. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☑
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑

Would the project:

a) Physically divide an established community? ***Determination: No Impact****.*

Implementation of the project would not divide an established community. No new structures are proposed that would divide an established community. The replacement pipeline would be buried underground within existing easements and roadway right-of-way. No physical barriers would be constructed that would divide a neighborhood or community. As such, the project would not divide an established community, and no impact would occur in this regard.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? ***Determination: No Impact.***

The proposed replacement pipeline project would not conflict with any adopted land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating and environmental effect. Construction trenching would be temporary and would be conducted within easements and roadway right-of-way. Operations would be underground and would not impose impacts to on-site or off-site land uses. No impact would occur.

The project site does not include land area subject to specific plans or local coastal programs. No impacts would occur in this regard.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan? ***Determination: No Impact****.*

Refer to Impact 3.4(f) above. Project implementation would not affect areas under the jurisdiction of the WRC MSHCP or any other habitat conservation plan or natural community conservation plan. No impact would occur.

3.12 MINERAL RESOURCES

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
12. MINERAL RESOURCES – 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?	☐	☐	☑	☐
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?	☐	☐	☑	☐

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?* ***Determination: Less than Significant Impact.***

The State Mining and Geology Board (SMGB) has established Mineral Resources Zones (MRZs) to designate lands that contain mineral deposits. The classifications used by the State to define MRZs are as follows:

- MRZ-1: Areas where the available geologic information indicates no significant likelihood of significant mineral deposits.
- MRZ-2a: Areas where the available geologic information indicates that there are significant mineral deposits.
- MRZ-2b: Areas where the available geologic information indicates that there is a likelihood of significant mineral deposits.
- MRZ-3a: Areas where the available geologic information indicates that mineral deposits exist, however, the significance of the deposit is undetermined.
- MRZ-3b: Areas where the available geologic information indicates that mineral deposits are likely to exist, however, the significance of the deposit is undetermined.
- MRZ-4: Areas where there is not enough information available to determine the presence of a known mineral deposit.

The California State Geologist has classified areas into MRZs and Scientific Resource Zones (SRZs). The zones identify the Statewide or regional significance of mineral deposits based on the economic value of the deposits and accessibility. According to the Riverside County General Plan EIR (Figure 4.14-1, *Mineral Resource Zones*), the proposed project area is within the zoning classification of MRZ-3. The MRZ-3 areas contain sedimentary deposits that have the potential to supply sand and gravel for concrete and crushed stone for aggregate; however, these areas are not considered to contain deposits of significant economic value, based on available data.

Therefore, the project site is located in an area classified as MRZ-3. Additionally, the State (California Department of Conservation 2015) has not identified the project site as having mineral resources that could be of value to the region and residents of the State. As such, a less than significant impact would occur.

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?* ***Determination: Less than Significant Impact.***

Refer to Impact 3.12(a). As stated above, the County of Riverside General Plan EIR designates the project site as MRZ-3. The project is not forecasted to result in the loss of availability of a locally important mineral resource recovery site. A less than significant impact would occur.

3.13 NOISE

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
13. NOISE – Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☑	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☑	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☑	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of a proper noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear (A-weighted decibels or dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted for understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10 dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response (FICON 1992).

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks, and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations.

The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Mobile transportation sources, such as highways, and hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance from the source. Noise generated by stationary sources (i.e., construction) typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source.

Sound levels can be reduced by placing barriers between the noise source and the receiver. In general, barriers contribute to decreasing noise levels only when the structure breaks the “line of sight” between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise, but are less effective than solid barriers.

Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? ***Determination: Less than Significant with Mitigation Incorporated****.*

Short-Term Construction Impacts

Construction activities are generally temporary and have a short duration, resulting in periodic increases in the ambient noise environment. The project’s construction activities would span a six-month period beginning in fall 2020. Typical noise levels generated by construction equipment are shown in Table 3.13-1, *Maximum Noise Levels Generated by Construction Equipment*. Operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be due to random incidents, which would last less than one minute (such as dropping large pieces of equipment).

Table 3.13-1
Maximum Noise Levels Generated by Construction Equipment

Type of Equipment	Acoustical Use Factor[1]	L_{max} at 10 Feet (dBA)	L_{max} at 20 Feet (dBA)	L_{max} at 30 Feet (dBA)
Concrete Saw	20	103	97	93
Concrete Mixer Truck	40	86	80	76
Concrete Saw	20	97	91	87
Backhoe	40	85	79	75
Dozer	40	89	83	79
Truck	40	95	89	85
Roller	20	87	81	77
Tractor	40	91	85	81
Paver	50	84	78	74

Note:
1. Acoustical Use Factor (percent): Estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

Source: Federal Highway Administration, *Roadway Construction Noise Model (FHWA-HEP-05-054),* January 2006.

As discussed above, the nearest sensitive receptors to the project are residential uses located along all project segments. The approximate distance and potential noise levels that could be encountered at these receptors is provided below.

Egan Avenue Alley Segment

The closest sensitive receptors to construction activities along the Egan Avenue Alley segment are adjacent residences (approximately 10 feet). At this distance, noise levels from construction equipment could range between approximately 84 and 103 dBA; refer to Table 3.13-1.

Avenida Altejo Bella Segment

The closest sensitive receptors to construction activities along the Avenida Altejo Bella segment are adjacent residences (approximately 20 feet). At this distance, noise levels from construction equipment could range between approximately 78 and 97 dBA; refer to Table 3.13-1.

Apple Tree Lane Segment

The closest sensitive receptors to construction activities along the Apple Tree Lane segment are adjacent residences (approximately 30 feet). At this distance, noise levels from construction equipment could range between approximately 74 and 93 dBA; refer to Table 3.13-1.

Although noise levels from construction equipment would range from approximately 74 to 103 dBA at the nearest sensitive receptors, all construction activities are exempt from City and County noise standards as long as they occur within the allowable days and times.[12] Pursuant to County Code Section 9.52.020 and Beaumont Municipal Code Section 9.02.060, construction noise levels associated with the proposed project are exempt during the daytime hours (between 6:00 a.m. and 8:00 p.m.) in the City of Beaumont and all times within the County of Riverside. As such, construction activities associated with the project would occur during daytime hours and would not exceed either the City of Beaumont or County of Riverside noise standards. These permitted hours of construction are required in recognition that construction activities undertaken during daytime hours are a typical part of living in an urban environment and do not cause a significant disruption. Further, there would be a different mix of equipment at various areas of the project site during each stage of construction and would generally be distanced from neighboring properties. As such, construction activity noise levels at and near the project site would fluctuate depending on the particular type, number, and duration of use of the various construction equipment pieces. Construction would not be localized at one location for an extended period of time. Rather, the construction area would be spread over several locations over a seven-month period.

Although project construction noise is exempt from State, County, and City noise regulations, Mitigation Measure NOI-1 would ensure that construction-related noise impacts at nearby sensitive receptors would be less than significant. Under Mitigation Measure NOI-1, construction equipment would be furnished with properly operating and maintained mufflers and other State-required noise attenuation devices. A less than significant impact would occur following conformance with County Code Section 9.52.020, Beaumont Municipal Code Section 9.02.060, and Mitigation Measure NOI-1.

[12] In addition, per Section 53091(e) of the California Government Code, BCVWD is not bound by the provisions contained in either Chapter 9.02, Noise Control, of the Beaumont Municipal Code, or Chapter 9.52, Noise Regulation, of the County Code. However, a construction noise analysis for nearby sensitive receptors has been included in this IS/MND for the purposes of CEQA.

Long-Term Operational Impacts

As a pipeline replacement project, project operations would not introduce a new noise-generating source. Project implementation would not directly increase vehicular trips in the project area. Therefore, no long-term noise impacts would result with implementation of the proposed project.

Mitigation Measures:

NOI-1 Prior to the initiation of construction, the City of Beaumont Director of Public Works and/or the County of Riverside Director of Public Works shall ensure that all project plans and specifications stipulate that:

- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and other State-required noise attenuation devices;
- All construction, maintenance, and demolition activities associated with the proposed project shall be limited to the hours between 6:00 a.m. and 8:00 p.m.; and
- Construction haul routes shall be chosen to avoid sensitive uses (i.e., residences, schools, etc.).

b) *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?* ***Determination: Less than Significant with Mitigation Incorporated.***

Project construction can generate varying degrees of groundborne vibration, depending on the construction equipment used and the type of activity. Construction equipment operation would generate groundborne vibrations which decrease with distance from the source. The effect on buildings located near the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from construction activities rarely reach levels that damage structures.

The Federal Transit Administration (FTA) and Caltrans have published standard vibration velocities for construction equipment operations. The architectural damage criterion for continuous vibrations at older residential structures is 0.30 inch/second.[13] As the nearest structures to project construction are residences, this threshold is considered appropriate. The types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Table 3.13-2, *Typical Vibration Levels for Construction Equipment*, identifies typical vibration levels for construction equipment.

[13] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, Table 12.3, https://www.transit.dot.gov/sites/fta.dot.gov/files/ docs/FTA_Noise_and_Vibration_Manual.pdf and California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, Table 19, http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf, both accessed on January 15, 2019.

Table 3.13-2
Typical Vibration Levels for Construction Equipment

Equipment	Approximate peak particle velocity at 10 feet (inches/second)	Approximate peak particle velocity at 20 feet (inches/second)	Approximate peak particle velocity at 30 feet (inches/second)
Loaded trucks	0.300	0.106	0.058
Rock Breaker	0.233	0.082	0.045
Jackhammer	0.138	0.049	0.027
Small bulldozer/Tractors	0.012	0.004	0.002

Notes:
1. Calculated using the following formula:
$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$
where: PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance
PPV (ref) = the reference vibration level in in/sec from Table 12-2 of the FTA *Transit Noise and Vibration Impact Assessment Guidelines*
D = the distance from the equipment to the receiver
Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006.

The nearest structures susceptible to vibration from the project's construction activities within each segment is discussed below:

Egan Avenue Alley Segment

The closest structure to construction activities along the Egan Avenue Alley segment is located approximately 10 feet from the proposed project. As illustrated in Table 3.13-2, based on the FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction range from 0.012 to 0.300 inch-per-second peak particle velocity (PPV) at 10 feet, which would exceed the 0.30 inch-per-second PPV significance threshold.

Avenida Altejo Bella Segment

The closest structure to construction activities along the Avenida Altejo Bella segment is located approximately 20 feet from the proposed project. As illustrated in Table 3.13-2, based on the FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction range from 0.004 to 0.106 inch-per-second PPV at 20 feet, which would not exceed the 0.30 inch-per-second PPV significance threshold.

Apple Tree Lane Segment

The closest structure to construction activities along the Apple Tree Lane segment is located approximately 30 feet from the proposed project. As illustrated in Table 3.13-2, based on the FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction range from 0.002 to 0.058 inch-per-second PPV at 30 feet, which would not exceed the 0.30 inch-per-second PPV significance threshold.

At a distance of 10 feet, vibration velocities would range from 0.012 to 0.300 inch-per-second PPV, which would meet the 0.30 PPV significance threshold. Therefore, the project would be required to implement Mitigation Measure NOI-2 during project construction activities, which prohibits loaded truck activities within 10 feet of any structure. Therefore, as shown in Table 3.13-2, vibration impacts would not exceed the 0.30 inch-per-second PPV significance threshold with incorporation of Mitigation Measure NOI-2. Thus, this impact would be reduced to a less than significant level with mitigation in this regard.

Mitigation Measures:

NOI-2 Prior to initiation of construction, the City and/or County Engineer shall ensure that construction plans prohibit the use of loaded trucks within 10 feet of any structure to minimize vibration impacts.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? ***Determination: No Impact.***

Long-Term Mobile Noise Impacts

As a pipeline replacement project, project implementation would not generate new vehicle trips. No long-term mobile noise impacts would occur in this regard.

Long-Term Stationary Noise Impacts

As a pipeline replacement project, project operations would not involve any new sources of stationary noise (i.e., pumps, generators, etc.). No long-term stationary noise impacts would occur in this regard.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? ***Determination: Less than Significant with Mitigation Incorporated.***

Refer to Impacts 3.13(a) and (b), above. Implementation of Mitigation Measures NOI-1 and NOI-2 described above would reduce impacts relative to substantial temporary or period increases in ambient noise levels in the project vicinity to a less than significant level.

Mitigation Measures:

Refer to Mitigation Measures NOI-1 and NOI-2 above.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels? ***Determination: No Impact.***

The nearest public airport to the project is the Banning Municipal Airport, which is located approximately seven miles southeast of the project segments in the City of Banning. According to the *Riverside County Airport Land Use Compatibility Plan*, the project segments occur outside of any designated CNEL Compatibility Contour.[14] Therefore, no impacts associated with public airport noise would occur.

f) For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels? ***Determination: No Impact.***

No private airstrips are located within a 20-mile radius of the project. Therefore, no impacts associated with private airstrip noise would occur.

[14] Riverside County Airport Land Use Commission, *Riverside County Airport Land Use Compatibility Plan*, October 14, 2004.

3.14 POPULATION AND HOUSING

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
14. POPULATION AND HOUSING – Would the project:				
a) Induce substantial 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)?	☐	☐	☐	☑
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Would the project:

a) Induce substantial 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)? ***Determination: Less than Significant Impact****.*

Implementation of the proposed replacement water pipeline project would improve BCVWD's capability to deliver reliable water supplies to portions of the District's customers. The three alignments that are proposed to be replaced are located within existing residential and commercial land uses and would serve these existing uses. As such, the replacement pipeline would not induce population growth in the area directly or indirectly. No impact would occur in this regard.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? ***Determination: No Impact****.*

No housing units would be displaced as a result of project construction. Existing residential and commercial land uses are present in the project vicinity. All project improvements would occur within existing easements and roadway right-of-way, and as such, would not displace any existing housing units or require the construction of additional replacement housing units elsewhere. Therefore, no impact would occur in this regard.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? ***Determination: No Impact****.*

Refer to Impact 3.14(b), above. No residential units or residents would be displaced as a result of the project as proposed, and therefore, the project would not necessitate the construction of replacement housing elsewhere. No impact would occur in this regard.

3.15 PUBLIC SERVICES

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
15. PUBLIC SERVICES				
a) 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:				
Fire protection?	☐	☐	☐	☑
Police protection?	☐	☐	☐	☑
Schools?	☐	☐	☐	☑
Parks?	☐	☐	☐	☑
Other public facilities?	☐	☐	☐	☑

a) 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:

1) Fire protection? ***Determination: No Impact.***

The proposed project would not result in the construction of any aboveground structures and would not directly or indirectly induce significant population growth (refer to Impact 3.14(a), above). As a pipeline replacement project, the proposed improvements would not result in the need for additional new or altered fire protection services and would not alter acceptable service ratios or response times. Implementation of the proposed project would not create new demand for the development of new or physically altered fire protection services or facilities. The project would result in improved water reliability and flow to fire hydrants in the project areas. Therefore, no impacts would occur.

2) Police protection? ***Determination: No Impact.***

The proposed project would not directly or indirectly induce significant population growth, as identified in Impact 3.14(a) above. The project would not result in the need for additional new or altered police protection services and would not alter acceptable service ratios or response times. Further, project implementation would not create the need for the development of additional police facilities. Therefore, there would be no impacts on police protection services with project implementation.

3) *Schools?* ***Determination: No Impact.***

   As identified in Impact 3.14(a), above, the proposed project would not involve a land use that would directly or indirectly induce significant population growth. Therefore, the project would not generate additional school-aged students that would create new demand on local schools for educational services. No impact would occur in this regard.

4) *Parks?* ***Determination: No Impact.***

   Due to the nature of the project, no new residents would be generated that would be likely to impact or create a need for additional local parks or other public facilities. No impact would occur in this regard.

5) *Other public facilities?* ***Determination: No Impact****.*

   Refer also to Impact 3.14(a), above. The proposed project would not induce significant population growth within the area, either directly or indirectly, and therefore would not create new demand for other public facilities (i.e., libraries). Therefore, the project would not create significant impacts on other public facilities. No impact would occur in this regard.

3.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
16. RECREATION				
a) Would the project 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?	☐	☐	☐	☑
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?	☐	☐	☐	☑

a) *Would the project 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?* ***Determination: No Impact****.*

Refer to Impact 3.15(a)(4), above. The proposed project consists of the replacement of existing water pipeline and associated facilities, and as such, its implementation would not induce area population growth or increase demand for or use of existing local or regional park facilities. For this reason, the project would have no impact on the local and regional parks system.

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?* ***Determination: No Impact.***

Refer to Impact 3.15(a)(4), above. As a water pipeline replacement project, the proposed project does not include construction of, or need for expansion of any recreational facilities. The project would not generate additional area population that would require the construction or expansion of recreational facilities. No impact would occur in this regard.

3.17 TRANSPORTATION/TRAFFIC

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
17. TRANSPORTATION/TRAFFIC – Would the project:				
a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☑
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads and highways?	☐	☐	☐	☑
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☑	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☑	☐

Would the project:

a) *Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?* ***Determination: No Impact.***

The proposed water pipeline replacement project would occur within three separate alignments. Construction activities such as trenching for pipeline replacement would be a temporary and within a short duration. To minimize traffic impacts, the contractor would be responsible for developing and implementing a temporary construction Traffic Control Plan (TCP) that would be reviewed by the City of Beaumont and the County of Riverside.

Since the project does not propose any land use changes or components that would result in changes to existing roadway design or the addition of new traffic on roadways in the project area, project operation would not result in any changes to the performance of the existing circulation system, including mass transit, non-motorized travel, pedestrian or bicycle circulation. Therefore, the project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the affected circulation system. Impacts would be less than significant.

b) *Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads and highways?* ***Determination: No Impact.***

Refer to Impact 3.17(a), above. The proposed water pipeline replacement project would not conflict with a congestion management program. There would be a minimal amount of construction vehicles and equipment needed to trench the alignments and replace the water pipelines, which is not anticipated to impact local circulation because of the alignments being located within various easements and alley roadway right-of-way. No impacts are anticipated in this regard.

c) *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?* ***Determination: No Impact.***

As discussed in Impact 3.9(e), Banning Municipal Airport is located approximately seven miles southeast of the proposed project and is not located within the Compatibility Zones identified in the Riverside County Airport Land Use Compatibility Plan. Additionally, the project proposes buried pipeline that would not result in a change to air traffic patterns. Therefore, no impact would occur.

d) *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?* ***Determination: No Impact.***

Refer to Impact 3.17(a), above. No changes to existing roadway design are proposed as part of this project. No impacts would occur.

e) *Result in inadequate emergency access?* ***Determination: Less than Significant Impact.***

Refer to Impacts 3.17(a) and (b), above. The project would affect three segments of existing water pipelines. Temporary construction activities may have the potential to interfere with emergency access to adjacent properties. The project is subject to City of Beaumont and Riverside County review to ensure that the project as designed does not temporarily or permanently interfere with the provision of emergency access or with evacuation routes. Additionally, a TCP would be prepared by the contractor, prior to project construction, to ensure that project construction activities do not substantially restrict traffic flows on area roadways and that emergency access and public safety are maintained at all times during all phases of project construction. Traffic control during project construction would occur in accordance with the California Manual on Uniform Traffic Control Devices, and/or the American Public Works Association (APWA) Work Area Traffic Control Handbook. All traffic control measures would be in place prior to the commencement of any work.

With implementation of the TCP, and conformance with City and County standards regarding the provision of emergency access, project construction and operation would not result in inadequate emergency access. Impacts would be less than significant.

f) *Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?* ***Determination: Less Than Significant Impact.***

The proposed water pipeline replacement segments are located in areas that do not have bus turnouts or bike parking. The project would not conflict with adopted policies, plans or programs supporting alternative transportation. Project construction along the Egan Avenue Alley alignment may temporarily restrict access to or use of existing area sidewalks within the project vicinity, but no bus stops or bike lanes exist within the Egan Avenue Alley alignment. As indicated above, a TCP would be prepared and implemented to ensure that such elements are not substantially affected and that alternative temporary facilities for bicyclists and pedestrians are provided as needed during the project construction. As construction would be temporary, combined with implementation of a TCP, project construction would not conflict with adopted policies, plans, or programs supporting alternative transportation. Impacts would be less than significant.

3.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
18. TRIBAL CULTURAL RESOURCES *– Would the project:*				
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:				
a) 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	☐	☑	☐	☐
b) 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?	☐	☑	☐	☐

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 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)? **Determination: Less than Significant Impact with Mitigation Incorporated**.*

California State Assembly Bill No. 52 (AB 52) amended CEQA by creating a new category of cultural resources, tribal cultural resources, and requires consultation with Native American Tribes. Governor Brown signed AB 52 on Sept 25, 2014, and the Bill became effective July 1, 2015. Pursuant to AB 52, lead agencies are required to consult with Native American tribes who request consultation for projects located within their traditional territory. AB 52 consultation is required for projects that have a Notice of Preparation, Notice of Negative Declaration, or Notice of Mitigated Negative Declaration on or after July 1, 2015. AB 52 consultation is ongoing throughout the processing of a project until mutual agreement can be reached. Consultation is considered concluded when: (1) all parties are in agreement; (2) acting in good faith and after reasonable effort, mutual agreement cannot be reached; or, (3) tribes are non-responsive.

In compliance with AB 52, the BCVWD distributed letters on May 7, 2019 to notify 34 different tribes of the opportunity to consult on the project and assist the BCVWD in determining whether there were potential tribal cultural resources associated with the project area. The Agua Caliente Band of Cahuilla Indians and the Morongo Band of Mission Indians both requested to participate in a formal consultation and asked for additional information. On July 15,2019, BCVWD sent formal consultation letters with the requested information to the Agua Caliente Band of Cahuilla Indians and the Morongo Band of Mission Indians. On August 20,2019, BCVWD received a response from the Agua Caliente Band of Cahuilla Indians stating that their concerns had been addressed with proper mitigation measures, however BCVWD received no further correspondence from the Morongo Band of Mission Indians.

As a result of the tribal consultation process, the BCVWD has agreed to implement Mitigations Measures CR-1 and CR-2. Mitigation Measure CR-1 would require cultural resource sensitivity training to educate construction personnel on the types of cultural resources that may be encountered. If cultural resources are encountered a qualified archaeologist will assess the discovery and develop plans for the treatment, evaluation, and mitigation of impacts. Mitigation Measure CR-2 would require work at the site to stop if human remains are found and if the remains are found to be Native American, the Coroner will notify the NAHC within 24 hours. Following implementation of Mitigation Measures CR-1 and CR-2, impacts to tribal cultural resources would be less than significant.

MITIGATION MEASURES:

Refer to Mitigation Measures CR-1 and CR-2 in Section 3.4

b. 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 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. ***Determination: Less than Significant Impact with Mitigation Incorporated****.*

Refer to Impact 3.18(a) above.

3.19 UTILITIES AND SERVICE SYSTEMS

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
19. UTILITIES AND SERVICE SYSTEMS – Would the project:					
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☑
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
c)	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☑
e)	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?	☐	☐	☐	☑
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☑	☐
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☑	☐

Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? ***Determination: No Impact.***

Surface runoff from the project is addressed in Impacts 3.10(a), 3.10(c), 3.10(e), and 3.10(f) in Section 3.10, *Hydrology and Water Quality*, of this Initial Study. The pipeline replacements proposed under the project would not result in the production of wastewater, and therefore, no wastewater treatment would be required with project construction or operation. No impact would occur in this regard.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? ***Determination: No Impact.***

Due to the nature of the water pipeline replacement, project implementation would not increase wastewater production or require the construction of new water or wastewater treatment facilities or expansion of existing facilities. No impact would occur in this regard.

c) *Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?* ***Determination: No Impact.***

Refer to Impact 3.19(a), above. The proposed water pipeline replacement project does not include the construction of new storm water drainage facilities, nor would necessitate the expansion of existing stormwater facilities. No impact would occur.

d) *Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?* ***Determination: No Impact.***

Refer to Impact 3.19(b), above. As a pipeline replacement project, the proposed improvements would not substantially increase demand on existing water service facilities and no new or expanded entitlements are needed. The project would not result in development of a land use that would require the provision or expansion of water service. No impact would occur in this regard.

e) *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?* ***Determination: No Impact.***

Refer to Impact 3.19(b), above. As a water pipeline replacement project, the proposed improvements would not increase demand on existing wastewater treatment facilities. The project would not result in development of a land use that would require the provision or expansion of wastewater treatment facilities to serve the project site. No impact would occur in this regard.

f) *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?* ***Determination: Less than Significant Impact.***

Project construction may require some excavation of existing materials and soils, which would necessitate solid waste hauling. All excavation and construction debris would be required to demonstrate compliance with all federal, State, and local statutes and regulations related to solid waste, including the 50 percent diversion of solid waste requirement pursuant to the California Integrated Waste Management Act of 1989 (AB 939). The landfills that would potentially serve the project during construction include the Lamb Canyon, El Sobrante, Badlands and Blythe landfills, all of which would be able to accommodate the minimal amount of waste produced by project construction activities. Impacts are considered less than significant.

g) *Comply with federal, State, and local statutes and regulations related to solid waste?* ***Determination: Less than Significant Impact.***

Refer to Impact 3.19(f), above. The project would be required to comply with City and County adopted construction and solid waste disposal programs and applicable federal, State, and local regulations pertaining to solid waste. Therefore, a less than significant impact would occur.

3.20 WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
20. WILDFIRE – Would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	☐	☐	☑	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☑	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☑	☐

Would the project:

a) *Substantially impair an adopted emergency response plan or emergency evacuation plan?* ***Determination: Less than Significant Impact.***

While the proposed project would minimally impact local traffic flow during the temporary construction period, it would not conflict with or interfere with emergency evacuation of the project area. Project construction would not substantially interfere with traffic circulation, as emergency access along the project alignments would be maintained during project construction. No revisions to an adopted emergency plan would be required as a result of the proposed project. Impacts in this regard 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 wildfire?* ***Determination: Less than Significant Impact.***

The proposed pipeline replacement would occur in generally flat and gently sloping areas within existing easements and roadway right-of-way. Thus, the potential for substantial soil erosion would be minimal. Nonetheless, trenching during the project's construction phase would displace soils and temporarily increase the potential for soils to be subject to wind and water erosion. The Egan Avenue Alley pipeline alignment is located in urbanized area and is not susceptible to wildfire. However, both the Apple Tree Lane and the Avenida Altejo Bella pipeline alignments are located in a Very High Fire Hazard Severity Zone in a State Responsibility Area as shown in the CAL FIRE Resource and Assessment Program (FRAP) map.[15] Construction activities can increase the risk of fire ignition, particularly in areas adjacent to or within areas with brush and vegetation.

[15] CAL FIRE, Fire Hazard Severity Zones in SRA. https://osfm.fire.ca.gov/media/6752/fhszs_map60.pdf

Vegetation along the project alignment is minimal and is limited to trees and landscaping. As such, construction activities associated with the proposed project would be unlikely to exacerbate wildfire risks or expose workers to increased risk of wildfire hazards. 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?* ***Determination: Less than Significant Impact.***

The proposed project would involve the replacement of existing potable water pipelines. As described in Impact 3.20(b) above, construction projects have the potential to exacerbate fire risk. Vegetation along the project alignment is minimal and is limited to trees and landscaping. As such, construction activities associated with the proposed project would be unlikely to exacerbate wildfire risks. As a potable pipeline replacement project located within existing right-of-way, the proposed project would not require new roads, fuel breaks, emergency water sources, power lines, or other utilities for construction or maintenance. During operation, the proposed project would operate passively below ground. Operational activities would be limited to scheduled maintenance, repair, and inspection. These activities would have minimal environmental impacts and are not expected to exacerbate fire risk in the area. Therefore, 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?* ***Determination: Less than Significant Impact.***

The proposed project involves the replacement of existing old potable water pipelines and would not involve construction or operation of occupiable structures, nor would it increase population such that the number of occupiable structures in the project area would increase. While additional workers would be temporarily present in the project area during construction, they would not be subject to undue risks associated with flooding or landslides, relative to other areas in the City or region. As explained in Impact 3.7(a)(iv) in Section 3.7, *Geology and Soils*, of this Initial Study, the project is not located within a mapped landslide hazard zone and would not likely increase or exacerbate the potential for landslides to occur. As such, the potential for post-fire slope instability resulting in landslides or flooding within the project area is low. As explained in Section 10, *Hydrology and Water Quality*, of this Initial Study, the proposed project would not result in permanent drainage changes or significant runoff with the potential to cause or exacerbate flooding or landslides. Therefore, proposed project impacts involving exposure of people or structures to significant risks from flooding or landslides resulting from runoff, post-fire slope instability, and/or drainage changes would be less than significant.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
18. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to 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, 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?	☐	☑	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☑	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☑	☐	☐

a) *Does the project have the potential to 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, 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?* ***Determination: Less than Significant with Mitigation Incorporated.***

As discussed in Impact 3.4(a) in Section 3.4, *Biological Resources*, of this Initial Study, the project alignments are located within an urbanized area in the City of Beaumont and in the unincorporated community of Cherry Valley. No special-status plant species or wildlife species were observed on site but vegetation on the project site and surround areas could provide suitable nesting opportunities for a variety of year-round and seasonal bird species that may be present during the breeding season. Implementation of Mitigation Measure BIO-1 is required to ensure that potential impacts are less than significant. As a result, the proposed project would not reduce the habitat of fish species; or cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or reduce the number or restrict the range of rare or endangered plants or animals.

b) *Does the project have impacts that are individually limited, but cumulatively considerable?* ***Determination: Less than Significant Impact.***

Implementation of the proposed project would not result in individually limited, but cumulatively considerable significant impacts. All resource topics associated with the project have been analyzed in accordance with CEQA and the State CEQA Guidelines and were found to result in no impacts, less than significant impacts, or less than significant impacts with mitigation incorporated. All potentially significant impacts identified in this Initial Study would be reduced to less than significant levels with the incorporation of mitigation measures discussed herein. As a result, implementation of the proposed project would not result in individually limited, but cumulatively considerable significant impacts.

c) *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?* ***Determination: Less than Significant with Mitigation Incorporated.***

The project proposes the replacement of existing potable water pipelines. The project would not consist of any land use or any activities that would adversely affect any persons in the vicinity over the long-term. All resource topics associated with the proposed project have been analyzed in accordance with CEQA and the State CEQA Guidelines and were found to result in no impacts, less than significant impacts, or less than significant impacts with mitigation incorporated. All potentially significant impacts identified in this Initial Study would be reduced to less than significant levels with the incorporation of mitigation measures discussed herein. Consequently, the project would not result in any environmental effects that would cause substantial adverse effects on human beings directly or indirectly.

4.0 REFERENCES

4.1 REPORT PREPARATION PERSONNEL

LEAD AGENCY

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Mark Swanson, Senior Engineer

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4.2 REFERENCE DOCUMENTS

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5.0 CONSULTANT RECOMMENDATION

Based on the information and environmental analysis contained in the Initial Study/Mitigated Negative Declaration, we recommend that the BCVWD prepare a Mitigated Negative Declaration for the Pipeline Replacement Project. Refer to Section 6.0, *Lead Agency Determination*.

September 18, 2019

Darren Edgington, CEP-IT, LEED AP BD+C
Associate/Project Manager
Michael Baker International

Date

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6.0 LEAD AGENCY DETERMINATION

On the basis of this initial evaluation:

I find that the proposed use COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. ☐

I find that although the proposal could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described in Section 5.0 have been added. A MITIGATED NEGATIVE DECLARATION will be prepared. ☑

I find that the proposal MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required. ☐

I find that the proposal MAY have a significant effect(s) 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, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. ☐

	Beaumont-Cherry Valley Water District
Signature	Agency
Daniel K. Jaggers, General Manager	10/8/2019
Printed Name/Title	Date

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Appendix A

Air Quality/Greenhouse Gas Data

CVBWD Replacement Pipeline Project

Initial Study/Mitigated Negative Declaration

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Beaumont Cherry Water Pipeline Replacement Project

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.29	Acre	0.29	12,632.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project description total pipeline length of 5,835 feet and an estimated trenching width of 2.17 feet.

Construction Phase - Approximate construction schedule

Off-road Equipment -

Off-road Equipment - Anticipated construction equipment per phase.

Demolition -

Construction Off-road Equipment Mitigation - Per SCAQMD standards and regulations.

Area Mitigation -

Off-road Equipment - Estimated construction equipment for grading phase.

Off-road Equipment - Estimated construction equipment for site preparation phase.

Grading - Estimate based on pipeline area and length.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	26
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	2.00	88.00
tblConstructionPhase	NumDays	5.00	22.00
tblConstructionPhase	NumDays	1.00	22.00
tblConstructionPhase	PhaseEndDate	8/14/2019	1/1/2020
tblConstructionPhase	PhaseEndDate	1/8/2020	1/31/2020
tblConstructionPhase	PhaseStartDate	8/1/2019	8/31/2019
tblGrading	AcresOfGrading	33.00	11.00
tblGrading	MaterialExported	0.00	75.40
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1801	1.8367	1.1503	2.3900e-003	0.1728	0.0876	0.2604	0.0646	0.0830	0.1476	0.0000	211.3677	211.3677	0.0455	0.0000	212.5051
2020	0.0253	0.2319	0.2383	3.9000e-004	0.0578	0.0129	0.0707	7.4100e-003	0.0119	0.0193	0.0000	33.3598	33.3598	9.2100e-003	0.0000	33.5901
Maximum	**0.1801**	**1.8367**	**1.1503**	**2.3900e-003**	**0.1728**	**0.0876**	**0.2604**	**0.0646**	**0.0830**	**0.1476**	**0.0000**	**211.3677**	**211.3677**	**0.0455**	**0.0000**	**212.5051**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1801	1.8367	1.1503	2.3900e-003	0.0706	0.0876	0.1582	0.0258	0.0830	0.1088	0.0000	211.3675	211.3675	0.0455	0.0000	212.5049
2020	0.0253	0.2319	0.2383	3.9000e-004	0.0231	0.0129	0.0360	3.2100e-003	0.0119	0.0151	0.0000	33.3598	33.3598	9.2100e-003	0.0000	33.5900
Maximum	**0.1801**	**1.8367**	**1.1503**	**2.3900e-003**	**0.0706**	**0.0876**	**0.1582**	**0.0258**	**0.0830**	**0.1088**	**0.0000**	**211.3675**	**211.3675**	**0.0455**	**0.0000**	**212.5049**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.37**	**0.00**	**41.34**	**59.79**	**0.00**	**25.78**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**8-1-2019**	**10-31-2019**	1.1754	1.1754
2	**11-1-2019**	**1-31-2020**	1.0962	1.0962
		Highest	1.1754	1.1754

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.9000e-004	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.9000e-004	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	8/31/2019	1/1/2020	5	88	
2	Site Preparation	Site Preparation	8/1/2019	8/30/2019	5	22	
3	Paving	Paving	1/2/2020	1/31/2020	5	22	

Acres of Grading (Site Preparation Phase): 11

Acres of Grading (Grading Phase): 99

Acres of Paving: 0.29

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	3	8.00	81	0.73
Site Preparation	Graders	3	8.00	187	0.41
Grading	Rubber Tired Dozers	3	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	3	6.00	187	0.41
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	3	7.00	130	0.42
Paving	Rollers	3	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	3	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	12	30.00	0.00	9.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	13	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1507	0.0000	0.1507	0.0597	0.0000	0.0597	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1491	1.5360	0.9577	1.9100e-003		0.0754	0.0754		0.0718	0.0718	0.0000	168.1882	168.1882	0.0360	0.0000	169.0870
Total	**0.1491**	**1.5360**	**0.9577**	**1.9100e-003**	**0.1507**	**0.0754**	**0.2262**	**0.0597**	**0.0718**	**0.1315**	**0.0000**	**168.1882**	**168.1882**	**0.0360**	**0.0000**	**169.0870**

3.2 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	1.1700e-003	1.5000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.3259	0.3259	2.0000e-005	0.0000	0.3264
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.4800e-003	4.7200e-003	0.0495	1.4000e-004	0.0143	9.0000e-005	0.0144	3.8100e-003	8.0000e-005	3.8900e-003	0.0000	12.3924	12.3924	3.4000e-004	0.0000	12.4009
Total	**6.5100e-003**	**5.8900e-003**	**0.0497**	**1.4000e-004**	**0.0144**	**9.0000e-005**	**0.0145**	**3.8300e-003**	**8.0000e-005**	**3.9200e-003**	**0.0000**	**12.7183**	**12.7183**	**3.6000e-004**	**0.0000**	**12.7273**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0559	0.0000	0.0559	0.0221	0.0000	0.0221	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1491	1.5360	0.9577	1.9100e-003		0.0754	0.0754		0.0718	0.0718	0.0000	168.1880	168.1880	0.0360	0.0000	169.0868
Total	**0.1491**	**1.5360**	**0.9577**	**1.9100e-003**	**0.0559**	**0.0754**	**0.1313**	**0.0221**	**0.0718**	**0.0939**	**0.0000**	**168.1880**	**168.1880**	**0.0360**	**0.0000**	**169.0868**

3.2 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	1.1700e-003	1.5000e-004	0.0000	6.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3259	0.3259	2.0000e-005	0.0000	0.3264
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.4800e-003	4.7200e-003	0.0495	1.4000e-004	0.0111	9.0000e-005	0.0112	3.0200e-003	8.0000e-005	3.1000e-003	0.0000	12.3924	12.3924	3.4000e-004	0.0000	12.4009
Total	**6.5100e-003**	**5.8900e-003**	**0.0497**	**1.4000e-004**	**0.0112**	**9.0000e-005**	**0.0113**	**3.0400e-003**	**8.0000e-005**	**3.1200e-003**	**0.0000**	**12.7183**	**12.7183**	**3.6000e-004**	**0.0000**	**12.7273**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0536	0.0000	0.0536	6.2900e-003	0.0000	6.2900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6000e-003	0.0165	0.0109	2.0000e-005		7.8000e-004	7.8000e-004		7.4000e-004	7.4000e-004	0.0000	1.9080	1.9080	4.1000e-004	0.0000	1.9182
Total	**1.6000e-003**	**0.0165**	**0.0109**	**2.0000e-005**	**0.0536**	**7.8000e-004**	**0.0544**	**6.2900e-003**	**7.4000e-004**	**7.0300e-003**	**0.0000**	**1.9080**	**1.9080**	**4.1000e-004**	**0.0000**	**1.9182**

3.2 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.0000e-005	0.0000	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	3.7100e-003	3.7100e-003	0.0000	0.0000	3.7100e-003
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	5.2000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1379	0.1379	0.0000	0.0000	0.1380
Total	**7.0000e-005**	**6.0000e-005**	**5.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.3000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1417**	**0.1417**	**0.0000**	**0.0000**	**0.1417**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0199	0.0000	0.0199	2.3300e-003	0.0000	2.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6000e-003	0.0165	0.0109	2.0000e-005		7.8000e-004	7.8000e-004		7.4000e-004	7.4000e-004	0.0000	1.9080	1.9080	4.1000e-004	0.0000	1.9182
Total	**1.6000e-003**	**0.0165**	**0.0109**	**2.0000e-005**	**0.0199**	**7.8000e-004**	**0.0207**	**2.3300e-003**	**7.4000e-004**	**3.0700e-003**	**0.0000**	**1.9080**	**1.9080**	**4.1000e-004**	**0.0000**	**1.9182**

3.2 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.0000e-005	0.0000	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	3.7100e-003	3.7100e-003	0.0000	0.0000	3.7100e-003
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	5.2000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1379	0.1379	0.0000	0.0000	0.1380
Total	**7.0000e-005**	**6.0000e-005**	**5.2000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1417**	**0.1417**	**0.0000**	**0.0000**	**0.1417**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8300e-003	0.0000	5.8300e-003	6.3000e-004	0.0000	6.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.2943	0.1366	3.2000e-004		0.0121	0.0121		0.0112	0.0112	0.0000	28.8944	28.8944	9.1400e-003	0.0000	29.1229
Total	**0.0237**	**0.2943**	**0.1366**	**3.2000e-004**	**5.8300e-003**	**0.0121**	**0.0180**	**6.3000e-004**	**0.0112**	**0.0118**	**0.0000**	**28.8944**	**28.8944**	**9.1400e-003**	**0.0000**	**29.1229**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	6.0000e-004	6.2600e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5669	1.5669	4.0000e-005	0.0000	1.5679
Total	**8.2000e-004**	**6.0000e-004**	**6.2600e-003**	**2.0000e-005**	**1.8100e-003**	**1.0000e-005**	**1.8200e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.5669**	**1.5669**	**4.0000e-005**	**0.0000**	**1.5679**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.1600e-003	0.0000	2.1600e-003	2.3000e-004	0.0000	2.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.2943	0.1366	3.2000e-004		0.0121	0.0121		0.0112	0.0112	0.0000	28.8943	28.8943	9.1400e-003	0.0000	29.1229
Total	**0.0237**	**0.2943**	**0.1366**	**3.2000e-004**	**2.1600e-003**	**0.0121**	**0.0143**	**2.3000e-004**	**0.0112**	**0.0114**	**0.0000**	**28.8943**	**28.8943**	**9.1400e-003**	**0.0000**	**29.1229**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	6.0000e-004	6.2600e-003	2.0000e-005	1.4000e-003	1.0000e-005	1.4200e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.5669	1.5669	4.0000e-005	0.0000	1.5679
Total	**8.2000e-004**	**6.0000e-004**	**6.2600e-003**	**2.0000e-005**	**1.4000e-003**	**1.0000e-005**	**1.4200e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.5669**	**1.5669**	**4.0000e-005**	**0.0000**	**1.5679**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0216	0.2142	0.2144	3.2000e-004		0.0121	0.0121		0.0112	0.0112	0.0000	27.9720	27.9720	8.7100e-003	0.0000	28.1899
Paving	3.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0220**	**0.2142**	**0.2144**	**3.2000e-004**		**0.0121**	**0.0121**		**0.0112**	**0.0112**	**0.0000**	**27.9720**	**27.9720**	**8.7100e-003**	**0.0000**	**28.1899**

3.4 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6700e-003	1.1700e-003	0.0125	4.0000e-005	3.9900e-003	2.0000e-005	4.0100e-003	1.0600e-003	2.0000e-005	1.0800e-003	0.0000	3.3381	3.3381	8.0000e-005	0.0000	3.3402
Total	**1.6700e-003**	**1.1700e-003**	**0.0125**	**4.0000e-005**	**3.9900e-003**	**2.0000e-005**	**4.0100e-003**	**1.0600e-003**	**2.0000e-005**	**1.0800e-003**	**0.0000**	**3.3381**	**3.3381**	**8.0000e-005**	**0.0000**	**3.3402**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0216	0.2142	0.2144	3.2000e-004		0.0121	0.0121		0.0112	0.0112	0.0000	27.9720	27.9720	8.7100e-003	0.0000	28.1899
Paving	3.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0220**	**0.2142**	**0.2144**	**3.2000e-004**		**0.0121**	**0.0121**		**0.0112**	**0.0112**	**0.0000**	**27.9720**	**27.9720**	**8.7100e-003**	**0.0000**	**28.1899**

3.4 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6700e-003	1.1700e-003	0.0125	4.0000e-005	3.0900e-003	2.0000e-005	3.1100e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	3.3381	3.3381	8.0000e-005	0.0000	3.3402
Total	**1.6700e-003**	**1.1700e-003**	**0.0125**	**4.0000e-005**	**3.0900e-003**	**2.0000e-005**	**3.1100e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**3.3381**	**3.3381**	**8.0000e-005**	**0.0000**	**3.3402**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.9000e-004	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Unmitigated	9.9000e-004	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**1.0000e-003**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**1.0000e-003**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Beaumont Cherry Water Pipeline Replacement Project

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.29	Acre	0.29	12,632.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project description total pipeline length of 5,835 feet and an estimated trenching width of 2.17 feet.

Construction Phase - Approximate construction schedule

Off-road Equipment -

Off-road Equipment - Anticipated construction equipment per phase.

Demolition -

Construction Off-road Equipment Mitigation - Per SCAQMD standards and regulations.

Area Mitigation -

Off-road Equipment - Estimated construction equipment for grading phase.

Off-road Equipment - Estimated construction equipment for site preparation phase.

Grading - Estimate based on pipeline area and length.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	26
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	2.00	88.00
tblConstructionPhase	NumDays	5.00	22.00
tblConstructionPhase	NumDays	1.00	22.00
tblConstructionPhase	PhaseEndDate	8/14/2019	1/1/2020
tblConstructionPhase	PhaseEndDate	1/8/2020	1/31/2020
tblConstructionPhase	PhaseStartDate	8/1/2019	8/31/2019
tblGrading	AcresOfGrading	33.00	11.00
tblGrading	MaterialExported	0.00	75.40
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.5927	35.4372	23.3526	0.0474	3.7886	1.7359	5.5245	1.4596	1.6521	3.1117	0.0000	4,611.5735	4,611.5735	0.9211	0.0000	4,634.6015
2020	3.3512	33.1839	23.0206	0.0472	3.9062	1.5577	5.4639	1.4885	1.4807	2.9692	0.0000	4,545.2479	4,545.2479	0.9070	0.0000	4,567.9235
Maximum	**3.5927**	**35.4372**	**23.3526**	**0.0474**	**3.9062**	**1.7359**	**5.5245**	**1.4885**	**1.6521**	**3.1117**	**0.0000**	**4,611.5735**	**4,611.5735**	**0.9211**	**0.0000**	**4,634.6015**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.5927	35.4372	23.3526	0.0474	1.5397	1.7359	3.2757	0.5784	1.6521	2.2305	0.0000	4,611.5734	4,611.5734	0.9211	0.0000	4,634.6015
2020	3.3512	33.1839	23.0206	0.0472	1.6268	1.5577	3.1845	0.5998	1.4807	2.0804	0.0000	4,545.2479	4,545.2479	0.9070	0.0000	4,567.9235
Maximum	**3.5927**	**35.4372**	**23.3526**	**0.0474**	**1.6268**	**1.7359**	**3.2757**	**0.5998**	**1.6521**	**2.2305**	**0.0000**	**4,611.5734**	**4,611.5734**	**0.9211**	**0.0000**	**4,634.6015**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.85**	**0.00**	**41.21**	**60.04**	**0.00**	**29.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.4400e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**5.4400e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.4400e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**5.4400e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	8/31/2019	1/1/2020	5	88	
2	Site Preparation	Site Preparation	8/1/2019	8/30/2019	5	22	
3	Paving	Paving	1/2/2020	1/31/2020	5	22	

Acres of Grading (Site Preparation Phase): 11

Acres of Grading (Grading Phase): 99

Acres of Paving: 0.29

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	3	8.00	81	0.73
Site Preparation	Graders	3	8.00	187	0.41
Grading	Rubber Tired Dozers	3	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	3	6.00	187	0.41
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	3	7.00	130	0.42
Paving	Rollers	3	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	3	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	12	30.00	0.00	9.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	13	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.4515	0.0000	3.4515	1.3702	0.0000	1.3702			0.0000			0.0000
Off-Road	3.4269	35.3097	22.0167	0.0439		1.7338	1.7338		1.6501	1.6501		4,261.9714	4,261.9714	0.9111		4,284.7476
Total	**3.4269**	**35.3097**	**22.0167**	**0.0439**	**3.4515**	**1.7338**	**5.1852**	**1.3702**	**1.6501**	**3.0203**		**4,261.9714**	**4,261.9714**	**0.9111**		**4,284.7476**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.7000e-004	0.0261	3.1400e-003	8.0000e-005	1.8000e-003	9.0000e-005	1.9000e-003	4.9000e-004	9.0000e-005	5.8000e-004		8.3454	8.3454	5.2000e-004		8.3583
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1652	0.1014	1.3328	3.4300e-003	0.3353	2.0700e-003	0.3374	0.0889	1.9100e-003	0.0908		341.2567	341.2567	9.5500e-003		341.4955
Total	**0.1658**	**0.1275**	**1.3359**	**3.5100e-003**	**0.3371**	**2.1600e-003**	**0.3393**	**0.0894**	**2.0000e-003**	**0.0914**		**349.6021**	**349.6021**	**0.0101**		**349.8539**

3.2 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2788	0.0000	1.2788	0.5077	0.0000	0.5077			0.0000			0.0000
Off-Road	3.4269	35.3097	22.0167	0.0439		1.7338	1.7338		1.6501	1.6501	0.0000	4,261.9714	4,261.9714	0.9111		4,284.7476
Total	**3.4269**	**35.3097**	**22.0167**	**0.0439**	**1.2788**	**1.7338**	**3.0125**	**0.5077**	**1.6501**	**2.1578**	**0.0000**	**4,261.9714**	**4,261.9714**	**0.9111**		**4,284.7476**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.7000e-004	0.0261	3.1400e-003	8.0000e-005	1.4500e-003	9.0000e-005	1.5400e-003	4.1000e-004	9.0000e-005	5.0000e-004		8.3454	8.3454	5.2000e-004		8.3583
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1652	0.1014	1.3328	3.4300e-003	0.2595	2.0700e-003	0.2616	0.0703	1.9100e-003	0.0722		341.2567	341.2567	9.5500e-003		341.4955
Total	**0.1658**	**0.1275**	**1.3359**	**3.5100e-003**	**0.2610**	**2.1600e-003**	**0.2631**	**0.0707**	**2.0000e-003**	**0.0727**		**349.6021**	**349.6021**	**0.0101**		**349.8539**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.4515	0.0000	3.4515	1.3702	0.0000	1.3702			0.0000			0.0000
Off-Road	3.1980	33.0694	21.8079	0.0438		1.5556	1.5556		1.4787	1.4787		4,206.508 3	4,206.508 3	0.8981		4,228.959 8
Total	**3.1980**	**33.0694**	**21.8079**	**0.0438**	**3.4515**	**1.5556**	**5.0071**	**1.3702**	**1.4787**	**2.8489**		**4,206.508 3**	**4,206.508 3**	**0.8981**		**4,228.959 8**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.3000e-004	0.0242	2.9900e-003	8.0000e-005	0.1194	8.0000e-005	0.1195	0.0294	7.0000e-005	0.0294		8.2613	8.2613	4.9000e-004		8.2736
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1527	0.0903	1.2096	3.3200e-003	0.3353	2.0300e-003	0.3374	0.0889	1.8700e-003	0.0908		330.4784	330.4784	8.4700e-003		330.6901
Total	**0.1532**	**0.1145**	**1.2126**	**3.4000e-003**	**0.4548**	**2.1100e-003**	**0.4569**	**0.1183**	**1.9400e-003**	**0.1202**		**338.7396**	**338.7396**	**8.9600e-003**		**338.9637**

3.2 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2788	0.0000	1.2788	0.5077	0.0000	0.5077			0.0000			0.0000
Off-Road	3.1980	33.0694	21.8079	0.0438		1.5556	1.5556		1.4787	1.4787	0.0000	4,206.508 3	4,206.508 3	0.8981		4,228.959 8
Total	**3.1980**	**33.0694**	**21.8079**	**0.0438**	**1.2788**	**1.5556**	**2.8344**	**0.5077**	**1.4787**	**1.9864**	**0.0000**	**4,206.508 3**	**4,206.508 3**	**0.8981**		**4,228.959 8**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.3000e-004	0.0242	2.9900e-003	8.0000e-005	0.0885	8.0000e-005	0.0886	0.0218	7.0000e-005	0.0219		8.2613	8.2613	4.9000e-004		8.2736
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1527	0.0903	1.2096	3.3200e-003	0.2595	2.0300e-003	0.2616	0.0703	1.8700e-003	0.0722		330.4784	330.4784	8.4700e-003		330.6901
Total	**0.1532**	**0.1145**	**1.2126**	**3.4000e-003**	**0.3480**	**2.1100e-003**	**0.3501**	**0.0921**	**1.9400e-003**	**0.0941**		**338.7396**	**338.7396**	**8.9600e-003**		**338.9637**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	2.1586	26.7509	12.4222	0.0292		1.1016	1.1016		1.0135	1.0135		2,895.507 0	2,895.507 0	0.9161		2,918.409 7
Total	**2.1586**	**26.7509**	**12.4222**	**0.0292**	**0.5303**	**1.1016**	**1.6319**	**0.0573**	**1.0135**	**1.0707**		**2,895.507 0**	**2,895.507 0**	**0.9161**		**2,918.409 7**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0826	0.0507	0.6664	1.7100e-003	0.1677	1.0300e-003	0.1687	0.0445	9.5000e-004	0.0454		170.6284	170.6284	4.7800e-003		170.7478
Total	**0.0826**	**0.0507**	**0.6664**	**1.7100e-003**	**0.1677**	**1.0300e-003**	**0.1687**	**0.0445**	**9.5000e-004**	**0.0454**		**170.6284**	**170.6284**	**4.7800e-003**		**170.7478**

3.3 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1965	0.0000	0.1965	0.0212	0.0000	0.0212			0.0000			0.0000
Off-Road	2.1586	26.7509	12.4222	0.0292		1.1016	1.1016		1.0135	1.0135	0.0000	2,895.5070	2,895.5070	0.9161		2,918.4097
Total	**2.1586**	**26.7509**	**12.4222**	**0.0292**	**0.1965**	**1.1016**	**1.2981**	**0.0212**	**1.0135**	**1.0347**	**0.0000**	**2,895.5070**	**2,895.5070**	**0.9161**		**2,918.4097**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0826	0.0507	0.6664	1.7100e-003	0.1298	1.0300e-003	0.1308	0.0352	9.5000e-004	0.0361		170.6284	170.6284	4.7800e-003		170.7478
Total	**0.0826**	**0.0507**	**0.6664**	**1.7100e-003**	**0.1298**	**1.0300e-003**	**0.1308**	**0.0352**	**9.5000e-004**	**0.0361**		**170.6284**	**170.6284**	**4.7800e-003**		**170.7478**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9621	19.4706	19.4877	0.0295		1.0993	1.0993		1.0148	1.0148		2,803.079 9	2,803.079 9	0.8733		2,824.912 2
Paving	0.0345					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9966**	**19.4706**	**19.4877**	**0.0295**		**1.0993**	**1.0993**		**1.0148**	**1.0148**		**2,803.079 9**	**2,803.079 9**	**0.8733**		**2,824.912 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1679	0.0993	1.3306	3.6500e-003	0.3689	2.2300e-003	0.3711	0.0978	2.0600e-003	0.0999		363.5262	363.5262	9.3200e-003		363.7592
Total	**0.1679**	**0.0993**	**1.3306**	**3.6500e-003**	**0.3689**	**2.2300e-003**	**0.3711**	**0.0978**	**2.0600e-003**	**0.0999**		**363.5262**	**363.5262**	**9.3200e-003**		**363.7592**

3.4 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9621	19.4706	19.4877	0.0295		1.0993	1.0993		1.0148	1.0148	0.0000	2,803.0799	2,803.0799	0.8733		2,824.9122
Paving	0.0345					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9966**	**19.4706**	**19.4877**	**0.0295**		**1.0993**	**1.0993**		**1.0148**	**1.0148**	**0.0000**	**2,803.0799**	**2,803.0799**	**0.8733**		**2,824.9122**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1679	0.0993	1.3306	3.6500e-003	0.2855	2.2300e-003	0.2877	0.0774	2.0600e-003	0.0794		363.5262	363.5262	9.3200e-003		363.7592
Total	**0.1679**	**0.0993**	**1.3306**	**3.6500e-003**	**0.2855**	**2.2300e-003**	**0.2877**	**0.0774**	**2.0600e-003**	**0.0794**		**363.5262**	**363.5262**	**9.3200e-003**		**363.7592**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.4400e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005
Unmitigated	5.4400e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	9.6000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005
Total	**5.4300e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**		**7.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	9.6000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005
Total	**5.4300e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**		**7.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Beaumont Cherry Water Pipeline Replacement Project

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.29	Acre	0.29	12,632.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project description total pipeline length of 5,835 feet and an estimated trenching width of 2.17 feet.

Construction Phase - Approximate construction schedule

Off-road Equipment -

Off-road Equipment - Anticipated construction equipment per phase.

Demolition -

Construction Off-road Equipment Mitigation - Per SCAQMD standards and regulations.

Area Mitigation -

Off-road Equipment - Estimated construction equipment for grading phase.

Off-road Equipment - Estimated construction equipment for site preparation phase.

Grading - Estimate based on pipeline area and length.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	26
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	2.00	88.00
tblConstructionPhase	NumDays	5.00	22.00
tblConstructionPhase	NumDays	1.00	22.00
tblConstructionPhase	PhaseEndDate	8/14/2019	1/1/2020
tblConstructionPhase	PhaseEndDate	1/8/2020	1/31/2020
tblConstructionPhase	PhaseStartDate	8/1/2019	8/31/2019
tblGrading	AcresOfGrading	33.00	11.00
tblGrading	MaterialExported	0.00	75.40
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.5889	35.4411	23.1005	0.0470	3.7886	1.7360	5.5245	1.4596	1.6521	3.1117	0.0000	4,576.2650	4,576.2650	0.9203	0.0000	4,599.2630
2020	3.3480	33.1872	22.7900	0.0469	3.9062	1.5577	5.4640	1.4885	1.4807	2.9692	0.0000	4,511.0336	4,511.0336	0.9060	0.0000	4,533.6827
Maximum	**3.5889**	**35.4411**	**23.1005**	**0.0470**	**3.9062**	**1.7360**	**5.5245**	**1.4885**	**1.6521**	**3.1117**	**0.0000**	**4,576.2650**	**4,576.2650**	**0.9203**	**0.0000**	**4,599.2630**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.5889	35.4411	23.1005	0.0470	1.5397	1.7360	3.2757	0.5784	1.6521	2.2305	0.0000	4,576.2649	4,576.2649	0.9203	0.0000	4,599.2630
2020	3.3480	33.1872	22.7900	0.0469	1.6268	1.5577	3.1845	0.5998	1.4807	2.0804	0.0000	4,511.0336	4,511.0336	0.9060	0.0000	4,533.6827
Maximum	**3.5889**	**35.4411**	**23.1005**	**0.0470**	**1.6268**	**1.7360**	**3.2757**	**0.5998**	**1.6521**	**2.2305**	**0.0000**	**4,576.2649**	**4,576.2649**	**0.9203**	**0.0000**	**4,599.2630**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.85**	**0.00**	**41.21**	**60.04**	**0.00**	**29.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.4400e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**5.4400e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.4400e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**5.4400e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	8/31/2019	1/1/2020	5	88	
2	Site Preparation	Site Preparation	8/1/2019	8/30/2019	5	22	
3	Paving	Paving	1/2/2020	1/31/2020	5	22	

Acres of Grading (Site Preparation Phase): 11

Acres of Grading (Grading Phase): 99

Acres of Paving: 0.29

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	3	8.00	81	0.73
Site Preparation	Graders	3	8.00	187	0.41
Grading	Rubber Tired Dozers	3	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	3	6.00	187	0.41
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	3	7.00	130	0.42
Paving	Rollers	3	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	3	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	12	30.00	0.00	9.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	13	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.4515	0.0000	3.4515	1.3702	0.0000	1.3702			0.0000			0.0000
Off-Road	3.4269	35.3097	22.0167	0.0439		1.7338	1.7338		1.6501	1.6501		4,261.9714	4,261.9714	0.9111		4,284.7476
Total	**3.4269**	**35.3097**	**22.0167**	**0.0439**	**3.4515**	**1.7338**	**5.1852**	**1.3702**	**1.6501**	**3.0203**		**4,261.9714**	**4,261.9714**	**0.9111**		**4,284.7476**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.0000e-004	0.0264	3.6900e-003	8.0000e-005	1.8000e-003	1.0000e-004	1.9000e-003	4.9000e-004	9.0000e-005	5.9000e-004		8.1384	8.1384	5.7000e-004		8.1526
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1614	0.1049	1.0802	3.0700e-003	0.3353	2.0700e-003	0.3374	0.0889	1.9100e-003	0.0908		306.1552	306.1552	8.3100e-003		306.3628
Total	**0.1620**	**0.1313**	**1.0839**	**3.1500e-003**	**0.3371**	**2.1700e-003**	**0.3393**	**0.0894**	**2.0000e-003**	**0.0914**		**314.2936**	**314.2936**	**8.8800e-003**		**314.5154**

3.2 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2788	0.0000	1.2788	0.5077	0.0000	0.5077			0.0000			0.0000
Off-Road	3.4269	35.3097	22.0167	0.0439		1.7338	1.7338		1.6501	1.6501	0.0000	4,261.9714	4,261.9714	0.9111		4,284.7476
Total	**3.4269**	**35.3097**	**22.0167**	**0.0439**	**1.2788**	**1.7338**	**3.0125**	**0.5077**	**1.6501**	**2.1578**	**0.0000**	**4,261.9714**	**4,261.9714**	**0.9111**		**4,284.7476**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.0000e-004	0.0264	3.6900e-003	8.0000e-005	1.4500e-003	1.0000e-004	1.5500e-003	4.1000e-004	9.0000e-005	5.0000e-004		8.1384	8.1384	5.7000e-004		8.1526
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1614	0.1049	1.0802	3.0700e-003	0.2595	2.0700e-003	0.2616	0.0703	1.9100e-003	0.0722		306.1552	306.1552	8.3100e-003		306.3628
Total	**0.1620**	**0.1313**	**1.0839**	**3.1500e-003**	**0.2610**	**2.1700e-003**	**0.2632**	**0.0707**	**2.0000e-003**	**0.0727**		**314.2936**	**314.2936**	**8.8800e-003**		**314.5154**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.4515	0.0000	3.4515	1.3702	0.0000	1.3702			0.0000			0.0000
Off-Road	3.1980	33.0694	21.8079	0.0438		1.5556	1.5556		1.4787	1.4787		4,206.5083	4,206.5083	0.8981		4,228.9598
Total	**3.1980**	**33.0694**	**21.8079**	**0.0438**	**3.4515**	**1.5556**	**5.0071**	**1.3702**	**1.4787**	**2.8489**		**4,206.5083**	**4,206.5083**	**0.8981**		**4,228.9598**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5000e-004	0.0244	3.5000e-003	8.0000e-005	0.1194	8.0000e-005	0.1195	0.0294	7.0000e-005	0.0294		8.0546	8.0546	5.4000e-004		8.0680
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1495	0.0934	0.9785	2.9800e-003	0.3353	2.0300e-003	0.3374	0.0889	1.8700e-003	0.0908		296.4707	296.4707	7.3600e-003		296.6548
Total	**0.1501**	**0.1178**	**0.9820**	**3.0600e-003**	**0.4548**	**2.1100e-003**	**0.4569**	**0.1183**	**1.9400e-003**	**0.1202**		**304.5253**	**304.5253**	**7.9000e-003**		**304.7229**

3.2 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2788	0.0000	1.2788	0.5077	0.0000	0.5077			0.0000			0.0000
Off-Road	3.1980	33.0694	21.8079	0.0438		1.5556	1.5556		1.4787	1.4787	0.0000	4,206.5083	4,206.5083	0.8981		4,228.9598
Total	**3.1980**	**33.0694**	**21.8079**	**0.0438**	**1.2788**	**1.5556**	**2.8344**	**0.5077**	**1.4787**	**1.9864**	**0.0000**	**4,206.5083**	**4,206.5083**	**0.8981**		**4,228.9598**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5000e-004	0.0244	3.5000e-003	8.0000e-005	0.0885	8.0000e-005	0.0886	0.0218	7.0000e-005	0.0219		8.0546	8.0546	5.4000e-004		8.0680
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1495	0.0934	0.9785	2.9800e-003	0.2595	2.0300e-003	0.2616	0.0703	1.8700e-003	0.0722		296.4707	296.4707	7.3600e-003		296.6548
Total	**0.1501**	**0.1178**	**0.9820**	**3.0600e-003**	**0.3480**	**2.1100e-003**	**0.3501**	**0.0921**	**1.9400e-003**	**0.0941**		**304.5253**	**304.5253**	**7.9000e-003**		**304.7229**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	2.1586	26.7509	12.4222	0.0292		1.1016	1.1016		1.0135	1.0135		2,895.5070	2,895.5070	0.9161		2,918.4097
Total	**2.1586**	**26.7509**	**12.4222**	**0.0292**	**0.5303**	**1.1016**	**1.6319**	**0.0573**	**1.0135**	**1.0707**		**2,895.5070**	**2,895.5070**	**0.9161**		**2,918.4097**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0807	0.0525	0.5401	1.5400e-003	0.1677	1.0300e-003	0.1687	0.0445	9.5000e-004	0.0454		153.0776	153.0776	4.1500e-003		153.1814
Total	**0.0807**	**0.0525**	**0.5401**	**1.5400e-003**	**0.1677**	**1.0300e-003**	**0.1687**	**0.0445**	**9.5000e-004**	**0.0454**		**153.0776**	**153.0776**	**4.1500e-003**		**153.1814**

3.3 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1965	0.0000	0.1965	0.0212	0.0000	0.0212			0.0000			0.0000
Off-Road	2.1586	26.7509	12.4222	0.0292		1.1016	1.1016		1.0135	1.0135	0.0000	2,895.507 0	2,895.507 0	0.9161		2,918.409 7
Total	**2.1586**	**26.7509**	**12.4222**	**0.0292**	**0.1965**	**1.1016**	**1.2981**	**0.0212**	**1.0135**	**1.0347**	**0.0000**	**2,895.507 0**	**2,895.507 0**	**0.9161**		**2,918.409 7**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0807	0.0525	0.5401	1.5400e-003	0.1298	1.0300e-003	0.1308	0.0352	9.5000e-004	0.0361		153.0776	153.0776	4.1500e-003		153.1814
Total	**0.0807**	**0.0525**	**0.5401**	**1.5400e-003**	**0.1298**	**1.0300e-003**	**0.1308**	**0.0352**	**9.5000e-004**	**0.0361**		**153.0776**	**153.0776**	**4.1500e-003**		**153.1814**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9621	19.4706	19.4877	0.0295		1.0993	1.0993		1.0148	1.0148		2,803.0799	2,803.0799	0.8733		2,824.9122
Paving	0.0345					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9966**	**19.4706**	**19.4877**	**0.0295**		**1.0993**	**1.0993**		**1.0148**	**1.0148**		**2,803.0799**	**2,803.0799**	**0.8733**		**2,824.9122**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1645	0.1027	1.0764	3.2700e-003	0.3689	2.2300e-003	0.3711	0.0978	2.0600e-003	0.0999		326.1178	326.1178	8.1000e-003		326.3203
Total	**0.1645**	**0.1027**	**1.0764**	**3.2700e-003**	**0.3689**	**2.2300e-003**	**0.3711**	**0.0978**	**2.0600e-003**	**0.0999**		**326.1178**	**326.1178**	**8.1000e-003**		**326.3203**

3.4 Paving - 2020

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	1.9621	19.4706	19.4877	0.0295		1.0993	1.0993		1.0148	1.0148	0.0000	2,803.0799	2,803.0799	0.8733		2,824.9122
Paving	0.0345					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9966**	**19.4706**	**19.4877**	**0.0295**		**1.0993**	**1.0993**		**1.0148**	**1.0148**	**0.0000**	**2,803.0799**	**2,803.0799**	**0.8733**		**2,824.9122**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1645	0.1027	1.0764	3.2700e-003	0.2855	2.2300e-003	0.2877	0.0774	2.0600e-003	0.0794		326.1178	326.1178	8.1000e-003		326.3203
Total	**0.1645**	**0.1027**	**1.0764**	**3.2700e-003**	**0.2855**	**2.2300e-003**	**0.2877**	**0.0774**	**2.0600e-003**	**0.0794**		**326.1178**	**326.1178**	**8.1000e-003**		**326.3203**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.4400e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005
Unmitigated	5.4400e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	9.6000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005
Total	**5.4300e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**		**7.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	9.6000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		7.0000e-005
Total	**5.4300e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**		**7.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Habitat Assessment/WRC MSHCP Consistency Analysis

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BCVWD WATER PIPELINE REPLACEMENT PROJECT

RIVERSIDE COUNTY, CALIFORNIA

Habitat Assessment

Prepared For:

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January 2019
JN 164160

BCVWD WATER PIPELINE REPLACEMENT PROJECT

RIVERSIDE COUNTY, CALIFORNIA

Habitat Assessment

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.

Ashley Spencer
Biologist
Natural Resources/Regulatory Permitting

Thomas Millington
Senior Biologist
Natural Resources/Regulatory Permitting

January 2019
JN 164160

Executive Summary

This report contains the findings of Michael Baker International's habitat assessment for the proposed Beaumont-Cherry Valley Water District Water Pipeline Replacement Project located in the City of Beaumont and unincorporated community of Cherry Valley, Riverside County, California.

The Altura Bella, Apple Tree Lane, and Egan Alley survey areas primarily consist of existing roadways, residential properties, commercial developments, and disturbed areas that are subject to routine weed abatement. These disturbances have greatly reduced, if not eliminated, the natural vegetation communities that once occurred resulting in a majority of the survey areas being dominated by ornamental tree species and/or ruderal/weedy plant species.

No special-status[1] plant species were observed during the habitat assessment and are not expected to occur within the survey areas based on specific habitat requirements, availability and quality of habitat needed by each species, occurrence records, and known distributions. Further, no special-status vegetation communities occur within the boundaries of the survey areas.

No special-status wildlife species were observed during the habitat assessment. Based on the results of the habitat assessment, it was determined that the Altura Bella and Apple Tree Lane survey areas have a high potential to support Cooper's hawk (*Accipiter cooperii*; Watch List [WL]) and a low potential to support sharp-shinned hawk (*Accipiter striatus*; WL), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*; WL), coastal whiptail (*Aspidoscelis tigris stejnegeri*; Species of Special Concern [SSC]), loggerhead shrike (*Lanius ludovicianus*; SSC), western yellow bat (*Lasiurus xanthinus*; SSC), and yellow warbler (*Setophaga petechia*; SSC). All other special-status wildlife species are not expected to occur within the survey areas based on specific habitat requirements, availability and quality of habitat needed by each species, occurrence records, and known distributions.

No jurisdictional drainage and/or wetland features were observed within the survey areas. Therefore, the proposed project would not result in impacts to the State or Federal jurisdictional areas and regulatory approvals from the United States Army Corps of Engineers, the Regional Water Quality Control Board, or the California Department of Fish and Wildlife would not be required.

[1] As used in this report, "special-status" refers to plant and wildlife species that are Federally-/State-listed, proposed, or candidates; plant species that have been designated a California Rare Plant Rank by the California Native Plant Society; wildlife species that are designated by the California Department of Fish and Wildlife as Fully Protected, Species of Special Concern, and Watch List species; and State/locally rare vegetation communities.

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APPENDIX

Appendix A Site Photographs
Appendix B Plant and Wildlife Species Observed List
Appendix C Potentially Occurring Special-Status Biological Resources

LIST OF ACRONYMS AND ABBREVIATIONS

° F	degrees Fahrenheit
amsl	above mean sea level
BCVWD	Beaumont-Cherry Valley Water District
CDFW	California Department of Fish and Wildlife
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database RareFind 5
CNPS	California Native Plant Society
FESA	Federal Endangered Species Act
GIS	Geographic Information Systems
MBTA	Migratory Bird Treaty Act
Michael Baker	Michael Baker International
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
Online Inventory	Online Inventory of Rare and Endangered Vascular Plants of California
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SKR HCP	Stephens' Kangaroo Rat Habitat Conservation Plan
SSC	Species of Special Concern
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WL	Watch List

Section 1 Introduction

This report contains the findings of Michael Baker International's (Michael Baker) habitat assessment for the proposed Beaumont-Cherry Valley Water District (BCVWD) Water Pipeline Replacement Project (project or project site) located in the City of Beaumont and unincorporated community of Cherry Valley, Riverside County, California. Michael Baker biologists Ashley Spencer and Tom Millington conducted a field survey on July 31, 2018 that evaluated the condition of the habitats within the survey area(s) of the three proposed underground water pipelines referred to in this report as Altura Bella, Apple Tree Lane, and Egan Alley. The habitat assessment was conducted to characterize existing site conditions and assess the potential for special-status[2] plant and wildlife species to occur on or within the vicinity of the project site that could pose a constraint to implementation of the proposed project. Special attention was given to the suitability of the habitat within the right-of-way (ROW) of the three (3) proposed pipeline alignments and its potential to support special-status plant and wildlife species identified by the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database RareFind 5 (CNDDB), the California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Vascular Plants of California (Online Inventory), and other databases as potentially occurring within the vicinity of the project site.

1.1 PROJECT LOCATION

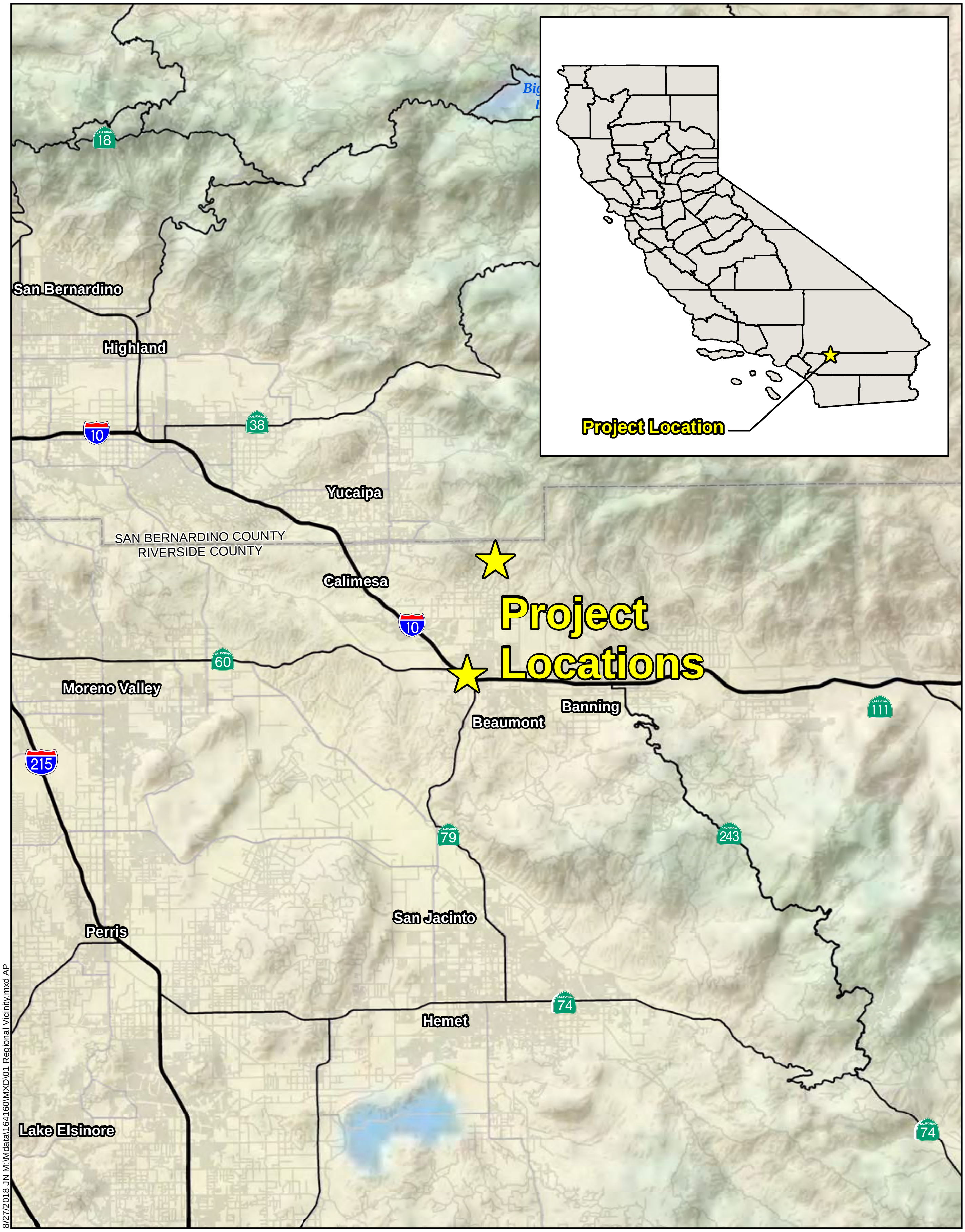
1.1.1 Altura Bella Survey Area

The Altura Bella Survey Area is generally located north of Interstate 10, east of Oak Glen Road, south of State Route 38, and west of Bluff Street in the unincorporated community of Cherry Valley, Riverside County, California (refer to Exhibit 1, *Regional Vicinity*). The survey area is depicted in Section 23 of Township 2 South, Range 1 West, on the United States Geological Survey's (USGS) *Beaumont, California* 7.5-minute quadrangle (refer to Exhibit 2, *Site Vicinity*). Specifically, the survey area includes several private, rural-residential properties located to the north of Avenue Cerrovista, east of Whispering Pines Road, and west of Noble Creek (refer to Exhibit 3, *Survey Area – Altura Bella*).

1.1.2 Apple Tree Lane Survey Area

The Apple Tree Lane Survey Area is generally located north of Interstate 10, south of State Route 38, and west of Bluff Street in the unincorporated community of Cherry Valley, Riverside County, California (refer to Exhibit 1, *Regional Vicinity*). The survey area is depicted in Sections 15 and 14 of Township 2 South, Range 1 West, on the USGS *Beaumont, California* 7.5-minute quadrangle (refer to Exhibit 2, *Site Vicinity*). Specifically, the survey area is located west of Edgar Canyon Road and east of Oak Glen Road within the Apple Tree Lane ROW (refer to Exhibit 4, *Survey Area – Apple Tree Lane*).

[2] As used in this report, "special-status" refers to plant and wildlife species that are Federally-/State-listed, proposed, or candidates; plant species that have been designated a California Rare Plant Rank by the California Native Plant Society; wildlife species that are designated by the California Department of Fish and Wildlife as Fully Protected, Species of Special Concern, and Watch List species; and State/locally rare vegetation communities.



8/27/2018 JN M:\Mdata\164160\MXD\01 Regional Vicinity.mxd AP

Michael Baker INTERNATIONAL

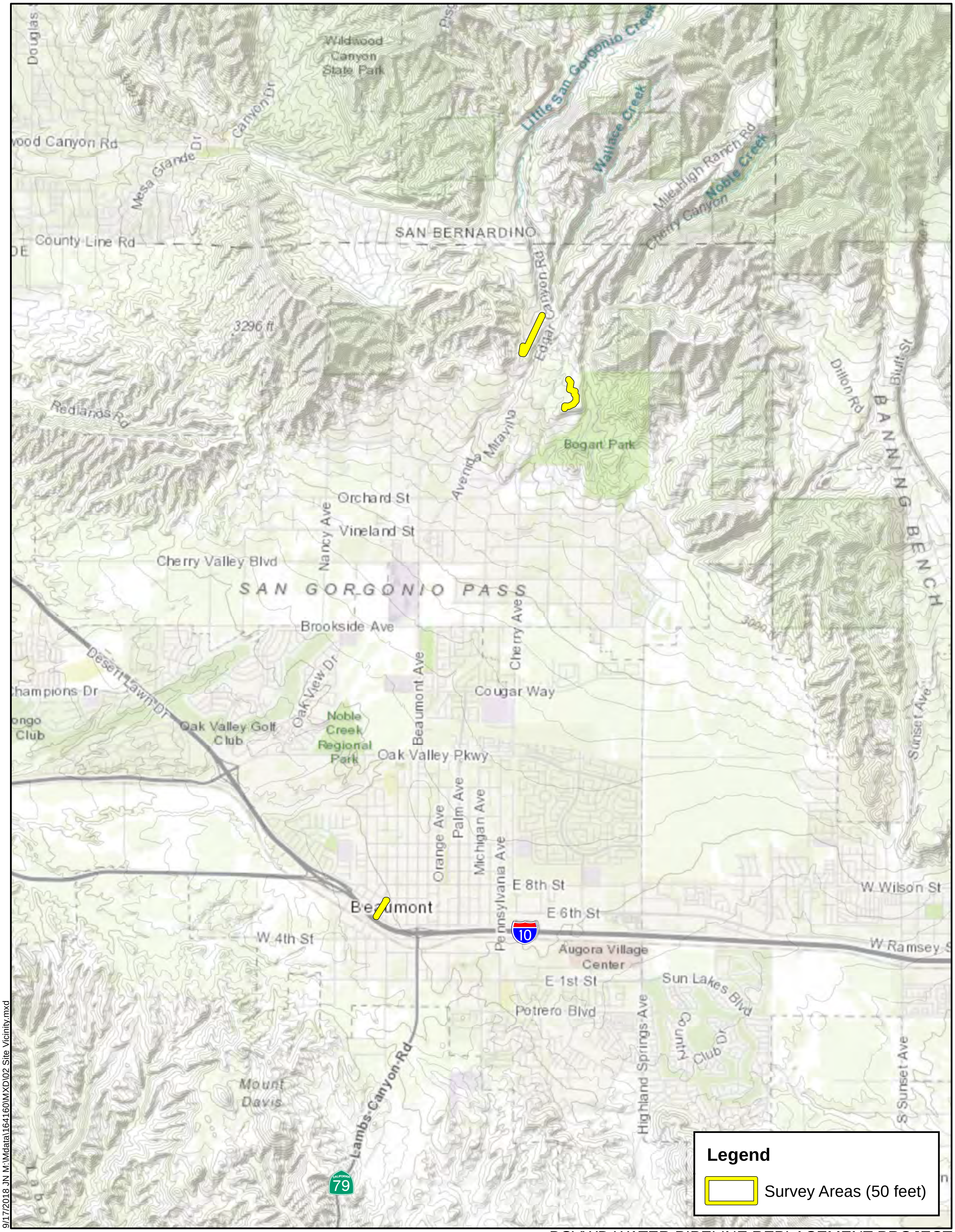
0 2.5 5 Miles

Source: ESRI Relief Map, National Highway Planning Network

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Regional Vicinity

Exhibit 1



9/17/2018 JN M:\Mdata\164160\MXD\02 Site Vicinity.mxd

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

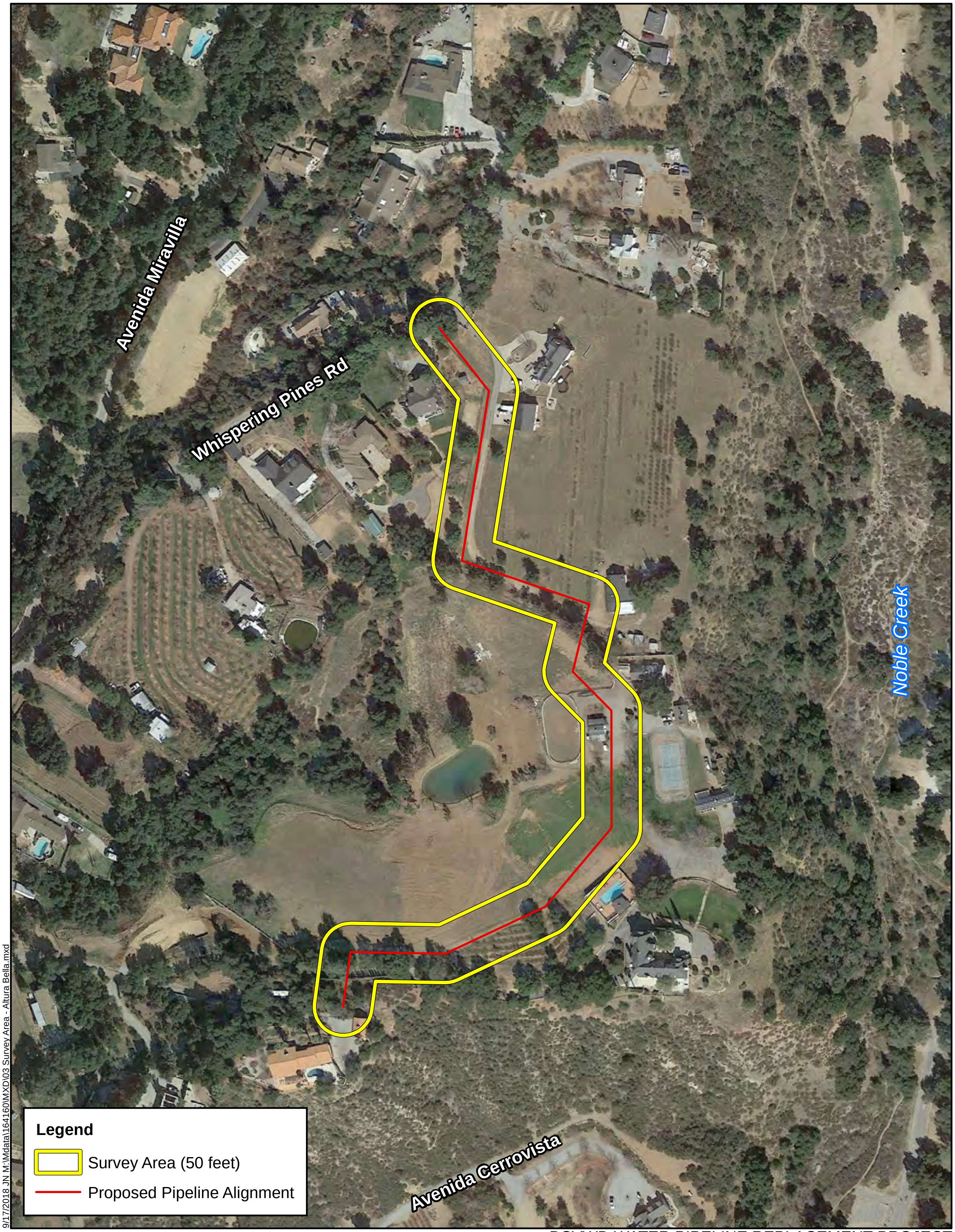
Site Vicinity

Michael Baker INTERNATIONAL

0 1 2 Miles

Source: San Bernardino County, Los Angeles County, ESRI USA Topographic Basemap, USGS

Exhibit 2



9/17/2018 JN M:\Mdata\164160\MXD\03 Survey Area - Altura Bella.mxd

Michael Baker INTERNATIONAL

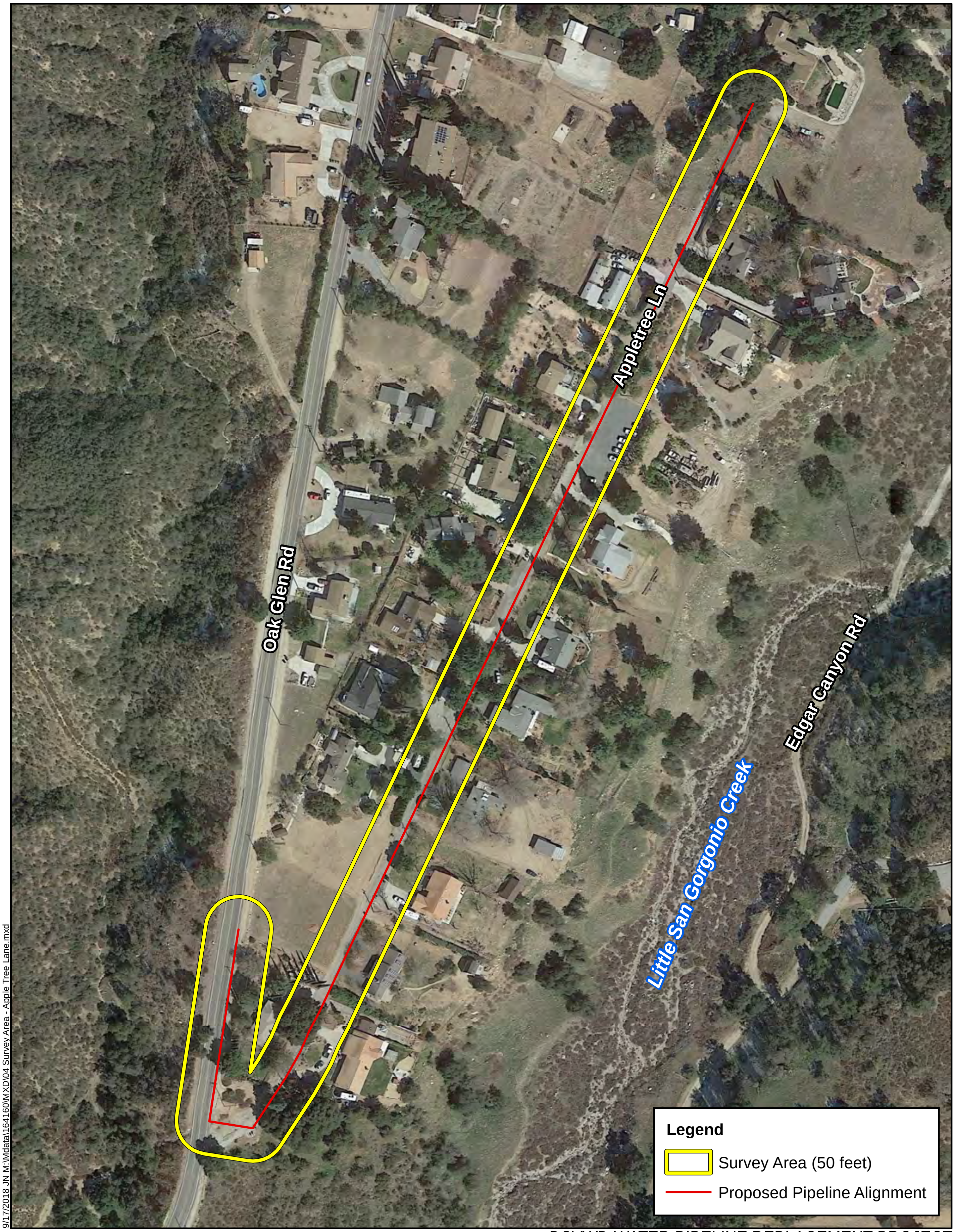
0 200 400 Feet

Source: Google Imagery

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Survey Area - Altura Bella

Exhibit 3



9/17/2018 JN M:\Mdata\164160\MXD\04 Survey Area - Apple Tree Lane.mxd

Michael Baker INTERNATIONAL

0 200 400 Feet

Source: Google Imagery

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Survey Area - Apple Tree Lane

Exhibit 4

1.1.3 Egan Alley Survey Area

The Egan Alley Survey Area is generally located north of Interstate 10, south of Oak Valley Parkway, and west of Beaumont Avenue in the City of Beaumont, Riverside County, California (refer to Exhibit 1, *Regional Vicinity*). The survey area is depicted in Section 9 of Township 3 South, Range 1 West, on the USGS *Beaumont, California* 7.5-minute quadrangle (refer to Exhibit 2, *Site Vicinity*). Specifically, the survey area is located along an alley, east of Egan Avenue, south of 7th Street, and west of Edgar Avenue (refer to Exhibit 5, *Survey Area – Egan Alley*).

1.2 PROJECT DESCRIPTION

In January 2016, the BCVWD implemented a Pipeline Replacement Program that forecasted the replacement of pipeline sections over the next ten (10) years. The following sections consist of three (3) identified sections of pipeline infrastructure (Altura Bella, Apple Tree Lane, and Egan Alley pipelines) within the BCVWD service area that are proposed for this project.

1.2.1 Altura Bella Pipeline

The proposed Altura Bella pipeline will consist of the construction of a new 8-inch pipeline. Starting from an existing 6-inch pipeline in Whispering Pines Road, the new pipeline will move southerly through private, residential land ending at Avenue Altejo Bella. This 8-inch pipeline has an approximate distance of 1,717 feet. Coordination with property owners in this area will be required since the pipeline will be installed within private, residential land uses.

1.2.2 Apple Tree Lane Pipeline

The proposed Apple Tree Lane pipeline will replace an aging 4 inch and 6-inch diameter steel pipeline from the northerly end of Apple Tree Lane south to Oak Glen Road, a distance of approximately 1,700 feet. Next, the construction of a new pipeline in Oak Glen Road is proposed to tie into an existing 6-inch diameter pipeline within Oak Glen Road, a distance of approximately 360 feet to the north. The total distance of this pipeline is approximately 2,060 feet. The existing pipeline in Apple Tree Lane will be abandoned. Tie-ins at each end of the pipeline will be required.

1.2.3 Egan Alley Pipeline

The proposed Egan Alley pipeline will replace a 4-inch steel pipeline in the alley east of Egan Avenue, between California Avenue and 5th Street, a length of approximately 800 feet. Due to the building plumbing configurations, the new pipeline must be constructed in the same alley as the existing pipeline. Tie-ins to an existing 8-inch pipeline in California Avenue and to an existing 10-inch pipeline in West 5th Street will be required. In addition, an encroachment permit will be required from the City of Beaumont for pipeline construction within Egan Alley.

9/17/2018 JN M:\Mdata\164160\MXD\05 Survey Area - Egan Alley.mxd

Michael Baker INTERNATIONAL

0 100 200 Feet

Source: Google Imagery

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Survey Area - Egan Alley

Exhibit 5

Section 2 Methodology

Michael Baker conducted thorough literature reviews and records searches to determine which special-status plant and wildlife species have the potential to occur on or within the general vicinity of the three survey areas. A general habitat assessment or field survey was conducted in order to document existing conditions and determine the potential for special-status plant and wildlife species to occur within the survey areas.

2.1 LITERATURE REVIEW

Prior to conducting the field survey, literature reviews and records searches were conducted for special-status biological resources potentially occurring on or within the vicinity of the survey areas. Previous special-status plant and wildlife species occurrence records within the USGS *Beaumont and Forest Falls, California* 7.5-minute quadrangles inclusive of the survey areas were determined through a query of the CNDDB, CNPS Online Inventory, Calflora Database, and species listings provided by the CDFW and the United States Fish and Wildlife Service (USFWS). In addition, Michael Baker reviewed all available reports, survey results, and literature detailing the biological resources previously observed on or within the vicinity of the survey areas to understand existing site conditions, past species observations, and note the extent of any disturbances that have occurred within the survey areas and surrounding area that would otherwise limit the distribution of special-status plant and wildlife species. Standard field guides and texts were reviewed for specific habitat requirements of special-status and non-special-status biological resources, as well as the following resources:

- Google Earth Pro Historical Aerial Imagery from 1994 to 2018 (Google, Inc., 2013);
- *Custom Soil Resource Report for Western Riverside Area, California* (United States Department of Agriculture [USDA, 2018]);
- Species Accounts provided by Birds of North America (Online);
- USFWS Critical Habitat Mapper and Environmental Conservation Online System; and
- Species Profiles, Draft/Final Recovery Plans, and 5-Year Review: Summary and Evaluation Reports for San Bernardino kangaroo rat (*Dipodomys merriami parvus*; USFWS, 2009), Stephens' kangaroo rat (*Dipodomys stephensi*; USFWS, 1997), southwestern willow flycatcher (*Empidonax traillii extimus*; USFWS, 2002), quino checkerspot butterfly (*Euphydryas editha quino*; USFWS, 2003), coastal California gnatcatcher (*Polioptila californica californica*; USFWS, 2010), southern mountain yellow-legged frog (*Rana muscosa*; USFWS, 2018), Riverside fairy shrimp (*Streptocephalus woottoni*; USFWS, 1998); least Bell's vireo (*Vireo bellii pusillus*; USFWS, 1998), Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*; USFWS, 2009), and Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*; USFWS, 2010).

The literature review provided a baseline from which to inventory the biological resources potentially occurring within the survey areas. Additional occurrence records of those special-status plant and wildlife species that have been documented on or near the survey areas were derived from database queries. The CNDDB was used, in conjunction with Geographic Information Systems (GIS) ArcView software, to identify special-status species occurrence records within the USGS *Beaumont and Forest Falls, California*

7.5-minute quadrangles inclusive of the survey areas. Please refer to Section 6 for a complete list of technical references that were reviewed by Michael Baker throughout the course of the habitat assessment.

2.2 HABITAT ASSESSMENT

Michael Baker biologists Ashley Spencer and Tom Millington evaluated the extent and conditions of the vegetation communities found within the boundaries of the three survey areas on July 31, 2018. Vegetation communities occurring within the survey area were mapped on an aerial photograph and classified in accordance with the vegetation descriptions provided in *A Manual of California Vegetation* (Sawyer *et al.*, 2009) and cross referenced with the vegetation descriptions provided by Holland (1986). In addition, aerial photography was reviewed prior to the field survey to locate potential natural wildlife corridors and linkages that may support the movement of wildlife through the area.

Special attention was paid to any special-status habitats and/or undeveloped, natural areas, which have a higher potential to support special-status plant and wildlife species. All plant and wildlife species observed, as well as dominant plant species within each vegetation community, were recorded. Plant species observed during the field survey were identified by visual characteristics and morphology in the field. Unusual and less familiar plant species were photographed during the field survey and identified in the laboratory using taxonomical guides. Wildlife detections were made through the observation of scat, trails, tracks, burrows, nests, and aural/visual observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, and the condition of on-site vegetation communities. Although a delineation of jurisdictional waters was not performed during the habitat assessment, Michael Baker noted any existing drainage and/or potential wetland features that would likely fall under the regulatory authority of the United States Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and/or CDFW.

2.3 SOIL SERIES ASSESSMENT

On-site and adjoining soils were researched prior to the field survey using the *Custom Soil Resource Report for Western Riverside Area, California* (USDA, 2018). In addition, a review of the local geological conditions and historical aerial photographs was conducted to assess the ecological changes and disturbances that have occurred within the survey areas.

2.4 VEGETATION COMMUNITIES

Vegetation communities occurring within the survey areas were delineated on an aerial photograph during the habitat assessment and later digitized using GIS ArcView software to quantify the area of each vegetation community in acres. Vegetation communities occurring within the survey areas were classified in accordance with the vegetation descriptions provided in *A Manual of California Vegetation* (Sawyer *et al.*, 2009) and cross referenced with the vegetation descriptions provided by Holland (1986).

2.5 PLANTS

Common plant species observed during the field survey were identified by visual characteristics and morphology in the field. Unusual and less familiar plant species were photographed during the field survey and identified in the laboratory using taxonomical guides. Plant nomenclature used in this report follows the Jepson Flora Project (2018) and scientific names are provided immediately following common names of plant species (first reference only).

2.6 WILDLIFE

Wildlife detections were made through the observation of scat, trails, tracks, burrows, nests, and aural/visual observation. Field guides used to assist with the identification of wildlife species during the field survey included *The Sibley Guide to Birds* (Sibley, 2014) for birds, *A Field Guide to Western Reptiles and Amphibians* (Stebbins, 2003) for herptofauna, and *A Field Guide to Mammals of North America* (Reid, 2006). Although common names of wildlife species are well standardized, scientific names are provided immediately following common names of wildlife species in this report (first reference only).

2.7 WESTERN RIVERSIDE COUNTY MSHCP

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) is a comprehensive, multi-jurisdictional habitat conservation plan focusing on the conservation of species and their associated habitats in western Riverside County. Although the BCVWD is not a Permittee or a Participating Special Entity and the requirements of the MSHCP do not need apply to their project, the MSHCP provides guidance for analyzing potential impacts to biological resources and was therefore reviewed to obtain information on special-status biological resources that are known to occur in the immediate vicinity of the survey areas.

Section 3 Existing Conditions

3.1 LOCAL CLIMATE

Riverside County features a somewhat cooler version of a Mediterranean climate, or semi-arid climate, with warm, sunny, dry summers and cool, rainy, mild winters. Climatological data was reviewed for the unincorporated community of Cherry Valley. Due to the close proximity of both cities, the weather averages for each were relatively the same. Climatological data obtained for the unincorporated community of Cherry Valley indicates the annual precipitation averages 19.30 inches per year. Almost all of the precipitation in the form of rain occurs in the months between December and March, with hardly any occurring between the months of June and August. The wettest month is January, with a monthly average total precipitation of 4.18 inches, and the driest month is June with a monthly average total precipitation of 0.21 inches. The average maximum and minimum temperatures are 79 and 48 degrees Fahrenheit (° F) respectively with August (monthly average high 97 ° F) being the hottest month and December (monthly average low 39 ° F) being the coldest. The temperature during the field survey was in the high 80s ° F.

3.2 TOPOGRAPHY AND SOILS

3.2.1 Altura Bella Survey Area

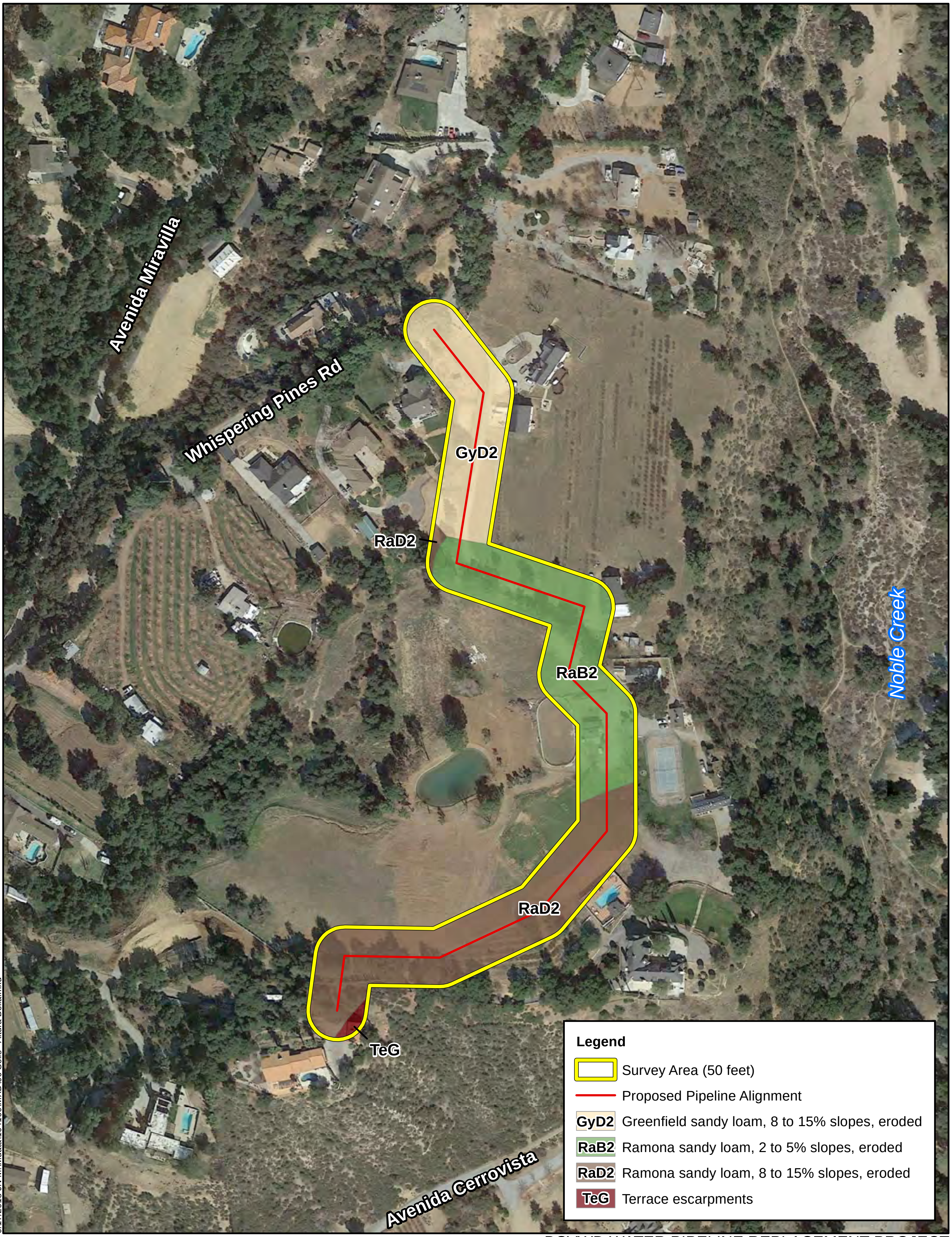
On-site surface elevation ranges from approximately 3,274 to 3,298 feet above mean sea level (amsl) and gently slopes downward to the south. According to the *Custom Soil Resource Report for Western Riverside Area, California* (USDA, 2018), the survey area is underlain by the following soil units: Greenfield sandy loam, 8 to 15 Percent Slopes, eroded (GyD2); Ramona sandy loam, 2 to 5 Percent Slopes, eroded (RaB2); Ramona sandy loam, 8 to 15 Percent Slopes, eroded (RaD2); and Terrace escarpments (TeG) (refer to Exhibit 6, *Soils – Altura Bella*). No areas of significant topographic relief occur within the Altura Bella Survey Area.

3.2.2 Apple Tree Lane Survey Area

On-site surface elevation ranges from approximately 3,307 to 3,396 feet amsl and gently slopes downward to the southwest. According to the *Custom Soil Resource Report for Western Riverside Area, California* (USDA, 2018), the survey area is underlain by the following soil units: Greenfield sandy loam, 2 to 8 Percent Slopes, eroded (GyC2); Greenfield sandy loam, 8 to 15 Percent Slopes, eroded (GyD2); Greenfield sandy loam, 15 to 25 Percent Slopes, eroded (GyE2); and Terrace escarpments (TeG) (refer to Exhibit 7, *Soils – Apple Tree Lane*). No areas of significant topographic relief occur within the Apple Tree Lane Survey Area.

3.2.3 Egan Alley Survey Area

On-site surface elevation ranges from approximately 2,579 to 2,597 feet amsl and gently slopes downward to the southwest. According to the *Custom Soil Resource Report for Western Riverside Area, California* (USDA, 2018), the survey area is underlain by the following soil units: Ramona sandy loam, 2 to 5 Percent Slopes, eroded (RaB2); and Ramona sandy loam, 5 to 8 Percent Slopes, eroded (RaC2) (refer to Exhibit 8, *Soils – Egan Alley*). No areas of significant topographic relief occur within the Egan Alley Survey Area.



9/17/2018 JN M:\Mdata\164160\MXD\06 Soils - Altura Bella.mxd

Michael Baker INTERNATIONAL

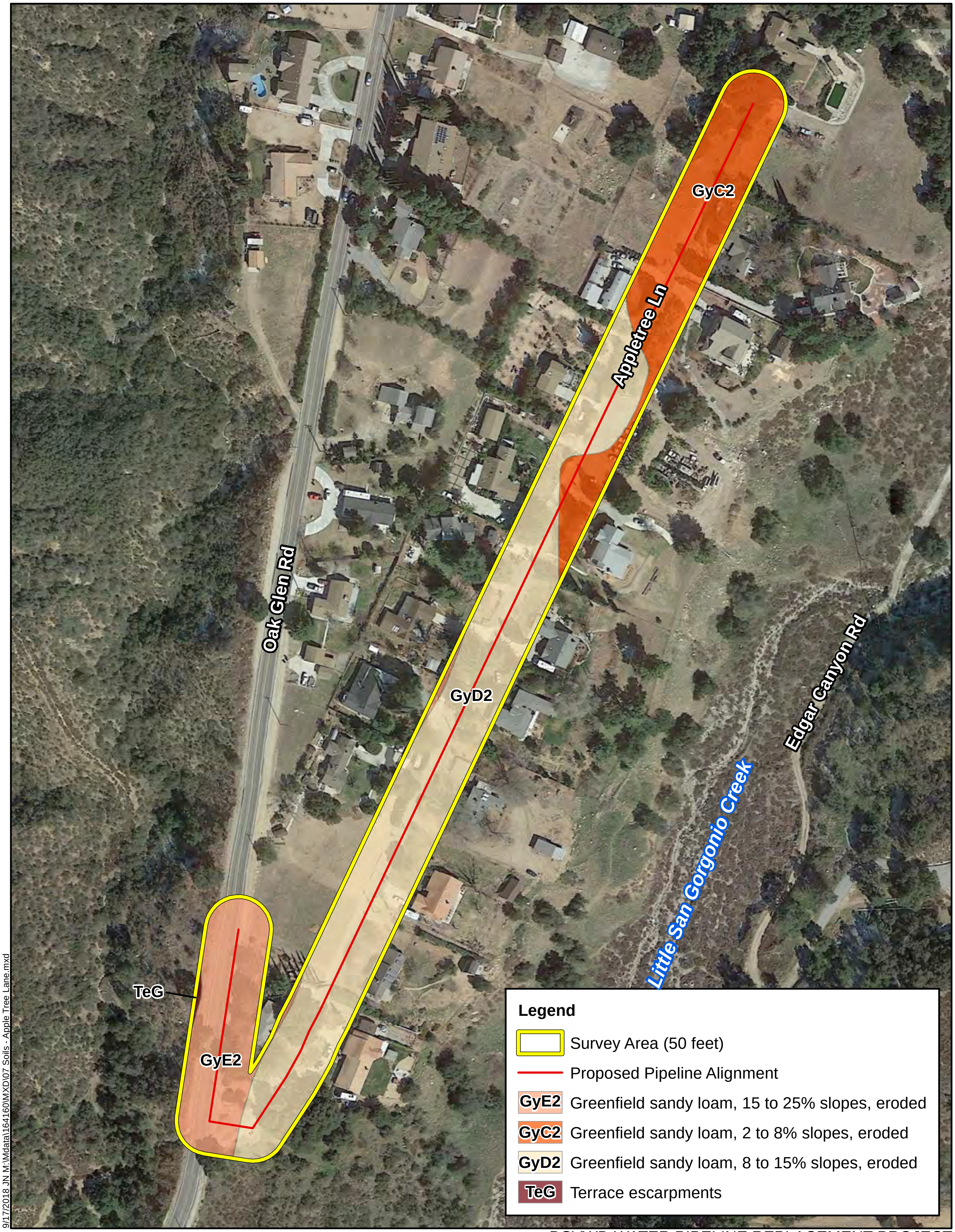
0 200 400 Feet

Source: Google Imagery, Esri SSURGO Soils Database

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Soils - Altura Bella

Exhibit 6



9/17/2018 JN M:\Mdata\164160\MXD\07 Soils - Apple Tree Lane.mxd

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Soils - Apple Tree Lane

Source: Google Imagery, Esri SSURGO Soils Database

Michael Baker INTERNATIONAL

Exhibit 7

9/17/2018 JN M:\Mdata\164160\MXD\08 Soils - Egan Alley.mxd

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Soils - Egan Alley

Exhibit 8

Michael Baker INTERNATIONAL

0 100 200 Feet

Source: Google Imagery, Esri SSURGO Soils Database

3.3 SURROUNDING LAND USES

Land uses surrounding the Altura Bella and Apple Tree Lane survey areas mainly consists of private, rural-residential and agricultural land uses. Rural-residential properties surround the Altura Bella Survey Area to the north, south, and west with open, undeveloped land occurring to the east. Additionally, Nobel Creek is located approximately 300 feet to the east, and below grade, of the Altura Bella Survey Area. Rural-residential properties surround the Apple Tree Lane Survey Area to the north, south, east, and west. Outside of the boundary of the Apple Tree Lane Survey Area, Little San Gorgonio Creek is located approximately 325 feet to the east, and below grade, of Apple Tree Lane and an unnamed, ephemeral tributary is located approximately 230 feet to the west, and below grade, of Oak Glen Road. Land uses to the north, south, east, and west of the Egan Alley Survey Area consist of existing roadways, residential properties, and commercial land uses.

Section 4 Discussion

4.1 SITE CONDITIONS

The Altura Bella, Apple Tree Lane, and Egan Alley survey areas primarily consist of existing roadways, residential properties, commercial developments, and disturbed areas that are exposed to routine weed abatement activities. These disturbances have greatly reduced, if not eliminated, the natural vegetation communities that once occurred resulting in a majority of the survey areas being dominated by ornamental tree species and/or ruderal/weedy plant species. The Altura Bella Survey Area is located within the boundaries of various private, rural-residential properties that mainly consist of existing residential housing, farming structures, and disturbed land. The Apple Tree Lane Survey Area consists primarily of rural-residential properties, Oak Glen Road, and Apple Tree Lane. The Egan Alley Survey Area is located within a heavily developed region of the City of Beaumont and consists of existing roadways, residential properties, and commercial land uses. Refer to Appendix A for representative photographs taken throughout the survey areas.

4.2 VEGETATION COMMUNITIES AND LAND COVER TYPES

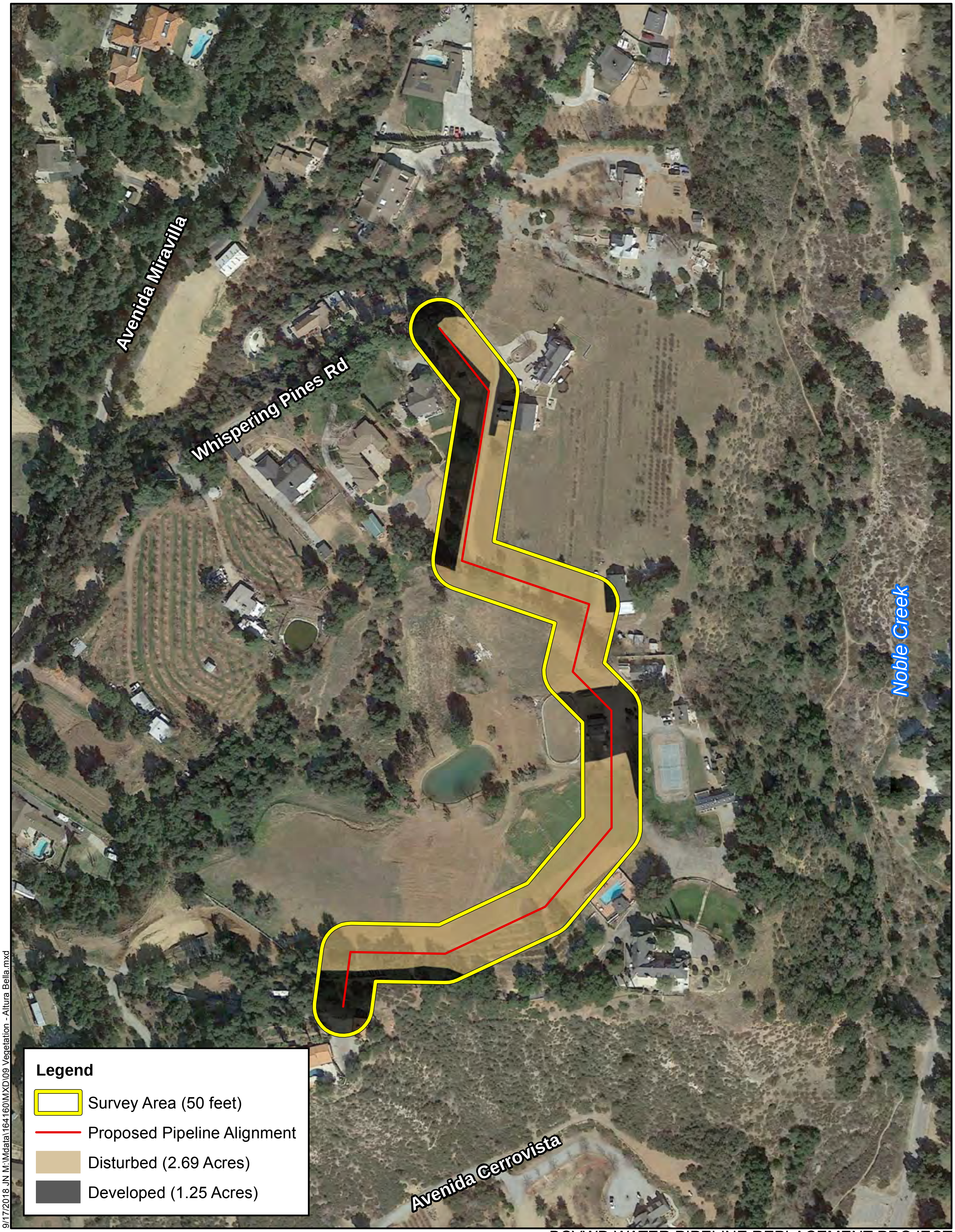
Two (2) vegetation communities occur within the boundaries of the Apple Tree Lane Survey Area: chamise chaparral and oak woodland. All remaining portions of the survey areas consist of land cover types that would be classified as disturbed and developed. No other vegetation communities or land cover types were documented within the survey areas during the field survey. These vegetation communities and land cover types are described in further detail below. Refer to Appendix B for a complete list of plant species observed during the July 31, 2018 field survey.

4.2.1 Altura Bella Survey Area

The Altura Bella Survey Area consists entirely of disturbed and developed land associated with privately-owned residential structures, driveways, horse corrals, pastures, and landscaping. As such, no natural vegetation communities occur within the Altura Bella Survey Area (refer to Exhibit 9, *Vegetation – Altura Bella*). The Altura Bella Survey Area is primarily vegetated with ornamental trees and/or ruderal/weedy, plant species including red gum (*Eucalyptus camaldulensis*), silver dollar gum (*Eucalyptus polyanthemos*), olive (*Olea europaea*), Peruvian pepper tree (*Schinus mole*), tree of heaven (*Ailanthus altissima*), strigose lotus (*Acmispon strigosus*), ripgut brome (*Bromus diandrus*), field bindweed (*Convolvulus arvensis*), and short-podded mustard (*Hirschfeldia incana*).

4.2.2 Apple Tree Lane Survey Area

Two (2) vegetation communities were observed within the Apple Tree Lane Survey Area: chamise chaparral and oak woodland (refer to Exhibit 10, *Vegetation – Apple Tree Lane*). Additionally, disturbed and developed land cover types also occur in association with Apple Tree Lane, Oak Glen Road, and adjacent residential properties.



9/17/2018 JN M:\Mdata\164160\MXD\09 Vegetation - Altura Bella.mxd

Michael Baker INTERNATIONAL

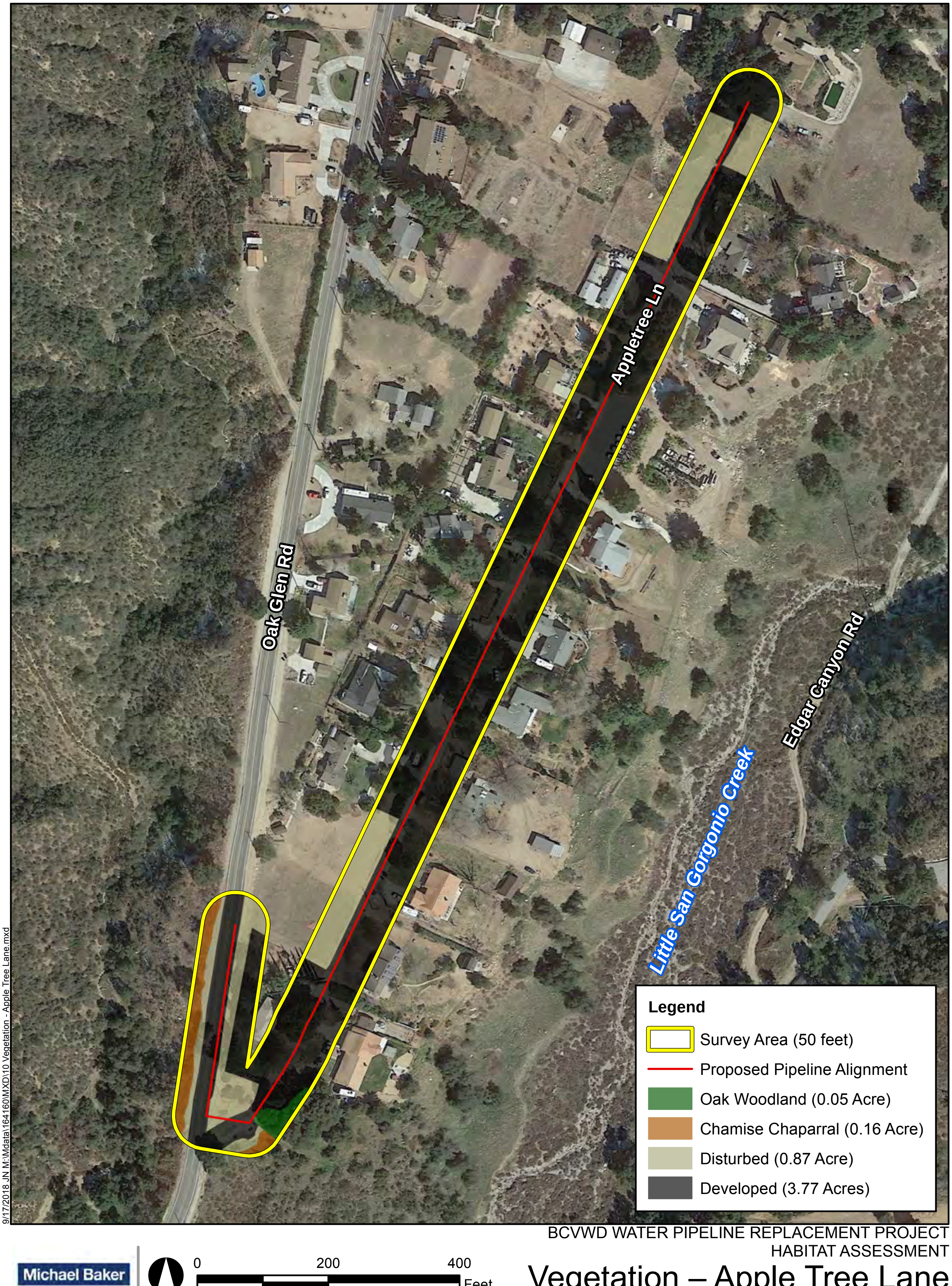
0 200 400 Feet

Source: Google Imagery

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Vegetation – Altura Bella

Exhibit 9



9/17/2018 JN M:\Mdata\164160\MXD\10 Vegetation - Apple Tree Lane.mxd

Michael Baker INTERNATIONAL

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Vegetation – Apple Tree Lane

Exhibit 10

Chamise Chaparral (0.16 Acres)

Approximately 0.16 acres of chamise chaparral is located within the southern portions of the Apple Tree Lane Survey Area. This shrub layer of this vegetation community is dominated by chamise (*Adenostoma fasciculatum*) and California buckwheat (*Eriogonum fascicultum*). Other plant species that occur within this vegetation community as co-dominants include slender buckwheat (*Eriogonum gracile*), black sage (*Salvia mellifera*), and sugar bush (*Rhus ovata*).

Oak Woodland (0.05 Acres)

Approximately 0.05 acres of oak woodland is located within the Apple Tree Lane Survey Area. This vegetation community is located within the extreme southeast corner of the survey area and is dominated by coast live oak (*Quercus agrifolia*). Co-dominant plant species also occur within this vegetation community include inland scrub oak (*Quercus berberidifolia*) and California buckwheat.

Disturbed and Developed (4.64 Acres)

Disturbed areas within the Apple Tree Lane Survey Area consists of disturbed roadsides and vacant parcels that are exposed to routine weed abatement activities. Soils in these areas are highly compacted and no longer support a native vegetation community. Instead they are dominated by non-native plant species that include ripgut brome, foxtail chess (*Bromus madritensis* ssp. *rubens*), short-podded mustard, Russian thistle (*Salsola tragus*), and common dandelion (*Taraxacum officinale*). Developed areas within this survey area consist of Oak Glen Road, Apple Tree Lane, and existing residential properties.

4.2.3 Egan Alley Survey Area

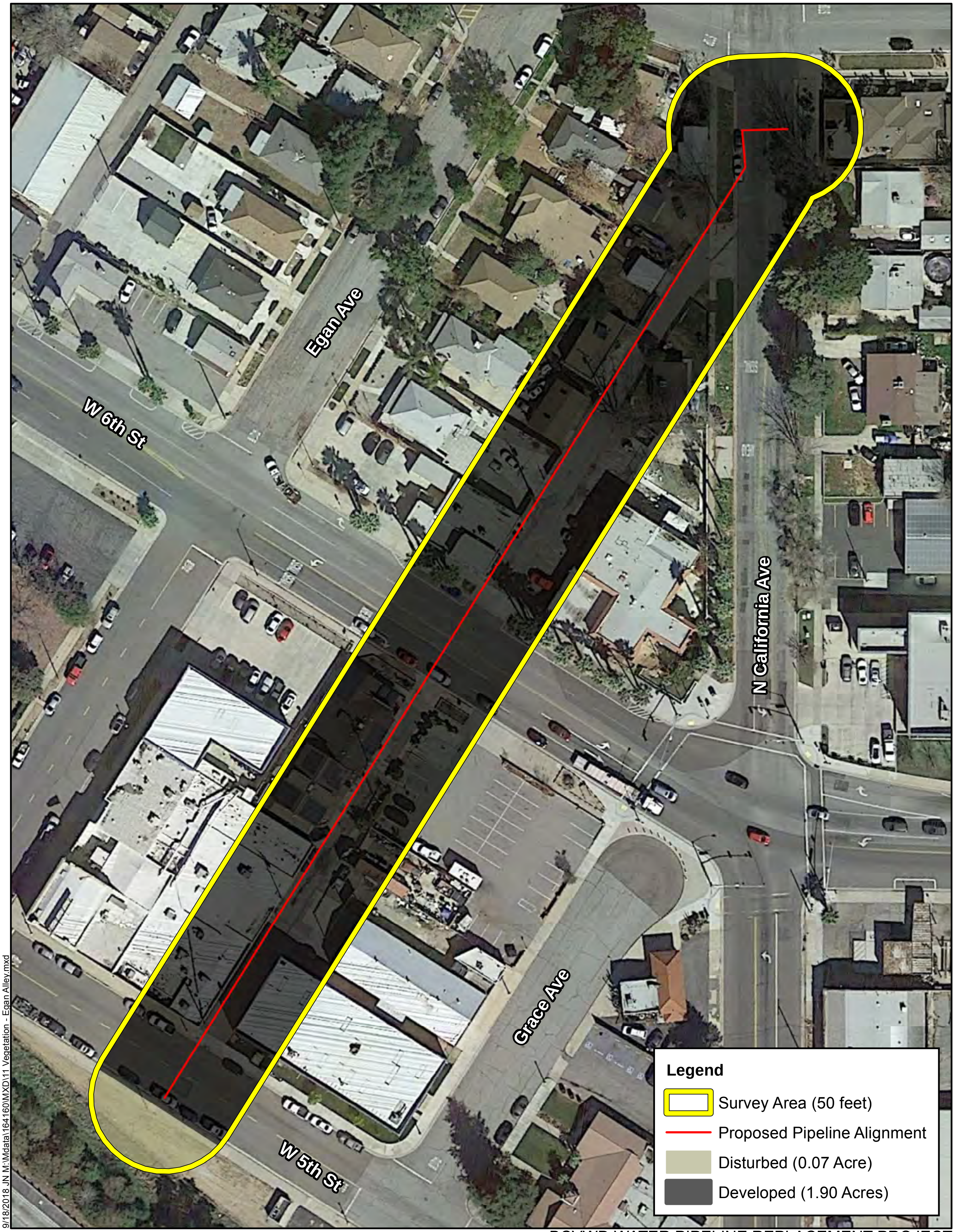
The Egan Alley Survey Area consists primarily of developed land associated with existing roadways, residential properties, and commercial land uses (refer to Exhibit 11, *Vegetation – Egan Alley*). Developed areas within this survey area consist of paved, impervious surfaces (i.e., private driveways, parking lots) along 5th Street, 6th Street, and California Avenue. Additionally, a small disturbed area occurs within the southwest portion of the survey area.

4.3 WILDLIFE

Natural vegetation communities provide foraging habitat, nesting/denning sites, and shelter from adverse weather or predation. This section provides a general discussion of those wildlife species that were observed during the habitat assessment or that are expected to occur within the survey areas. The discussion is to be used a general reference and is limited by the season, time of day, and weather conditions in which the habitat assessment was conducted. Wildlife detections were made through the observation of scat, trails, tracks, burrows, nests, and aural/visual observation. Refer to Appendix B for a complete list of wildlife species observed during the July 31, 2018 field survey.

4.3.1 Fish

No hydrogeomorphic features (e.g., creeks, ponds, lakes, reservoirs) with perennial water sources occur within the survey areas. Therefore, no fish are expected to occur.



9/18/2018 JN M:\Mdata\164160\MXD\11 Vegetation - Egan Alley.mxd

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Vegetation – Egan Alley

Exhibit 11

Michael Baker INTERNATIONAL

0 100 200 Feet

Source: Google Imagery

4.3.2 Amphibians

No amphibian species were observed within the survey areas during the July 31, 2018 field survey. Additionally, no hydrogeomorphic features (e.g., creeks, ponds, lakes, reservoirs) with perennial water sources that would provide suitable breeding habitat for amphibian species occur within the survey areas. Therefore, no amphibian species are expected to occur.

4.3.3 Reptiles

Great Basin fence lizard (*Sceloporus occidentalis longipes*) was the only reptile observed within the survey areas during the July 31, 2018 field survey. The survey areas and surrounding areas have the potential to support reptilian species that are adapted to an elevated level of human presence/disturbance. Common reptilian species expected to occur within the survey areas include western side-blotched lizard (*Uta stansburiana elegans*), Great Basin gopher snake (*Pituophis catenifer deserticola*), and San Diego alligator lizard (*Elgaria multicarinata webbii*).

4.3.4 Birds

Bird species detected during the July 31, 2018 field survey included California scrub jay (*Aphelocoma californica*), northern flicker (*Colaptes auratus*), rock dove (*Columba livia*), American crow (*Corvus brachyrhynchos*), American kestrel (*Falco sparverius*), house finch (*Haemorhous mexicanus*), acorn woodpecker (*Melanerpes formicivorus*), California towhee (*Melozone crissalis*), northern mockingbird (*Mimus polyglottos*), house sparrow (*Passer domesticus*), phainopepla (*Phainopepla nitens*), black phoebe (*Sayornis nigricans*), western bluebird (*Sialia mexicana*), lesser goldfinch (*Spinus psaltria*), and mourning dove (*Zenaida macroura*).

Nesting birds are protected pursuant to the Federal Migratory Bird Treaty Act (MBTA) of 1918 and the California Fish and Game Code (CFGC).[3] To maintain compliance with the MBTA and CFGC, clearance surveys are typically required prior to any ground disturbance or vegetation removal activities to avoid direct and indirect impacts to active bird nests and/or nesting birds. Consequently, if an active bird nest is destroyed or if project activities result in indirect impacts (e.g., nest abandonment, loss of reproductive effort) to nesting birds, it is considered "take" and is potentially punishable by fines and/or imprisonment. No active bird nests or birds displaying nesting behavior were observed during the July 31, 2018 field survey. However, the vegetation communities, including ornamental trees and unvegetated, open ground, within and surrounding the survey areas provide suitable nesting opportunities for a variety of year-round and seasonal bird species that may be present during the breeding season.

4.3.5 Mammals

The survey areas provide habitat for a limited number of mammals that area adapted to an elevated level of human presence/disturbance. California ground squirrel (*Otospermophilus beecheyi*) and various species of livestock associated with existing rural-residential properties were observed within the Altura Bella Survey Area. Other common mammalian species expected to occur within the survey areas include

[3] Section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the CFGC or any regulation made pursuant thereto; Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey); and Section 3513 makes it unlawful to take or possess any migratory non-game bird except as provided by the rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA, as amended (16 U.S.C. § 703 *et seq.*).

Audubon's cottontail (*Sylvilagus audubonii*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), and Botta's pocket gopher (*Thomomys bottae*).

4.4 MIGRATORY CORRIDORS AND LINKAGES

Habitat linkages provide links between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet, inadequate for others. Wildlife corridors are significant features for dispersal, seasonal migration, breeding, and foraging. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

The Egan Alley Survey Area primarily consists of developed land surrounded by existing roadways, residential properties, and commercial developments. As a result, this survey area does not provide a corridor that would support the movement of wildlife through the area. The Altura Bella and Apple Tree Lane survey areas are adjacent to the southern foothills of the San Bernardino National Forest. Additionally, Nobel Creek and Little San Gorgonio Creek are located within the vicinity of the Altura Bella and Apple Tree Lane survey areas. The San Bernardino National Forest, Nobel Creek, Little San Gorgonio Creek and surrounding open space provide wildlife movement opportunities for larger mammals within and adjacent to the Altura Bella and Apple Tree Lane survey areas. However, the proposed project would occur in existing roadways and disturbed land within private, rural-residential properties. As such, the proposed project is not expected to disrupt wildlife movement opportunities within or adjacent to the survey areas or prevent the San Bernardino National Forest, Nobel Creek, or Little San Gorgonio Creek from continuing to support the movement of wildlife through the surround area.

4.5 STATE AND FEDERAL JURISDICTIONAL AREAS

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The USACE Regulatory Branch regulates the discharge of dredge or fill materials into "waters of the U.S." pursuant to Section 404 of the Federal Clean Water Act and Section 10 of the Rivers and Harbors Act. Of the State agencies, the RWQCB regulates discharges to surface waters pursuant to Section 401 of the Federal Clean Water Act and Section 13263 of the California Porter-Cologne Water Quality Control Act, and the CDFW regulates alterations to streambed and associated vegetation communities under Sections 1600 *et seq*. of the CFGC.

Based on a review of the USGS *Beaumont, California* 7.5-minute topographic quadrangle map, no hydrologic features have been documented within the survey areas. Further, no drainage or potential wetland features were observed within the survey areas during the July 31, 2018 field survey. During Michael Baker's review of aerial photographs, it was noted that multiple drainage features occur within the vicinity of the Altura Bella and Apple Tree Lane survey areas: 1) Nobel Creek is located approximately 300 feet to the east, and below grade, of the Altura Bella Survey Area; 2) Little San Gorgonio Creek is located approximately 325 feet to the east, and below grade, of the Apple Tree Lane Survey Area; and 3) an unnamed, ephemeral drainage is located approximately 230 feet to the west, and below grade, of the Apple Tree Lane Survey Area. The drainage features are tributaries to the Santa Ana River and fall under the regulatory authority of the USACE, RWQCB, and CDFW. However, the proposed project would not result in impacts to these drainage features. Therefore, regulatory approvals from the USACE, RWQCB, and CDFW would not be required.

4.6 SPECIAL-STATUS BIOLOGICAL RESOURCES

The CNDDB and CNPS Online Inventory were queried for reported locations of special-status plant and wildlife species as well as special-status natural vegetation communities in the USGS *Beaumont and Forest Falls, California* 7.5-minute quadrangles. The habitat assessment evaluated the conditions of the habitat(s) within the boundaries of the survey areas to determine if the existing vegetation communities, at the time of the field survey, have the potential to provide suitable habitat(s) for special-status plant and wildlife species.

The literature search identified forty-five (45) special-status plant species, fifty-seven (57) special-status wildlife species, and three (3) special-status vegetation communities as having the potential to occur within the USGS *Beaumont and Forest Falls, California* 7.5-minute quadrangles. Special-status plant and wildlife species were evaluated for their potential to occur within the survey areas based on habitat requirements, availability and quality of suitable habitat, and known distributions. Special-status plant and wildlife species determined to have the potential to occur within the vicinity of the survey areas are presented in *Table C-1: Potentially Occurring Special-Status Biological Resources*, provided in Appendix C. Refer to the following sections and information provided in Appendix C for a detailed analysis regarding the potential occurrence of special-status plant and wildlife species.

4.6.1 Special-Status Plants

Forty-five (45) special-status plant species have been recorded in the USGS *Beaumont and Forest Falls, California* 7.5-minute quadrangles (refer to Appendix C). No special-status plant species were observed within the survey areas during the July 31, 2018 field survey. The survey areas primarily consist of developed and disturbed areas associated with existing roadways, residential properties, and commercial developments. Additionally, the open/disturbed areas within the survey areas are exposed to routine weed abatement and disturbance which likely deters special-status plant species from establishing. These disturbances have resulted in a majority of the survey areas being dominated by non-native vegetation, ornamental vegetation, and heavily disturbed/compacted soils. Based on the results of the habitat assessment, it was determined that all special-status plant species are not expected to occur within the survey areas based on specific habitat requirements, availability and quality of habitat needed by each species, occurrence records, and known distributions. Therefore, no additional surveys are recommended.

4.6.2 Special-Status Wildlife

Fifty-seven (57) special-status wildlife species have been recorded in the USGS *Beaumont and Forest Falls, California* 7.5-minute quadrangles (refer to Appendix C). The survey areas primarily consist of developed and disturbed areas associated with existing roadways, residential properties, and commercial developments. These disturbances have resulted in a majority of the survey areas being dominated by non-native vegetation and heavily disturbed/compacted soils which have greatly reduced, if not eliminated, the ability of the survey area's vegetation communities to provide suitable habitat for special-status wildlife species.

No special-status wildlife species were observed within the survey areas during the July 31, 2018 field survey. The Egan Alley Survey Area primarily consists of developed land uses surrounded by existing roadways, residential properties, and commercial developments. As a result, the Egan Alley Survey Area does not provide habitat that would support special-status wildlife species. Based on the results of the habitat assessment, it was determined that the Altura Bella and Apple Tree Lane survey areas have a high potential to support Cooper's hawk (*Accipiter cooperii*; Watch List [WL]) and a low potential to support sharp-shinned hawk (*Accipiter striatus*; WL), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*; WL), coastal whiptail (*Aspidoscelis tigris stejnegeri*; Species of Special Concern [SSC]), loggerhead shrike (*Lanius ludovicianus*; SSC), western yellow bat (*Lasiurus xanthinus*; SSC), and yellow warbler (*Setophaga petechia*; SSC). All remaining special-status wildlife species are not expected to occur within the survey areas based on specific habitat requirements, availability and quality of habitat needed by each species, occurrence records, and known distributions.

4.6.3 Special-Status Vegetation Communities

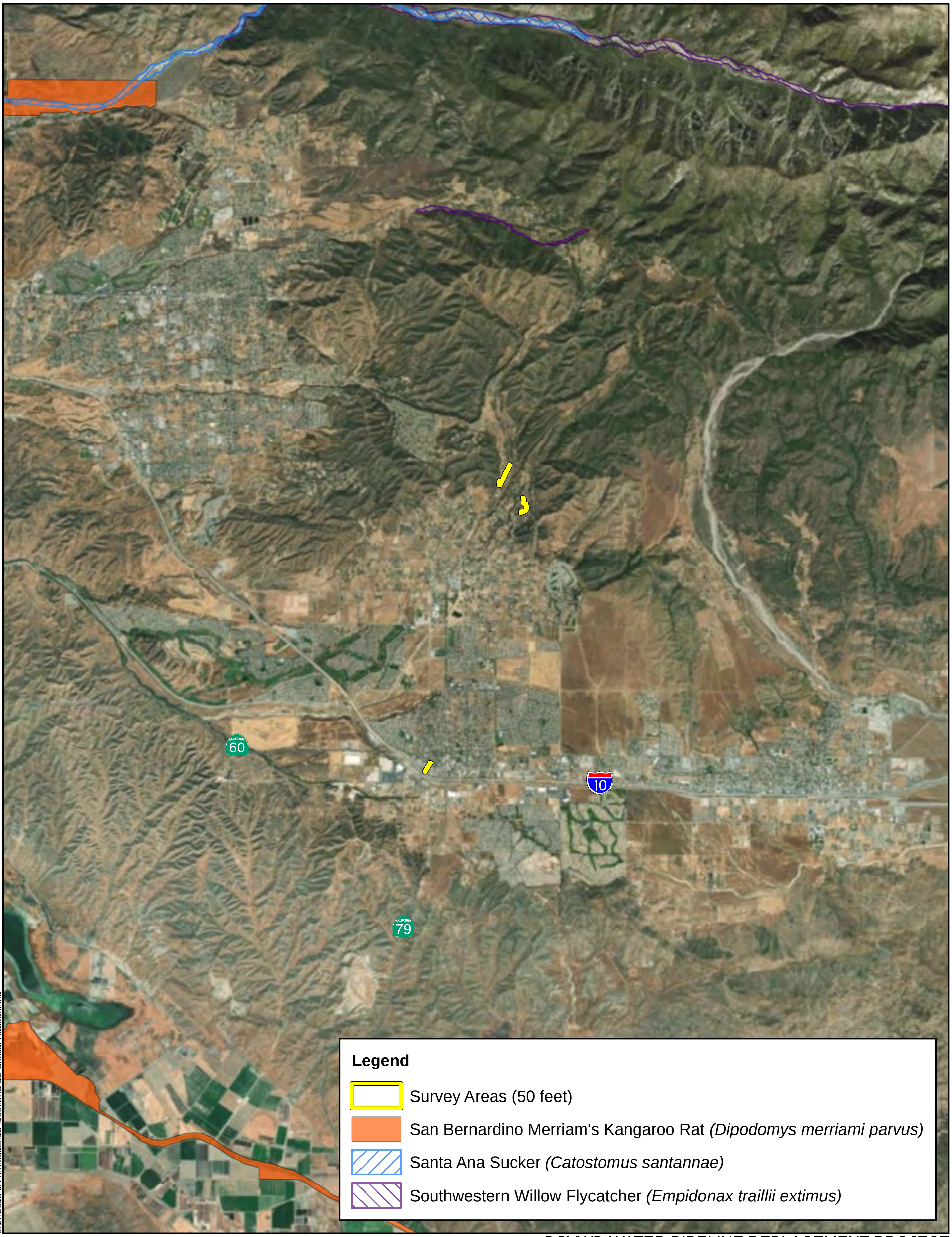
Three (3) special-status vegetation communities have been recorded in the USGS *Beaumont and Forest Falls, California* 7.5-minute quadrangles: Riversidian alluvial fan sage scrub, southern cottonwood willow riparian forest, and southern sycamore alder riparian woodland (refer to Appendix C). Based on the results of the July 31, 2018 field survey, none of these special-status vegetation communities occur within the survey areas.

4.7 CRITICAL HABITAT

Under the Federal Endangered Species Act (FESA), "Critical Habitat" is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. If a project may result in take or adverse modification to a species' designated Critical Habitat, the project proponent may be required to engage in suitable mitigation. However, consultation for impacts to Critical Habitat is only required when a project has a Federal nexus. This may include projects that occur on Federal lands, require Federal permits (e.g., USACE Section 404 permit), or receive any Federal oversight or funding. If there is a Federal nexus, then the Federal agency that is responsible for issuing funds or permits would be required to consult with the USFWS under the FESA. The survey areas are not located with Federally-designated Critical Habitat (refer to Exhibit 12, *Critical Habitat*). Therefore, the proposed project would not result in the loss or adverse modification of Critical Habitat and consultation with the USFWS under the FESA would not be required.

4.8 STEPHENS' KANGAROO RAT HABITAT CONSERVATION PLAN

Separate from the MSHCP, Riverside County established a boundary in 1996 for protecting the Stephens' kangaroo rat, a Federally-listed endangered and State-listed threatened species. The Stephens' kangaroo rat is protected under the Stephens' Kangaroo Rat Habitat Conservation Plan (SKR HCP; Riverside County Ordinance No. 663.10). The survey areas are not located within the Mitigation Fee Area of the SKR HCP. Therefore, the proposed project is exempt from payment of the Mitigation Fee.



9/17/2018 JN M:\Mdata\164160\MXD\12 Critical Habitat.mxd

0 1 2 Miles

Source: Esri Imagery, US Fish and Wildlife Service

BCVWD WATER PIPELINE REPLACEMENT PROJECT
HABITAT ASSESSMENT

Critical Habitat

Exhibit 12

Section 5 Conclusion and Recommendations

The Altura Bella, Apple Tree Lane, and Egan Alley survey areas primarily consist of existing roadways, residential properties, commercial developments, and disturbed areas that are exposed to routine weed abatement activities. These existing land uses and disturbances have greatly reduced, if not eliminated, the natural vegetation communities that once occurred resulting in a majority of the survey areas being dominated by ornamental tree species and/or ruderal/weedy plant species.

No special-status plant species were observed during the habitat assessment and are not expected to occur within the survey areas based on specific habitat requirements, availability and quality of habitat needed by each species, occurrence records, and known distributions. Further, no special-status vegetation communities occur within the boundaries of the survey areas and no additional surveys are recommended.

No special-status wildlife species were observed within the survey areas during the habitat assessment. The Egan Alley Survey Area primarily consists of developed land surrounded by existing roadways, residential properties, and commercial developments. As a result, the Egan Alley Survey Area does not provide suitable habitat that would support special-status wildlife species. Based on the results of the habitat assessment, it was determined that the Altura Bella and Apple Tree Lane survey areas have a high potential to support Cooper’s hawk (WL) and a low potential to support sharp-shinned hawk (WL), southern California rufous-crowned sparrow (WL), coastal whiptail (SSC), loggerhead shrike (SSC), western yellow bat (SSC), and yellow warbler (SSC). All remaining special-status wildlife species are not expected to occur within the survey areas based on specific habitat requirements, availability and quality of habitat needed by each species, occurrence records, and known distributions.

The vegetation communities, including ornamental trees and unvegetated, open ground, within and surrounding the survey areas provide suitable nesting opportunities for a variety of year-round and seasonal bird species that may be present during the breeding season. Therefore, it is recommended that the following avoidance and minimization measure be implemented to avoid impacts to nesting birds and maintain compliance with the MBTA and CFGC:

BIO-1: If project-related activities (i.e., ground disturbance, vegetation removal) are to be initiated during the nesting season (February 1 to August 31), a pre-construction nesting bird clearance survey shall be conducted by a qualified biologist no more than three (3) days prior to the start of any vegetation removal or ground disturbing activities to ensure that birds protected under the MBTA and CFGC are not impacted. A qualified biologist shall survey all suitable nesting habitat within the survey areas, and within a biologically defensible buffer distance surrounding the survey area, for nesting birds prior to commencing project activities. Documentation of surveys and findings shall be submitted to BCVWD and the City of Beaumont for review and file. If no active nests are detected, construction may begin. If an active nest is found, the bird shall be identified to species and the approximate distance from the closest work site to the nest shall be estimated and the qualified biologist shall establish a “no-disturbance” buffer around the active nest. The distance of the “no-disturbance” buffer may be increased or decreased according to the judgement of the qualified biologist depending on the level of activity and species (i.e., listed, sensitive). The qualified biologist shall periodically monitor any active nests to determine if project-related activities occurring outside the ‘no disturbance” buffer disturb the birds and if the buffer should be increased. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the “no-disturbance” buffer may occur.

No jurisdictional drainage and/or wetland features were observed within the survey areas. Therefore, the proposed project would not result in impacts to USACE, RWQCB, or CDFW jurisdictional areas and regulatory approvals would not be required.

The survey areas are not located within Federally-designated Critical Habitat. Therefore, impacts to Critical Habitat would not occur and consultation with the USFWS for the loss or adverse modification to Critical Habitat would not be required.

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Appendix A Site Photographs

Photograph 1: View of the proposed pipeline location along a residential driveway within the northern portion of the Altura Bella Survey Area, facing northeast.

Photograph 2: View of the proposed pipeline location along a disturbed access road within the northern portion of the Altura Bella Survey Area, facing north.

Photograph 3: View of the proposed pipeline location along a private roadway within the central portion of the Altura Bella Survey Area, facing north.

Photograph 4: View of the proposed pipeline location in disturbed land within the southwest portion of the Altura Bella Survey Area, facing east.

Photograph 5: View of the proposed pipeline location along Apple Tree Lane in the northern portion of the Apple Tree Lane Survey Area, facing southwest.

Photograph 6: View of the proposed pipeline location along Apple Tree Lane within the central portion of the Apple Tree Lane Survey Area, facing southwest.

Photograph 7: View of the proposed pipeline location along Apple Tree Lane within the southern portion of the Apple Tree Lane Survey Area, facing north.

Photograph 8: View of the proposed pipeline location along Oak Glen Road within the southern portion of the Apple Tree Lane Survey Area, facing north.

Photograph 9: View of the proposed pipeline location within the southern portion of the Egan Alley Survey Area, facing southwest.

Photograph 10: View of the proposed pipeline location within the northern portion of the Egan Alley Survey Area, facing southwest.

Appendix B Plant and Wildlife Species Observed List

Table B-1: Plant Species Observed List

*Scientific Name**	Common Name	Cal-IPC Rating**	CNPS CRPR***
Plants			
Acer negundo	boxelder		
Acmispon strigosus	strigose lotus		
Adenostoma fasciculatum	chamise		
*Ailanthus altissima**	tree of heaven	Moderate	
*Bromus diandrus**	ripgut brome	High	
Bromus madritensis ssp. *rubens**	foxtail chess		
Convolvulus arvensis	field bindweed		
Croton setiger	Turkey-mullein		
Datura wrightii	Jimsonweed		
Eriogonum fascicultum	California buckwheat		
Eriogonum gracile	slender buckwheat		
*Erodium cicutarium**	coastal heron's bill	Limited	
*Euphorbia prostrata**	prostrate sandmat		
*Eucalyptus camaldulensis**	red gum	Limited	
*Eucalyptus polyanthemos**	silver dollar gum		
*Glaucium flavum**	yellow horned poppy		
*Hirschfeldia incana**	short-podded mustard	Moderate	
Juglans californica	southern black walnut		
Lupinus formosus	western lupine		
*Marrubium vulgare**	white horehound	Limited	
*Olea europaea**	olive	Limited	
Pinus sp.	pine		
Platanus racemosa	western sycamore		
Quercus agrifolia	coast live oak		
Quercus berberidifolia	inland scrub oak		
Rhus ovata	sugar bush		
*Salsola tragus**	Russian thistle	Limited	
Salvia mellifera	black sage		
*Schinus molle**	Peruvian pepper tree	Limited	
*Schismus barbatus**	common Mediterranean grass	Limited	
*Taraxacum officinale**	common dandelion		
*Tribulus terrestris**	puncture vine	Limited	
*Washingtonia robusta**	Mexican fan palm	Moderate	

* Non-native species

** **California Invasive Plant Council (Cal-IPC) Ratings**

High — These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Moderate — These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

Limited — These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Table B-2: Wildlife Species Observed List

Scientific Name*	**Common Name**	**Special-Status Rank**
Reptiles		
Sceloporus occidentalis longipes	great basin fence lizard	
Birds		
Aphelocoma californica	California scrub jay	
Colaptes auratus	northern flicker	
Columba livia	rock dove	
Corvus brachyrhynchos	American crow	
Falco sparverius	American kestrel	
Haemorhous mexicanus	house finch	
Melanerpes formicivorus	acorn woodpecker	
Melozone crissalis	California towhee	
Mimus polyglottos	northern mockingbird	
Passer domesticus	house sparrow	
Phainopepla nitens	phainopepla	
Sayornis nigricans	black phoebe	
Sialia mexicana	western bluebird	
Spinus psaltria	lesser goldfinch	
Zenaida macroura	mourning dove	
Mammals		
Otospermophilus beecheyi	California ground squirrel	

Appendix C Potentially Occurring Special-Status Biological Resources

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
SPECIAL-STATUS WILDLIFE SPECIES				
Accipiter cooperii Cooper's hawk	USFWS: None CDFW: WL	Yearlong resident of California. Generally, found in forested areas up to 3,000 feet above mean sea level (amsl) in elevation, especially near edges and rivers. Prefers hardwood stands and mature forests but can be found in urban and suburban areas where there are tall trees for nesting. Common in open areas during nesting season.	No	**High** Suitable foraging habitat can be found within and adjacent to the Altura Bella and Apple Tree Lane Survey Areas. The Survey Areas do not have the preferred hardwood stands and mature forests preferred for nesting.
Accipiter striatus sharp-shinned hawk	USFWS: None CDFW: WL	Winter resident of Southern California. Found in pine (*Pinus* spp.), fir (*Abies* spp.) and aspen (*Populus tremuloides*) forests. They can be found hunting in forest interior and edges from sea level to near alpine areas. Can also be found in rural, suburban and agricultural areas, where they often hunt at bird feeders.	No	**Low** This species does not nest in California. Suitable foraging habitat can be found within and adjacent to the Altura Bella and Apple Tree Lane Survey Areas.
Aimophila ruficeps canescens southern California rufous-crowned sparrow	USFWS: None CDFW: WL	Typically found between 3,000 and 6,000 feet in elevation. Breed in sparsely vegetated scrubland on hillsides and canyons. Prefers coastal sage scrub dominated by California sagebrush (*Artemisia californica*), but they can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats.	No	**Low** Suitable foraging habitat can be found within and adjacent to the Altura Bella and Apple Tree Lane Survey Areas. The Survey Areas do not have the preferred coastal bluff or chaparral habitats for nesting.
Ammodramus savannarum grasshopper sparrow	USFWS: None CDFW: SSC	Yearlong resident along the coast of southern California. Occurs in grassland, upland meadow, pasture, hayfield, and old field habitats. Optimal habitat contains short- to medium-height bunch grasses interspersed with patches of bare ground, a shallow litter layer, scattered forbs, and few shrubs. May inhabit thickets, weedy lawns, vegetated landfills, fence rows, open fields, or grasslands.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Anniella pulchra northern California legless lizard	USFWS: None CDFW: SSC	Occurs in moist, warm loose soil with plant cover. Moisture is essential. Found in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with syacmores, cottonwoods, or oaks. Often found under surface objects such as rocks, boards, driftwood, and logs.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Anniella stebbinsi southern California legless lizard	USFWS: None CDFW: SSC	Locally abundant specimens are found in coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans. A large protected population persists in the remnant of the once extensive El Segundo Dunes at Los Angeles International Airport.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Antrozous pallidus pallid bat	USFWS: None CDFW: SSC	Common at low elevations in California. Occupies a variety of habitats including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Most common in open, dry habitats with rocky areas for roosting. Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings. Nights roosts may be more open sites, such as porches and open buildings.	No	**Not Expected** There is no suitable roosting habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
Aquila chrysaetos golden eagle	USFWS: None CDFW: FP ; WL	Yearlong resident of California. Occupies nearly all terrestrial habitats of the western states except densely forested areas. Favors secluded cliffs with overhanging ledges and large trees for nesting and cover. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats. Deeply cut canyons rising to open mountain slopes and crags are ideal habitat.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Artemisiospiza belli belli Bell's sage sparrow	USFWS: None CDFW: WL	Occurs in chaparral dominated by fairly dense stands of chamise. Also found in coastal sage scrub in south of range.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Aspidoscelis hyperythra orange-throated whiptail	USFWS: None CDFW: WL	Uncommon to fairly common over much of its range in Orange, Riverside, and San Diego counties. Also occurs in southwestern San Bernardino County near Colton. Semi-arid brushy areas typically with loose soil and rocks, including washes, streamsides, rocky hillsides, and coastal chaparral.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, this species has not been collected from the vicinity of the Survey Areas since 1912 and is possible extirpated.
Aspidoscelis tigris stejnegeri coastal whiptail	USFWS: None CDFW: SSC	This subspecies is found in coastal southern California, mostly west of the Peninsular Ranges and south of the Transverse Ranges, and north into Ventura County. Ranges south into Baja California. Found in a variety of ecosystems, primarily hot and dry open areas with sparse vegetation in chaparral, woodland, and riparian areas.	No	**Low** Some suitable habitat is present within and adjacent to the Altura Bella and Apple Tree Lane Survey Areas.
Athene cunicularia burrowing owl	USFWS: None CDFW: SSC	Primarily a grassland species, but it persists and even thrives in some landscapes highly altered by human activity. Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. The overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Buteo regalis ferruginous hawk	USFWS: None CDFW: WL	Common winter resident of grasslands and agricultural areas in southwestern California. Frequents open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats. Does not breed in California.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB). This species does not nest in California and is not expected to roost within the Survey Areas during winter.
Chaetodipus californicus femoralis Dulzura pocket mouse	USFWS: None CDFW: SSC	Found most often in grass-chaparral edges, but may also be found in coastal scrub or other habitats, primarily in San Diego County.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
Chaetodipus fallax fallax northwestern San Diego pocket mouse	USFWS: None CDFW: SSC	Occurs in desert and coastal habitats in southern California, Mexico, and northern Baja California, from sea level to at least 4,596 feet amsl. Found in a variety of temperate habitats ranging from chaparral and grasslands to scrub forests and deserts. Requires low growing vegetation or rocky outcroppings, as well as sandy soils for burrowing.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Chaetodipus fallax pallidus pallid San Diego pocket mouse	USFWS: None CDFW: SSC	Found in desert border areas in desert wash, desert scrub, desert succulent scrub, pinyon-juniper woodland, and similar habitats. Usually in sandy herbaceous areas with rocky or coarse gravelly groundcover.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Chaetura vauxi Vaux's swift	USFWS: None CDFW: SSC	Fairly common migrant throughout most of the state in April and May, and August and September, but only nests in northern California. Prefers old growth coniferous or deciduous forests with redwood (*Sequoiadendron giganteum*) and Douglas fir (*Pseudotsuga menziesii*). Nests in large hallow trees and snags, especially tall, burned-out snags. Fairly common migrant throughout most of the state in April and May, and August and September.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Charina umbratica southern rubber boa	USFWS: None CDFW: THR	Found in a variety of montane forest habitats, particularly in the vicinity of streams or wet meadows. Requires loose, moist soil for burrowing and seeks cover in rotting logs. Restricted to the San Bernardino and San Jacinto Mountains.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed and do not provide the loose, moist soils required for burrowing.
Circus cyaneus northern harrier	USFWS: None CDFW: SSC	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Mostly found in flat, or hummocky, open areas of tall, dense grasses moist or dry shrubs, and edges for nesting, cover, and feeding.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Contopus cooperi olive-sided flycatcher	USFWS: None CDFW: SSC	Uncommon to common, summer resident in a wide variety of forest and woodland habitats below 9,000 feet throughout California exclusive of the deserts, the Central Valley, and other lowland valleys and basins. Preferred nesting habitats include mixed conifer, montane hardwood-conifer, Douglas fir, redwood, red fir (*Abies magnifica*), and lodgepole pine (*Pinus contorta*).	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
Crotalus ruber red-diamond rattlesnake	USFWS: None CDFW: SSC	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, prickly pear cactus or boulders associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake; however, chamise (*Adenostoma fasciculatum*) and red shank (*Adenostoma sparsifolium*) associations may offer better structural habitat for refuges and food resources for this species than other habitats.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Cypseloides niger black swift	USFWS: None CDFW: SSC	Uncommon summer resident of California. Nesting habitat is restricted to behind or beside permanent or semi-permanent waterfalls, on perpendicular cliffs near water and in sea caves.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Dipodomys merriami parvus San Bernardino kangaroo rat	USFWS: END CDFW: SSC	Primarily found in Riversidian alluvial fan sage scrub and sandy loam soils, alluvial fans and flood plains, and along washes with nearby sage scrub. May occur at lower densities in Riversidian upland sage scrub, chaparral and grassland in uplands and tributaries in proximity to Riversidian alluvial fan sage scrub habitats. Tend to avoid rocky substrates and prefer sandy loam substrates for digging of shallow burrows.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. There have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB). Lastly, there is no designated Critical Habitat within the Survey Areas.
Dipodomys stephensi Stephens' kangaroo rat	USFWS: END CDFW: THR	Occur in arid and semi-arid habitats with some grass or brush. Prefer open habitats with less than 50% protective cover. Require soft, well-drained substrate for building burrows and are typically found in areas with sandy soil.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed and do not provide the well-drained substrate for burrow construction. Lastly, there is no designated Critical Habitat within the Survey Areas.
Elanus leucurus white-tailed kite	USFWS: None CDFW: FP	Occurs in low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Uses trees with dense canopies for cover. Important prey item is the California vole (*Microtus californicus*).	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Empidonax traillii willow flycatcher	USFWS: None CDFW: END	A rare summer resident of California with currently known breeding locations restricted primarily to the Sierra Nevada/Cascade region, near Buelton in Santa Barbara County; Prado Basin in Riverside County; and several locations in San Diego County. In California, the species is restricted to thickets of willows, whether along streams in broad valleys, in canyon bottoms, around mountain-side seepages, or at the margins of ponds and lakes.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Vegetation communities within the Survey Areas lack the preferred variety, density, and structure of plant species required for nesting. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	**Special-Status Rank***	**Habitat Preferences and Distribution Affinities**	**Observed On-site**	**Potential to Occur**
Empidonax traillii extimus southwestern willow flycatcher	USFWS: END CDFW: END	Uncommon summer resident in southern California primarily found in lower elevation riparian habitats occurring along streams or in meadows. The structure of suitable breeding habitat typically consists of a dense mid-story and understory and can also include a dense canopy. Nest sites are generally located near surface water or saturated soils. The presence of surface water, swampy conditions, standing or flowing water under the riparian canopy are preferred.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Vegetation communities within the Survey Areas lack the preferred variety, density, and structure of plant species required for nesting. There have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB). Additionally, there is no designated Critical Habitat within the Survey Areas.
Eremophila alpestris actia California horned lark	USFWS: None CDFW: WL	Occurs in meadows, grasslands, open fields, prairie, and alkali flats. This subspecies is typically found in coastal regions.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Euphydryas editha quino quino checkerspot butterfly	USFWS: END CDFW: None	Can be found in meadows and upland sage scrub/chaparral habitat. The larvae may either feed on dwarf plantain (*Plantago erecta*) or exserted Indian paintbrush (*Castilleja exserta* spp. *exerta*).	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB). Lastly, there is no designated Critical Habitat within the Survey Areas.
Falco columbarius merlin	USFWS: None CDFW: WL	Locally common winter resident in California. Nest in forested openings, edges, and along rivers across northern North America. Found in open forests, grasslands, and especially coastal areas with flocks of small songbirds or shorebirds. Occurs at elevations below 3,900 feet amsl.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Falco mexicanus prairie falcon	USFWS: None CDFW: WL	Ranges from southeastern deserts northwest throughout the Central Valley and along the inner Coast Ranges and Sierra Nevada. Distributed from annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. Within the Sierra Nevada, this species range above the timberline in late summer, but winter at lower elevations. During the breeding season, this species is commonly found in foothills and mountains which provide cliffs and escarpments for nesting.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Glaucomys sabrinus californicus San Bernardino flying squirrel	USFWS: None CDFW: SSC	Occurs in white fir (*Abies concolor*) and Jeffrey pine (*Pinus jeffreyi*) mixed conifer forests with black oak (*Quercus kelloggii*) components at higher elevations. Use cavities in large trees, snags, and logs for cover. Habitats are typically mature, dense conifer forest in close proximity to riparian areas.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
Haliaeetus leucocephalus bald eagle	USFWS: Delisted CDFW: END ; FP	Found along the ocean shore, lake margins, and on rivers, where it both nests and winters, typically within one mile of water. Nests in large, old-growth, or dominant live trees with open branches, favoring ponderosa pines. Roosts communally in winter.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Icteria virens yellow-breasted chat	USFWS: None CDFW: SSC	Primarily found in tall, dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds. Breeding habitat must be dense to provide shade and concealment. It winters south the Central America. Found at elevations ranging from 820 to 2,625 feet amsl.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Lampropeltis zonata (parvirubra) California mountain kingsnake (San Bernardino population)	USFWS: None CDFW: WL	Found in diverse habitats including coniferous forest, oak-pine woodlands, riparian woodland, chaparral, manzanita (*Arctostaphylos* spp.), and coastal sage scrub. Wooded areas near a stream with rock outcrops, talus or rotting logs that are exposed to the sun.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Lanius ludovicianus loggerhead shrike	USFWS: None CDFW: SSC	Often found in broken woodlands, shrublands, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	No	**Low** There is suitable foraging habitat within and adjacent to the Survey Areas. The Survey Areas do not have the preferred dense brush for nesting.
Larus californicus California gull	USFWS: None CDFW: WL	Require isolated islands in rivers, reservoirs and natural lakes for nesting, where predations pressures from terrestrial mammals are diminished. Uses both fresh and saline aquatic habitats at variable elevations and degrees of aridity for nesting and for opportunistic foraging.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Lasiurus xanthinus western yellow bat	USFWS: None CDFW: SSC	Roosts in palm trees (*Washingtonia* spp.) in foothill riparian, desert wash, and palm oasis habitats with access to water for foraging.	No	**Low** Some suitable foraging habitat can be found within and adjacent to the Altura Bella and Apple Tree Lane Survey Areas. Additionally, this species was documented approximately 1.15 miles southeast of the Altura Bella Survey Area in 1989 (CNDDB). This species is not expected to roost within the three Survey Areas due to the lack of suitable palm trees and desert wash habitat.
Lepus californicus bennettii San Diego black-tailed jackrabbit	USFWS: None CDFW: SSC	Occurs in diverse habitats, but primarily is found in arid regions supporting shortgrass habitats. Openness of open scrub habitat is preferred over dense chaparral.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
Neotoma lepida intermedia San Diego desert woodrat	USFWS: None CDFW: SSC	The Occurs in coastal scrub communities between San Luis Obispo and San Diego Counties. Prefers moderate to dense canopies, and especially rocky outcrops within desert scrub, coastal sage scrub, and chaparral habitats.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed and do not provide the rocky outcrops and habitats preferred by this species.
Onychomys torridus ramona southern grasshopper mouse	USFWS: None CDFW: SSC	Ranges southward from Los Angeles County to the Mexican border, generally west of the desert. Inhabits mesas and valleys along the Pacific slope of the Peninsular and Transverse Ranges in southwestern California and extreme northwestern Baja California, Mexico.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Pandion haliaetus osprey	USFWS: None CDFW: WL	Associated strictly with large, fish-bearing waters, primarily in yellow pine through mixed conifer habitats. Uses large trees, snags, and dead-topped trees in open forest habitats for cover and nesting. Requires open, clear waters for foraging and uses rivers, lakes, reservoirs, bays, estuaries, and surf zones.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Passerculus sandwichensis rostratus large-billed savannah sparrow	USFWS: None CDFW: SSC	Breeding habitat is limited to open, low salt marsh vegetation, including grasses, pickleweed, and iodine bush around the mouth of the Colorado River and adjacent coastlines of the uppermost Gulf of California. Almost entirely restricted to shorelines within its California nonbreeding range.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Perognathus longimembris brevinasus Los Angeles pocket mouse	USFWS: None CDFW: SSC	Occurs in lower elevation grasslands and coastal sage scrub communities in and around the Los Angeles Basin. Prefers open ground with fine sandy soils. May not dig extensive burrows, but instead will seek refuge under weeds and dead leaves instead.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed and do not provide the fine sandy soils preferred by this species.
Phrynosoma blainvillii coast horned lizard	USFWS: None CDFW: SSC	Occurs in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. In inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance (e.g. fire, floods, unimproved roads, grazing lands, and fire breaks). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed and do not provide the fine sandy soils preferred by this species.
Polioptila californica californica coastal California gnatcatcher	USFWS: THR CDFW: SSC	Obligate resident of coastal sage scrub habitats that are dominated by California sagebrush, buckwheat, salvia, and prickly-pear cactus. This species generally occurs below 750 feet in elevation in coastal regions and below 1,500 feet inland. It prefers habitat with more low-growing vegetation.	No	**Not Expected** No suitable coastal sage brush habitat is present within the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB). Lastly, there is no designated Critical Habitat within the Survey Areas.

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
Progne subis purple martin	USFWS: None CDFW: SSC	Summer resident in a variety of wooded, low-elevation habitats throughout the state. Uses valley foothill and montane hardwood, valley foothill and montane hardwood-conifer, and riparian habitats. Also occurs in coniferous habitats, including closed-cone pine-cypress, ponderosa pine, Douglas-fir, and redwood. Requires areas with a concentration of nesting cavities.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed and do not provide the hardwood forest, riparian, or coniferous habitats preferred by this species.
Pyrocephalus rubinus vermilion flycatcher	USFWS: None CDFW: SSC	Found along streamsides in arid habitats including scrub, desert, riparian woodlands, parklands, and cultivated lands. In some areas may be found in dry grassland or desert with scattered trees, but much more frequent near water: short trees along streams, edges of ponds.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Rana muscosa southern mountain yellow-legged frog	USFWS: END CDFW: END ; WL	The species inhabits ponds, lakes, and streams at moderate to high elevations. Usually associated with montane riparian habitats in lodgepole pine, yellow pine, sugar pine (*Pinus lambertiana*), white fir (*Abies concolor*), whitebark pine (*Pinus albicaulis*), and wet meadow vegetation types. Occupied alpine lakes usually have margins that are grassy or muddy and inhabit sandy or rocky shores at lower elevations. Streams utilized vary from rocky, high gradient streams with numerous pools, rapids, and small waterfalls to those with marshy edges and sod banks. Species seems to prefer streams of low gradient and slow or moderate flow with very small, shallow streams being less frequently used.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The drainages within the vicinity of the Survey Areas are dry for most of the year and characterized by habitats not typically associated with this species. Additionally, the Survey Areas are isolated from extant populations and there is no designated Critical Habitat within the Survey Areas (USFWS 2018).
Salvadora hexalepis virgultea coast patch-nosed snake	USFWS: None CDFW: SSC	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. Requires friable soils for burrowing.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Setophaga petechia yellow warbler	USFWS: None CDFW: SSC	Yearlong resident along the southern coast of California with the remainder of the State being occupied during the summer. The species also winters along the Colorado River and in parts of Imperial and Riverside Counties. Nests in riparian areas dominated by willows, cottonwoods, California sycamores, or alders (*Alnus* spp.) or in mature chaparral. May also use oaks, conifers, and urban areas near stream courses.	Yes	**Low** Suitable foraging habitat can be found within and adjacent to the Altura Bella and Apple Tree Lane Survey Areas. Suitable nesting habitat for this species is not present within the Survey Areas.
Spea hammondii western spadefoot	USFWS: None CDFW: SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, lowlands, sandy washes, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rain pools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed and do not provide the habitats preferred by this species.
Streptocephalus woottoni Riverside fairy shrimp	USFWS: END CDFW: None	Occurs in vernal pools filled by winter and spring rains and hatches late in the season as the water warms. Endemic to western Riverside, Orange, and San Diego Counties in tectonic swales/earth slump basins in grassland and coastal sage scrub.	Yes	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	**Special-Status Rank***	**Habitat Preferences and Distribution Affinities**	**Observed On-site**	**Potential to Occur**
Taxidea taxus American badger	USFWS: None CDFW: SSC	Primarily occur in grasslands, parklands, farms, tallgrass and shortgrass prairies, meadows, shrub-steppe communities and other treeless areas with sandy loam soils where it can dig more easily for its prey. Occasionally found in riparian zones and open chaparral with less than 50% plant cover.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. The Survey Areas are primarily disturbed/developed and do not provide the habitats preferred by this species.
Thamnophis hammondii two-striped garter snake	USFWS: None CDFW: SSC	Generally found around pools, creeks, cattle tanks, and other water sources, often in rocky areas, in oak woodland, chaparral, brushland, and coniferous forest.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Toxostoma lecontei Le Conte's thrasher	USFWS: None CDFW: SSC	Prefers desert scrub, mesquite, tall riparian brush and chaparral.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Additionally, there have been no documented occurrences of this species within 5 miles of the Survey Areas (CNDDB).
Vireo bellii pusillus least Bell's vireo	USFWS: END CDFW: END	Summer resident in southern California. Breeding habitat generally consists of dense, low, shrubby vegetation in riparian areas, and mesquite brushlands, often near water in arid regions. Early successional cottonwood-willow riparian groves are preferred for nesting. The most critical structural component of nesting habitat in California is a dense shrub layer 2 to 10 feet (0.6 to 3.0 meters) above ground. The presence of water, including ponded surface water or moist soil conditions, may also be an important component for nesting habitat.	No	**Not Expected** There is no suitable habitat within or adjacent to the Survey Areas. Vegetation communities within the Survey Areas lack the preferred variety, density, and structure of plant species required for nesting. Additionally, there is no designated Critical Habitat for this species within the Survey Areas.
SPECIAL-STATUS PLANT SPECIES				
Abronia villosa* var. *aurita chaparral sand-verbena	USFWS: None CDFW: None CNPS: 1B.1	Annual herb. Grows in sandy soils in coastal sage scrub and in chaparral habitats. Grows in elevation from 262 to 5,249 feet amsl. Blooming period ranges from January to September.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Allium marvinii Yucaipa onion	USFWS: None CDFW: None CNPS: 1B.2	Perennial bulbiferous herb. Found in clay soils within chaparral openings. Grows in elevation from 2,492 to 3,494 feet amsl. Blooming period ranges from April to May.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Arenaria lanuginosa* var. *saxosa rock sandwort	USFWS: None CDFW: None CNPS: 2B.3	Perennial herb. Grows in mesic, sandy soils within subalpine coniferous forest and upper montane coniferous forest. Found at elevations from 4,774 to 8,530 feet amsl. Blooming period ranges from July to August.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Astragalus lentiginosus* var. *borreganus Borrego milk-vetch	USFWS: None CDFW: None CNPS: 4.3	Annual herb. Grows in sandy soils within Mojavean desert scrub and Sonoran Desert scrub. Found at elevations ranging from 98 to 1,050 feet amsl. Blooming period is from February to May.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
Astragalus lentiginosus* var. *coachellae Coachella Valley milk-vetch	USFWS: END CDFW: None CNPS: 1B.2	Annual / perennial herb. Preferred habitat includes desert dunes and sandy Sonoran Desert scrub. Found at elevations ranging from 131 to 2,149 feet amsl. Blooming period is from February to May.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Astragalus pachypus* var. *jaegeri Jaeger's milk-vetch	USFWS: None CDFW: None CNPS: 1B.1	Perennial shrub. Found in sandy or rocky soils within chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Found at elevations ranging from 1,197 to 3,200 feet amsl. Blooming period is from December to June.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Botrychium crenulatum scalloped moonwort	USFWS: None CDFW: None CNPS: 2B.2	Perennial rhizomatous herb. Habitats include bogs and fens, lower montane coniferous forest, meadows and seeps, marshes and swamps (freshwater), and upper montane coniferous forest. Found at elevations ranging from 4,160 to 10,761 feet amsl. Blooming period is from June to September.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Calochortus palmeri* var. *palmeri Palmer's mariposa-lily	USFWS: None CDFW: None CNPS: 1B.2	Perennial bulbiferous herb. Grows in mesic soils within chaparral, lower montane coniferous forest, and meadows and seeps. Found at elevations ranging from 2,329 to 7,841 feet amsl. Blooming period is from April to July.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Calochortus plummerae Plummer's mariposa-lily	USFWS: None CDFW: None CNPS: 4.2	Perennial bulbiferous herb. Prefers openings in chaparral, foothill woodland, coastal sage scrub, valley foothill grasslands, cismontane woodland, lower montane coniferous forest and yellow pine forest. Often found on dry, rocky slopes and soils and brushy areas. Can be very common after a fire. Found at elevations ranging from 459 to 6,299 feet amsl. Blooming period is from May to July.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Castilleja lasiorhyncha San Bernardino Mountains owl's-clover	USFWS: None CDFW: None CNPS: 1B.2	Annual herb (hemiparasitic). Occurs in mesic or drying sites along the edges of streams, meadows, and vernal pools. Found in meadows and seeps, pebble plains, upper montane coniferous forest, chaparral, and riparian woodland. Found at elevations ranging from 4,265 to 7,841 feet amsl. Blooming period is from May to August.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Castilleja montigena Heckard's paintbrush	USFWS: None CDFW: None CNPS: 4.3	Perennial herb (hemiparasitic). Found in lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest habitats. Grows in elevation ranging from 6,398 to 9,186 feet amsl. Blooming period ranges from May to August.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Caulanthus simulans Payson's jewelflower	USFWS: None CDFW: None CNPS: 4.2	Annual herb. Grows in sandy, granitic soils within chaparral and coastal scrub habitats. Found at elevations ranging from 295 to 7,218 feet amsl. Blooming period is from March to May.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Centromadia pungens* ssp. *laevis smooth tarplant	USFWS: None CDFW: None CNPS: 1B.1	Annual herb. Occurs in alkaline soils within chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland habitats. Grows in elevation ranging from 0 to 2,100 feet amsl. Blooming period ranges from April to September.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Chorizanthe parryi* var. *parryi Parry's spineflower	USFWS: None CDFW: None CNPS: 1B.1	Annual herb. Occurs on sandy and/or rocky soils in chaparral, coastal sage scrub, and sandy openings within alluvial washes and margins. Found at elevations ranging from 951 to 3,773 feet amsl. Blooming period is from April to June.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
Deinandra mohavensis Mojave tarplant	USFWS: None CDFW: END CNPS: 1B.3	Annual herb. Occurs in mesic soils within chaparral, coastal scrub, and riparian scrub habitats. Found at elevations ranging from 2,789 to 5,249 feet amsl. Blooming period is June to October.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Delphinium parishii* ssp. *subglobosum Colorado Desert larkspur	USFWS: None CDFW: None CNPS: 4.3	Perennial herb. Habitats include chaparral, cismontane woodland, pinyon and juniper woodland, and Sonoran Desert scrub habitats. Found at elevations ranging from 1,970 to 5,906 feet amsl. Blooming period is from March to June.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Delphinium parryi* ssp. *purpureum Mt. Pinos larkspur	USFWS: None CDFW: None CNPS: 4.3	Perennial herb. Grows in chaparral, Mojavean desert scrub, pinyon and juniper woodland habitats. Found at elevations ranging from 3,281 to 8,530 feet amsl. Blooming period is from May to June.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Diplacus johnstonii Johnston's monkeyflower	USFWS: None CDFW: None CNPS: 4.3	Annual herb. Found in lower montane coniferous forest within scree and disturbed roadsides. Found at elevations ranging from 3,200 to 9,580 feet amsl. Blooming period is from May to August.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Eriastrum densifolium* ssp. *sanctorum Santa Ana River woollystar	USFWS: END CDFW: END CNPS: 1B.1	Perennial herb. Grows in coastal scrub and chaparral habitats within sandy soils on river floodplains or terraces fluvial deposits. Found at elevations ranging from 295 to 2,001 feet amsl. Blooming period is from April to September.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Eriogonum kennedyi.* var. *alpigenum southern alpine buckwheat	USFWS: None CDFW: None CNPS: 1B.3	Perennial herb. Grows in granitic, gravelly soils within alpine boulder and rock field and subalpine coniferous forest habitats. Found at elevations ranging from 8,530 to 11,483 feet amsl. Blooming period is from July to September.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Eriophyllum lanatum* var. *obovatum southern Sierra woolly sunflower	USFWS: None CDFW: None CNPS: 4.3	Perennial herb. Prefers sandy loam soils within lower montane coniferous forest and upper montane coniferous forest habitats. Found at elevations ranging from 3,655 to 8,202 feet amsl. Blooming period is from June to July.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Galium jepsonii Jepson's bedstraw	USFWS: None CDFW: None CNPS: 4.3	Perennial rhizomatous herb. Grows in granitic, rocky or gravelly soils within lower montane coniferous forest and upper montane coniferous forest habitats. Found at elevations ranging from 5,052 to 8,202 feet amsl. Blooming period is from July to August.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Galium johnstonii Johnston's bedstraw	USFWS: None CDFW: None CNPS: 4.3	Perennial herb. Preferred habitats include chaparral, riparian woodland, lower montane coniferous forest, pinyon and juniper woodland. Found at elevations ranging from 4,003 to 7,546 feet amsl. Blooming period is from June to July.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Gilia leptantha* ssp. *leptantha San Bernardino gilia	USFWS: None CDFW: None CNPS: 1B.3	Annual herb. Occurs in sandy or gravelly soils within lower montane coniferous forest habitats. Found at elevations ranging from 4,921 to 8,399 feet amsl. Blooming period is from June to August.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Heuchera parishii Parish's alumroot	USFWS: None CDFW: None CNPS: 1B.3	Perennial rhizomatous herb. Found in lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest, and alpine boulder and rock fields in rocky places. It sometimes occurs on carbonate. Found at elevations ranging from 4,921 to 12,467 feet amsl. Blooming period is from June to August.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
Horkelia cuneata* var. *puberula mesa horkelia	USFWS: None CDFW: None CNPS: 1B.1	Perennial herb. Open sandy fields and chaparral, mostly away from the coast, old dunes, foothill edge of LA Basin, south Coast, Peninsular range. Found at elevations ranging from 230 to 2,657 feet amsl. Blooming period is from February to September.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Hulsea vestita* ssp. *parryi Parry's hulsea	USFWS: None CDFW: None CNPS: 4.3	Perennial herb. Grows in granitic or carbonate, rocky openings within lower montane coniferous forest, pinyon and juniper woodland and upper montane coniferous forest habitats. Found at elevations ranging from 4,495 to 9,498 feet amsl. Blooming period is from April to August.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Hulsea vestita* ssp. *pygmaea pygmy hulsea	USFWS: None CDFW: None CNPS: 1B.3	Perennial herb. Grows in granitic, gravelly soils within alpine boulder and rock field and subalpine coniferous forest habitats. Found at elevations ranging from 9,301 to 12,795 feet amsl. Blooming period is from June to October.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Juglans californica southern California black walnut	USFWS: None CDFW: None CNPS: 4.2	Perennial deciduous tree. Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Found at elevations ranging from 164 to 2,953 feet amsl. Blooming period is from March to August.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Juncus duranii Duran's rush	USFWS: None CDFW: None CNPS: 4.3	Perennial rhizomatous herb. Habitats include lower and upper montane coniferous forests, meadows and seeps. Found at elevations ranging from 5,801 to 9,199 feet amsl. Blooming period is from July to August.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Lilium humboldtii* ssp. *ocellatum ocellated humboldt lily	USFWS: None CDFW: None CNPS: 4.2	Perennial bulbiferous herb. Found in openings within chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and riparian woodland habitats. Found at elevations ranging from 98 to 5,906 feet amsl. Blooming period is from March to August.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Lilium parryi lemon lily	USFWS: None CDFW: None CNPS: 1B.2	Perennial bulbiferous herb. Occurs in lower montane coniferous forest, meadows and seeps, riparian forest, and upper montane coniferous forest habitats. Generally occurs in wet, mountainous terrain; forested areas; on the shady edges of streams; or in open, boggy meadows and seeps. Found at elevations ranging from 4,003 to 9,006 feet amsl. Blooming period is from July to August.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Mentzelia tricuspis spiny-hair blazing star	USFWS: None CDFW: None CNPS: 2B.1	Annual herb. Grows in sandy and gravelly slopes and washes within Mojavean desert scrub habitats. Found at elevations ranging from 492 to 4,200 feet amsl. Blooming period is from March to May.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Monardella macrantha* ssp. *hallii Hall's monardella	USFWS: None CDFW: None CNPS: 1B.3	Perennial rhizomatous herb. Occurs in broadleaved upland forest, chaparral, lower montane coniferous forest, cismontane woodland, and valley and foothill grassland along dry slopes and ridges. Found at elevations ranging from 2,395 to 7,201 feet amsl. Blooming period is from June to October.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Oxytropis oreophila* var. *oreophila rock-loving oxytrope	USFWS: None CDFW: None CNPS: 2B.3	Perennial herb. Grows in gravelly or rocky soils within alpine boulder and rock fields and subalpine coniferous forest habitats. Found at elevations ranging from 11,155 to 12,467 feet amsl. Blooming period is from June to September.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
Parnassia cirrata* var. *cirrata San Bernardino grass-of-Parnassus	USFWS: None CDFW: None CNPS: 1B.3	Perennial herb. Occurs in mesic streamsides within lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest habitats. Found at elevations ranging from 4,101 to 8,005 feet amsl. Blooming period is from August to September.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Petalonyx linearis narrow-leaf sandpaper-plant	USFWS: None CDFW: None CNPS: 2B.3	Perennial shrub. Found in sandy or rocky canyons within Mojavean desert scrub and Sonoran Desert scrub habitats. Found at elevations ranging from -82 to 3,658 feet amsl. Blooming period is March to May.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Quercus engelmannii Engelmann oak	USFWS: None CDFW: None CNPS: 4.2	Perennial deciduous tree. Occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland habitats. Found at elevation ranging from 164 to 4,265 feet amsl. Blooming period is from March to June.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Sedum niveum Davidson's stonecrop	USFWS: None CDFW: None CNPS: 4.2	Perennial rhizomatous herb. Grows in rocky soils within lower montane coniferous forest, subalpine coniferous forest, and upper montane coniferous forest habitats. Found at elevations ranging from 6,808 to 9,843 feet amsl. Blooming period is from June to August.	No	**Not Expected** The Survey Areas are outside of the elevation range for this species.
Senecio astephanus San Gabriel ragwort	USFWS: None CDFW: None CNPS: 4.3	Perennial herb. Found on rocky slopes within coastal bluff scrub and chaparral habitats. Found at elevations ranging from 1,312 to 4,921 feet amsl. Blooming period is from May to July.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Sidalcea hickmanii* ssp. *parishii Parish's checkerbloom	USFWS: None CDFW: None CNPS: 1B.2	Perennial herb. Occurs in chaparral, cismontane woodland, and lower montane coniferous forest habitats. Found at elevations ranging from 3,281 to 8,200 feet amsl. Blooming period is from June to August.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Sidalcea neomexicana Salt Spring checkerbloom	USFWS: None CDFW: None CNPS: 2B.2	Perennial herb. Habitat includes chaparral, coastal scrub, lower montane coniferous forest, plays, and mojavean desert scrub. Found at elevations ranging from 49 to 5,020 feet amsl. Blooming period is from March to June.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Streptanthus bernardinus Laguna Mountains jewelflower	USFWS: None CDFW: None CNPS: 4.3	Perennial herb. Grows in chaparral and lower montane coniferous forest on clay or decomposed granite soils. It is sometimes found in disturbed areas such as streamsides or roadcuts. Found at elevations ranging from 4,724 to 8,202 feet amsl. Blooming period is from May to August.	No	**Not Expected** The Survey Areas are outside the elevation range for this species.
Streptanthus campestris southern jewelflower	USFWS: None CDFW: None CNPS: 1B.3	Perennial herb. Occurs in open, rocky areas in chaparral, lower montane coniferous forest, and pinyon-juniper woodland. Found at elevations ranging from 1,969 to 9,154 feet amsl. Blooming period is from May to July.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.
Trichocoronis wrightii* var. *wrightii Wright's trichocoronis	USFWS: None CDFW: None CNPS: 2B.1	Annual herb. Grows in alkaline soils within meadows and seeps, marshes and swamps, riparian forest, and vernal pool habitats. Found at elevations ranging from 16 to 1,427 feet amsl. Blooming period is from May to September.	No	**Not Expected** Suitable habitat is not present within the Survey Areas. The Survey Areas primarily consist of disturbed and developed land.

Table C-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
		SPECIAL-STATUS VEGETATION COMMUNITIES		
CNDDB/Holland (1986) Riversidian Alluvial fan sage scrub **MCV (1995)** Scale broom scrub **NVCS (2009)** *Lepidospartum squamatum* Shrubland Alliance	Global Rank: G3 State Rank: S3	Found at elevations ranging from 164 to 4,921 feet above msl in intermittently or rarely flooded, low-gradient alluvial deposits along streams, washes, and fans. Scalebroom (*Lepidospartum squamatum*) is dominant or co-dominant in the tree canopy with burrobrush (*Ambrosia salsola*), California sage brush (*Artemisia californica*), mulefat (*Baccharis salicifolia*), bladderpod (*Cleome isomeris*), California cholla (*Cylindropuntia californica*), brittlebush (*Encelia farinosa*), thick leaved yerba santa (*Eriodictyon crassifolium*), California buckwheat (*Eriogonum fasciculatum*), chaparral yucca (*Hesperoyucca whipplei*), deerweed (*Acmispon glaber*), laurel sumac (*Malosma laurina*), coastal prickly pear (*Opuntia littoralis*), lemonade berry (*Rhus integrifolia*), sugar bush (*Rhus ovata*), skunk bush (*Rhus trilobata*), and poison oak (*Toxicodendron diversilobum*). Shrubs are less than 6 feet tall; canopy is open to continuous, and two tiered. Herbaceous layer is variable and may be grassy.	No	**Absent** This vegetation community does not occur within the Survey Areas.
CNDDB/Holland (1986) Southern Cottonwood Willow Riparian Forest **MCV (1995)** Fremont Cottonwood Series **NVCS (2009)** *Populus fremontii* Forest Alliance	Global Rank: G4 State Rank: S3	Found at elevations ranging from sea level to 2,400 7,874 feet above msl on floodplains, along low-gradient rivers, perennial or seasonally intermittent streams, springs, in lower canyons in desert mountains, in alluvial fans, and in valleys with a dependable subsurface water supply that varies considerably during the year. Fremont cottonwood (*Populus fremontii*) is a dominant or co-dominant in the tree canopy with box elder (*Acer negundo*), desert baccharis (*Baccharis sergiloides*), Oregon ash (*Fraxinus latifolia*), northern California black walnut (*Juglans hindsii*), California sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), narrowleaf willow (*Salix exigua*), Gooding's willow (*Salix goodingii*), polished willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), pacific willow (*Salix lasiandra* ssp. *lasiandra*), and yellow willow (*Salix lutea*). Trees are less than 82 feet tall; canopy is continuous to open. Shrub layer is intermittent to open. Herbaceous layer is variable.	No	**Absent** This vegetation community does not occur within the Survey Areas.
CNDDB/Holland (1986) Southern Sycamore Alder Riparian Woodland **MCV (1995)** California Sycamore Series **NVCS (2009)** *Platanus racemosa* Woodland Alliance	Global Rank: G3 State Rank: S3	Found at elevations ranging from sea level to 7,874 feet above msl in gullies, intermittent streams, springs, seeps, stream banks, and terraces adjacent to floodplains that are subject to high-intensity flooding. Soils are rocky or cobbly alluvium with permanent moisture at depth. California sycamore is a dominant or co-dominant in the tree canopy with white alder (*Alnus rhombifolia*), southern California black walnut, Fremont cottonwood, coast live oak, valley oak (*Quercus lobata*), narrowleaf willow, Gooding's willow, polished willow, arroyo willow, yellow willow (*Salix lutea*), Peruvian pepper tree (*Schinus mole*), and California bay (*Umbellularia californica*).	No	**Absent** This vegetation community does not occur within the Survey Areas.

* **U.S. Fish and Wildlife Service (USFWS)**

END Endangered – any species which is in danger of extinction throughout all or a significant portion of its range.

THR Threatened – any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

California Department of Fish and Wildlife (CDFW)

END Endangered – any native species or subspecies of bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range du to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.

THR Threatened – any native species or subspecies of bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required under the California Endangered Species Act.

FP Fully Protected – any native species or subspecies of bird, mammal, fish, amphibian, or reptile that were determined by the State of California to be rare or face possible extinction.

SSC Species of Special Concern – any species, subspecies, or distinct population of fish, amphibian, reptile, bird, or mammal native to California that currently satisfies one or more of the following criteria:

- is extirpated from California or, in the case of birds, in its primary seasonal or breeding role;
- is listed as Federally-, but not State-, threatened or endangered; meets the State definition of threatened or endangered but has not formally been listed.
- is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; or
- has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status.

WL Watch List - taxa that were previously designated as “Species of Special Concern” but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

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

1B Plants rare, threatened, or endangered in California and elsewhere.

2B Plants rare, threatened, or endangered in California but more common elsewhere.

4 Plants of limited distribution – Watch List.

Threat Ranks

.1 Seriously threatened in California (over 80% of occurrences threatened/high degree any 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)

Global Conservation Status Rank (Global Rank)

G3 Vulnerable – at moderate risk of extinction due to a restricted range, relatively few populations (often 80 of fewer), recent and widespread declines, or other factors.

G4 Apparently Secure – uncommon but not rare; some cause for long-term concern due to declines or other factors.

State Conservation Status Rank (State Rank)

S3 Vulnerable – vulnerable in the state due to restrictive range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

Appendix C

Cultural Resources Assessment & Tribal Consultation

CVBWD Replacement Pipeline Project

Initial Study/Mitigated Negative Declaration

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CULTURAL RESOURCES ASSESSMENT

Beaumont-Cherry Valley Water District Pipeline Replacement Project

Riverside County, California

Prepared for:

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Claremont, California 91711

Project No. MBI1801

National Archaeological Data Base Information:
Type of Study: Cultural Resources Assessment
Resources Recorded: None
Keywords: Banning
USGS Quadrangle: 7.5-minute *Beaumont, California* (1988)

BCRCONSULTING LLC

September 28, 2018

MANAGEMENT SUMMARY

BCR Consulting LLC (BCR Consulting) is under contract to Michael Baker International to conduct a Cultural Resources Assessment of the Beaumont-Cherry Valley Water District Pipeline Replacement Project (the project; comprising three non-contiguous alignments) in Riverside County, California. The work is being performed pursuant to the California Environmental Quality Act (CEQA). A cultural resources records search, pedestrian field survey, Sacred Lands File search with the Native American Heritage Commission (NAHC), and paleontological map review were conducted for the project.

The records search revealed that 35 cultural resource studies have taken place resulting in the recording of 22 cultural resources within one-mile of the project sites. Of the 14 previous studies, none has assessed the project sites and no cultural resources have been previously identified within any of the three project site boundaries.

During the field survey, BCR Consulting archaeologists did not discover any cultural resources (including prehistoric or historic-period archaeological sites or historic-period buildings) within any of the three project site boundaries. Based on these results, BCR Consulting recommends a finding of no impacts to historical resources under CEQA. BCR Consulting also recommends that no additional cultural resources work or monitoring is necessary during proposed activities associated with the development of the project site. However, if previously undocumented cultural resources are identified during earthmoving activities, a qualified archaeologist should be contacted to assess the nature and significance of the find, diverting construction excavation if necessary.

If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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INTRODUCTION

BCR Consulting LLC (BCR Consulting) is under contract to Michael Baker International to conduct a Cultural Resources Assessment of the Beaumont-Cherry Valley Water District (BCVWD) Pipeline Replacement Project (the project; comprising three non-contiguous alignments) in Riverside County, California. The work is being performed pursuant to the California Environmental Quality Act (CEQA). A cultural resources records search, pedestrian field survey, Sacred Lands File search with the Native American Heritage Commission (NAHC), and paleontological map review were conducted for the project. The project sites include three non-contiguous proposed pipeline alignments, respectively designated Egan Alley, Altura Bella, and Apple Tree. All three project sites are depicted on the United States Geological Survey (USGS) *Beaumont, California* (1988) 7.5-minute topographic quadrangle (Figures 1 and 2). The legal descriptions are provided in Table A.

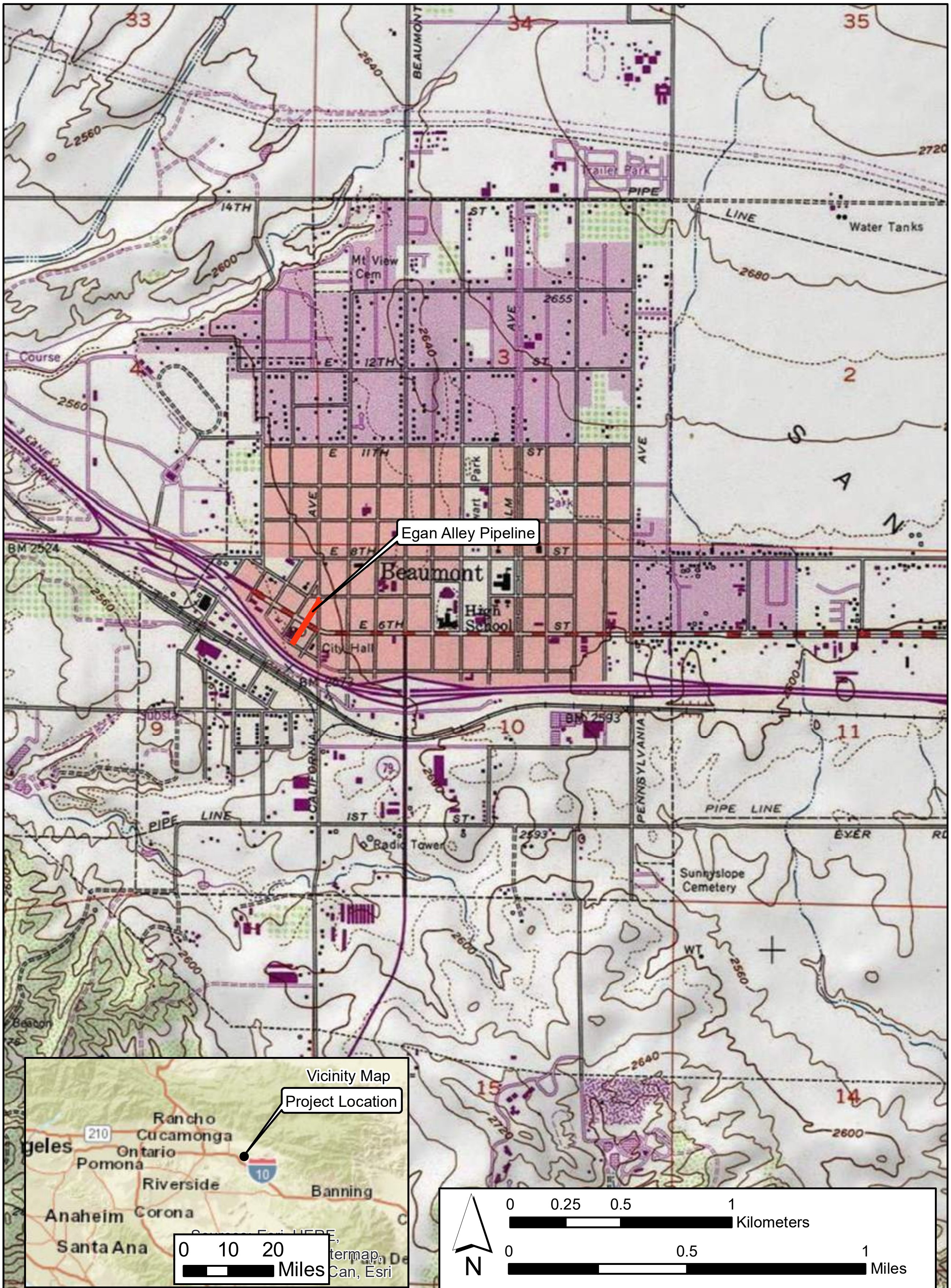
Table A. Project Locations

Pipeline	City/Community	Township	Range	Section
Egan Alley	City of Beaumont	3 South	1 West	9
Altura Bella	Unincorporated Cherry Valley	2 South	1 West	23
Apple Tree	Unincorporated Cherry Valley	2 South	1 West	14/15

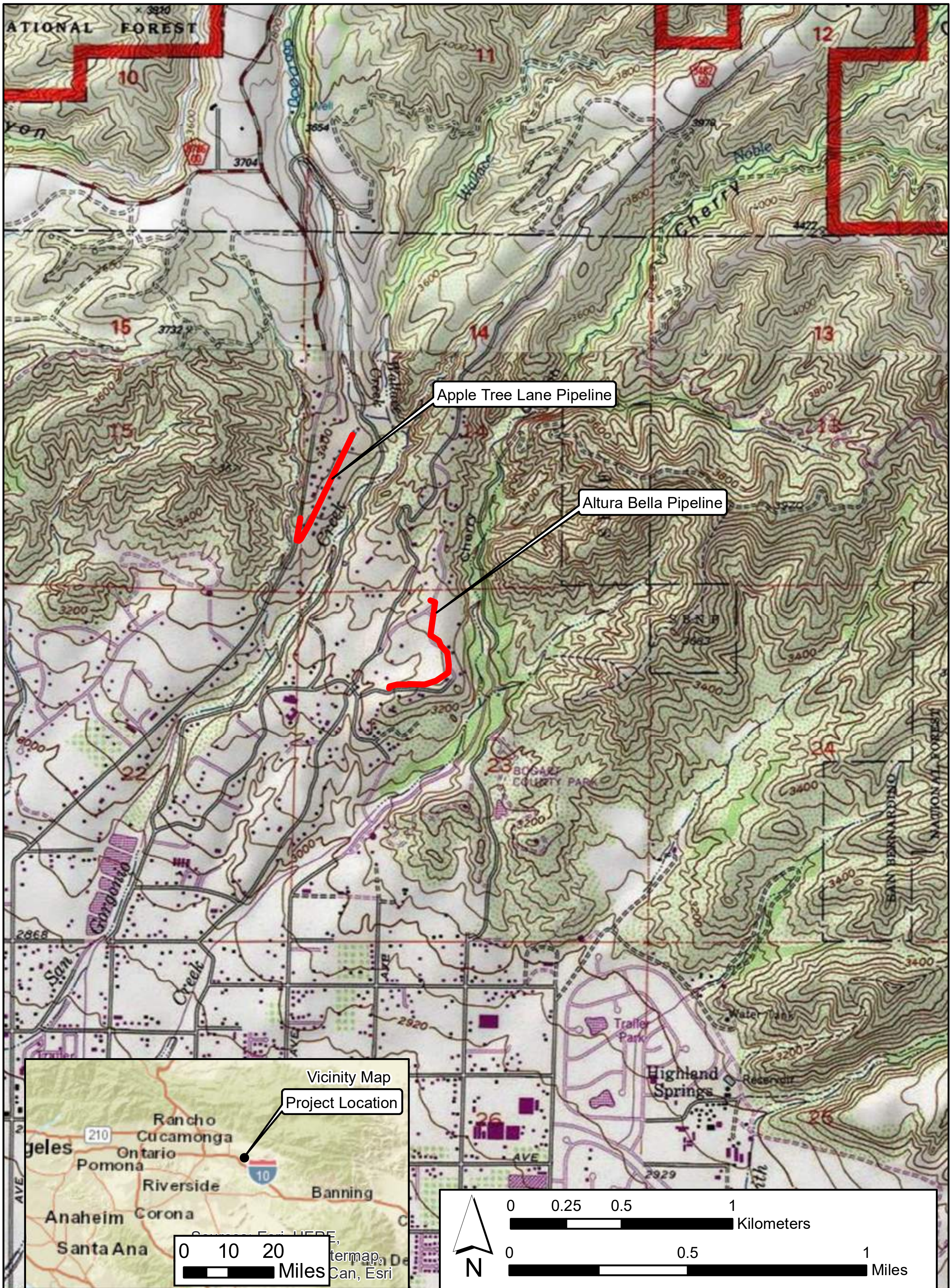
NATURAL SETTING

The elevation of the project sites range from approximately 2580 to 3380 feet above mean sea level (AMSL). Local rainfall averages between 5 and 15 inches annually (Jaeger and Smith 1971:36-37), and snowfall occasionally occurs during the winter. The project site is flat, and the nearest natural water source is an unnamed intermitted drainage that flows from northwest to southeast approximately one half-mile to the west of the project site. The project sites are located in the San Gorgonio Pass between the San Bernardino Mountains of the Transverse Range geologic province to the north, and the San Jacinto Mountains of the Peninsular Range geologic province to the south (see Diblee 1982; Morton 1978a, 1978b, and others). Each of the adjacent mountain ranges are over 11,000 feet AMSL and are composed of Jurassic and Cretaceous granitic rocks, which have intruded and metamorphosed older rocks. Finer local sediments range in age from late Miocene, Pliocene, Pleistocene, and Holocene (Rewis et al. 2006).

Remnants of a coastal sage scrub biotic community remain sporadically in place in the vinicity. Signature plant species include black sage (*Salvia mellifera*), California brittlebush (*Encelia californica*), California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemesia californica*), deerweed (*Lotus scoparius*), golden yarrow (*Eriophyllum confertiflorum*), laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), poison oak (*Toxicodendron diverilobum*), purple sage (*Salvia leucophyla*), sticky monkeyflower (*Mimulus aurantiacus*), sugar bush (*Rhus ovate*), toyon (*Heteromeles arbutifolia*), white sage (*Salvia apiana*), coastal century plant (*Agave shawii*), coastal cholla (*Opuntia prolifera*), Laguna Beach liveforever (*Dudleya stolonifera*), many-stemmed liveforever (*Dudleya multicaulis*), our Lord’s candle (*Yucca whipplei*), prickly pear cactus (*Opuntia sp.*) (Williams et al. 2008:118-119). Signature animal species within Coastal Sage Scrub habitat include the kangaroo rat (*Dipodomys sp.*), California horned lizard (*Phrynosoma coronatum frontale*), and orange throated whiptail (*Cnemidophorus hyperthrus*).



BCRCONSULTING LLC	Project Location Site BCVW Pipeline Project Reference: ESRI; USGS Quad: Beaumont, California (1988)	Figure 1	Michael Baker International



BCRCONSULTING LLC

Project Location Site
BCVW Pipeline Project

Figure 2

Michael Baker International

Reference: ESRI; USGS Quad: Beaumont, California (1988)

CULTURAL SETTING

Prehistory

Various regional syntheses have been utilized in the archaeological literature for southern California. The following framework derives information from local studies to provide a useful overview for the project site.

Paleoindian (12,000 to 10,000 BP) and Lake Mojave (10,000 to 7,000 BP) Periods. Climatic warming characterizes the transition from the Paleoindian Period to the Lake Mojave Period. This transition also marks the end of Pleistocene Epoch and ushers in the Holocene. The Paleoindian Period has been loosely defined by isolated fluted (such as Clovis) projectile points, dated by their association with similar artifacts discovered in-situ in the Great Plains (Sutton 1996:227-228). Some fluted bifaces have been associated with fossil remains of Rancholabrean mammals approximately dated to ca. 13,300-10,800 BP near China Lake in the Mojave Desert. The Lake Mojave Period has been associated with cultural adaptations to moist conditions, and resource allocation pointing to more lacustrine environments than previously (Bedwell 1973). Artifacts that characterize this period include stemmed points, flake and core scrapers, choppers, hammerstones, and crescentics (Warren and Crabtree 1986:184). Projectile points associated with the period include the Silver Lake and Lake Mojave styles. Lake Mojave sites commonly occur on shorelines of Pleistocene lakes and streams, where geological surfaces of that epoch have been identified (Basgall and Hall 1994:69).

Pinto Period (7,000 to 4,000 BP). The Pinto Period has been largely characterized by desiccation of southern California. As formerly rich lacustrine environments began to disappear, the artifact record reveals more sporadic occupation of the drier regions, indicating occupants' recession into the cooler fringes (Warren 1984). Pinto Period sites are rare, and are characterized by surface manifestations that usually lack significant in-situ remains. Artifacts from this era include Pinto projectile points and a flake industry similar to the Lake Mojave tool complex (Warren 1984), though use of Pinto projectile points as an index artifact for the era has been disputed (see Schroth 1994). Milling stones have also occasionally been associated with sites of this period (Warren 1984).

Gypsum Period. (4,000 to 1,500 BP). A temporary return to moister conditions during the Gypsum Period is postulated to have encouraged technological diversification afforded by the relative abundance of available resources (Warren 1984:419-420; Warren and Crabtree 1986:189). Lacustrine environments reappear and begin to be exploited during this era (Shutler 1961, 1968). Concurrently a more diverse artifact assemblage reflects intensified reliance on plant resources. The new artifacts include milling stones, mortars, pestles, and a proliferation of Humboldt Concave Base, Gypsum Cave, Elko Eared, and Elko Corner-notched dart points (Warren 1984; Warren and Crabtree 1986). Other artifacts include leaf-shaped projectile points, rectangular-based knives, drills, large scraper planes, choppers, hammer stones, shaft straighteners, incised stone pendants, and drilled slate tubes. The bow and arrow appears around 2,000 BP, evidenced by the presence of a smaller type of projectile point, the Rose Spring point (Rogers 1939; Schroeder 1953, 1961; Shutler 1961; Yohe 1992).

Saratoga Springs Period (1,500 to 800 BP). During the Saratoga Springs Period regional cultural diversifications of Gypsum Period developments are evident. Influences from Patayan/Yuman assemblages are apparent in the southern inland areas, and include buff and brown wares often associated with Cottonwood and Desert Side-notched projectile points (Warren 1984:423). Obsidian becomes more commonly used throughout southern California and characteristic artifacts of the period include milling stones, mortars, pestles, ceramics, and ornamental and ritual objects. Large villages evidence more structured settlement patterns, and three types of identifiable archaeological sites (major habitation, temporary camps, and processing stations) emerge (McGuire and Hall 1988). Diversity of resource exploitation continues to expand, indicating a much more generalized, somewhat less mobile subsistence strategy.

Shoshonean Period (800 BP to Contact). The Shoshonean period is the first to benefit from contact-era ethnography –and is subject to its inherent biases. Interviews of living informants allowed anthropologists to match artifact assemblages and particular traditions with linguistic groups, and plot them geographically (see Kroeber 1925; Gifford 1918). During the Shoshonean Period, continued diversification of site assemblages and reduced Anasazi and Yuman influence both coincide with the expansion of Numic (Uto-Aztecan language family) speakers across the Great Basin, Takic (also Uto-Aztecan) speakers into southern California, and the Hopi across the Southwest (Sutton 1996). Hunting and gathering continued to diversify, and the diagnostic arrow points include desert side-notch and cottonwood triangular, which have been locally recorded. Ceramics continue to proliferate, though are more common in the desert during this period (Warren and Crabtree 1986). Trade routes have become well established between coastal and inland groups during this period.

Ethnography

The project site is situated in an area occupied by the Cahuilla. The Cahuilla were semi-nomadic hunter-gatherers who spoke a Cupan variation of the Takic language subfamily. An ethnographic summary is provided below.

Cahuilla. Spanish missionaries first encountered the Cahuilla in the late 18th century. Early written accounts of the Cahuilla are attributed to mission fathers; later documentation was by Strong (1972), Bright (1998), and others. The territory of the Cahuilla ranges from the area near the Salton Sea up into the San Bernardino Mountains and San Gorgonio Pass (Bean and Smith 1978; Kroeber 1925). The Cahuilla are generally divided into three groups: Desert Cahuilla, Mountain Cahuilla, and Western (or Pass) Cahuilla (Kroeber 1925). The term Western Cahuilla is preferred over Pass Cahuilla because this group is not confined to the San Gorgonio Pass area (Bean and Smith 1978). The distinctions are believed to be primarily geographic, although linguistic and cultural differences may have existed to varying degrees (Strong 1972). Cahuilla territory lies within the geographic center of Southern California and the Cocopa-Maricopa Trail, a major prehistoric trade route, ran through it. The Cahuilla share a common tradition with Gabrielino, Serrano, and Luiseño, with whom they shared tribal boundaries to the west, north, and southwest respectively (Bean and Smith 1978:575). The Cahuilla situated their villages in close proximity to reliable water sources. Subsistence was based on a combination of hunting, gathering, and a sort of proto-agriculture that produced corn, beans, squash, and melons. The diverse habitat of the

Cahuilla allowed significant yields of their most important staples, which included acorns from six varieties of oak, piñon nuts, screw bean mesquite, and various cacti (Bean and Smith 1978:578; see also Lightfoot and Parrish 2009).

History

In southern California, the historic era is generally divided into three periods: the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present). These periods are each represented in the history of the San Gorgonio pass, summarized below.

The San Gorgonio Pass. The project sites are located in the San Gorgonio Pass. The San Gorgonio Pass has always been a vital connection between southern California's desert and the less arid interior and coast. Originally a Native American trade route, the pass was eventually occupied by Spanish ranchers living on the eastern frontier of lands administered by Mission San Gabriel. The region also served as a base from which Native Americans and Spaniards annually formed cooperative caravans from the mission via the pass to the "Salton Sea flat to gather enough of the almost pure salt to sustain the missions and pueblo of Los Angeles for another year" (Lech 2004:14). During the Mexican Period, Rancho San Jacinto y San Gorgonio dominated the local economy. It was granted to Santiago Johnson in 1843 and sold to Louis Rubidoux in 1844 (Gunther 1984:471). The American Period saw the breakup of most of the huge Mexican-era ranchos and San Jacinto y San Gorgonio was no exception. The San Gorgonio Pass remained an important travel corridor during the early American Period. Freight wagons and the Pony Express regularly crossed the pass before Wells Fargo surveyed and constructed an official stage line in 1862, and the Bradshaw Road was opened in 1863 (Robinson 2001:106-107). Eventually five separate wagon routes were in regular operation through the pass, although the arrival of the Southern Pacific Railroad in 1877 signaled the end of the stagecoach era (Eyer 1974). While most of the large Mexican ranchos were gone by the mid to late 19th century, the ranching tradition persisted, and to some extent remains locally viable. Banning was founded in 1884. It was named for Phineas Banning who ran a regular stage line between Los Angeles and San Pedro with his brother alexander in the 1850s. Banning was a principal promoter of transportation infrastructure and is considered one of the "grand old men" of Los Angeles (Gudde 1962:24). Although the City of Banning retains a relatively rural character, low housing costs resulted in accelerated residential developments in the early 2000s and the communities of the San Gorgonio Pass have experienced the fastest population growth in Riverside County during this era (Woolsey 2007).

PERSONNEL

David Brunzell, M.A., RPA acted as the Project Manager and Principal Investigator for the current study, and compiled the technical report. BCR Consulting Archaeological Crew Chief Joseph Orozco, M.A., ABD performed the cultural resources records search at the Eastern Information Center (EIC) located at the University of California, Riverside. Mr. Orozco also completed the field survey.

METHODS

Research

Prior to fieldwork, a cultural resources records search was conducted at the EIC. This included a review of all recorded historic and prehistoric cultural resources, as well as a review of known cultural resources, and survey and excavation reports generated from projects located within one mile of the project sites. In addition, a review was conducted of the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), and documents and inventories from the California Office of Historic Preservation including the lists of California Historical Landmarks, California Points of Historical Interest, Listing of National Register Properties, and the Inventory of Historic Structures.

Field Survey

An archaeological pedestrian field survey of all three project sites was conducted on July 31, 2018. The survey was conducted by walking parallel transects spaced approximately 15 meters apart across 100 percent of the proposed project alignments. Soil exposures, including natural and artificial clearings were carefully inspected for evidence of cultural resources.

RESULTS

Research

Data from the EIC revealed that 35 cultural resource studies have taken place resulting in the recording of 22 cultural resources within one-mile of the project sites. Of the 14 previous studies, none has assessed the project sites and no cultural resources have been previously recorded within any of the three project site boundaries. The records search is summarized as follows:

Table B. Cultural Resources and Reports Located Within One Mile of the Project Site

USGS Quad and Project Pipeline	Cultural Resource	Cultural Resource Reports
Beaumont (1988), California; Egan Alley Pipeline (Figure 1)	P-33-1790: prehistoric isolated groundstone (1 mile W) P-33-3445H: historic-period railroad station (1/4 mile SE) P-33-4715: historic-period stage road (1 mile S) P-33-6093: historic-period residence (1/4 mile SW) P-33-6167: historic-period residence (1/2 mile SW) P-33-6170: historic-period residence (1/4 mile E) P-33-6191: historic-period orange juice stand (1/2 mile SE) P-33-6196: historic-period church (1/4 mile SW) P-33-6200: historic-period residence (1/2 mile E) P-33-6201: historic-period residence (1/2 mile E) P-33-6215: historic-period building (1/4 mile E) P-33-6228: historic-period ranch (1/2 mile NW) P-33-6381H: historic-period railroad (3/4 mile NW) P-33-7869: historic-period building (1/4 mile NE) P-33-10642: historic-period road segment (3/4 mile SE) P-33-10645: historic-period railroad segment (1/2 mile SE) P-33-12816: prehistoric iso. groundstone (3/4 mile SW) P-33-22386: historic-period building (3/4 mile SE)	RI-1469, 2350, 2355, 2377, 2917, 2918, 3977, 4164, 4421, 7288, 7869, 7970, 8011, 8664, 8977, 9006, 9167, 9183, 9309, 9616, 9984, 10112, 17969

USGS Quad and Project Pipeline	Cultural Resource	Cultural Resource Reports
	P-33-23484: historic-period transmission line (1/2 mile S)	
Beaumont (1988), Calif; Apple Tree Ln. and Altura Bella Pipelines (Fig 2)	P-33-272: prehistoric bedrock mortars/slick (3/4 mile SW) P-33-1550: prehistoric bedrock milling station (1/8 mile NE) P-33-4544: prehistoric ceramic scatter (1/4 mile SE)	RI-39, 301, 341, 970, 2717, 2860, 2891, 3521, 7054, 7712, 7869, 8313, 8461

Field Survey

During the field survey, BCR Consulting personnel carefully inspected the three project sites, and identified no cultural resources within or near any of the proposed impact areas. Surface visibility was approximately 70 percent at the proposed Apple Tree Lane and Altura Bella Pipelines, and zero percent at the proposed Egan Alley Pipeline due to paving. Vegetation included seasonal grasses and non-native trees and shrubs at the Apple Tree Lane and Altura Bella Pipelines. There was no vegetation at the Egan Alley Pipeline project site. Visible sediments (only observed at the Apple Tree Lane and Altura Bella sites) included sandy silts mixed with granitic cobbles and gravels. No cultural resources (including prehistoric or historic-period archaeological sites or historic-period buildings) were identified during the field survey. All three project sites had been subject to severe disturbances related to excavation for road paving and utility installation.

RECOMMENDATIONS

The records search and field survey did not identify any cultural resources (including prehistoric or historic archaeological sites or historic-period buildings) within any of the three project sites. Furthermore, research results combined with surface conditions have failed to indicate sensitivity for buried cultural resources. Therefore, no significant impacts related to archaeological or historical resources is anticipated and no further investigations are recommended for the three project sites unless:

- the proposed project is changed to include areas not subject to this study;
- the proposed project is changed to include the construction of additional facilities;
- cultural materials are encountered during project activities.

Although the current study has not indicated sensitivity for cultural resources within any of the three the project site boundaries, ground disturbing activities always have the potential to reveal buried deposits not observed on the surface during previous surveys. Prior to the initiation of ground-disturbing activities, field personnel should be alerted to the possibility of buried prehistoric or historic cultural deposits. In the event that field personnel encounter buried cultural materials, work in the immediate vicinity of the find should cease and a qualified archaeologist should be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation as necessary. If the qualified archaeologist finds that any cultural resources present meet eligibility requirements for listing on the California Register or the National Register, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed. Prehistoric or historic cultural materials that may be encountered during ground-disturbing activities include:

- historic artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;
- historic structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- groundstone artifacts, including mortars, pestles, and grinding slabs;
- dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks.

If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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APPENDIX A

PROJECT PHOTOGRAPHS

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Photo 1: Egan Alley Project Site (N)


Photo 2: Egan Alley Project Site (S)

Photo 3: Altura Bella Project Site (SE)

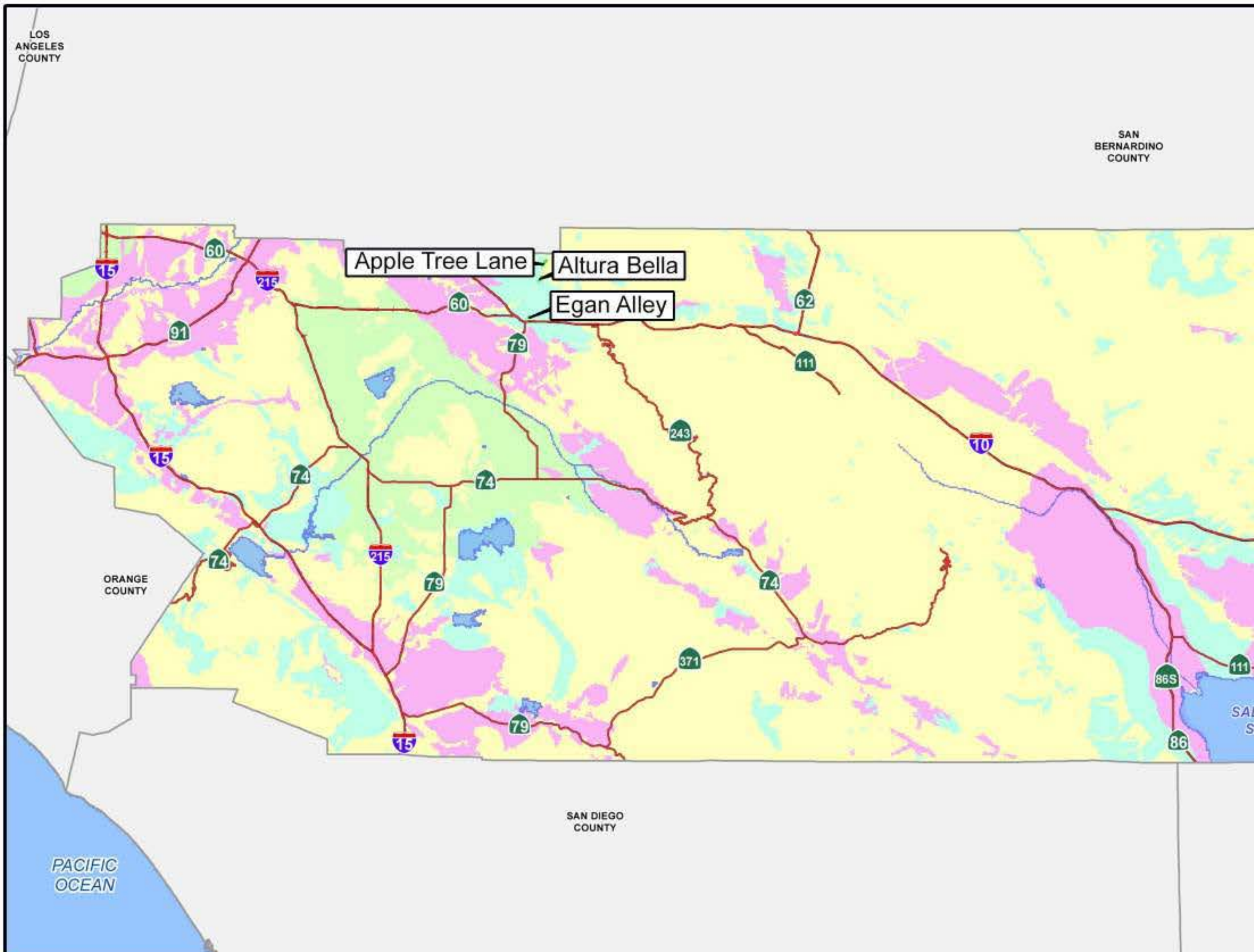
Photo 4: Altura Bella Project Site (S)

Photo 5: Apple Tree Lane Project Site (S)

Photo 6: Apple Tree Lane Project Site (North)

APPENDIX B

PALEONTOLOGICAL SENSITIVITY MAP



PALEONTOLOGICAL SENSITIVITY

- High A (Ha)
- High B (Hb)
- Low
- Undetermined
- Highways
- Waterbodies

0 10 20 Miles

Disclaimer: Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

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APPENDIX C

NAHC SACRED LANDS FILE SEARCH

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NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
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July 25, 2018

Joseph Orozco

BCR Consulting

Sent by Email: josephorozco513@gmail.com

Re: BCVW Pipeline Project, Riverside County

Dear Mr. Orozco,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not preclude the presence of cultural resources in any project area. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native Americans tribes who may have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at 916-573-1033 or frank.lienert@nahc.ca.gov.

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

Native American Heritage Commission
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July 25, 2018

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This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed
BCVW Pipeline Project, Riverside County

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July 25, 2018

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BCVW Pipeline Project, Riverside County

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July 25, 2018

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This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed
BCVW Pipeline Project, Riverside County

Appendix D

Geotechnical Investigation

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Converse Consultants
Geotechnical Engineering
Environmental & Groundwater Science
Inspection & Testing Services

GEOTECHNICAL INVESTIGATION REPORT

WATER PIPELINE REPLACEMENT PROJECTS

BEAUMONT-CHERRY VALLEY WATER DISTRICT

COMMUNITY OF CHERRY VALLEY/CITY OF BEAUMONT, RIVERSIDE COUNTY, CALIFORNIA

CONVERSE PROJECT NO. 17-81-257-01

Prepared For:

MICHAEL BAKER INTERNATIONAL
40810 County Center Drive, Suite 200
Temecula, CA 92591

Presented By:

CONVERSE CONSULTANTS
2021 Rancho Drive, Suite 1
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June 25, 2019

Converse Consultants
Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

June 25, 2019

Mr. Michael Boeck, PE, CCT
Department Manager - Water
Michael Baker International
40810 Couty Center Drive, Suite 200
Temecula, CA 92591

Subject: **GEOTECHNICAL INVESTIGATION REPORT**
Water Pipeline Replacement Projects
Beaumont-Cherry Valley Water District (BCVWD)
Community of Cherry Valley/City of Beaumont, Riverside County, California
Converse Project No. 17-81-257-01

Dear Mr. Boeck:

Converse Consultants (Converse) is pleased to submit this geotechnical investigation report to assist with the design and construction of the BCVWD's Water Pipeline Replacement Projects, located in the Community of Cherry Valley/City of Beaumont, Riverside County, California. This report was prepared in accordance with our proposal dated August 31, 2017, and your Subconsultant Agreement dated March 23, 2018.

Based upon our field investigation, laboratory data, and analyses, the proposed projects are considered feasible from a geotechnical standpoint, provided the recommendations presented in this report are incorporated into the design and construction of the projects.

We appreciate the opportunity to be of service to the Michael Baker International and BCVWD. Should you have any questions, please do not hesitate to contact us at 909-796-0566.

CONVERSE CONSULTANTS

Hashmi Quazi, PhD, GE, PE
Principal Engineer

Dist: 3/Addressee
HSQ/JB/ZA/kvg

2021 Rancho Drive, Suite 1, Redlands CA 92373
Telephone: (909) 796-0566 ♦ Facsimile: (909) 796-7675 ♦ www.converseconsultants.com

PROFESSIONAL CERTIFICATION

This report has been prepared by the individuals whose seals and signatures appear herein.

The findings, recommendations, specifications, or professional opinions contained in this report were prepared in accordance with generally accepted professional engineering, engineering geologic principles, and practice in this area of Southern California. There is no warranty, either expressed or implied.

PROFESSIONAL GEOLOGIST
James Burnham
9621
STATE OF CALIFORNIA

Zahangir Alam, PhD, EIT
Senior Staff Engineer

James Burnham, PG
Senior Geologist

REGISTERED PROFESSIONAL ENGINEER
HASHMI S. E. QUAZI
NO. GE 2517
Exp. 06/2021
GEOTECHNICAL
STATE OF CALIFORNIA

Hashmi S. E. Quazi, PhD, PE, GE
Principal Engineer

EXECUTIVE SUMMARY

The following is a summary of our geotechnical investigation, conclusions, and recommendations, as presented in the body of this report. Please refer to the appropriate sections of the report for complete conclusions and recommendations. In the event of a conflict between this summary and the report, or an omission in the summary, the report shall prevail.

- The BCVWD's Water Pipeline Replacement Projects (Pipeline 1, 2 and 3) are located in the Community of Cherry Valley/City of Beaumont, Riverside County, California. The replacement alignment for Pipelines 1 and 2 are located along several streets and private properties. The streets are typically one lane or undivided rural roads with limited traffic and minor to moderate overhead utility and trees. The replacement alignment for Pipeline 3 is located along an undivided street with minor traffic and within an alleyway.

- Approximately 2,209 linear feet of 8-inch diameter cement-mortar lined ductile iron pipe (Pipeline 1) will replace an aging 6-inch diameter, high pressure pipeline in an easement adjacent to Noble Creek Canyon from Avenida Altejo Bella to Whispering Pines Road. Approximately 2,467 linear feet of 8-inch diameter cement-mortar lined ductile iron pipe (Pipeline 2) will replace an aging 4-inch diameter steel pipeline from the northerly end of Apple Tree Lane south to Oak Glen Road. Approximately 753 linear feet of 8-inch diameter cement-mortar lined ductile iron pipe (Pipeline 3) will replace a 4-inch diameter pipeline in the alley east of Egan Avenue, between California Avenue and Fifth Street. The invert depth of pipes will be within 5 feet below existing ground surface (bgs). We understand the pipes will be installed using open cut-and-cover technique.

- Our scope of work included project set-up, subsurface exploration, laboratory testing, engineering analysis, and preparation of this report.

- Two exploratory borings (BH-01 and BH-02) along pipeline 3, three exploratory borings (BH-03 through BH-05) along pipeline 1 and three exploratory borings (BH-06 through BH-08) along pipeline 2 were drilled on May 23 and 24, 2019 to investigate the subsurface conditions. Due to close proximity of existing underground utilities, a 4-inch diameter hand auger was used to drill the upper 5 feet of all borings except borings BH-04 and BH-08. The borings were drilled to the planned maximum depths of 16.0 and 16.5 feet below the existing ground surface (bgs) except BH-06 which was terminated at a depth of 2.5 feet bgs due to conflict with unknown existing underground utilities.

- Where encountered, the measured asphalt concrete thickness was 4 inches with no aggregate base.

- Based on the exploratory borings and laboratory test results, the subsurface materials along the proposed pipeline alignments consist of a mixture of sand, silt, clay and gravel. Gravel up to 2 inches in largest dimension was observed in all borings except boring BH-05.

- Bedrock was encountered in boring BH-08 (pipeline 2) at approximately 10 feet bgs. Based on field observations and review of existing geologic maps in the area, the bedrock consists of gneiss, a metamorphic bedrock unit. The bedrock unit excavates as a mixture of sand, silt and gravel with a light grayish brown color.

- Groundwater was not encountered during this current investigation to the maximum explored depth of 16.5 feet bgs. It should be noted that the groundwater level could vary depending upon the seasonal precipitation and possible groundwater pumping activity within the alignment vicinity. Shallow perched groundwater may be present locally, particularly following precipitation.

- The proposed pipeline alignments are not located within a currently designated State of California or Riverside County Earthquake Fault Zone (CGS, 1995; Riverside County, 2019). There are no known active faults projecting toward or extending across the proposed alignments. The potential for surface rupture resulting from the movement of nearby major faults is not known with certainty but is considered low.

- The potential impact to the projects from surface fault rupture, liquefaction, landsliding, lateral spreading, tsunamis, and earthquake-induced flooding is considered to be low.

- The laboratory test results indicated expansion index (EI) of 25 and 46, corresponding to low expansion potential. The measured sand equivalents (SE) were 9, 10 and 28. Typically, soils with sand equivalent value of 30 or more are used as pipe bedding material. The collapse potential of the tested soils was 0.3 and 0.4 percent, indicating slight collapse potential. The R-values of the tested soil were 21 and 30.

- The sulfate contents of the sampled soils correspond to American Concrete Institute (ACI) exposure category S0 for these sulfate concentrations. No concrete type restrictions are specified for exposure category S0. A minimum compressive strength of 2,500 psi is recommended. The chloride contents of the sampled soils correspond to American Concrete Institute (ACI) exposure category C1 (concrete is exposed to moisture, but not to external sources of chlorides). For exposure category C1, ACI provides concrete compressive strength of at least 2,500 psi and a maximum chloride content of 0.3 percent.

- The minimum electrical resistivities when saturated were 1,419, 6,518 and 7,021 ohm-cm for pipeline 3, 1 and 2, respectively. These values indicate that the tested soils along the alignments (Pipeline 1 and 2) are moderately corrosive and along the alignment (pipeline 3) are corrosive to ferrous metals in contact with the soil.

- According to the Caltrans Corrosion Guidelines (Caltrans, 2018), soils are considered corrosive if the pH is 5.5 or less, or chloride content is 500 parts per million (ppm) or greater, or sulfate content is 1,500 ppm or greater, or resistivity less than 2,000 ohm-cm. Based on the tested results, the soils for pipeline 1 and 2 are not considered corrosive and pipeline 3 is considered corrosive. <u>Converse does not practice in the area of corrosion consulting. A qualified corrosion consultant should provide appropriate corrosion mitigation measures for any ferrous metals in contact with the alignment soils.</u>

- Prior to the start of construction, all existing underground utilities and appurtenances should be located within the pipeline alignments. Such utilities should either be protected in-place or removed and replaced during construction as required by the project specifications. All excavations should be conducted in such a manner as not to cause loss of bearing and/or lateral support of existing structures or utilities.

- The subsurface materials along the pipeline alignments are expected to be excavatable by conventional heavy-duty earth moving and trenching equipment. <u>Difficult excavation will occur if concentrations of gravel or larger rocks are encountered along pipeline 1 and 3. Excavation will be difficult along pipeline 2 due to the presence of decomposed granite, if excavation depth encounters decomposed granite.</u>

- Earthwork for each project includes pipe trench excavation, pipe subgrade preparation, and backfilling of the trench following the placement of the pipe. Excavated soils free of particles larger than 3 inches and deleterious matter may be used for backfilling. The backfill materials should be brought to within $\pm$ 3 percent of optimum moisture content for coarse-grained soil and between optimum and 2 percent above optimum for fine-grained soil. All backfill should be compacted to at least 90 percent and the upper 12 inches of subgrade soils underneath pavements intended to support vehicle loads should be scarified, moisture conditioned, and compacted to at least 95 percent of the laboratory maximum dry density. Details are presented in the text of the report.

- Allowable net bearing capacities, lateral earth pressures, and pipeline design parameters are presented in the text of this report.

- Pavement design recommendations are presented in the Section 9.6 *Asphalt Concrete Pavement* of this report.

- Slope ratios for temporary excavations and shoring recommendations are also provided in the text of this report.

Based on our investigation, it is our professional opinion that the proposed alignments are suitable for construction of the proposed pipelines, provided the findings and conclusions presented in this geotechnical investigation report are considered in the planning, design and construction of the projects.

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APPENDICES

Appendix A .... Field Exploration
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1.0 INTRODUCTION

This report contains the findings of the geotechnical investigation performed by Converse for the BCVWD's Water Pipeline Replacement Projects, located in the Community of Cherry Valley/City of Beaumont, Riverside County, California. The approximate location the proposed projects are shown in Figure No. 1, *Approximate Project Locations Map.*

The purpose of this investigation was to evaluate the nature and engineering properties of the subsurface soils and groundwater conditions, and to provide geotechnical recommendations for the design and construction of the proposed projects.

This report was prepared for the projects described herein and is intended for use solely by the Michael Baker International, BCVWD and their authorized agents. This report may be made available to the prospective bidders for bidding purposes. However, the bidders are responsible for their own interpretation of the pipeline alignment conditions between and beyond the boring locations, based on factual data contained in this report. This report may not contain sufficient information for use by others and/or other purposes.

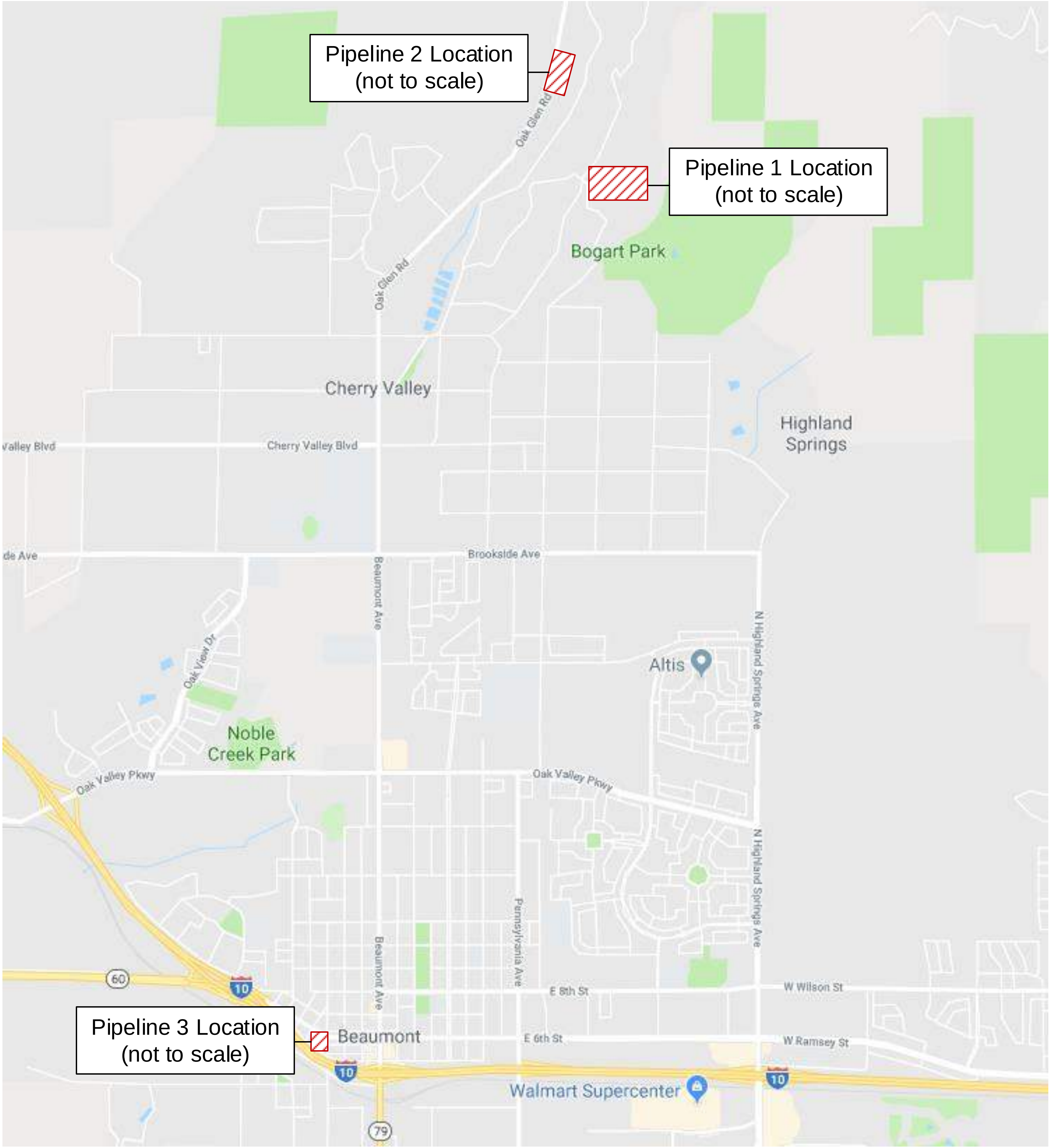
2.0 PROJECT DESCRIPTION

Three pipeline replacement projects are described below.

Pipeline 1 (P#1) – Altura Bella: This alignment will include replacing an aging 6-inch diameter, high pressure pipeline in an easement adjacent to Noble Creek Canyon from Avenida Altejo Bella to Whispering Pines Road. A new 8-inch diameter cement mortar lined ductile iron pipe will be constructed paralleling the existing pipeline, along the edge of Noble Creek Canyon from Whispering Pines Road to Avenida Altura Bella and continuation in Avenida Altura Bella to the vicinity of the intersection of Avenida Altura Bella and Avenida Miravilla. The pipeline along the edge of Noble Creek Canyon will be abandoned and the service lines reconnected to the new pipeline.

Pipeline 2 (P#2) - Apple Tree Lane: This will include replacing an aging 4-inch diameter steel pipeline from the northerly end of Apple Tree Lane south to Oak Glen Road. A new 8-inch diameter cement mortar lined ductile iron pipe will be constructed in Oak Glen Road approximately 360 feet northerly to tie into an existing 6-inch diameter pipeline in Oak Glen Road. The existing pipeline in Apple Tree Lane will be abandoned and new service lines will be installed and reconnected to the new pipeline.

Pipeline 3 (P#3) - Egan Avenue: This will include replacing a 4-inch diameter pipeline in the alley east of Egan Avenue, between California Avenue and Fifth Street. A new 8-inch diameter cement mortar lined ductile iron pipe will be constructed. Tie-ins to an existing 8-inch pipeline in California Avenue and to an existing 10-inch pipeline in West Fifth Street.



Approximate Project Locations Map

Project: Water Pipeline Replacement Projects
Location: Community of Cherry Valley/City of Beaumont, Riverside County, California

Project No
17-81-257-01

For: Michael Baker International

Converse Consultants

FIGURE NO.
1

The overall projects are summarized in the table below.

Table No. 1, Details of Projects

Pipeline	Approximate Length (ft.)	Pipe Type	Diameter (inches)
Pipeline 1	2,209	Cement Mortar Lined Ductile Iron Pipe	8
	205		4
Pipeline 2	2,467		8
Pipeline 3	753		

The invert depth of pipes will be within 5 feet below existing ground surface (bgs) except the pipe with 4-inch diameter, it will have invert depth within 7 feet bgs. We understand the pipes will be installed using open cut-and-cover technique.

3.0 SCOPE OF WORK

The scope of Converse's investigation is described in the following sections.

3.1 Document Review

We reviewed geologic maps, aerial photographs, groundwater data, and other information pertaining to the projects area to assist in the evaluation of geologic hazards that may be present. Besides, pertinent information (the documents cited in Section 13, *References*) were used to understand the subsurface conditions and plan the investigation for these pipelines.

3.2 Project Set-up

The projects set-up consisted of the following tasks.

- Conducted a field reconnaissance to map the existing site condition, such as exposed boulders, bedrock, slopes, and drainage pattern.
- Staked/marked the boring locations such that drill rig access to all locations are available.
- Notified Underground Service Alert (USA) at least 48 hours prior to drilling to clear the boring locations of any conflict with existing underground utilities.
- Engaged a California-licensed driller to drill exploratory borings.

3.3 Subsurface Exploration

Eight exploratory borings (BH-01 through BH-08) were drilled along the proposed pipeline alignments on May 23 and 24, 2019 to investigate the subsurface conditions. The borings details are presented in the following table.

Table No. 2, Details of Borings

Boring No.	Pipeline	Street/Location	Depth (feet)
BH-01	Pipeline 3	Egan Alley/7th St.	16.5
BH-02		Egan Alley/6th St.	16.5
BH-03	Pipeline 1	Private Property	16.0
BH-04			16.5
BH-05		Ave Altejo Bella	16.5
*BH-06	Pipeline 2	Oak Glen Rd.	2.5
BH-07		Apple Tree Lane	16.5
BH-08		Apple Tree Lane	16.5

(*Boring terminated due to conflict with unknown existing underground utilities)

The approximate locations of the borings are shown on Figures No. 2a through 2f, *Approximate Boring Location Map*. A detailed discussion of the subsurface exploration is presented in Appendix A, *Field Exploration*.

3.4 Laboratory Testing

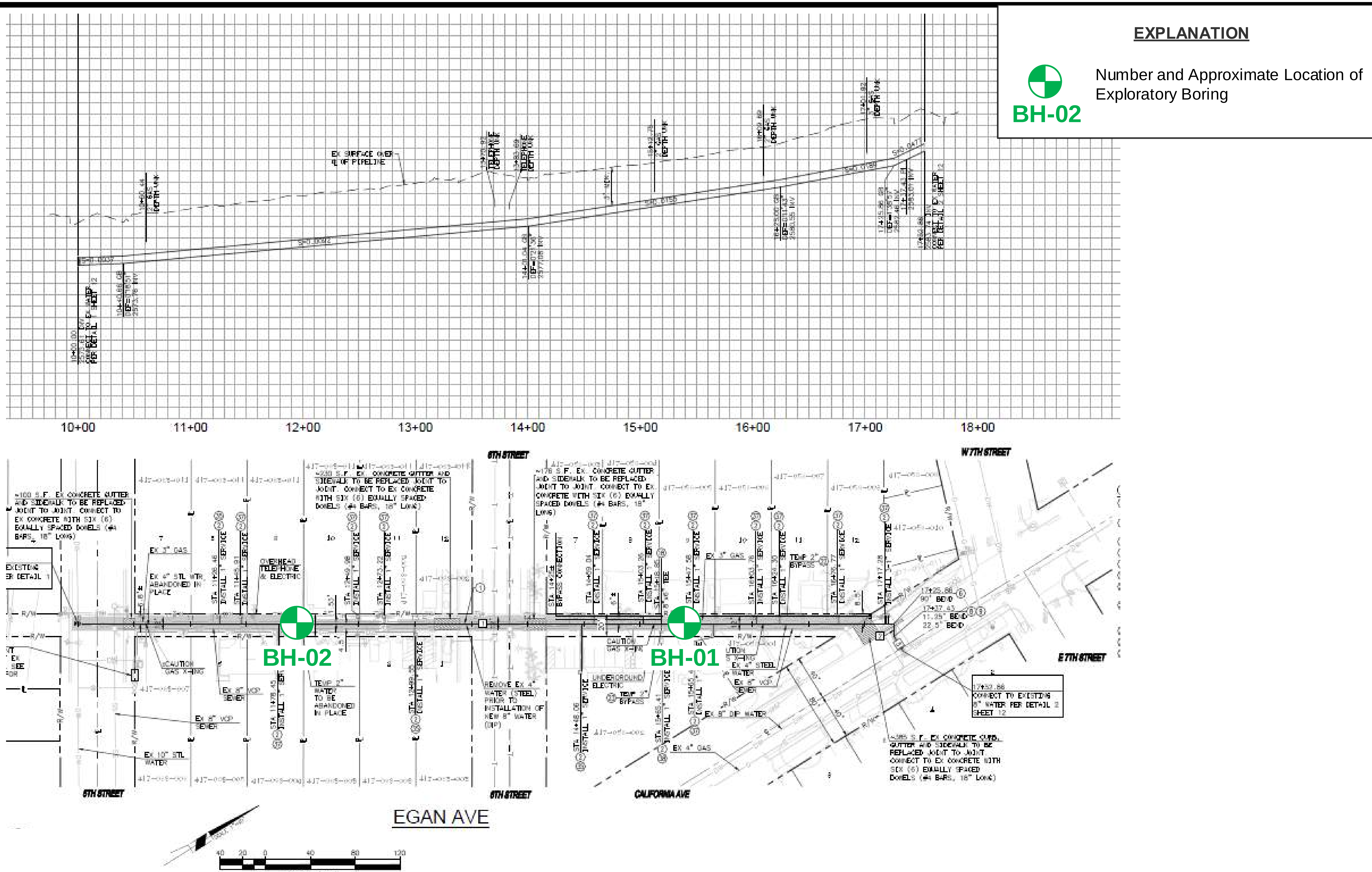
Representative soil samples from the borings drilled along the proposed pipeline alignments were tested in the laboratory to aid in the soils classification and to evaluate the relevant engineering properties. These tests included the following.

- In-situ moisture contents and dry densities (ASTM D2216 and ASTM D7263)
- Expansion index (ASTM D4829)
- Sand equivalent (ASTM D2419)
- R-value (California Test 301)
- Soil corrosivity (California Tests 663, 622, and 617)
- Collapse Potential (ASTM D4546)
- Grain size analysis (ASTM D6913)
- Maximum dry density and optimum-moisture content (ASTM D1557)
- Direct shear (ASTM D3080)

For *in-situ* moisture and dry density data, see the logs of borings in Appendix A, *Field Exploration*. For a description of the laboratory test methods and test results, see Appendix B, *Laboratory Testing Program*.

3.5 Analysis and Report Preparation

Data obtained from the field exploration and laboratory testing program was assembled and evaluated. Geotechnical analyses of the compiled data were performed, followed by the preparation of this report to present our findings, conclusions, and recommendations for the proposed projects.



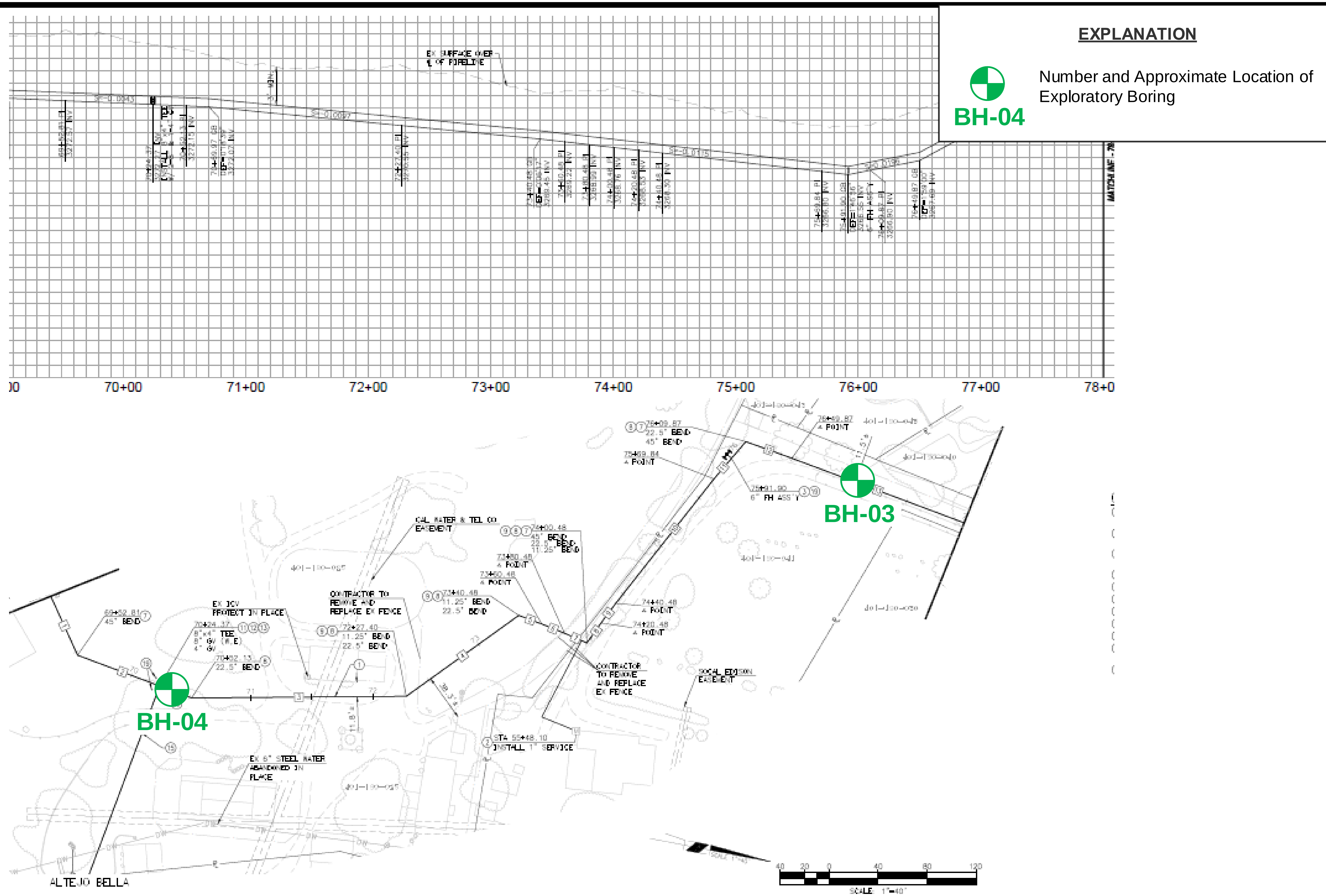
Project: Water Pipeline Replacement Projects
Location: Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Approximate Boring Locations Map

Project No.
17-81-257-01

Converse Consultants

Figure No.
2a



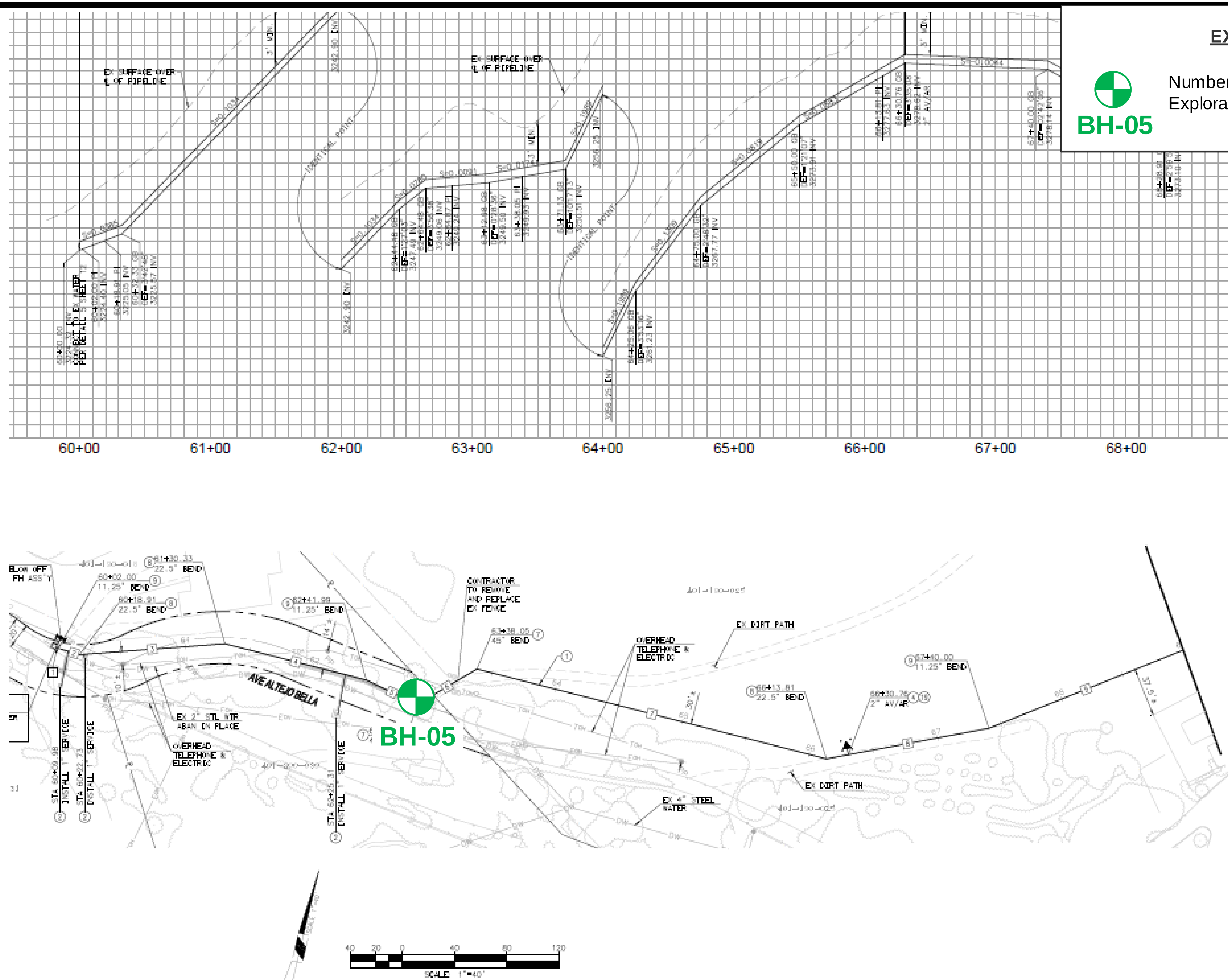
Project: Water Pipeline Replacement Projects
Location: Community of Cherry Valley/City Of Beaumont, Riverside County, California
For: Michael Baker International

Approximate Boring Locations Map

Project No. 17-81-257-01

Converse Consultants

Figure No. 2b



EXPLANATION

BH-05 — Number and Approximate Location of Exploratory Boring

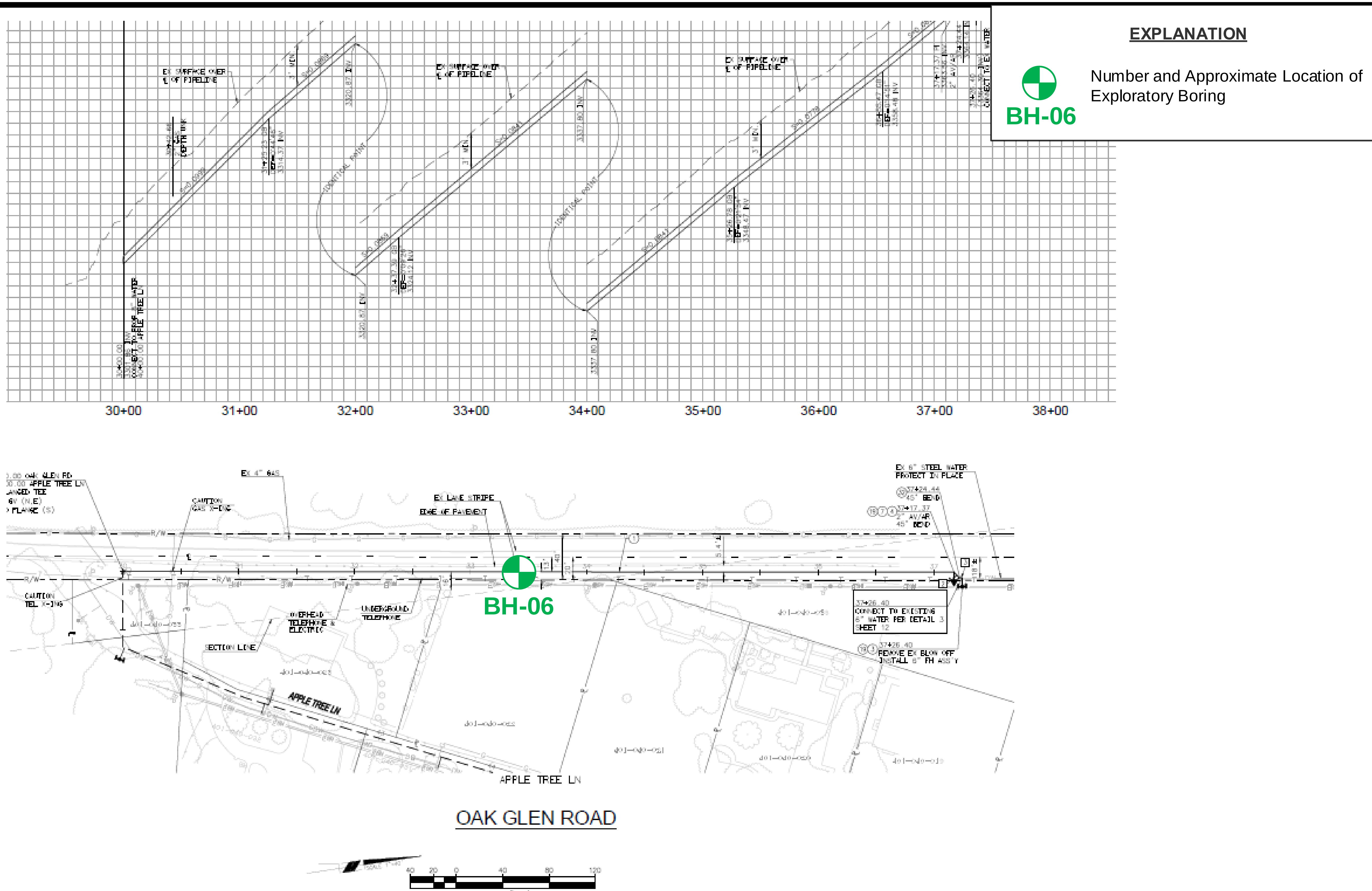
Project: Water Pipeline Replacement Projects
Location: Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Approximate Boring Location Map

Project No. 17-81-257-01

Converse Consultants

Figure No. **2c**



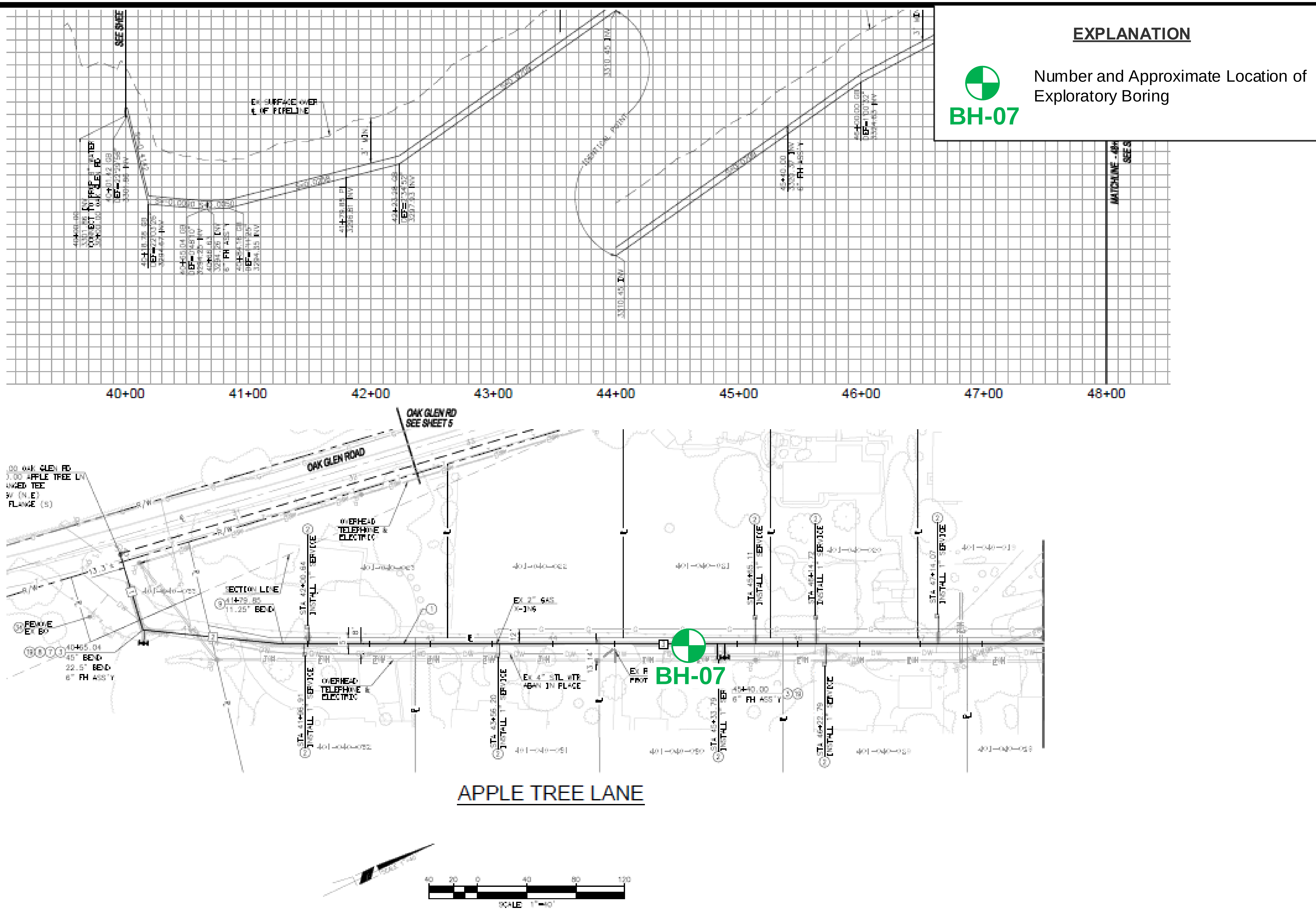
Project: Water Pipeline Replacement Projects
Location: Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Approximate Boring Location Map

Project No.
17-81-257-01

Converse Consultants

Figure No.
2d



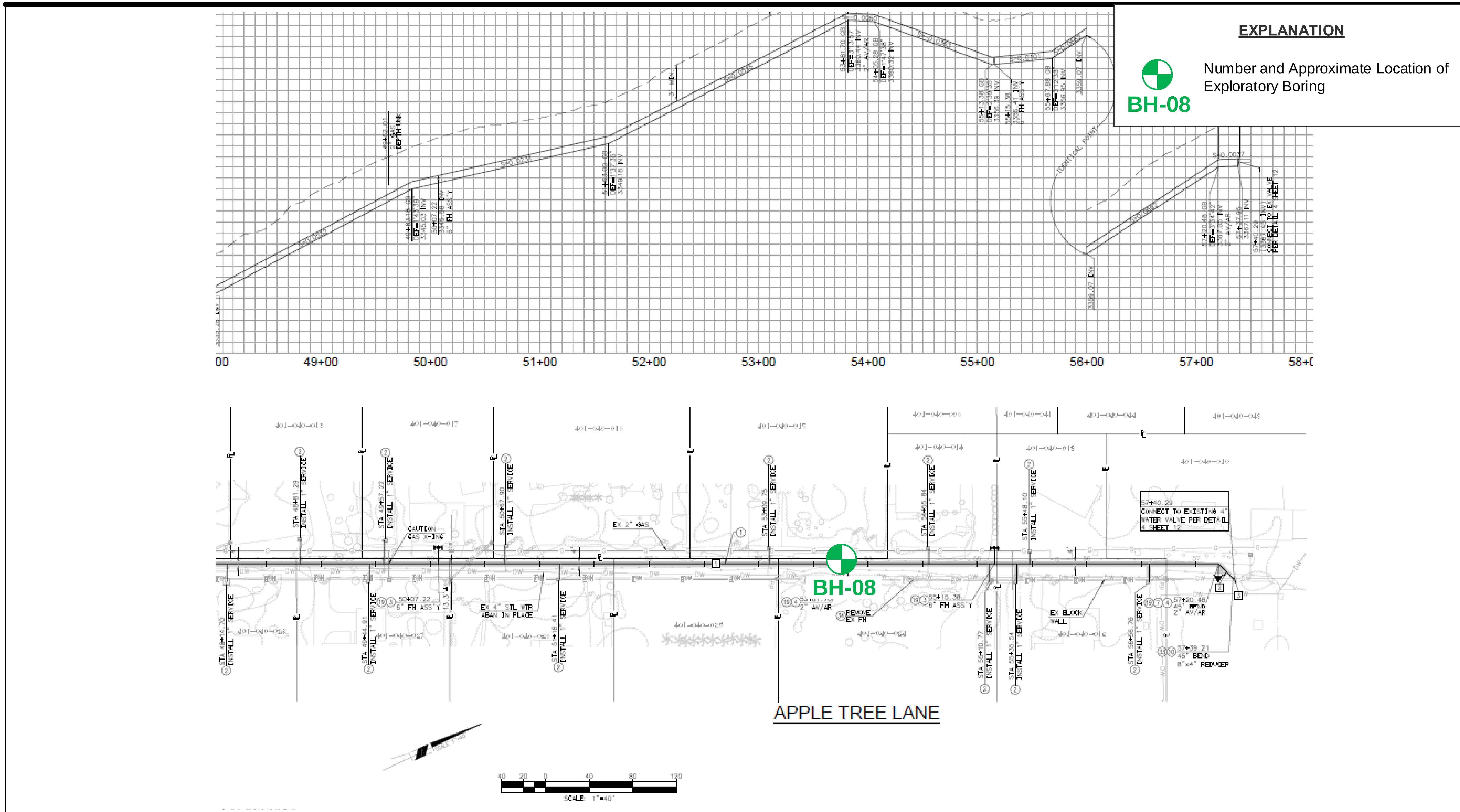
Project: Water Pipeline Replacement Projects
Location: Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Approximate Boring Location Map

Project No. 17-81-257-01

Converse Consultants

Figure No. 2e



Project: Water Pipeline Replacement Projects
Location: Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Approximate Boring Location Map

Project No.
17-81-257-01

Converse Consultants

Figure No.
2f

4.0 ALIGNMENT CONDITIONS

The alignments conditions are described below.

Pipelines 1 and 2

The replacement alignment for Pipelines 1 and 2 are located along several streets and private properties. The streets are typically one lane or undivided rural roads with limited traffic and minor to moderate overhead utility and trees. The general condition of the areas we were able to access is shown in the photographs below.

Photograph No. 1: Present alignment condition within the private property (Pipeline 1)

Photograph No. 2: Present alignment condition along Oak Glen Road (Pipeline 2)

Pipeline 3

The replacement alignment for Pipeline 3 is located along an undivided street with minor traffic and within an alleyway. The typical surface condition along the pipeline 3 alignment is shown in the photographs below.

Photograph No. 3: Present alignment condition along Egan Alley (Pipeline 3)

4.1 Existing Pavement Sections

The measured thicknesses of the existing pavement at the boring locations are presented in the following table.

Table No. 3, Existing Pavement Sections

Boring No.	Asphalt Concrete Thickness (in.)	Aggregate Base Thickness (in.)
BH-01	4.0	0.0
*BH-02	0.0	0.0
*BH-03	0.0	0.0
*BH-04	0.0	0.0
*BH-05	0.0	0.0
*BH-06	0.0	0.0
BH-07	4.0	0.0

Boring No.	Asphalt Concrete Thickness (in.)	Aggregate Base Thickness (in.)
BH-08	4.0	0.0

(* Borings were drilled on dirt surfaces. For all boring locations, see Figures No. 2a through 2f, *Approximate Boring Locations Map*)

4.2 Subsurface Profile

Subsurface conditions are presented below.

Alluvium
Based on the exploratory borings and laboratory test results, the subsurface materials along the proposed pipeline alignments consist of a mixture of sand, silt, clay and gravel. Gravel up to 2 inches in largest dimension was observed in all borings except boring BH-05.

Bedrock
Bedrock was encountered in boring BH-08 (pipeline 2) at approximately 10 feet bgs. Based on field observations and review of existing geologic maps in the area, the bedrock consists of gneiss, a metamorphic bedrock unit. The bedrock unit excavates as a mixture of sand, silt and gravel with a light grayish brown color.

For a detailed description of the subsurface materials encountered in the exploratory borings, see Drawings No. A-2 through A-9, *Logs of Borings,* in Appendix A, *Field Exploration.*

4.3 Excavatability

The subsurface materials along the pipeline alignments are expected to be excavatable by conventional heavy-duty earth moving and trenching equipment. Difficult excavation will occur if concentrations of gravel or larger rocks are encountered along pipeline 1 and 3. Excavation will be difficult along pipeline 2 due to the presence of bedrock if excavation depth extends into the bedrock.

The phrase "conventional heavy-duty excavation equipment" is intended to include commonly used equipment such as excavators, scrapers, and trenching machines. It does not include hydraulic hammers ("breakers"), jackhammers, blasting, or other specialized equipment and techniques used to excavate hard earth materials. Selection of an appropriate excavation equipment models should be done by an experienced earthwork contractor.

4.4 Groundwater

Groundwater information for each pipeline project is presented below.

Pipeline 1

Groundwater was not encountered during the investigation to the maximum explored depth of 16.5 feet bgs. Regional groundwater data (SWRCB, 2019) from locations within approximately a mile from the generalized center of the alignment was reviewed to evaluate the current and historical groundwater levels. No groundwater data was available within a one-mile radius of this pipeline alignment.

The National Water Information System (USGS, 2019) was also reviewed but there were no sites with data available within the vicinity of the proposed alignment.

Based on our exploratory borings, current groundwater level is estimated to be deeper than 16.5 feet bgs. It should be noted that the groundwater level could vary depending upon the seasonal precipitation and possible groundwater pumping activity in the alignment vicinity. Shallow perched groundwater may be present locally, particularly following precipitation.

Pipeline 2

Groundwater was not encountered during the current investigation to the maximum explored depth of 16.5 feet bgs. Regional groundwater data (SWRCB, 2019) from locations within approximately a mile from the generalized center of the alignment was reviewed to evaluate the current and historical groundwater levels. No groundwater data was available within a one-mile radius of this pipeline alignment.

The National Water Information System (USGS, 2019) was also reviewed but there were no sites with data available within the vicinity of the proposed alignment.

Based on our exploratory borings, current groundwater level is estimated to be deeper than 16.5 feet bgs. It should be noted that the groundwater level could vary depending upon the seasonal precipitation and possible groundwater pumping activity in the alignment vicinity. Shallow perched groundwater may be present locally, particularly following precipitation.

Pipeline 3

Groundwater was not encountered during the current investigation of up to a depth of 16.5 feet bgs. Regional groundwater data (SWRCB, 2019) from locations within approximately a mile from the generalized center of the alignment was reviewed to evaluate the current and historical groundwater levels. One site was found with available groundwater data. Findings are summarized below.

- SOCO (Site No. T0606500182), located approximately 4,000 feet southeast of the generalized center of the alignment, reported groundwater at depths ranging between 87.22 to 129.88 feet bgs, between 2005-2016.

The National Water Information System (USGS, 2019) was also reviewed but there were no sites with data available within the vicinity of the proposed alignment.

The historical high groundwater level in the vicinity of the pipeline is approximately 87 feet bgs and the current groundwater level is deeper than 16.5 feet bgs. It should be noted that the groundwater level could vary depending upon the seasonal precipitation and possible groundwater pumping activity in the alignment vicinity. Shallow perched groundwater may be present locally, particularly following precipitation or irrigation events.

4.5 Subsurface Variations

Based on results of the subsurface exploration and our experience, some variations in the continuity and nature of subsurface conditions along the alignments should be anticipated. Because of the uncertainties involved in the nature and depositional characteristics of the earth material, care should be exercised in interpolating or extrapolating subsurface conditions between or beyond the boring locations.

5.0 GEOLOGIC SETTING

The regional and local geology are discussed in the following subsections.

5.1 Regional Geology

The proposed replacement alignments are located within the northern Peninsular Ranges Geomorphic Province of Southern California. The Peninsular Ranges Geomorphic Province consists of a series of northwest-trending mountain ranges and valleys bounded on the north by the San Bernardino and San Gabriel Mountains, on the west by the Los Angeles Basin, and on the southwest by the Pacific Ocean.

The province is a seismically active region characterized by a series of northwest-trending strike-slip faults. The most prominent of the nearby fault zones include the San Jacinto, Elsinore, and San Andreas fault zones (CGS, 2007), all of which have been known to be active during Quaternary time.

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

5.2 Local Geology

Regional mapping (Dibblee and Minch, 2003) indicates that the subsurface along the alignments vary and are summarized below.

Pipeline 1

The subsurface material along the Pipeline 1 alignment is comprised of late-Pleistocene aged surficial alluvial fan deposits consisting of sand and gravel. The alluvial deposits are underlain by Quartz Diorite, an igneous bedrock unit, at an unknown depth.

Pipeline 2

The subsurface material along the Pipeline 2 alignment is comprised of young (early-Holocene) to old (late-Pleistocene) aged surficial alluvial fan deposits consisting of sand, gravel and clay. Older units are typically denser and slightly indurated. The alluvial deposits are underlain by Gneiss, a metamorphic bedrock unit, which was encountered at a depth of approximately 10 feet bgs in boring BH-8.

Pipeline 3

The subsurface material along the Pipeline 3 alignment is comprised of old (late-Pleistocene aged) alluvial fan deposits consisting of sand and gravel.

6.0 FAULTING AND SEISMICITY

The approximate distance and seismic characteristics of nearby faults are discussed in the following subsections.

6.1 Faulting

The proposed pipeline alignments are not located within a currently designated State of California or Riverside County Earthquake Fault Zone (CGS, 1995; Riverside County, 2019). There are no known active faults projecting toward or extending across the proposed alignments. The nearest fault to pipeline alignments 1 and 2 is the Banning Fault, located approximately 1.8 miles to the southeast. The nearest fault to pipeline alignment 3 is the San Jacinto Fault, located approximately 3.5 miles to the southeast. The potential for surface rupture resulting from the movement of nearby major faults is not known with certainty but is considered low.

The proposed alignments are situated in a seismically active region. As is the case for most areas of Southern California, ground shaking resulting from earthquakes associated with nearby and more distant faults may occur at the proposed alignments. During the life of the projects, seismic activity associated with active faults can be expected to generate moderate to strong ground shaking at the pipeline alignments.

6.2 CBC Seismic Design Parameters

Seismic parameters based on the California Building Code (CBSC, 2016) provided in the following table were determined using the Seismic Design Maps application (OSHPD, 2019). The coordinates selected correspond to the approximate center of each pipeline alignment.

Table No. 4, CBC Seismic Design Parameters

Seismic Parameters	Value		
	Pipeline 1	Pipeline 2	Pipeline 3
Site Coordinates	33.9865 N, 116.9602 W	33.9945 N, 116.9626 W	33.9298 N, 116.9820 W
Site Class	D	C	D
Mapped Short period (0.2-sec) Spectral Response Acceleration, S_s	1.739g	1.812g	1.500g
Mapped 1-second Spectral Response Acceleration, S_1	0.827g	0.865g	0.611g
Site Coefficient (from Table 1613.5.3(1)), F_a	1.0	1.0	1.0
Site Coefficient (from Table 1613.5.3(2)), F_v	1.5	1.3	1.5
MCE 0.2-sec period Spectral Response Acceleration, S_{Ms}	1.739g	1.812g	1.500g
MCE 1-second period Spectral Response Acceleration, S_{M1}	1.241g	1.125g	0.916g
Design Spectral Response Acceleration for short period S_{ds}	1.159g	1.208g	1.000g
Design Spectral Response Acceleration for 1-second period, S_{d1}	0.827g	0.750g	0.611g
Maximum Peak Ground Acceleration, PGA_M	0.695g	0.721g	0.565g

6.3 Secondary Effects of Seismic Activity

In general, secondary effects of seismic activity include surface fault rupture, soil liquefaction, landslides, lateral spreading, and settlement due to seismic shaking, tsunamis, seiches, and earthquake-induced flooding. The site-specific potential for each of these seismic hazards is discussed in the following sections.

Surface Fault Rupture: The proposed alignments are not located within a currently designated State of California or Riverside County Earthquake Fault Zone (CGS, 1995 Riverside County, 2019). There are no known active faults projecting toward or extending across the proposed alignments. The potential for surface rupture resulting from the movement of nearby major faults is not known with certainty but is considered low.

Liquefaction: Liquefaction is defined as the phenomenon in which a cohesionless soil mass suffers a substantial reduction in its shear strength due to the development of excess pore pressures. During earthquakes, excess pore pressures in saturated soil deposits may develop as a result of induced cyclic shear stresses, resulting in liquefaction.

Soil liquefaction generally occurs in submerged granular soils and non-plastic silts located within 50 feet of the ground surface during or after strong ground shaking. There are several general requirements for liquefaction to occur. They are as follows.

- Soils must be submerged.
- Soils must be loose to medium-dense.
- Soils must be relatively near the ground surface.
- Ground motion must be intense.
- Duration of shaking must be sufficient for the soils to lose shear resistance.

All pipeline alignments are within an area that has been evaluated as having a low susceptibility to liquefaction (Riverside County, 2019). Historical high groundwater levels within the vicinity of the proposed pipeline alignments 1 and 2 is unknown; however, it is anticipated to be deeper than 16.5 feet bgs. Historical high groundwater levels within the vicinity of the proposed pipeline alignment 3 is estimated to be deeper than 87 feet bgs. Due to the absence of shallow groundwater along the alignments, the risk of liquefaction is considered low.

Landslides: Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes. Due to the relatively flat nature of the proposed pipeline alignments, the risk of landsliding is considered low.

Lateral Spreading: Seismically induced lateral spreading involves primarily lateral movement of earth materials over underlying materials which are liquefied due to ground shaking. It differs from the slope failure in that complete ground failure involving large movement does not occur due to the relatively smaller gradient of the initial ground surface. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. Due to the low potential for liquefaction, the potential for lateral spreading to affect the alignments is also considered low.

Tsunamis: Tsunamis are large waves generated in open bodies of water by fault displacement or major ground movement. Due to the inland location of the alignments, tsunamis are not considered to be a risk.

Seiches: Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Due to the lack of enclosed bodies of water in the vicinity of the pipeline alignments, flooding from seiching is not considered to be a risk.

Earthquake-Induced Flooding: Dams or other water-retaining structures may fail as a result of large earthquakes. The proposed alignments are not located within a designated dam inundation zone (Riverside County, 2019). The risk for earthquake-induced flooding at the proposed alignments is considered low.

7.0 LABORATORY TEST RESULTS

Laboratory testing was performed to determine the physical and chemical characteristics and engineering properties of the subsurface soils. Tests results are included in Appendix A, *Field Exploration* and Appendix B, *Laboratory Testing Program*. Discussions of the various test results are presented below.

7.1 Physical Testing

Physical test results for each pipeline is presented in the following table. For detail description of these tests, see Appendix B, *Laboratory Testing Program.*

Table No. 5, Physical Properties of Soils

Test	Values		
	Pipeline 1	Pipeline 2	Pipeline 3
In-situ Moisture and Dry Density (upper 10 feet bgs) (ASTM 2216 and ASTM 7263)	98 to 116 pcf and 8 to 21 percent	105 to 119 pcf and 2 to 14 percent	112 to 121 pcf and 12 to 15 percent
Expansion Index (ASTM D4829)	25	-	46
Sand Equivalent (ASTM D2419)	10	28	9
R-Value (California Test 301)	30	-	21
Collapse (ASTM 4546)	-0.4	-0.3	-
Grain Size Analysis (percent) (ASTM D6913)	G = 3.0, Sa = 50.0 and Si/Cl = 47.0	G = 18.0, Sa = 60.0 and Si/Cl = 22.0	G = 0.0, Sa = 46.0 and Si/Cl = 54.0
Maximum Dry Density and Optimum Moisture Content (ASTM 1557)	133.0 pcf and 8.5 Percent	131.0 (134.0*) pcf and 8.5 (7.7*) Percent	126.0 pcf and 12.0 Percent
Direct Shear (ASTM D3080)	C = 100 psf and ϕ = 34 degree	C = 60 psf and ϕ = 31 degree	C = 170 psf and ϕ = 32 degree

(G = Gravel, Sa= Sand and Si/Cl = Silt/Clay; * rock correction = 7.38%; C = Cohesion, ϕ = Friction Angle; direct shear of pipeline 2 was remolded)

7.2 Chemical Testing - Corrosivity Evaluation

One representative soil sample from each pipeline project was tested to determine minimum electrical resistivity, pH, and chemical content, including soluble sulfate and chloride concentrations. The purpose of these tests was to determine the corrosion potential of soils along each alignment when placed in contact with common pipe materials. These tests were performed by AP Engineering and Testing, Inc. (Pomona, CA) in accordance with California Tests 663, 622, and 617. The test results are presented in Appendix B, *Laboratory Testing Program and* are summarized below.

Pipeline 1

- The pH measurement of the tested sample was 8.1.
- The sulfate content of the tested sample was 0.0036 percent by weight (36 ppm).
- The chloride concentration of the tested sample was 34 ppm.
- The minimum electrical resistivity when saturated was 6,518 ohm-cm.

Pipeline 2

- The pH measurement of the tested sample was 7.7.
- The sulfate content of the tested sample was 0.0031 percent by weight (31 ppm).
- The chloride concentration of the tested sample was 42 ppm.
- The minimum electrical resistivity when saturated was 7,021 ohm-cm.

Pipeline 3

- The pH measurement of the tested sample was 7.4.
- The sulfate content of the tested sample was 0.0255 percent by weight (255 ppm).
- The chloride concentration of the tested sample was 38 ppm.
- The minimum electrical resistivity when saturated was 1,419 ohm-cm.

8.0 EARTHWORK RECOMMENDATIONS

Earthwork for the pipeline alignments will include trench excavation, pipe subgrade preparation, pipeline bedding placement and trench backfill.

8.1 General

Prior to the start of construction, all existing underground utilities and appurtenances should be located within the pipeline alignments. Such utilities should either be protected in-place or removed and replaced during construction as required by the project specifications. All excavations should be conducted in such a manner as not to cause loss of bearing and/or lateral support of existing structures or utilities.

All debris, deleterious material and surficial soils containing roots and perishable materials should be stripped and removed from the alignments. Deleterious material, including organics, concrete, and debris generated during excavation, should not be placed as fill.

Migration of fines from the surrounding native soils, in the case of water leaks from the pipe, must be considered in selecting the gradation of the materials placed within the trench, including bedding, pipe zone and trench zone backfill, as defined in the following sections. Such migration of fines may deteriorate pipe support and may result in settlement/ground loss at the surface.

8.2 Pipeline Subgrade Preparation

The final subgrade surface should be level, firm, uniform, free of loose materials, and properly graded to provide uniform bearing and support to the entire section of the pipe placed on bedding material. Protruding oversize particles, larger than 3 inches in dimension, if any, should be removed from the trench bottom and replaced with compacted on-site materials.

Any loose, soft and/or unsuitable materials encountered at the pipe sub-grade should be removed and replaced with an adequate bedding material.

During the digging of depressions for proper sealing of the pipe joints, the pipe should rest on a prepared bottom for as near its full length as is practicable.

8.3 Pipe Bedding

Bedding is defined as the material supporting and surrounding the pipe to 1 foot above the pipe. Pipe bedding should follow the guideline of the BCVWD Standard Plate 6-1 *Trench Detail* (attached in Appendix C). Additional information for pipe bedding is provided below.

To provide uniform and firm support for the pipe, compacted granular materials such as clean sand, gravel or ¾-inch crushed aggregate, or crushed rock may be used as pipe bedding material. The measured sand equivalents of the soil samples were 9, 10 and 28. Typically, soils with sand equivalent value of 30 or more are used as pipe bedding material. The pipe designer should determine if the on-site soils are suitable as pipe bedding material.

The type and thickness of the granular bedding placed underneath and around the pipe, if any, should be selected by the pipe designer. The load on the rigid pipes and deflection of flexible pipes and, hence, the pipe design, depends on the type and the amount of bedding placed underneath and around the pipe.

Bedding materials should be vibrated in-place to achieve compaction, if granular materials are used. Care should be taken to densify the bedding material below the springline of the pipe. Prior to placing the pipe bedding material, the pipe subgrade should be uniform and properly graded to provide uniform bearing and support to the entire section of the pipe placed on bedding material. During the digging of depressions for proper sealing of the pipe joints, the pipe should rest on a prepared bottom for as near its full length as is practicable.

Migration of fines from the surrounding native and/or fill soils must be considered in selecting the gradation of any imported bedding material. We recommend that the pipe bedding material should satisfy the following criteria to protect migration of fine materials.

i. $\frac{D15(F)}{D85(B)} \leq 5$

ii. $\frac{D50(F)}{D50(B)} < 25$

iii. Bedding Materials must have less than 5 percent minus 75 µm (No. 200) sieve to avoid internal movement of fines.

Where,
F = Bedding Material
B = Surrounding Native and/or Fill Soils
*D*15(F) = Particle size through which 15% of bedding material will pass
*D*85(B) = Particle size through which 85% of surrounding soil will pass
*D*50(F) = Particle size through which 50% of bedding material will pass
*D*50(B) = Particle size through which 50% of surrounding soil will pass

If the above criteria do not satisfy, commercially available geofabric used for filtration purposes (such as Mirafi 140N or equivalent) may be wrapped around the bedding material encasing the pipe to separate the bedding material from the surrounding native or fill soils.

8.4 Backfill Materials

No fill or aggregate base should be placed until excavations and/or natural ground preparation have been observed by the geotechnical consultant. The native soils encountered within the pipeline alignments are generally considered suitable for re-use as compacted fill. Excavated soils should be processed, including removal of roots and debris, removal of oversized particles, mixing, and moisture conditioning, before placing as compacted fill. On-site soils used as fill should meet the following criteria.

- No particles larger than 3 inches in largest dimension.
- Rocks larger than one inch should not be placed within the upper 12 inches of subgrade soils.
- Free of all organic matter, debris, or other deleterious material.
- Expansion index of 20 or less.
- Sand Equivalent greater than 15 (greater than 30 for pipe bedding).
- Contain less than 40 percent fines (passing #200 sieve).

Based on field investigation and laboratory testing results, on-site soils along pipeline 1 and 2 may be suitable as fill materials whereas on-site soils along pipeline 3 may not be suitable as fill materials.

Imported materials, if required, should meet the above criteria prior to being used as compacted fill. Any imported fills should be tested and approved by geotechnical representative prior to delivery to the projects.

8.5 Compacted Fill Placement

Fill soils should be thoroughly mixed, and moisture conditioned to within ±3 percent of optimum moisture content for coarse soils and 0 to 2 percent above optimum moisture content for fine soils and compacted to at least 90 percent of the laboratory maximum dry density.

At least the upper 12 inches of subgrade soils underneath pavement intended to support vehicle loads should be scarified, moisture conditioned, and compacted to at least 95 percent of the laboratory maximum dry density.

The thickness of uncompacted layers should not exceed 8 inches. Each layer should be evenly spread, moistened or dried as necessary, and then tamped or rolled until the specified density has been achieved.

Fill materials should not be placed, spread or compacted during unfavorable weather conditions. When work is interrupted by heavy rain, filling operations should not resume until the geotechnical consultant approves the moisture and density conditions of the previously placed fill.

8.6 Trench Zone Backfill

The trench zone is defined as the portion of the trench above the pipe bedding extending up to the final grade level of the trench surface. Excavated on-site soils free of oversize particles and deleterious matter may be used to backfill the trench zone. Trench backfill should follow the BCVWD Standard Plate 6-1 *Trench Detail* (attached in Appendix C). Additional information for trench zone backfill is provided below.

- Trench backfill should be compacted by mechanical methods, such as sheepsfoot, vibrating or pneumatic rollers or mechanical tampers to achieve the density specified herein.
- The contractor should select the equipment and processes to be used to achieve the specified density without damage to adjacent ground, structures, utilities and completed work.
- The field density of the compacted soil should be measured by the ASTM D1556 (Sand Cone) or ASTM D6938 (Nuclear Gauge) or equivalent.
- It should be the responsibility of the contractor to maintain safe working conditions during all phases of construction.

- Observations and field tests should be performed by the projects soils consultant to confirm that the required degree of compaction has been obtained. Where compaction is less than that specified, additional compactive effort should be made with adjustment of the moisture content as necessary, until the specified compaction is obtained.

9.0 DESIGN RECOMMENDATIONS

General design recommendations, resistance to lateral loads, pipe design parameters, bearing pressures, and soil corrosivity are discussed in the following subsections.

9.1 General

Where pipes connect to rigid structures and are subjected to significant loads as the backfill is placed to finish grade, we recommend that provisions be incorporated in the design to provide support of these pipes where they exit the structures. Consideration can be given to flexible connections, concrete slurry support beneath the pipes where they exit the structures, overlaying the pipes with a few inches of compressible material, (i.e. Styrofoam, or other materials), or other techniques.

The various design recommendations provided in this section are based on the assumption that the above earthwork recommendations will be implemented.

9.2 Resistance to Lateral Loads

Resistance to lateral loads can be assumed to be provided by passive earth pressures and friction between construction materials and native soils. The resistance to lateral loads were estimated by using native soils strength parameters obtained from laboratory testing. The resistance to lateral loads recommended for use in design of the thrust blocks are presented in the following table.

Table No. 6, Resistance to Lateral Loads

Soil Parameters	Pipeline 1	Pipeline 2	Pipeline 3
Passive earth pressure (psf per foot of depth)	260	240	240
Maximum allowable bearing pressure against native soils (psf)	2,200	1,800	2,000
Coefficient of friction between formed concrete and native soils, fs	0.35	0.35	0.35

9.3 Soil Parameters for Pipe Design

Structural design requires proper evaluation of all possible loads acting on pipes and structures. The stresses and strains induced on buried pipes and walls depend on many factors, including the type of soil, density, bearing pressure, angle of internal friction, coefficient of passive earth pressure, and coefficient of friction at the interface between the backfill and native soils. The recommended values of the various soil parameters for design are provided in the following table.

Table No. 7, Soil Parameters for Pipe Design

Soil Parameters	Values		
	Pipeline 1	Pipeline 2	Pipeline 3
Average compacted fill total unit weight, γ (pcf) (assume 92% relative compaction)	132	131	130
Angle of internal friction of soils, ϕ	32	30	30
Soil cohesion, c (psf)	50	20	50
Coefficient of friction between formed concrete and native soils, fs	0.35	0.35	0.35
Coefficient of friction between backfill and native soils, fs	0.30	0.30	0.30
Coefficient of friction between DIP and native soils, fs	0.25	0.25	0.25
Allowable net bearing pressure against native soils (psf)	2,200	1,800	2,000
Coefficient of passive earth pressure, Kp	3.25	3.0	3.0
Coefficient of active earth pressure, Ka	0.31	0.33	0.33
Modulus of Soil Reaction E' (psi)	1,500	1,500	1,500

9.4 Bearing Pressure for Anchor and Thrust Blocks

An allowable net bearing pressure presented in Table No. 7, *Soil Parameters for Pipe Design* may be used for anchor and thrust block design against alluvial soils. Such thrust blocks should be at least 18 inches wide.

The allowable net bearing capacity is defined as the maximum allowable net bearing pressure on the ground. It is obtained by dividing the net ultimate bearing capacity by a safety factor. The ultimate bearing capacity is the bearing stress at which ground fails by shear or experiences a limiting amount of settlement at the foundation. The net ultimate bearing capacity is obtained by subtracting the total overburden pressure on a horizontal plane at the foundation level from the ultimate bearing capacity.

If normal code requirements are applied for design, the above recommended bearing capacity and passive resistances may be increased by 33 percent for short duration loading such as seismic or wind loading.

9.5 Soil Corrosivity

The results of chemical testing of three representative soil sample was evaluated for corrosivity evaluation with respect to common construction materials such as concrete and steel. The test results are presented in Appendix B, *Laboratory Testing Program* and are discussed below.

The sulfate content of the sampled soil corresponds to American Concrete Institute (ACI) exposure category S0 (soluble sulfate in soil is less than 0.1, percent by weight) for this sulfate concentration (ACI 318-16, Table 19.3.1.1). No concrete type restrictions are specified for exposure category S0 (ACI 318-16, Table 19.3.2.1). A minimum compressive strength of 2,500 psi is recommended.

We anticipate that concrete structures, if any, will be exposed to moisture from precipitation and irrigation. Based on the alignment locations and the results of chloride testing, we do not anticipate concrete structures will be exposed to external sources of chlorides, such as deicing chemicals, salt, brackish water, or seawater. ACI specifies exposure category C1 where concrete is exposed to moisture, but not to external sources of chlorides (ACI 318-16, Table 19.3.1.1). ACI provides concrete design recommendations in ACI 318-16, Table 19.3.2.1, including a compressive strength of at least 2,500 psi and a maximum chloride content of 0.3 percent.

The minimum electrical resistivities when saturated were 1,419, 6,518 and 7,021 ohm-cm for pipeline 3, 1 and 2, respectively. These values indicate that the tested soils along the alignments (Pipeline 1 and 2) are moderately corrosive and along the alignment (pipeline 3) are corrosive to ferrous metals in contact with the soil (Romanoff, 1957).

According to the Caltrans Corrosion Guidelines (Caltrans, 2018), soils are considered corrosive if the pH is 5.5 or less, or chloride content is 500 parts per million (ppm) or greater, or sulfate content is 1,500 ppm or greater, or resistivity less than 2,000 ohm-cm. Based on the tested results, the soils for pipeline 1 and 2 are not considered corrosive and pipeline 3 are considered corrosive.

Converse does not practice in the area of corrosion consulting. A qualified corrosion consultant should provide appropriate corrosion mitigation measures for any ferrous metals in contact with the alignment soils.

9.6 Asphalt Concrete Pavement

Two representative soil samples were tested to determine the R-value of the subgrade soils. The tested R-values were 21 and 30. For pavement design, we have utilized an R-value of 21 and design Traffic Indices (TIs) ranging from 5 through 8.

Based on the above information, asphalt concrete and aggregate base thickness are determined using the *Caltrans Highway Design Manual (Caltrans, 2017)*, Chapter 630 with a safety factor of 0.2 for asphalt concrete/aggregate base section and 0.1 for full depth asphalt concrete section. Preliminary asphalt concrete pavement sections are presented in the following table.

Table No. 8, Recommended Preliminary Pavement Sections

Design R-value	Traffic Index (TI)	Pavement Section		
		Option 1		Option 2
		Asphalt Concrete (inches)	Aggregate Base (inches)	Full AC Section (inches)
21	5	4.0	5.0	7.0
	6	4.0	8.0	9.0
	7	5.0	10.0	11.0
	8	6.0	13.0	13.0

Pavement section should be based on the guideline of the Table No. 8, *Recommended Preliminary Pavement Sections or* the standards and specifications of the governing body having jurisdiction, whichever is applicable. At or near the completion of trench backfill, the subgrade should be tested to evaluate the actual subgrade R-value for final pavement design.

Prior to placement of aggregate base, at least the upper 12 inches of subgrade soils should be scarified, moisture-conditioned if necessary, and recompacted to at least 95 percent of the laboratory maximum dry density as defined by ASTM Standard D1557 test method.

Base materials should conform to Section 200-2 of the Greenbook (Public Works Standards, 2015) or the standards and specifications of the governing body having jurisdiction and should be placed in accordance with Section 301-2 of the Greenbook.

Asphalt concrete materials should conform to Section 203 of the Greenbook or the standards and specifications of the governing body having jurisdiction and should be placed in accordance with Section 302-5 of the Greenbook.

Positive drainage should be provided away from all pavement areas to prevent seepage of surface and/or subsurface water into the pavement base and/or subgrade.

10.0 CONSTRUCTION RECOMMENDATIONS

Recommendations on construction of the pipeline are as follows.

10.1 General

Prior to the start of construction, all existing underground utilities should be located within the vicinity of the pipeline alignments. Such utilities should either be protected in-place or removed and replaced during construction as required by the project's specifications.

Vertical braced excavations are feasible along the pipeline alignments. Sloped excavations may not be feasible in locations adjacent to existing utilities or structures, including utilities, channels, or other improvements. Recommendations pertaining to temporary excavations are presented in this section. Where the side of the excavation is a vertical cut, it should be adequately supported by temporary shoring to protect workers and any adjacent structures.

All applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act, current amendments, and the Construction Safety Act should be met. The soils exposed in cuts should be observed during excavation by the owner's representative and the competent person employed by the contractor in accordance with regulations. If potentially unstable soil conditions are encountered, modifications of slope ratios for temporary cuts may be required.

10.2 Temporary Sloped Excavations

Temporary open-cut trenches may be constructed with side slopes as recommended in the following table. Temporary cuts encountering soft and wet fine-grained soils, dry loose, cohesionless soils, or loose fill from trench backfill may have to be constructed at a flatter gradient than presented in the following.

Table No. 9, Slope Ratios for Temporary Excavations

Soil Type	OSHA Soil Type	Depth of Cut (feet)	Recommended Maximum Slope (Horizontal:Vertical)[1]
Silty Sand (SM)	C	0-10	1.5:1
Sandy Silt (ML)	B	0-10	1:1

[1] Slope ratio is assumed to be constant from top to toe of slope, with level adjacent ground.

For steeper temporary construction slopes or deeper excavations, or unstable soil encountered during the excavation, shoring or trench shields should be provided by the contractor as necessary to protect the workers in the excavation.

Surfaces exposed in sloped excavations should be kept moist but not saturated to retard raveling and sloughing during construction. Adequate provisions should be made to protect the slopes from erosion during periods of rainfall. Surcharge loads, including construction materials, should not be placed within 5 feet of the unsupported slope edge. Stockpiled soils with a height higher than 6 feet will require greater distance from trench edges.

10.3 Shoring Design

Temporary shoring will be required where open sloped excavations will not be feasible due to unstable soils or due to nearby existing structures or facilities. Temporary shoring may consist of conventional soldier piles and lagging or sheet piles or any piles selected by the contractor. The shoring for the pipe excavations may be laterally supported by walers and cross bracing or may be cantilevered. Drilled excavations for soldier piles will require the use of drilling fluids to prevent caving and to maintain an opened hole for pile installation.

The active earth pressure behind any shoring depends primarily on the allowable movement, type of backfill materials, backfill slopes, wall inclination, surcharges, and any hydrostatic pressures.

The lateral earth pressures to be used in the design of shoring is presented in the following table.

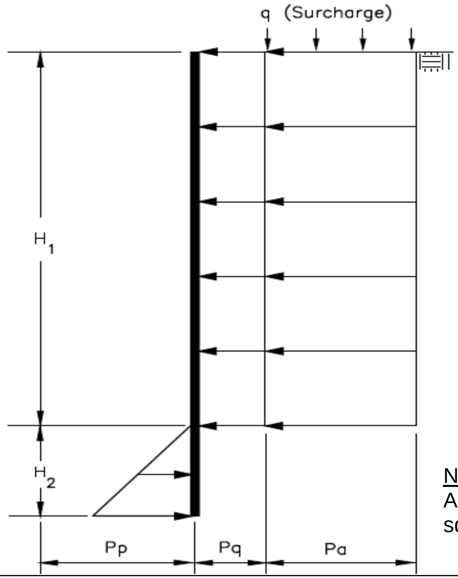
Table No. 10, Lateral Earth Pressures for Temporary Shoring

Lateral Resistance Soil Parameters*	Pipeline 1	Pipeline 2	Pipeline 3
Active Earth Pressure (Braced Shoring) (psf) (A)	25	26	26
Active Earth Pressure (Cantilever Shoring) (psf) (B)	42	44	44
At-Rest Earth Pressure (Cantilever Shoring) (psf) (C)	62	66	65
Passive earth pressure (psf per foot of depth) (D)	260	240	240
Maximum allowable bearing pressure against native soils (psf) (E)	2,200	1,800	2,000
Coefficient of friction between sheet pile and native soils, fs (F)	0.25	0.25	0.25

* Parameters A through F are used in Figures No. 3 and 6 below.

Restrained (braced) shoring systems should be designed based on Figure No. 3, *Lateral Earth Pressures for Temporary Braced Excavation* to support a uniform rectangular lateral earth pressure.

Figure No. 3, Lateral Earth Pressures for Temporary Braced Excavation



Total Earth Pressure, P

P = Pq + Pa

Pq = 0.5q - incremental surcharge pressure

Pa = (A)H_1 - active earth pressure (Braced walls)

Lateral Pressure Resistance

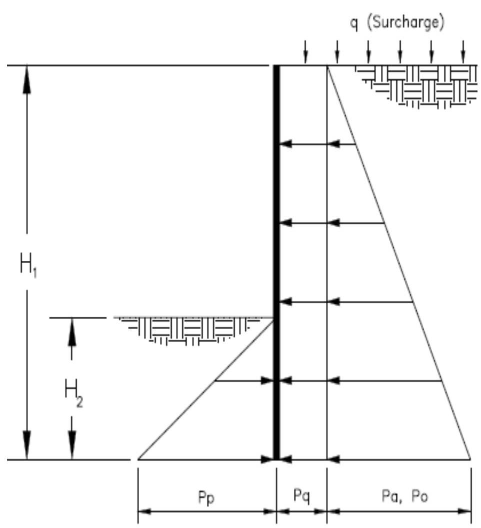
Pp = (D) $H_2 \leq$ (E) psf - passive earth pressure (on native soils)

μ = (F) - ultimate friction coefficient between steel sheet piles and soil

Note:
All values of height (H) in feet, pressure (P) and surcharge (q) in pounds per square foot (psf).

Unrestrained (cantilever) design of cantilever shoring consisting of soldier piles spaced at least two diameters on-center or sheet piles, can be based on Figure No. 4, *Lateral Earth Pressures on Temporary Cantilever Wall*.

Figure No. 4, Lateral Earth Pressures on Temporary Cantilever Wall



Total Earth Pressure, P

P = Pq + Pa, Po

Pq = 0.5q - incremental surcharge pressure

Pa = (B)H_1 - active earth pressure (Un-restrained)

Po = (C)H_1 - at rest earth pressure (Restrained)

Lateral Pressure Resistance

Pp = (D) $H_2 \leq$ (E) psf - passive earth pressure (on native soils)

μ = (F) - ultimate friction coefficient between steel sheet piles and soil

Note:
All values of height (H) in feet, pressure (P) and surcharge (q) in pounds per square foot (psf).

The provided pressures assume no hydrostatic pressures. If hydrostatic pressures are allowed to build up, the incremental earth pressures below the ground-water level should be reduced by 50 percent and added to hydrostatic pressure for total lateral pressure.

Passive resistance includes a safety factor of 1.5. The upper 1 foot for passive resistance should be ignored unless the surface is confined by a pavement or slab.

In addition to the lateral earth pressure, surcharge pressures due to miscellaneous loads, such as soil stockpiles, vehicular traffic or construction equipment located adjacent to the shoring, should be included in the design of the shoring. A uniform lateral pressure of 100 psf should be included in the upper 10 feet of the shoring to account for normal vehicular and construction traffic within 10 feet of the trench excavation. As previously mentioned, all shoring should be designed and installed in accordance with state and federal safety regulations.

The contractor should have provisions for soldier pile and sheet pile removal. All voids resulting from removal of shoring should be filled. The method for filling voids should be selected by the contractor, depending on construction conditions, void dimensions and available materials. The acceptable materials, in general, should be non-deleterious, and able to flow into the voids created by shoring removal (e.g. concrete slurry, “pea” gravel, etc.).

Excavations for the proposed pipeline should not extend below a 1:1 horizontal:vertical (H:V) plane extending from the bottom of any existing structures, utility lines or streets. Any proposed excavation should not cause loss of bearing and/or lateral supports of the existing utilities or streets.

If the excavation extends below a 1:1 (H:V) plane extending from the bottom of the existing structures, utility lines or streets, a maximum of 10 feet of slope face parallel to the existing improvement should be exposed at a time to reduce the potential for instability. Backfill should be accomplished in the shortest period of time and in alternating sections.

11.0 GEOTECHNICAL SERVICES DURING CONSTRUCTION

The project geotechnical consultant should review plans and specifications as the projects design progresses. Such review is necessary to identify design elements, assumptions, or new conditions which require revisions or additions to our geotechnical recommendations.

The project geotechnical consultant should be present to observe conditions during construction. Geotechnical observation and testing should be performed to determine density and moisture of the compacted soils during pipelines installation as needed to verify compliance with projects specifications. Additional geotechnical recommendations may be required based on subsurface conditions encountered during construction.

12.0 CLOSURE

This report is prepared for the projects described herein and is intended for use solely by Michael Baker International and their authorized agents, to assist in the design and construction of the proposed projects. Our findings and recommendations were obtained in accordance with generally accepted professional principles practiced in geotechnical engineering. We make no other warranty, either expressed or implied.

Converse Consultants is not responsible or liable for any claims or damages associated with interpretation of available information provided to others. Field exploration identifies actual soil conditions only at those points where samples are taken, when they are taken. Data derived through sampling and laboratory testing is extrapolated by Converse employees who render an opinion about the overall soil conditions. Actual conditions in areas not sampled may differ. In the event that changes to the projects occur, or additional, relevant information about the projects are brought to our attention, the recommendations contained in this report may not be valid unless these changes and additional relevant information are reviewed and the recommendations of this report are modified or verified in writing. In addition, the recommendations can only be finalized by observing actual subsurface conditions revealed during construction. Converse cannot be held responsible for misinterpretation or changes to our recommendations made by others during construction.

As the projects evolve, a continued consultation and construction monitoring by a qualified geotechnical consultant should be considered an extension of geotechnical investigation services performed to date. The geotechnical consultant should review plans and specifications to verify that the recommendations presented herein have been appropriately interpreted, and that the design assumptions used in this report are valid. Where significant design changes occur, Converse may be required to augment or modify the recommendations presented herein. Subsurface conditions may differ in some locations from those encountered in the explorations, and may require additional analyses and, possibly, modified recommendations.

Design recommendations given in this report are based on the assumption that the recommendations contained in this report are implemented. Additional consultation may be prudent to interpret Converse's findings for contractors, or to possibly refine these recommendations based upon the review of the actual alignment conditions encountered during construction. If the scope of the pipeline projects changes, if projects completion is to be delayed, or if the report is to be used for another purpose, this office should be consulted.

13.0 REFERENCES

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Appendix A

Field Exploration

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APPENDIX A

FIELD EXPLORATION

Our field investigation included alignment reconnaissance and a subsurface exploration program consisting of drilling soil borings. During the field reconnaissance, the surface conditions were noted, and the borings were marked in the field by reference to street centerlines, property boundaries, and other visible features. Drilling access to all boring location was also considered. The boring locations should be considered accurate only to the degree implied by the method used to mark them in the field.

Two exploratory borings (BH-01 and BH-02) along pipeline 3, three exploratory borings (BH-03 through BH-05) along pipeline 1 and three exploratory borings (BH-06 through BH-08) along pipeline 2 were drilled on May 23 and 24, 2019 to investigate the subsurface conditions. Due to close proximity of existing underground utilities, a 4-inch diameter hand auger was used to drill the upper 5 feet of all borings except borings BH-04 and BH-08. The borings were drilled to the planned maximum depths of 16.0 and 16.5 feet below the existing ground surface (bgs) except BH-06 which was terminated at a depth of 2.5 feet bgs due to conflict with unknown existing underground utilities.

The borings were advanced using a truck-mounted drill rig equipped with 8-inch diameter hollow-stem augers for soil sampling. Encountered earth materials were continuously logged by a Converse geologist and visually classified in the field in accordance with the Unified Soil Classification System. Where appropriate, field descriptions and classifications have been modified to reflect laboratory test results.

Relatively undisturbed samples were obtained using California Modified Samplers (2.5 inches inside diameter and 3.0 inches outside diameter) lined with thin sample rings. The steel ring sampler was driven into the bottom of the borehole with successive drops of a 140-pound driving weight falling 30 inches. Blow counts at each sample interval are presented on the boring logs. Samples were retained in brass rings (2.4-inches inside diameter and 1 inch in height) and carefully sealed in waterproof plastic containers for shipment to the Converse laboratory. Bulk samples of representative soil types were also obtained.

The exact depths at which material changes occur cannot always be established accurately. Unless a more precise depth can be established by other means, changes in material conditions that occur between driven samples are indicated in the log at the top of the next drive sample.

Following the completion of logging and sampling, all borings were backfilled with soil cuttings, tamped and surface patched with cold asphalt concrete, where applicable. If construction is delayed, the surface may settle over time. We recommend the owner monitor the boring locations and backfill any depressions that might occur or provide protection around the boring locations to prevent trip and fall injuries from occurring near the area of any potential settlement.

For a key to soil symbols and terminology used in the boring logs, refer to Drawing No. A-1, *Unified Soil Classification and Key to Boring Log Symbols*. Logs of the exploratory borings are presented in Drawings No. A-2 through A-9, *Logs of Borings.*

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

BORING LOG SYMBOLS

SAMPLE TYPE

STANDARD PENETRATION TEST
Split barrel sampler in accordance with ASTM D-1586-84 Standard Test Method

DRIVE SAMPLE 2.42" I.D. sampler (CMS).

DRIVE SAMPLE No recovery

BULK SAMPLE

GROUNDWATER WHILE DRILLING

GROUNDWATER AFTER DRILLING

LABORATORY TESTING ABBREVIATIONS

TEST TYPE
(Results shown in Appendix B)

CLASSIFICATION

Plasticity	pi
Grain Size Analysis	ma
Passing No. 200 Sieve	wa
Sand Equivalent	se
Expansion Index	ei
Compaction Curve	max
Hydrometer	h
Disturb	Dist.

STRENGTH

Pocket Penetrometer	p
Direct Shear	ds
Direct Shear (single point)	ds*
Unconfined Compression	uc
Triaxial Compression	tx
Vane Shear	vs
Consolidation	c
Collapse Test	col
Resistance (R) Value	r
Chemical Analysis	ca
Electrical Resistivity	er
Permeability	perm
Soil Cement	sc

Apparant Density	Very Loose	Loose	Medium	Dense	Very Dense
SPT (N)	< 4	4 - 11	11 - 30	31 - 50	> 50
CA Sampler	< 5	5 - 12	13 - 35	36 - 60	> 60
Relative Density (%)	< 20	20 - 40	40 - 60	60 - 80	> 80

Consistency	Very Soft	Soft	Medium	Stiff	Very Stiff	Hard
SPT (N)	< 2	2-4	5-8	9-15	16-30	> 30
CA Sampler	< 3	3-6	7-12	13-25	26-50	> 50

UNIFIED SOIL CLASSIFICATION AND KEY TO BORING LOG SYMBOLS

Converse Consultants

Water Pipeline Replacement Projects
Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Project No. **17-81-257-01**

Drawing No. **A-1**

Project ID: 17-81-257-01.GPJ; Template: KEY

Log of Boring No. BH-01 (Pipeline #3)

Dates Drilled: 5/23/2019 Logged by: William Buckley Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2592 Depth to Water (ft): NOT ENCOUNTERED

SUMMARY OF SUBSURFACE CONDITIONS

This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Depth (ft)	Description	Samples: Drive	Samples: Bulk	Blows	Moisture	Dry Unit Wt. (pcf)	Other
0	**4" ASPHALT CONCRETE/NO AGGREGATE BASE**						Hand augered to 5' bgs.
	ALLUVIUM **SANDY SILT (ML):** fine to coarse-grained sand, reddish-brown.		X				ei, ca, er ma max
5	**SILTY SAND (SM):** fine to coarse-grained, trace clay, reddish-brown.	X		10/17/27	12	121	
		X		10/20/36	13	118	
10	- scattered gravel up to 2" in largest dimension	X		18/45/50-2"	12	120	
15		X		8/20/25	11	124	

End of boring at 16.5 feet bgs.
No groundwater encountered.
Borehole backfilled with soil cuttings, tamped and surface patched with cold asphalt concrete on 5/23/19.

Converse Consultants

Water Pipeline Replacement Projects
Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Project No. 17-81-257-01 Drawing No. A-2

Log of Boring No. BH-02 (Pipeline #3)

Dates Drilled: 5/24/2019 Logged by: William Buckley Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2588 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
0		**ALLUVIUM** **SANDY SILT (ML):** fine to coarse-grained sand, scattered gravel up to 2" in largest dimension, reddish-brown.		X				Hand augered to 5' bgs. se, r
5		**SILTY SAND (SM):** fine to medium-grained, reddish-brown.	X		7/11/18	15	112	ds
			X		6/12/18	12	114	
10		- fine to corase grained, scattered gravel up to 1.5" in largest dimension	X		15/24/32	11	116	
15		**SAND WITH SILT (SP-SM):** fine to coarse-grained, scattered gravel up to 1.5" in largest dimension, brown.	X		17/26/20	5	105	

End of boring at 16.5 feet bgs.
No groundwater encountered.
Borehole backfilled with soil cuttings and tamped on 5/24/19.

Converse Consultants

Water Pipeline Replacement Projects
Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Project No. **17-81-257-01** Drawing No. **A-3**

Log of Boring No. BH-03 (Pipeline #1)

Dates Drilled: 5/23/2019 Logged by: William Buckley Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 3286 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM **SILTY SAND TO SANDY SILT (SM-ML):** fine to medium-grained, trace clay, reddish-brown.						Hand augered to 5' bgs. ca, er, ma
5		**SILTY SAND (SM):** fine to medium-grained, brown.			13/24/24	8	116	ds
					17/20/30	11	114	col
10		- few gravel up to 1" in largest dimension			16/28/50-5"	10	115	
15		- orange-brown			16/50-6"	4	115	
		End of boring at 16.0 feet bgs. No groundwater encountered. Borehole backfilled with soil cuttings and tamped on 5/23/19.						

Converse Consultants

Water Pipeline Replacement Projects
Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Project No. 17-81-257-01

Drawing No. A-4

Log of Boring No. BH-04 (Pipeline #1)

Dates Drilled: 5/23/2019 Logged by: William Buckley Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 3290 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM **SANDY SILT (ML):** fine to medium-grained sand, dark brown.						
			■		3/11/9	21	98	
5		**SILTY SAND (SM):** fine to coarse-grained, scattered gravel up to 2" in largest dimension, brown.	■	⊠	17/28/33	10	108	
				⊠				ei, max
			■	⊠	11/12/16	14	114	
10		**SANDY SILT (ML):** fine to coarse-grained sand, scattered gravel up to 2" in largest dimension, trace clay, reddish-brown.	■		18/19/29	16	112	
15		**SILTY SAND (SM):** fine to coarse-grained, brown.	■		14/37/40	11	121	

End of boring at 16.5 feet bgs.
No groundwater encountered.
Borehole backfilled with soil cuttings and tamped e on 5/23/19.

Log of Boring No. BH-05 (Pipeline #1)

Dates Drilled: 5/23/2019 Logged by: William Buckley Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 3261 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM **SANDY SILT (ML):** fine to medium-grained sand, dark brown.		X				Hand augered to 5' bgs. se, r
5		**SILTY SAND (SM):** fine to coarse-grained, reddish-brown.	X		16/27/50	10	114	
		SANDY SILT (ML): fine to medium-grained sand, light brown.	X		10/35/50	12	105	
10		- reddish brown	X		33/50-6"	13	92	
15		**SILTY SAND (SM):** fine to coarse-grained, reddish-brown.	X		15/30/40	8	105	
		End of boring at 16.5 feet bgs. No groundwater encountered. Borehole backfilled with soil cuttings and tamped on 5/23/19.						

Log of Boring No. BH-06 (Pipeline #2)

Dates Drilled: 5/24/2019 Logged by: William Buckley Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 3341 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
		ARTIFICIAL FILL **SILTY SAND (SM):** fine to coarse-grained, few gravel up to 2" in largest dimension, dark brown.						Hand augered to 2.5' bgs.
		Boring terminated at 2.5 feet bgs due to conflict with unknown existing underground utilities. No groundwater encountered. Borehole backfilled with soil cuttings and tamped on 5/23/19.						

Log of Boring No. BH-07 (Pipeline #2)

Dates Drilled: 5/24/2019 Logged by: William Buckley Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 3332 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
		4" ASPHALT CONCRETE/NO AGGREGATE BASE						Hand augered to 5' bgs.
		ALLUVIUM **SILTY SAND (SM):** fine to medium-grained, few gravel up to 2" in largest dimension, trace clay, dark brown.						
5			X	X	2/5/3	12	105	col
		- reddish brown	X	X	5/6/7	14	114	ca, er, max
10		- fine to coarse-grained, few gravel up to 1" in largest dimension	X		1032/50	12	122	
15		- trace clay, brown	X		10/32/48	13	120	

End of boring at 16.5 feet bgs.
No groundwater encountered.
Borehole backfilled with soil cuttings, tamped and surface patched with cold asphalt concrete on 5/24/19.

Log of Boring No. BH-08 (Pipeline #2)

Dates Drilled: 5/24/2019 Logged by: William Buckley Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 3372 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
	This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.						
0	**4" ASPHALT CONCRETE/NO AGGREGATE BASE**						
	<u>ALLUVIUM</u> **SILTY SAND WITH GRAVEL (SM):** fine to medium-grained, few gravel up to 2" in largest dimension, dark brown.						
5	- fine to coarse-grained, few gravel up to 3" in largest dimension, brown	X	X	27/35/27	2	111	
		X	X	12/26/26	5	119	se, ma, ds
10	**<u>METAMORPHIC BEDROCK: Gneiss (gn)</u>** **Excavates as SILTY SAND with GRAVEL (SM):** fine to coarse-grained, few gravel up to 3" in largest dimension, light grayish brown.	X		23/50-6"	9	104	
15		X		27/35/50-5"	5	126	

End of boring at 16.5 feet bgs.
No groundwater encountered.
Borehole backfilled with soil cuttings, tamped and surface patched with cold asphalt concrete on 5/23/19.

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Appendix B

Laboratory Testing Program

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APPENDIX B

LABORATORY TESTING PROGRAM

Tests were conducted in our laboratory on representative soil samples for the purpose of classification and evaluation of their physical properties and engineering characteristics. The amount and selection of tests were based on the geotechnical parameters required for these projects. Test results are presented herein and on the Logs of Borings, in Appendix A, *Field Exploration*. The following is a summary of the various laboratory tests conducted for these projects.

***In-Situ* Moisture Content and Dry Density**

In-situ dry density and moisture content tests were performed on relatively undisturbed ring samples, in accordance to ASTM Standard D2216 and ASTM D7263 to aid soils classification and to provide qualitative information on strength and compressibility characteristics of the subsurface soils along pipeline alignments. For test results, see the Logs of Borings in Appendix A, Field Exploration.

Expansion Index

Two representative bulk samples were tested in accordance with ASTM Standard D4829 to evaluate the expansion potential. The test results are presented in the following table.

Table No. B-1, Expansion Index Test Results

Boring No./Pipeline	Depth (feet)	Soil Description	Expansion Index	Expansion Potential
BH-01/P#3	1-5	Sandy Silt (ML)	46	Low
BH-04/P#1	5-10	Silty Sand (SM)	25	Low

Sand Equivalent

Three representative soil samples were tested in accordance with the ASTM D2419 test method to determine the sand equivalent. The test results are presented in the following table.

Table No. B-2, Sand Equivalent Test Results

Boring No. /Pipeline	Depth (feet)	Soil Description	Sand Equivalent
BH-02/P#3	0-5	Sandy Silt (ML)	9
BH-05/P#1	0-5	Sandy Silt (ML)	10
BH-08/P#2	5-10	Silty Sand (SM)	28

R-value

Two representative bulk soil samples were tested for resistance value (R-value) in accordance with California Test Method CT301. These tests provide a relative measure of soil strength for use in pavement design. The test results are shown in the following table.

Table No. B-3, R-Value Test Results

Boring No.	Depth (feet)	Soil Classification	Measured R-value
BH-02/P#3	0-5	Sandy Silt (ML)	21
BH-05/P#1	0-5	Sandy Silt (ML)	30

Soil Corrosivity

Three representative soil sample was tested by AP Engineering and Testing, Inc. (Pomona, CA) in accordance with California Tests 663, 622, and 617, to determine minimum electrical resistivity, pH, and chemical content, including soluble sulfate and chloride concentrations. The purpose of these tests was to determine the corrosion potential of soils along the alignments when placed in contact with common pipe materials. Test results are presented on the following table.

Table No. B-4, Summary of Corrosivity Test Results

Boring No./Pipeline	Depth (feet)	pH	Soluble Sulfates (CA 617) (percent by weight)	Soluble Chlorides (CA 622) (ppm)	Min. Resistivity (CA 663) (Ohm-cm)
BH-01/P#3	1-5	7.4	0.0255	38	1,419
BH-03/P#1	0-5	8.1	0.0036	34	6,518
BH-07/P#2	5-10	7.7	0.0031	42	7,021

Collapse

To evaluate the moisture sensitivity (collapse/swell potential) of the encountered soils, two collapse tests were performed in accordance with the ASTM Standard D4546 laboratory procedure. The samples were loaded to approximately 2 kips per square foot (ksf), allowed to stabilize under load, and then submerged. The test results are presented in the following table.

Table No. B-5, Collapse Test Results

Boring No./Pipeline	Depth (feet)	Soil Classification	Percent Swell (+) Percent Collapse (-)	Collapse Potential
BH-03/P#1	7.5-9.0	Silty Sand (SM)	-0.4	Slight
BH-07/P#2	5.0-6.5	Silty Sand (SM)	-0.3	Slight

Grain-Size Analysis

To assist in classification of soils, mechanical grain-size analyses were performed on three select samples in accordance with the ASTM Standard C136 test method. Grain-size curves are shown in Drawing No. B-1, *Grain Size Distribution Results* and presented in the following table.

Table No. B-6, Grain Size Distribution Test Results

Boring No./ Pipeline	Depth (ft)	Soil Classification	% Gravel	% Sand	%Silt	%Clay
BH-01/P#3	1-5	Sandy Silt (ML)	0.0	46.0	54.0	
BH-03/P#1	0-5	Silty Sand (SM)	3.0	50.0	47.0	
BH-08/P#2	5-10	Silty Sand with Gravel (SM)	18.0	60.0	22.0	

Maximum Dry Density and Optimum Moisture Content

Laboratory maximum dry density and optimum moisture content relationship tests were performed on three representative bulk soil samples. These tests were conducted in accordance with ASTM Standard D1557 method. Test results are presented on Drawing No. B-2, *Moisture-Density Relationship Result,* and summarized in the following table.

Table No. B-7, Laboratory Maximum Density Test Result

Boring No./ Pipeline	Depth (feet)	Soil Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
BH-01/P#3	1-5	Sandy Silt (ML), Reddish Brown	126.0	12.0
BH-04/P#1	5-10	Silty Sand (SM), Brown	133.0	8.5
BH-07/P#2	5-10	Silty Sand (SM), Reddish Brown	131.0 (134.0*)	8.5 (7.7*)

(*Rock correction = 7.38%)

Direct Shear

Two direct shear tests (BH-02@5' and BH-03@5') on relatively undisturbed soil samples and one direct shear test (BH-08@5-10') on sample remolded to 90 percent of the maximum laboratory dry density were performed under soaked moisture conditions, in accordance with the ASTM D3080 method. In order to prepare remolded samples, laboratory maximum dry density was utilized. For each test, three samples contained in a brass sampler ring were placed, one at a time, directly into the test apparatus and subjected to a range of normal loads appropriate for the anticipated conditions. The samples were then sheared at a constant strain rate of 0.01 to 0.02 inch/minute, depending on the samples. Shear deformation was recorded until a maximum of about 0.25-inch shear displacement was achieved. Ultimate strength was selected from the shear-stress deformation data and plotted to determine the shear strength parameters. For test results, including sample density and moisture content, see Drawings No. B-3 through B-5*, Direct Shear Test Results,* and in the following table.

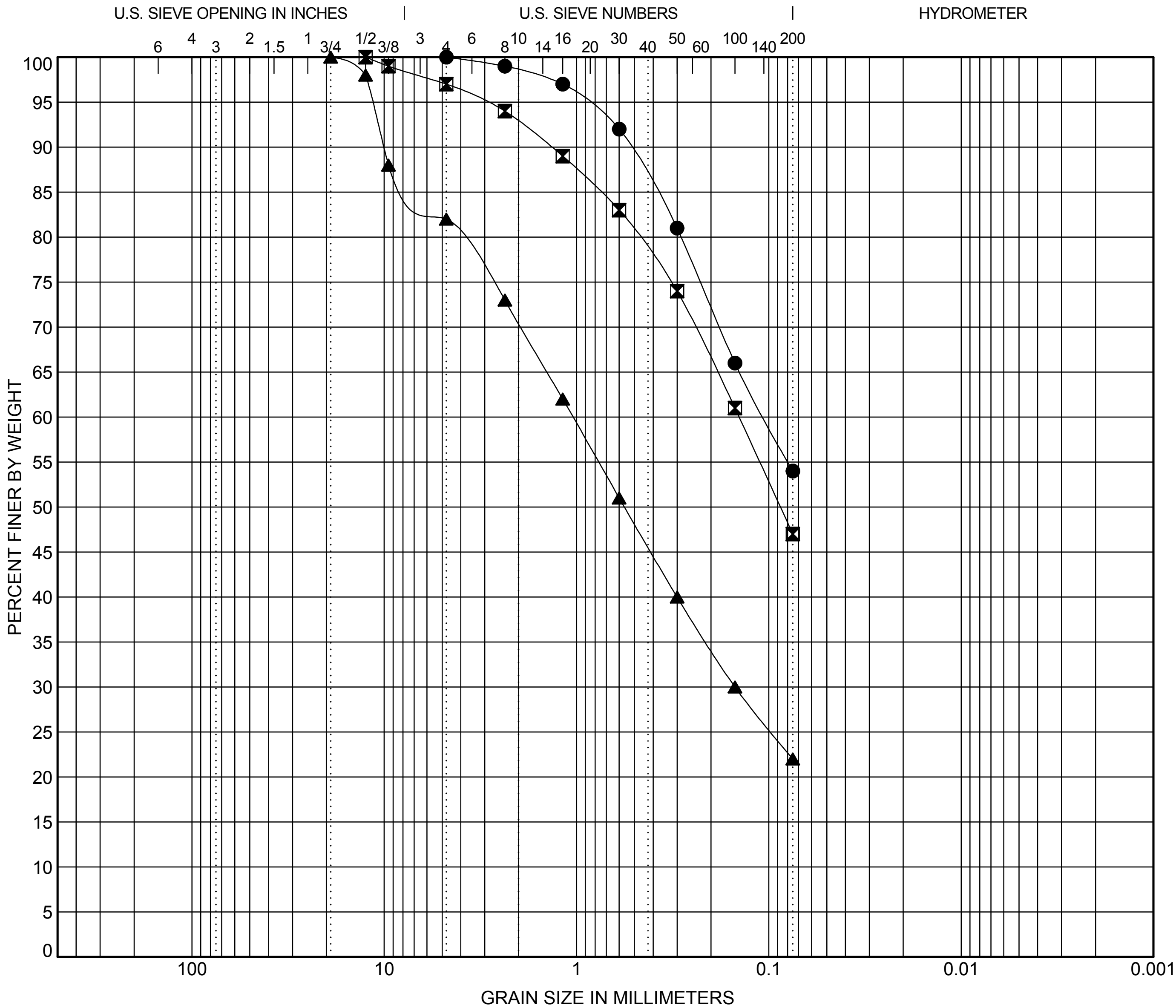
Table No. B-8, Direct Shear Test Results

Boring No./Pipeline	Depth (feet)	Soil Description	Ultimate Strength Parameters	
			Friction Angle (degrees)	Cohesion (psf)
BH-02/P#3	5.0-6.5	Silty Sand (SM)	32	170
BH-03/P#1	5.0-6.5	Silty Sand (SM)	34	100
*BH-08/P#2	5-10	Silty Sand with Gravel (SM)	31	60

(Remolded to 90% of the laboratory maximum dry density)

Sample Storage

Soil samples currently stored in our laboratory will be discarded thirty days after the date of the final report, unless this office receives a specific request to retain the samples for a longer period.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth (ft)	Description	LL	PL	PI	Cc	Cu
●	**BH-01**	**1-5**	**SANDY SILT (ML)**					
⊠	**BH-03**	**0-5**	**SILTY SAND (SM)**					
▲	**BH-08**	**5-10**	**SILTY SAND WITH GRAVEL (SM)**					

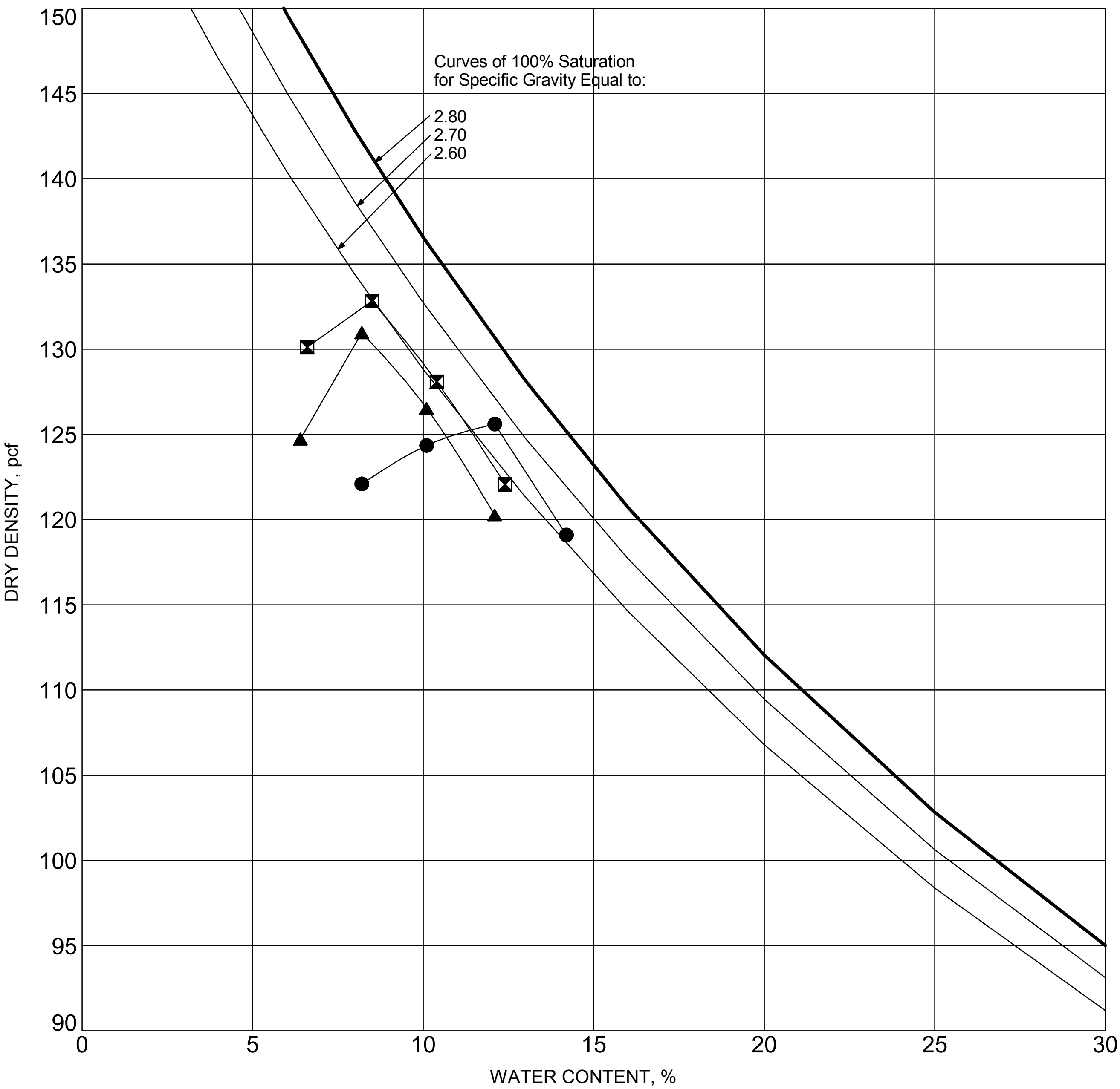
	Boring No.	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH-01**	**1-5**	**4.75**	**0.106**			**0.0**	**46.0**	**54.0**	
⊠	**BH-03**	**0-5**	**12.5**	**0.143**			**3.0**	**50.0**	**47.0**	
▲	**BH-08**	**5-10**	**19**	**1.043**	**0.15**		**18.0**	**60.0**	**22.0**	

GRAIN SIZE DISTRIBUTION RESULTS

Converse Consultants

Water Pipeline Replacement Projects
Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Project No. **17-81-257-01**
Drawing No. **B-1**



SYMBOL	BORING NO.	DEPTH (ft)	DESCRIPTION	ASTM TEST METHOD	OPTIMUM WATER, %	MAXIMUM DRY DENSITY, pcf
●	**BH-01**	**1-5**	**SANDY SILT (ML), REDDISH BROWN**	**D1557-B**	**12.0**	**126.0**
⊠	**BH-04**	**5-10**	**SILTY SAND (SM), BROWN**	**D1557-B**	**8.5**	**133.0**
▲	**BH-07**	**5-10**	**SILTY SAND (SM), REDDISH BROWN**	**D1557-A**	**8.5 (7.7*)**	**131.0 (134.0*)**

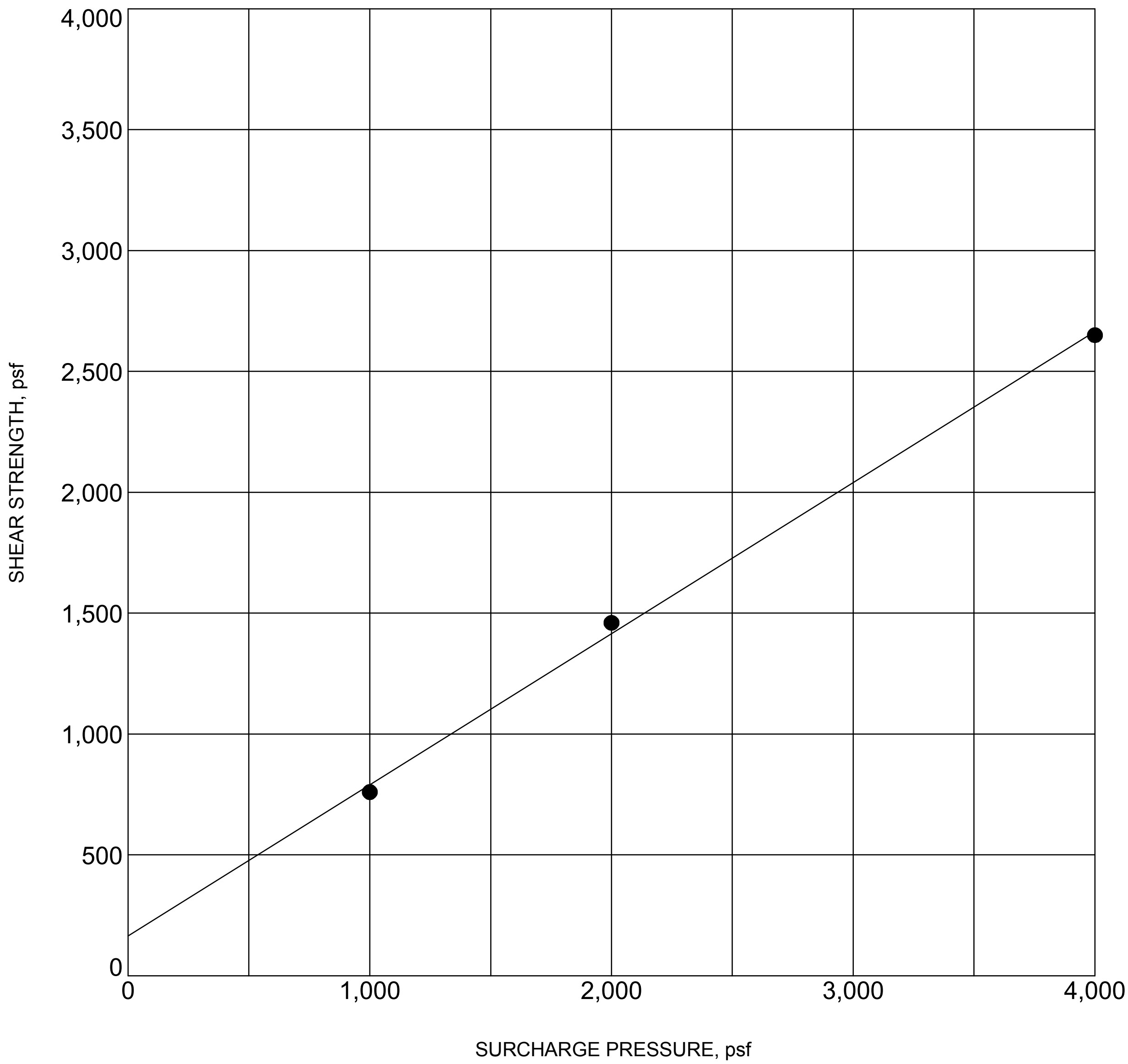
(*Rock correction = 7.38%)

MOISTURE-DENSITY RELATIONSHIP RESULTS

Converse Consultants

Water Pipeline Replacement Projects
Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Project No. 17-81-257-01
Drawing No. B-2



BORING NO. :	**BH-02**	DEPTH (ft) :	**5.0-6.5**
DESCRIPTION :	**SILTY SAND (SM)**		
COHESION (psf) :	**170**	FRICTION ANGLE (degrees):	**32**
MOISTURE CONTENT (%) :	**15.3**	DRY DENSITY (pcf) :	**112.3**

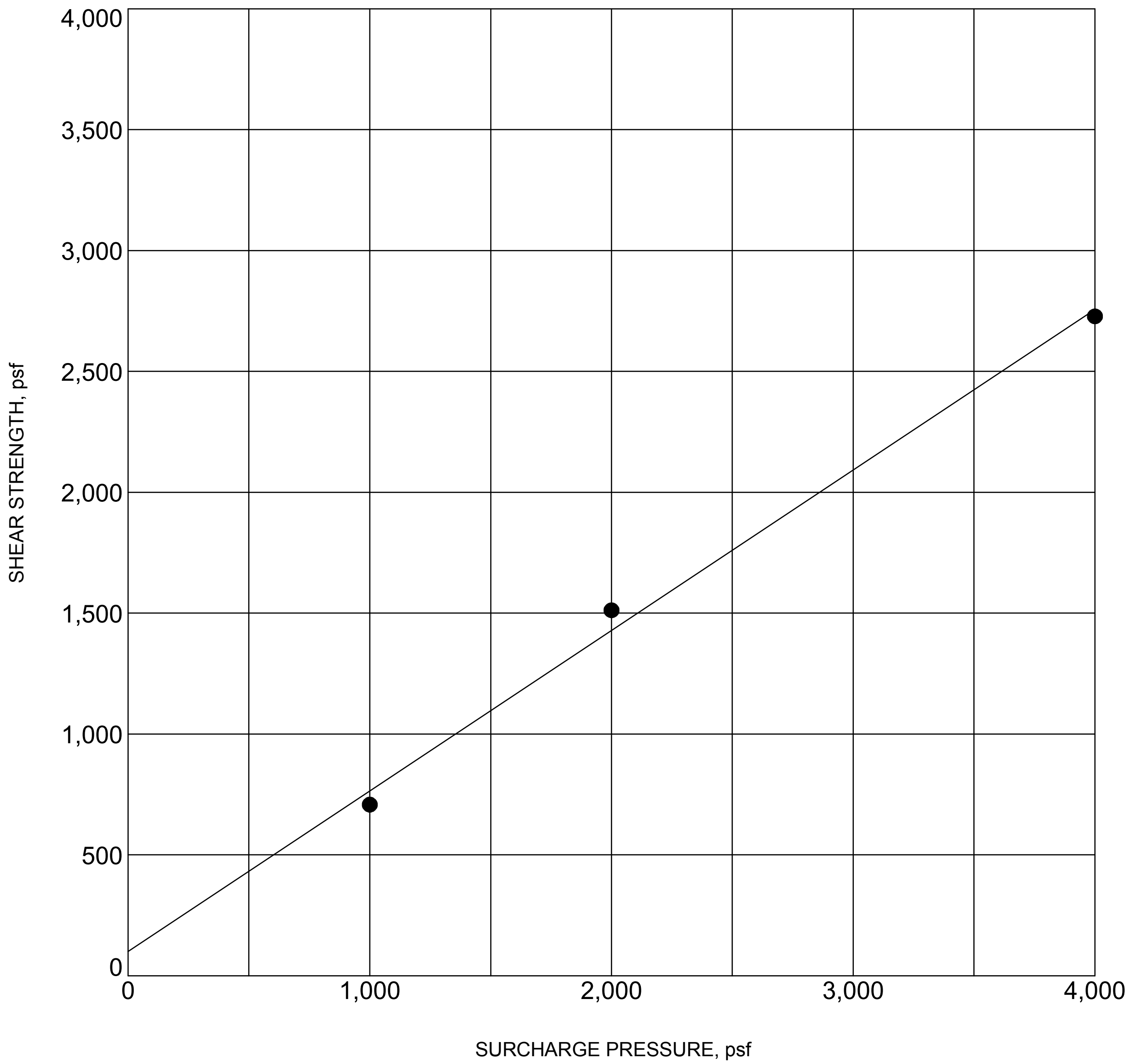
NOTE: Ultimate Strength.

DIRECT SHEAR TEST RESULTS

Converse Consultants

Water Pipeline Replacement Projects
Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Project No. Drawing No.
17-81-257-01 **B-3**



BORING NO.	:	**BH-03**	DEPTH (ft)	:	**5.0-6.5**
DESCRIPTION	:	**SILTY SAND (SM)**			
COHESION (psf)	:	**100**	FRICTION ANGLE (degrees):		**34**
MOISTURE CONTENT (%)	:	**8.4**	DRY DENSITY (pcf)	:	**115.8**

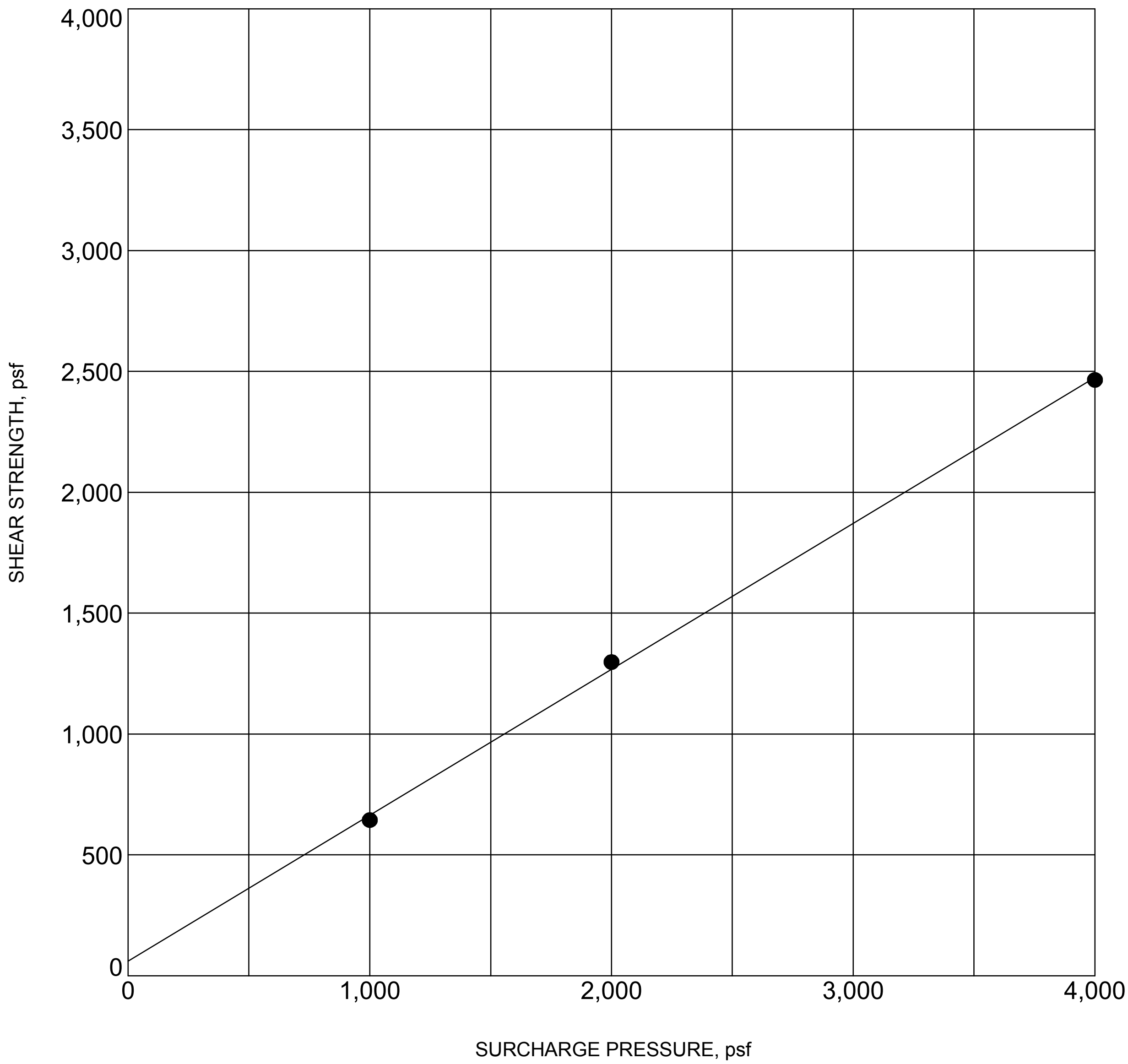
NOTE: Ultimate Strength.

DIRECT SHEAR TEST RESULTS

Converse Consultants

Water Pipeline Replacement Projects
Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Project No. 17-81-257-01
Drawing No. B-4



BORING NO.	:	**BH-08**	DEPTH (ft)	:	**5-10**
DESCRIPTION	:	**SILTY SAND WITH GRAVEL (SM)**			
COHESION (psf)	:	**60**	FRICTION ANGLE (degrees):		**31**
MOISTURE CONTENT (%)	:	**10.6**	DRY DENSITY (pcf)	:	**116.1**

NOTE: Ultimate Strength.

DIRECT SHEAR TEST RESULTS

Converse Consultants

Water Pipeline Replacement Projects
Community of Cherry Valley/City of Beaumont, Riverside County, California
For: Michael Baker International

Project No.	Drawing No.
17-81-257-01	**B-5**

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Appendix C

Pipe Bedding and Trench Backfill

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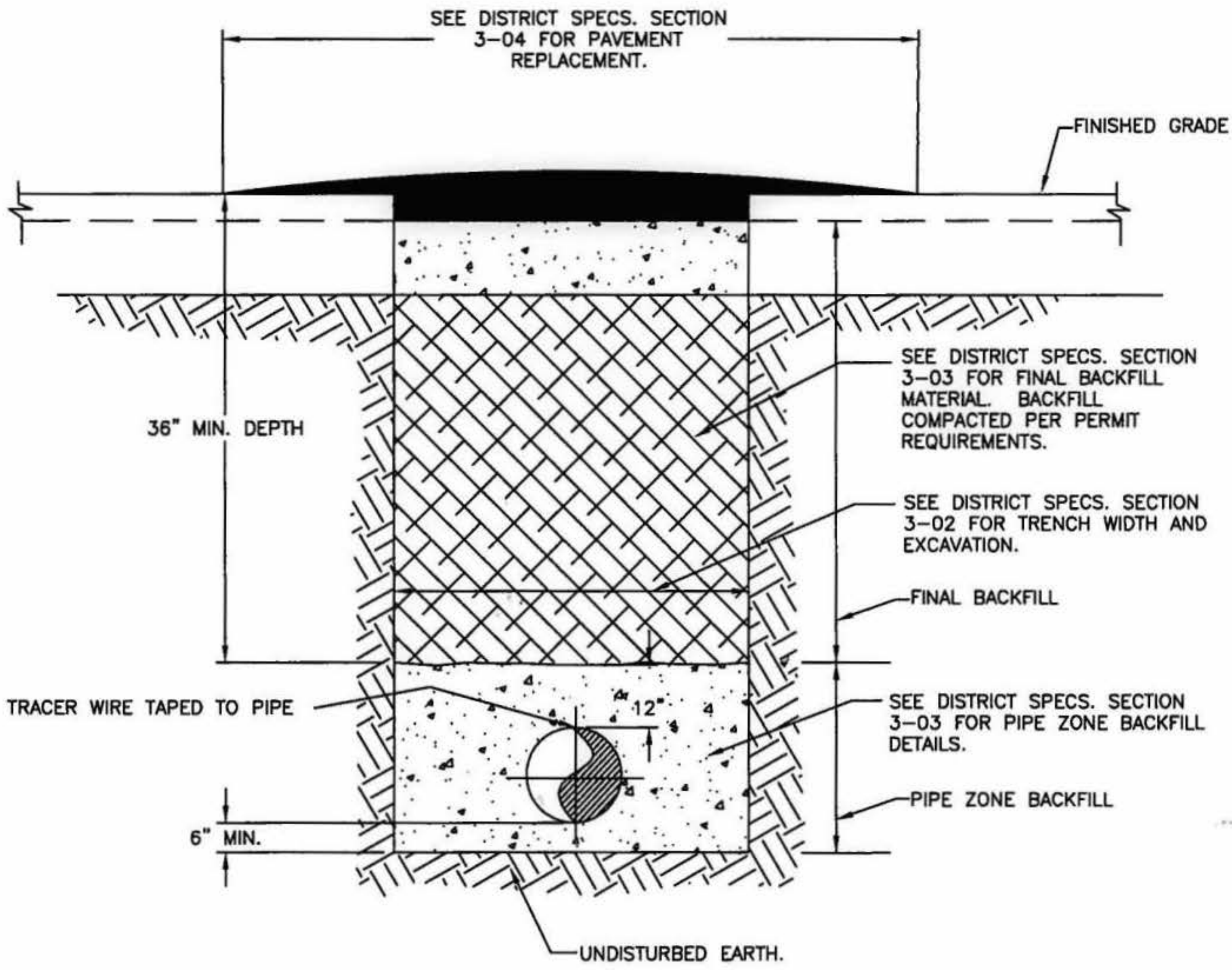

NOT TO SCALE

REVISED	PREPARED BY: PARSONS	DATE: 08/06	BEAUMONT CHERRY VALLEY WATER DISTRICT
12/10	APPROVED:	DATE: 1/5/11	
	DISTRICT ENGINEER		TRENCH DETAIL — PLATE 6-1

FILE: X:\BCWD_Projects\District_Projects\Standards\Plates

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