

**INITIAL STUDY/MITIGATED NEGATIVE  
DECLARATION  
Sunset Reservoir Project  
CITY OF REDLANDS, CALIFORNIA**

***Prepared for:***

CITY OF REDLANDS  
Municipal Utilities and Engineering Department  
35 Cajon Street, Suite 15A  
Redlands, CA 92373



***Prepared by:***

**CHAMBERS GROUP, INC.**  
3151 Airway Ave., Suite F208,  
Costa Mesa, CA 92626  
(949) 261-5414

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## SECTION 1.0 – PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING

### 1.1 PROJECT PURPOSE AND BACKGROUND

The City of Redlands (City) is proposing to construct two new reservoir tanks (Proposed Project) to be located on Helen Court, near East Sunset Drive in the City (Project site). The Proposed Project will safeguard public health by expanding the capacities of the reservoirs to meet public drinking water demands, which is critical as the City continues to be impacted by multi-decade drought. The Proposed Project will allow the City to treat and store more water during wet periods for distribution during dry periods.

A Condition, Seismic, and Structural Assessment (Assessment) was completed for water facilities located throughout the City. The results of the Assessment included recommendations for rehabilitating and/or replacing facilities and adding facilities within the City to improve drought resiliency by increasing storage capacity. Based on the water needs of the City, the Project proposes to install two new above ground factory-coated bolt carbon steel tank with an approximately 14 million gallon (MG) total capacity. To construct the tanks, the City requires a permit from the California State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) which requires California Environmental Quality Act (CEQA) documents to be submitted.

### 1.2 PROJECT LOCATION AND SITE CHARACTERISTICS

#### 1.2.1 Project Site Location

The Project site is located south of Helen Drive in the City. The existing City reservoir is located west of Helen Court. The proposed tanks will be located east of the existing reservoir. Both the existing reservoir and Project site are within City property. The City owns and manages the following parcels:

- APN 0300-451-13: 3.20 Acres
- APN 0300-451-14: 2.50 Acres
- APN 0300-451-24: 8.57 Acres
- APN 0300-451-25: 7.78 Acres

The reservoir tanks will be located at parcel 0300-451-25 and 0300-451-14.

#### 1.2.2 Project Site Access and Circulation

Project site access would be via Helen Court along Helen Drive. Helen Drive is located south of East Sunset Drive. East Sunset Drive becomes Alta Vista Drive to the east. Helen Court is a publicly accessed road. Interstate 10 (I-10) is located approximately 1 mile to the north.

#### 1.2.3 General Plan/Zoning

The Project site is within the Highland-Canyons subarea within the City's sphere of influence. The site is zoned as Specific Plan 59 (SP 59) / Flood Plain (FP-1 - Flood Plain District) according to the City's Zoning Map (City 2022a) and with a General Plan land use designation of Resource Preservation (City 2022b). SP 59, also known as the Sector 8 Specific Plan, is located within the central portion of the southeast General Plan Amendment. Land uses within SP 59 were noted as single family residential and open space (City 2006).

The land use designation of Resource Preservation limits the use in areas that possess a unique character and fragile ecology that have prime resources for water conservation, wildlife preservation, open space recreation, and agriculture. Limited permitted uses include public utilities (City 2017).

Land area to the immediate north, east, and south are zoned as SP 59. To the immediate west, the parcels are zoned as Single-Family Residential, Rural Residential District (R-R). General plan land uses to the west, south, and east are designated as Resource Preservation, and to the north as Very Low Density Residential.

### **1.3 PROJECT DESCRIPTION**

The City of Redlands Municipal Utilities and Engineering Department proposes the construction of two new above ground factory-coated bolt carbon steel tank with an approximately 14 MG total capacity on City property, adjacent to the existing reservoir. The Proposed Project will develop on parcels 0300-451-25 and 0300-451-14, which will cover approximately 46% of the total City-owned parcels.

#### **1.3.1 Parking and Hardscape**

One driveway will connect the existing water tank and Helen Court. The driveway will be constructed utilizing asphalt/gravel. Two parking spaces will be installed for maintenance purposes. The site will remain unmanned.

#### **1.3.2 Operations and Ongoing Maintenance**

Maintenance will occur on a monthly and as-needed basis by City employees. Landscaping will be maintained by the City. The existing water tank will continue to function while the new reservoir tanks are constructed; once operational the existing water tank would cease operations.

#### **1.3.3 Construction**

Construction of the Proposed Project will require multiple workers using equipment such as loaders, pick-up trucks, backhoe, water truck for dust suppression, crane, asphalt paver, and excavators. Project materials will be staged within the existing vacant parcels currently managed by the City. Construction of the Proposed Project include, but are not limited to, excavation and grading to construct water tank pads and internal driveways, construction of two new above ground factory-coated bolt carbon steel tank with an approximately 14 MG total capacity and ancillary facilities such as a pump station, and valve vaults. A retaining wall with chain link fence will be installed to surround the reservoir. Architectural coatings will be added for the tanks to blend with the existing environment.

#### **Construction Schedule**

The Project is expected to break ground in 2024 and be completed by 2025. Construction activities will take place from 7:00 a.m. to 6:00 p.m. Monday through Saturday. No construction work will occur on Sundays or holidays per the City's Community Noise Control section Chapter 8.06 of the Municipal Code (City 2023).

### **1.4 REQUIRED PERMITS AND APPROVALS**

Reviewing Agencies include those agencies that do not have discretionary authority but may review the Initial Study, Environmental Impact Report (EIR), and/or Negative Declaration for adequacy and accuracy.

Responsible Agencies have discretionary approval authority for a project. Potential Reviewing Agencies and Responsible Agencies include the following:

Responsible Agencies

- California State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW)

Reviewing Agencies

- South Coast Air Quality Management District (SCAQMD)
- Native American Heritage Commission (NAHC), and tribes requesting consultation

**1.4.1 Permits and Approvals**

The following permits and approvals may be required prior to construction of the Project:

- Site Plan review
- Grading Permit
- Building Permit
- Compliance with National Pollutant Discharge Elimination System (NPDES) Construction General Permit by the Regional Water Quality Control Board (RWQCB)

Figure 1 - Project Vicinity Map

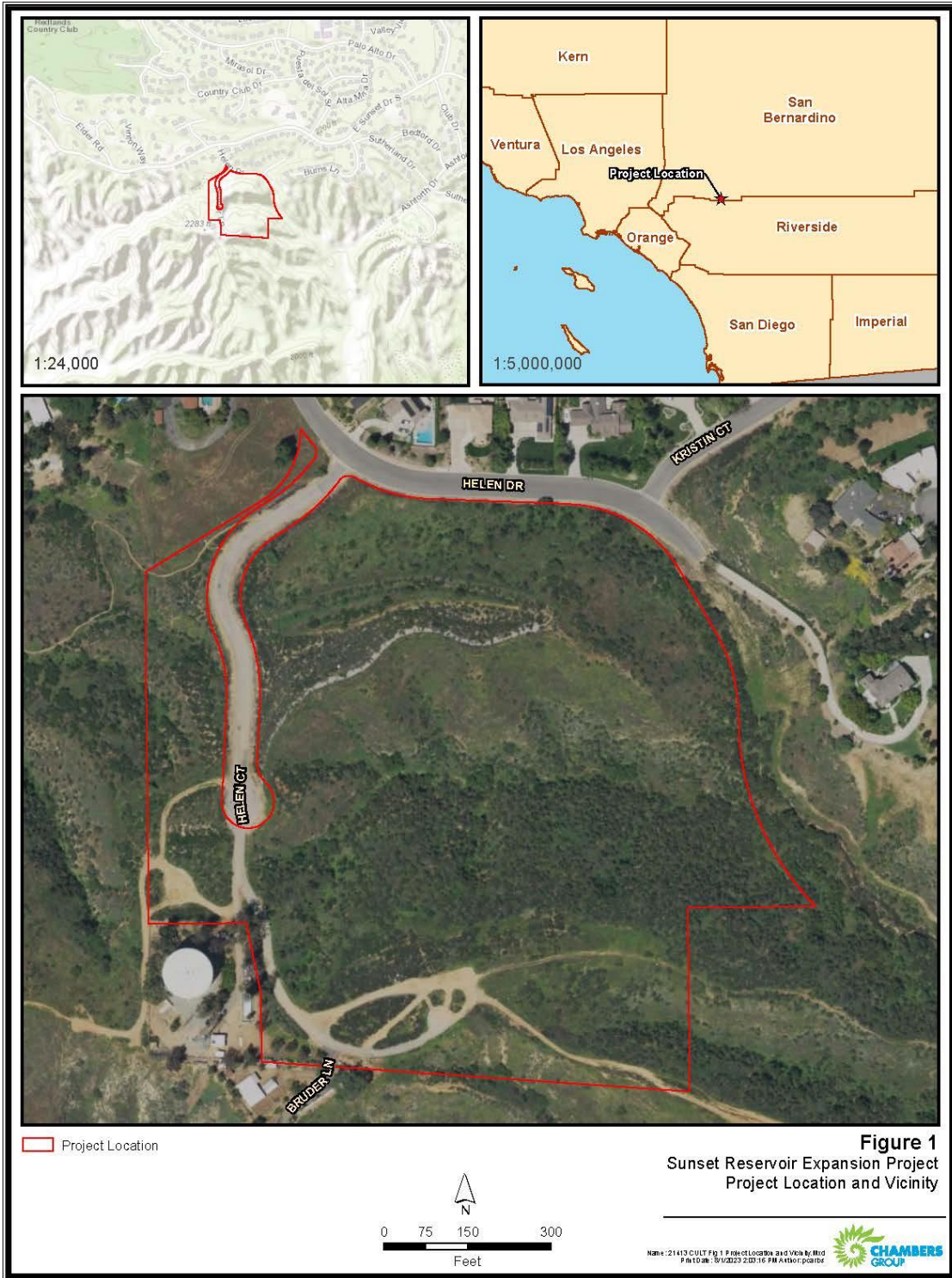
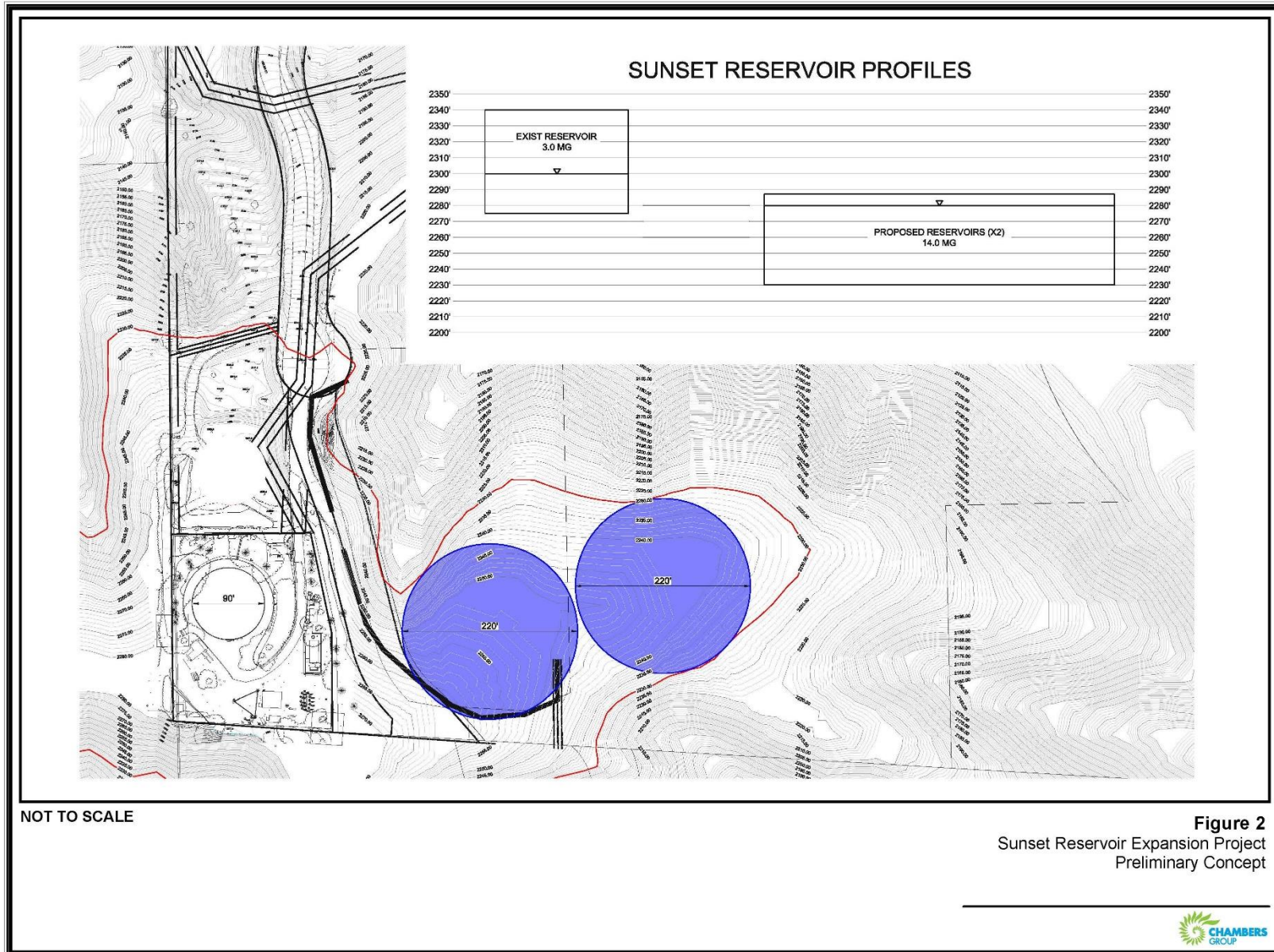




Figure 2 – Preliminary Concept



SECTION 2.0 – ENVIRONMENTAL DETERMINATION

2.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:


The environmental factors checked below would potentially be affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklists on the following pages. For each of the potentially affected factors, mitigation measures are recommended that would reduce the impacts to less than significant levels.

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

2.2 DETERMINATION

On the basis of this initial evaluation:

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

  
\_\_\_\_\_  
Signature

Veronica Medina  
\_\_\_\_\_  
Name

3/28/2024  
\_\_\_\_\_  
Date

Associate Engineer  
\_\_\_\_\_  
Title

### SECTION 3.0 – EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if substantial evidence exists that an effect may be significant. If one or more “Potentially Significant Impact” entries are marked when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
  - a. Earlier Analysis Used. Identify and state where they are available for review.
  - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c. Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. The explanation of each issue should identify:
  - a. the significance criteria or threshold, if any, used to evaluate each question; and
  - b. the mitigation measure identified, if any, to reduce the impact to less than significant.

*\*Note: Instructions may be omitted from final document.*

**SECTION 4.0 – CHECKLIST OF ENVIRONMENTAL ISSUES**

**4.1 AESTHETICS**

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

**4.1.1 Impact Analysis**

a) *Would the project have a substantial adverse effect on a scenic vista?*

**Less Than Significant Impact.** The City implements regulations to protect and enhance the unique visual resources of the City. These visual resources include the community’s hillside setting, diverse topographic forms, and scenic qualities. The Proposed Project site is located 2.80 miles southwest of Crafton Hills Open Space. This area adjacent to Yucaipa Regional Park is part of the San Bernardino County open space network and comprises land in the Crafton Hills, generally above an elevation of 2,400 feet in the eastern portion of the City’s Planning Area. This is an important open space resource in the urbanizing Redlands/ Yucaipa area and has significant value as a relatively undisturbed habitat area, a scenic resource, and a potential area for recreational open space use, as there is a recreational trail system there (City 2018). While the Project site sits on the hillsides of the City and is on undeveloped property, the Proposed Project will not be located on the prominent ridgeline of Crafton Hills, and therefore, the proposed construction of the new tanks and decommissioning of the existing tank would not affect the scenic vistas within the City. Impacts would be less than significant.

b) *Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

**Less Than Significant Impact.** The Proposed Project site consists mostly of open spaces and rural residential areas along Helen Court and Boulder Lane. According to the California Department of Transportation (Caltrans) Scenic Highway System List (California Department of Transportation [Caltrans] 2023), Route 38 is listed as an eligible scenic highway. Route 38 is located approximately

3.80 miles north of the northern portion of the Proposed Project site. The Proposed Project is not located within a state scenic highway and there are no historic buildings or rock outcroppings within the Proposed Project vicinity. Impacts would be less than significant.

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

**Less than Significant Impact.** The Proposed Project site's visual character is provided by the rural character of the Redlands area as well as the open space areas. The Proposed Project site is accessible through Helen Court and Boulder Lane. The Proposed Project would create a temporary impact to the existing visual quality with the construction of both water tanks. Construction activities would occur intermittently throughout the Project site and would be temporary in nature.

The installation of the water tanks would permanently alter the visual character of the area as it is currently vacant. However, the tanks would be coated to blend with the existing surroundings. Lots within the Specific Plan area have been designated for residential construction. However, the Specific Plan notes that all land contained within the specific plan boundaries shall be provided with water services and improvements may be permitted as long as the changes conform to all aspects in the Specific Plan. The Proposed Project intends to increase water storage within the City to address existing demand. Furthermore, the Proposed Project will occur within City property and will conform to the height requirements of no greater than two and one-half stories or thirty-five feet (City 2006).

The Proposed Project will not conflict with applicable zoning and other regulations governing scenic quality and will not substantially degrade the existing character because the Project site is not located within a visually sensitive area. The proposed construction of the new tanks and decommissioning of the existing tank is consistent with what is permitted under the Specific Plan. Impacts would be less than significant.

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

**Less Than Significant Impact.** Existing light sources within the Project vicinity include lights from vehicles along adjacent roadways, and outdoor lighting from residences located along Sunset Drive and Helen Drive. Night lighting is present for security purposes on the existing water tank. Outside of light spillover from existing structures and vehicle lights, no other lighting is currently located within the Project site. During construction, the Proposed Project would generate light and glare from the presence and operation of vehicles and equipment. Construction would be scheduled between the hours of 7:00 a.m. to 6:00 p.m. Monday through Saturday. No construction work will occur on Sundays or holidays per the City's Community Noise Control section Chapter 8.06 of the Municipal Code (City 2023). Once constructed, any security lighting will be designed per the City's Lighting Development Standards, 18.156.750 of the Municipal Code (City 2023). The proposed tanks would be designed and coated with antiglare coating and will blend in with the existing surroundings; therefore any impacts associated with light and glare would be less than significant.

4.2 AGRICULTURE & FORESTRY RESOURCES

2.	<b>AGRICULTURE &amp; FOREST RESOURCES.</b> (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 Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, 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:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(d)	Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or the conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.2.1 Impact Analysis

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

**Less than Significant Impact.** The Farmland Mapping and Monitoring Program (FMMP) administered by the California Department of Conservation (DOC) produces maps and statistical data to analyze impacts on California’s agricultural resources. Agricultural land is rated according to soil quality and irrigation status. The Proposed Project site is categorized as grazing land which is land on which the

existing vegetation is suited to the grazing of livestock (DOC 2022a). The Project site is not within prime farmland, unique farmland, or farmland of statewide importance. The Project site is not currently utilized for grazing, animal keeping or farming use; therefore, there will not be a conversion of uses. Impacts would be less than significant.

b) *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

**No Impact.** The Project site is zoned as Flood Plain (FP-1 - Flood Plain District) and is designated under the General Plan Land Use Map as Resource Preservation. None of the parcels are in a Williamson Act contract or conflict with any existing agricultural use (City 2018). No impact would occur.

c) *Would the project 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))?*

**No Impact.** While the Proposed Project site does include various vegetation throughout the site, it is not currently zoned for forest land or timberland; the Proposed Project would therefore not result in the conversion of any farmland or forest land to another use. No impact would occur.

d) *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*

**No Impact.** See discussion in sections b) and c), above. The Project site is zoned as Flood Plain and is not located within forest land or timberland. No forest land would be lost or converted to non-forest uses for the purpose of the Proposed Project. No impact would occur.

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

**Less than Significant Impact.** The Proposed Project site contains one existing water tank and is adjacent to one single family residence. Additional residential neighborhoods are located north of the Project site as well as a golf course located to the northwest. Vegetation communities on-site are comprised mostly of non-native grassland. The Proposed Project will not result in conversion of farmland to nonagricultural use or non-forest use because the Project site is not designated as farmland or forest land. While the Project site has been categorized as grazing land, there are no current grazing operations occurring. Therefore, the impacts would be less than significant.



### 4.3 AIR QUALITY

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

#### 4.3.1 Impact Analysis

a) *Would the project conflict with or obstruct implementation of the applicable air quality plan?*

**Less Than Significant Impact.** An Air Quality and Greenhouse Gas Emissions (GHGs) Impact Analysis (Air Report) was prepared for the Proposed Project by Vista Environmental in October 2023. The analysis was prepared to determine the air quality and GHG impacts associated with the Proposed Project. The full report and models are provided in Appendix A.

The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project’s consistency with the SCAQMD AQMP.

#### **SCAQMD Air Quality Management Plan**

The CEQA requires a discussion of any inconsistencies between a proposed project and applicable General Plans and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD AQMP. Therefore, this section discusses any potential inconsistencies of the Proposed Project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the Proposed Project would interfere with the region’s ability to comply with Federal and State air quality standards. If the decision-makers determine that a proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

- (1) Whether the project will result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- (2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

### **Criterion 1 - Increase in the Frequency or Severity of Violations?**

Based on the air quality modeling analysis contained in the Air Report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance and local thresholds of significance. The ongoing operation of the Proposed Project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not exceed the air quality standards. Therefore, a less than significant long-term impact would occur, and no mitigation would be required.

Therefore, based on the information provided above, the Proposed Project would be consistent with the first criterion.

### **Criterion 2 - Exceed Assumptions in the AQMP?**

Consistency with the AQMP assumptions is determined by performing an analysis of the Proposed Project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the Proposed Project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the Connect SoCal and 2019 Federal Transportation Improvement Program (FTIP). The Connect SoCal is a major planning document for the regional transportation and land use network within Southern California. The Connect SoCal is a long-range plan that is required by federal and state requirements placed on the Southern California Association of Governments (SCAG) and is updated every four years. The 2019 FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this Project, the City of Redlands General Plan's Land Use Plan defines the assumptions that are represented in AQMP.

The Project site is currently designated as Resource Preservation in the General Plan. The proposed reservoirs are an allowed use within this land use designation and would not require a General Plan Amendment. As such, the Proposed Project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the Proposed Project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

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

**Less Than Significant Project.** The Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard.

This analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD’s recommended daily thresholds for project- specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the South Coast Air Basin (Basin) is in nonattainment, and, therefore, would not be considered to have a significant adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable. The following section calculates the potential air emissions associated with the construction and operations of the Proposed Project and compares the emissions to the SCAQMD standards.

**Construction Emissions**

The construction activities for the Proposed Project are anticipated to include site preparation and grading of approximately 6.2 acres, building construction of the proposed reservoirs, paving of an on-site driveway and parking spaces, and application of architectural coatings. The CalEEMod model has been utilized to calculate the construction-related emissions from the Proposed Project. The maximum daily construction-related criteria pollutant emissions from the Proposed Project are shown below in Table 4-1.

**Table 4-1: Construction-Related Criteria Pollutant Emissions**

Season and Year of Construction	Maximum Daily Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO <sub>2</sub>	PM10	PM2.5
Summer 2024	3.74	36.1	34.4	0.05	8.04	4.26
Winter 2024	1.37	11.9	15.4	0.03	1.03	0.59
Summer 2025	35.8	11.0	15.8	0.03	0.96	0.53

Winter 2025	1.27	11.0	15.1	0.03	0.96	0.53
<b>Maximum Daily Construction Emissions</b>	<b>35.8</b>	<b>36.1</b>	<b>34.4</b>	<b>0.05</b>	<b>8.04</b>	<b>4.26</b>
<b>SCAQMD Regional Thresholds</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>SCAQMD Local Thresholds<sup>1</sup></b>	<b>--</b>	<b>356</b>	<b>3,630</b>	<b>--</b>	<b>59</b>	<b>15</b>
Exceeds Thresholds?	No	No	No	No	No	No

Note:

<sup>1</sup> The nearest sensitive receptor is a single-family home located as near as 280 feet (85 meters) south of the area that would be disturbed. As such, the 50 meter and 100 meter thresholds were interpolated to find the 85 meter thresholds. Calculated from SCAQMD's Mass Rate Look-up Tables for five acres in Air Monitoring Area 34, San Bernardino Valley.

Source: CalEEMod Version 2022.1.

Table 4-1: Construction-Related Criteria Pollutant Emissions

shows that none of the analyzed criteria pollutants would exceed either the regional or local emissions thresholds during construction of the Proposed Project. Therefore, a less than significant regional or local air quality impact would occur from construction of the Proposed Project.

### Operational Emissions

In general, operation of the new reservoir tanks will be passive as there will be no equipment installed on the reservoir tanks that creates air emissions. The existing water tank will continue to function while the new reservoir tanks are constructed. Currently, maintenance on the existing water tank occurs on a monthly and as-needed basis by City employees, which includes landscaping. No change would occur between the maintenance activities for the existing water tank and proposed reservoir tanks. As such, operation of the Proposed Project would not create any additional air emissions, over which is currently being created, and no operational air emission modeling was performed. As such, less than significant air quality impacts would occur from operation of the Proposed Project.

Therefore, the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant.

*c) Would the project expose sensitive receptors to substantial pollutant concentrations?*

**Less Than Significant Impact.** The Proposed Project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the Proposed Project, which may expose sensitive receptors to substantial concentrations, have been calculated for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from local criteria pollutant and toxic air contaminant emissions.

### Construction-Related Sensitive Receptor Impacts

Construction activities may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from on-site construction equipment, which are described below.

### **Local Criteria Pollutant Impacts from Construction**

The local air quality impacts from construction of the Proposed Project have been analyzed and found that the construction of the Proposed Project would not exceed the local nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), particulate matter (PM)<sub>10</sub> and PM<sub>2.5</sub> thresholds of significance. Therefore, construction of the Proposed Project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

### **Toxic Air Contaminants (TAC) Impacts from Construction**

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the Proposed Project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30-year exposure period for the nearby sensitive receptors.

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the Proposed Project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to California Air Resources Board (CARB) of their fleet’s usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0, Tier 1, or Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, due to the limitations in off-road construction equipment DPM emissions from implementation of Section 2448, a less than significant short-term TAC impacts would occur during construction of the proposed project from DPM emissions.

As such, construction of the Proposed Project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

### **Operations-Related Sensitive Receptor Impacts**

In general, operation of the new reservoir tanks will be passive as there will be no equipment installed on the reservoir tanks that creates air emissions. The existing water tank will continue to function

while the new reservoir tanks are constructed. Currently, maintenance on the existing water tank occurs on a monthly and as-needed basis by City employees, which includes landscaping. No change would occur between the maintenance activities for the existing water tank and proposed reservoir tanks. As such, operation of the Proposed Project would not create any additional air emissions, over which is currently being created, and no operational air emission modeling was performed. Therefore, operation of the Proposed Project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

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

**Less Than Significant Impact.** The Proposed Project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the Project site, and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, and is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

### **Construction-Related Odor Impacts**

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints, and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108, which limits volatile organic compounds (VOC) content in asphalt, and Rule 1113, which limits the VOC content in paints and solvents, would minimize odor impacts from construction. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the Project site's boundaries. Through compliance with the applicable regulations that

reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur, and no mitigation would be required.

**Operations-Related Odor Impacts**

The Proposed Project would consist of the development of two enclosed water reservoir tanks. Enclosed reservoir tanks are not a known source of odors. Therefore, a less than significant odor impact would occur from operation of the Proposed Project.

**4.4 BIOLOGICAL RESOURCES**

4.	BIOLOGICAL RESOURCES. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**4.4.1 Impact Analysis**

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

**Less Than Significant Impact With Mitigation Incorporated.** A Biological Reconnaissance Assessment was prepared for the Proposed Project by Chambers Group in September 2023. The Biological Reconnaissance Assessment included a literature review and reconnaissance survey to assess the Project site's existing conditions. Complete details and results of the survey are provided in Appendix B. Based on the results of the literature review and reconnaissance survey, the Project site was found to have the following special status plants and wildlife conditions.

### Special Status Plant Species

Based on desktop research, the Project site consists of one special status plant species to have a low potential of occurrence (slender-horned spineflower (*Dodecahema leptoceras*)) and eight to have moderate potential to occur within the Project site (chaparral sand-verbena (*Abronia villosa* var. *aurita*), Jaeger's milk-vetch (*Astragalus pachypus* var. *jaegeri*), mesa horkelia (*Horkelia cuneata* var. *puberula*), Hall's monardella (*Monardella macrantha* subsp. *hallii*), Brand's star phacelia (*Phacelia stellaris*), chaparral ragwort (*Senecio aphanactis*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), and Santa Ana River woollystar (*Eriastrum densifolium* subsp. *sanctorum*)). While none of these species were found during the survey, they have low to moderate potential of occurrence during the blooming period (June). Therefore, focused protocol-level plant surveys shall be implemented (MM BIO-1) to identify if these species are present during the blooming period and to implement measures to result in a less than significant impact to these species.

**MM BIO-1:** The Project site has low to moderate potential for special status plant species to be present on-site. Per the Biological Reconnaissance Assessment, the following special status plant species have low to moderate potential of occurrence within the Project site: slender-horned spineflower (*Dodecahema leptoceras*), chaparral sand-verbena (*Abronia villosa* var. *aurita*), Jaeger's milk-vetch (*Astragalus pachypus* var. *jaegeri*), mesa horkelia (*Horkelia cuneata* var. *puberula*), Hall's monardella (*Monardella macrantha* subsp. *hallii*), Brand's star phacelia (*Phacelia stellaris*), chaparral ragwort (*Senecio aphanactis*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), and Santa Ana River woollystar (*Eriastrum densifolium* subsp. *sanctorum*).

Therefore, a qualified botanist must be retained by the Project applicant to conduct a protocol-level focused plant survey prior to construction at the location of the water tanks to identify if any special status plant species are present on site. The focused plant survey shall be conducted during the appropriate blooming period or when each species is conspicuous and readily identifiable by a qualified botanist. If any special status plant species are observed, they will be mapped, counted, and recorded.

When feasible, construction activities will avoid impacts to the areas with special status plant species if found. The special status plants identified shall be protected by a buffer zone established by a qualified botanist prior to construction. If the qualified botanist determines that the special status plants cannot be avoided and a buffer zone cannot be established, then further mitigation for the impacted species will be required. This may include payment of an in-lieu fee, preservation of suitable habitat elsewhere off the Project site, collection of seeds, transplanting, or another form of mitigation as approved by the resource agencies.



### **Special Status Communities**

Five special status communities, Riversidian Alluvial Fan Sage Scrub, Southern Coast Live Oak Riparian Forest, Southern Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub, were found within 5 miles of the proposed Project site but were not present on the Proposed Project site. Therefore, there is no impact on these communities.

### **Special Status Wildlife Species**

The Project site has four wildlife species that were observed within two miles of the Project site (coastal patch-nosed snake, coastal whiptail, orange-throated whiptail, and southern California legless lizard). However, the Project site contains only marginal quality habitat and is not adjacent to any riparian areas, which are often associated with these species. Therefore, these species have a low potential to occur within the Project site and no impacts are likely to occur to these species as a result of Project activities. The Coastal California gnatcatcher and yellow-billed cuckoo have been recorded within two miles of the site; however, the Project site is composed of low to moderate quality habitat for California gnatcatcher and lacks any riparian habitat required by yellow-billed cuckoo. Therefore, these species are not likely occur within the site. No sensitive wildlife species were observed during the field survey.

Ground disturbing activities could impact nesting birds that are protected under the Migratory Bird Treaty Act (MBTA) which may be present at the Project site. Therefore, MM BIO-2 shall be implemented to ensure that impacts to nesting birds would be less than significant.

#### **MM BIO-2: Pre-Construction Survey**

To minimize potential impacts to nesting birds protected under the Migratory Bird Treaty Act (MBTA) within the Project, construction activities shall take place outside nesting season (February 1 to August 31) to the greatest extent practicable. The survey shall be scheduled with and conducted by a qualified biologist in coordination with the City and onsite construction manager.

If construction activities must occur during nesting season, a preconstruction nesting bird survey shall be conducted prior to initiation of ground-disturbing activities. The survey shall be completed within 14 days prior to ground disturbing activities which consists of but are not limited to tree removal, trenching, etc.

During the survey, should nesting birds or their nests be encountered, to the maximum extent practicable, a minimum buffer zone around occupied nests should be determined by a qualified biologist to avoid impacts to the active nest. The buffer shall range at a minimum of 100 to 300 feet. The buffer should be maintained during physical ground-disturbing activities. Avoidance measures that shall be implemented if the biologist finds that it is required to not impact the nests include but are not limited to noise, activity, and design modifications, worker education, signage, buffers and/or temporary fencing. Once the biologist has determined that the nesting has ceased and the nestlings have fledged, the buffer may be removed.

Implementation of these mitigation measures would result in the Proposed Project having a less than significant impact to candidate, sensitive, or special status species identified in the Project site.

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

**No Impact.** The results of the Biological Reconnaissance Assessment show that the Project site lacks riparian habits within and around the Project site. As previously discussed in part a) special status communities were found to be within 5 miles of the Project site but are not on the Project site. Therefore, the Proposed Project would have no impact on any riparian habitat or other sensitive natural community. No impact would occur.

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

**Less Than Significant Impact.** The Biological Reconnaissance Assessment reviewed the U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI) and National Hydrography Database (NHD) blue line drainages. A general assessment of waters potentially regulated by the U.S. Army Corps of Engineers (USACE), RWQCB, and California Department of Fish and Wildlife (CDFW) was conducted for the Project site.

No USFWS NWI features are present within the Project site. One NHD ephemeral feature is shown to historically flow through the Project site; however, based on the results of the field survey, no defined channelization or bank to bank was observed in the area of the NHD feature and it appears this area facilitates nuisance flow during rain events and becomes sheet flow at the bottom of the hill and does not appear to connect to any other features downstream. Project activities are proposed to occur on the top of the hill near the existing water tower and no work would occur along the hillside's areas. No impacts to jurisdictional waters would occur as a result of Project activities. During construction, any proposed work will include best management practices (BMPs) that are required for stormwater pollution and prevention. These will include, but are not limited to, silt fencing and straw wattles. Impacts therefore would be less than significant.

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

**Less than Significant Impact.** The results of the survey reported in the Biological Reconnaissance Assessment stated low to moderate occurrence of special status plant species and wildlife species based on historical data. Additionally, according to the County of San Bernardino's General Plan Open Space Element map, the Project site is not located within the listed major open space areas such as the San Timoteo Canyon, Live Oak Canyon, Santa Ana River, and Crafton Hills Grove (County 2007). The City's Critical Habitat and Principal Waters figure in the General Plan show that the Project is not

located within any listed critical habitats (City 2018). The Project site does not contain any designated habitats or wildlife corridors. Therefore, impacts are less than significant.

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

**Less than Significant Impact.** The City’s General Plan outlines various preservation policies and ordinances to protect the City’s resources. Preservation guidelines for the City’s distinct elements include preservation of older neighborhoods, street trees and streetscapes, Citrus Groves, and managing activities within the Santa Ana River Wash and Upper Santa Ana River Land Management Habitat Conservation Plan. The Proposed Project would not conflict with any local policies or ordinances because the Project will not affect or interfere with the preservation guidelines within the General Plan and the proposed work will not occur within these distinct areas. Therefore, impacts would be less than significant.

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

**Less than Significant Impact.** As previously discussed, the Proposed Project is not located within the Upper Santa Ana River Habitat Conservation Plan area or other opens spaces areas within the County. The proposed work will occur within City property and would not trespass into sensitive habitats or areas that are part of a conservation plan. Impact therefore would be less than significant.

#### 4.5 CULTURAL RESOURCES

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

##### 4.5.1 Impact Analysis

- a) *Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?*

**Less than Significant Impact.** A Cultural Resources Survey and Study Letter Report was prepared for the Proposed Project by Chambers Group in September 2023. The Cultural Resources Survey and

Study Letter Report included the results of the cultural resources survey, cultural records search, and literature review of a surrounding half-mile radius (known to be the cultural resource study area) (Appendix C).

The City of Redlands boasts a rich historical background and is the home of a variety of historic resources valued by the community. Redlands' early period of growth remains strongly visible in the community today, in the form of mature street trees, citrus groves, and exquisitely detailed historic buildings. Results of the record search review and archival research found that there were no previously recorded resources, or other listed or potentially significant properties were recorded within the Project site. Based on the review of available historic maps and imagery, the Project site was bisected by a dirt road by at least 1901, as illustrated on the 1901 Redlands United State Geological Survey (USGS) topographic map. By the mid-1930s, an access route to a water tank to the southwest of the Project site had already been established, as shown in the 1938 aerial photograph, and housing development and construction began in the immediate vicinity during the 1960s. The Project site was also partially cleared by 1980 for use during the development of the surrounding housing tracts to the north.

However, there was no physical evidence found within the Project site and therefore, the Proposed Project would not result in significant impact to a historical resource of architectural significance. Additionally, the existing water tank will not be affected by the Proposed Project. Impacts therefore are less than significant.

- b) *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

**Less than Significant Impact with Mitigation Incorporated.** As previously discussed, the results of the Cultural Resources Survey and Study Letter Report show that there was no surficial evidence of prehistoric or historic archaeological resources observed. The ground surface visibility during the survey was limited due to dense vegetation and steep slopes. Record searches identified two previous cultural resources that included the Project site; however, no cultural resources have been recorded within the Project site during the survey.

While the Project site has evidence of past disturbances, there is a possibility of buried resources being identified below surface disturbances due to the presence of dense vegetation. Excavation and grading to construct water tank pads could result in the unanticipated discovery of archaeological resources. Therefore, the following mitigation measures shall be implemented to ensure that potential impacts to cultural and archaeological resources would result in less than significant impacts.

**MM CUL-1** The City shall retain the services of a Qualified Archaeologist, meeting the Secretary of the Interior Standards, or County requirements, whichever is the greater. The Qualified Archaeologist shall remain on-call throughout the Project. Upon approval or request by the City, a cultural resources mitigation plan (CRMP) outlining procedures for cultural resources monitoring, mitigation, treatment, and data recovery of any unanticipated discovery shall be prepared for the Project and submitted to the City for review and approval. The development and implementation of the CRMP shall include consultations

with the City as well as a requirement that the curation of any significant cultural resources recovered under any scenario shall be through an appropriate repository agreed upon by the City. If the City accepts ownership, the curation location may be revised.

**MM CUL-2** In the event of the discovery of previously unidentified and/or potential cultural resources, the City, and/or its Contractor, shall immediately cease all work activities within an area of not less than 50 feet of the discovery. The City or its Contractor shall immediately contact the City and the City-retained on-call Qualified Archaeologist. Except in the case of cultural items that fall within the scope of the California Health and Safety Code 7050.5, CEQA Section 15064.5, or California PRC Section 5097.98, the discovery of any cultural resource within the Project site shall not be grounds for a project-wide “stop work” notice or otherwise interfere with the Project’s continuation except as set forth in this mitigation measure. Additionally, any consulting Native American Tribal groups that requested notification of any unanticipated discovery of cultural resources on the Project shall be notified and included in subsequent consultation appropriately. In the event of an unanticipated discovery of cultural resources during construction, the City-retained Qualified Archaeologist shall be contacted to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If a CRMP is prepared for the Project, the protocols for mitigation or treatment of cultural resources will be implemented. If the Qualified Archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the City shall implement an archaeological data recovery program.

**MM-CUL-3** If cultural resources are encountered during the Project, the Qualified Archaeologist shall prepare a report summarizing any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the South Central Coastal Information Center (SCCIC), as required.

c) *Would the project disturb any human remains, including those interred outside of formal cemeteries?*

**Less than Significant Impact.** The Project site is vacant and undeveloped. No cultural resources were recorded within the Project site. The field survey found no evidence of cultural or paleontological resources and there are no cemeteries located within the immediate area of the Project site.

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

Therefore, the Proposed Project would result in less than significant impacts related to human remains.

**4.6 ENERGY**

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

**4.6.1 Impact Analysis**

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

**Less Than Significant Impact.** The Proposed Project would impact energy resources during construction and operation. Energy resources that would potentially be impacted include electricity and petroleum-based fuel supplies and distribution systems. This analysis includes a discussion of the potential energy impacts of the Proposed Project, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. A general definition of each of these energy resources is provided below.

Electricity is a man-made consumptive utility. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power to an appropriate level for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands.

Petroleum-based fuels currently account for a majority of California’s transportation energy sources and primarily consist of diesel and gasoline types of fuels. However, the state has been working on developing strategies to reduce petroleum use. Over the last decade California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHGs from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, petroleum-based fuel consumption in California has declined.

The Proposed Project would consume energy resources during construction in three general forms:

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the Project site, construction worker travel to and from the Project site, as well as delivery and haul truck trips (e.g., hauling demolition material to off-site reuse and disposal facilities).
2. Electricity associated with the conveyance of water that would be used during Proposed Project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power.
3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

The ongoing operation of the Proposed Project would require the use of energy resources. No change would occur between the maintenance activities for the existing water tank and proposed reservoir tanks as City staff would continue to maintain the existing and proposed reservoirs. The Proposed Project would include installation of new electric-powered water pumps to fill the reservoir tanks. Operational electric use would not change from the existing conditions since the Proposed Project would not change the total water throughout that is currently occurring.

The Proposed Project would comply with all federal, state, and county requirements related to the consumption of transportation energy, including California Code of Regulations Title 24, Part 11, the CALGreen Code. Therefore, impacts regarding wasteful and inefficient consumption of energy, and conflicts with an applicable renewable energy or energy efficiency plan, would be less than significant.

b) *Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

**No Impact.** The Proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The applicable energy plan for the Proposed Project is the City of Redlands General Plan: Sustainable Community section (City 2018). The Proposed Project would be consistent with the policy below:

**8-P.1:** Promote energy efficiency and conservation technologies and practices that reduce the use and dependency of nonrenewable resources of energy by both City government and the community.

The Proposed Project would be consistent with all applicable energy-related policies from the General Plan. Therefore, the Proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. No impact will occur.

#### 4.7 GEOLOGY AND SOILS

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

##### 4.7.1 Impact Analysis

a) i) *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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.*

**Less Than Significant Impact.** The Proposed Project site is in Southern California, which is a seismically active area. As such, many areas in Southern California could be subject to some seismic activity. Within the Project area, there are no currently known active surface faults that traverse or trend toward this site, and the Project site is not located within a currently designated Alquist-Priolo



Earthquake Fault Zone, or a fault zone delineated by the County or City. According to the Specific Plan, the area is not included within a State of California Special Studies Zone for fault rupture hazard. The closest known active or potentially active faults are within the Crafton Hills fault zone which is located approximately 600 feet north of the proposed location for the new water tanks. The Proposed Project will be designed and constructed to comply with the California Building Code's standards to protect life safety and prevent collapse and will implement the appropriate seismic design parameters as defined by the California Geological Survey. Because the Project site is not located within the Alquist-Priolo Earthquake Fault Zone and does not propose construction of buildings that would house residents, impacts would be less than significant.

*ii) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?*

**Less than Significant.** As previously discussed, the Southern California region is seismically active and areas within this region will experience ground shaking. The Proposed Project will be developed according to the California Building Code, taking into account seismic load criteria. Conformance to building standards would result in less than significant impacts related to ground shaking.

*iii) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?*

**Less Than Significant Impact.** Liquefaction is the loss of soil strength due to a buildup of excess pore-water pressure during strong and long-duration ground shaking. Liquefaction is associated primarily with loose (low density), saturated, relatively uniform fine-to medium-grained, clean cohesionless soils. As shaking action of an earthquake progresses, soil granules are rearranged, and the soil densifies within a short period. This rapid densification of soil results in a buildup of pore-water pressure. When the pore-water pressure approaches the total overburden pressure, soil shear strength reduces abruptly and temporarily and behaves similar to a fluid. According to the General Plan, the Proposed Project is not located in an area susceptible to liquefaction (City 2018).

*iv) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?*

**Less Than Significant Impact.** Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes. The State of California and the County of San Bernardino have not prepared a map delineating zones of landslide potential for the quadrangle that contains the site. The City's General Plan shows that the Project site is in an area with medium to high susceptibility of landslides. A Preliminary Geotechnical Investigation was prepared for the Specific Plan area with the results provided in the appendices. Based on the investigations, the soil within the Specific Plan area will provide adequate support for residential structures near existing grade utilizing compacted fill mat under foundations and slabs-on-grade. While the Proposed Project does not involve residential construction, it will comply with the construction standards outlined in the Specific Plan and in accordance with the California Building Code related to seismic retrofitting. Prior to receipt of a building permit, as part of the City application process, the Proposed Project will require the preparation of a conceptual grading plan to assess the site's characteristics, constraints, and

requirements for development. Conformance with these guidelines would result in a less than significant impact to adverse effects involving landslides.

- b) *Would the project result in substantial soil erosion or the loss of topsoil?*

**Less than Significant Impact.** Topsoil is the top layer of soil that usually holds high concentrations of organic matter, which are typically found in fields and other vegetated areas. Loss of topsoil or any type of soil erosion occurs when dirt is left exposed to physical factors such as strong winds, rain, and flowing water. The Project site, while historically considered suitable for grazing, does not contain any existing soil for agricultural operations. While there is existing vegetation on the Project site, it is not currently used for agricultural purposes. Additionally, the Project site is not zoned for agricultural uses that would benefit from topsoil. Therefore, the Proposed Project would result in less than significant impacts related to topsoil.

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

**Less Than Significant Impact.** The Proposed Project site is not located within a liquefaction zone but is located within a landslide susceptibility area (DOC 2023, City 2018). However, the Specific Plan has noted that development within the Specific Plan area would not result in environmental impacts related to soil/ground conditions so long as the sites are adequately supported utilizing compacted fill mat under foundations and slabs-on-grade. The Project site has an existing water reservoir, and the area has historically been sufficient to support such structures. To date, no reports of landslides, lateral spreading, liquefaction, or collapse have been reported. As previously discussed, construction of the water reservoirs will be done in compliance with building standards and seismic retrofit requirements in addition to City requirements on preparing a conceptual grading plan. Activities associated with the Proposed Project would not cause ground disturbance or destabilization of the geologic unit. Potential for the Proposed Project to result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse is less than significant.

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

**Less Than Significant Impact.** Expansive soils are most often clay-based soils and are defined by the way they expand when water is introduced and shrink when they dry out. Approximately 15% of the soils within the Proposed Project area contain a clay component (USDA 2023). As noted in the Specific Plan, the soil within the Specific Plan Area is capable of providing adequate support to residential structures. As previously discussed, the Project site has an existing water tank and to date, there have been no reported concerns regarding soil stability. Furthermore, the Proposed Project will be constructed in conformance with City and building guidelines and conformance with these guidelines would result in a less than significant impact.

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

**No Impact.** As previously described, the Proposed Project would include the construction of two permanent water tanks. No habitable structures that require the use of septic tanks or alternative wastewater disposal systems would be built as a result of the Proposed Project. No impact would occur.

- f) *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?*

**Less Than Significant with Mitigation Incorporated.** On May 3, 2023, Chambers Group received the results of the paleontological records search from the Western Science Center (WSC). The results show that no fossil localities are documented directly within the Project site, but there are recorded fossil localities from the same sedimentary deposit that underlays the Project site.

Potential fossil-bearing units are present within the Project site, as stated in the WSC record search results. Based on the records search results, which covered only the records of the WSC, the paleontological sensitivity of the Project site could be moderate due to the previously recorded and known fossil localities in the same sedimentary deposits as mapped in the Project site and within the study area. Based on the records, search results, and review of publicly available geologic mapping, the Project site's underlying sedimentary deposits have potential to yield previously undocumented fossil localities during construction. Due to the potential sensitivity of the Project site for paleontological resources, the following mitigation measures shall be implemented to result in a less than significant impact to resources that may be uncovered.

**MM PAL-1** Prior to issuance of a grading permit, the City shall be required to obtain the services of a Qualified Project Paleontologist to remain on call for the duration of the proposed ground-disturbing construction activity. The paleontologist selected must be approved by the City. Upon approval or request by the City, a paleontological mitigation plan (PMP) outlining procedures for paleontological data recovery shall be prepared for the Project and submitted to the City for review and approval. The development and implementation of the PMP shall include consultations with the District's Engineering Geologist as well as a requirement that the curation of all specimens recovered under any scenario shall be through an appropriate repository agreed upon by the City. If the District accepts ownership, the curation location may be revised. The PMP shall include developing a multilevel ranking system, or Potential Fossil Yield Classification (PFYC), as a tool to demonstrate the potential yield of fossils within a given stratigraphic unit. The PMP shall outline the monitoring and salvage protocols to address paleontological resources encountered during Project-related ground-disturbing activities, as well as the appropriate recording, collection, and processing protocols to appropriately address any resources discovered.

**MM-PAL-2** At the completion of all ground-disturbing activities, the Project Paleontologist shall prepare a final paleontological mitigation report summarizing all monitoring efforts and observations, as performed in line with the PMP, and all paleontological resources encountered, if any, as well as providing follow-up reports of any specific discovery, if necessary.

#### 4.8 GREENHOUSE GAS EMISSIONS

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

##### 4.8.1 Impact Analysis

- a) *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

**Less Than Significant Impact.** The Proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The Proposed Project would consist of the development of two water reservoirs. The Proposed Project would generate GHG emissions from construction activities.

In general, operation of the new reservoir tanks will be passive as there will be no equipment installed on the reservoir tanks that creates GHG emissions. The Proposed Project would include installation of new electric-powered water pumps to fill the reservoir tanks. Since the pumps are electric-powered, the pumps would not create any air emissions on-site and it should be noted that the existing water tank currently utilizes an electric-powered water pump. The development of the proposed Project would not change the total water throughput that is currently occurring. Other than the initial filling of the tanks, the operational electric use would not change from the existing conditions with development of the Proposed Project.

The existing water tank will continue to function while the new reservoir tanks are constructed. Currently, maintenance on the existing water tank occurs on a monthly and as-needed basis by City employees, that includes landscaping. No change would occur between the maintenance activities for the existing water tank and proposed reservoir tanks. As such, operation of the proposed project would not create any additional GHG emissions, over which is currently being created, as such no operation related GHG emissions would be created from the Proposed Project.

The Project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters of the Proposed Project. A summary of the results is shown below in Table 4-2: Project Related Greenhouse Gas Annual Emissions 2 and the CalEEMod model-run annual printouts are provided in Appendix A.

**Table 4-2: Project Related Greenhouse Gas Annual Emissions**

Greenhouse Gas Emissions (Metric Tons per Year)				
Year of Construction	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
2024	233	0.01	0.01	235
2025	174	0.01	<0.01	176
<b>Total Construction Emissions</b>	<b>407</b>	<b>0.02</b>	<b>0.01</b>	<b>411</b>
<b>Amortized Construction Emissions<sup>1</sup> (30 years)</b>				<b>13.7</b>
<b>SCAQMD Draft Threshold</b>				<b>3,000</b>
<b>Exceed Threshold?</b>				No

Notes:

<sup>7</sup> Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.

Source: CalEEMod Version 2022.1.

The data provided in Table 4-2: Project Related Greenhouse Gas Annual Emissions

**Error! Reference source not found.** above shows that the Proposed Project’s construction activities would generate a total of 411 MTCO<sub>2</sub>e (metric tons of carbon dioxide equivalent). According to the SCAQMD recommended GHG emissions analysis methodology, construction related GHG emissions should be amortized over 30 years, which results in the Proposed Project creating 13.7 MTCO<sub>2</sub>e per year. According to the SCAQMD draft threshold of significance detailed above and in the Air Report (Appendix A), a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations wouldn’t exceed 3,000 MTCO<sub>2</sub>e per year. Therefore, a less than significant generation of greenhouse gas emissions would occur from development of the Proposed Project. Impacts would be less than significant.

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

**Less Than Significant Impact.** The Proposed Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions. The applicable plan for the Proposed Project is the Redlands Climate Action Plan (CAP) that was prepared pursuant to Section 15183.5(b) of the CEQA Guidelines to be utilized as a tiering document for the General Plan as well as future projects within the City that are consistent with the General Plan. Since the proposed project is consistent with the General Plan, the Proposed Project meets the criteria allowed for use of the Redlands CAP for analysis of the Proposed Project .

In addition, the Proposed Project is anticipated to create 13.7 MTCO<sub>2</sub>e per year, which is well below the SCAQMD threshold of significance of 3,000 MTCO<sub>2</sub>e per year. The SCAQMD developed this threshold in order to meet the State GHG emissions reduction regulations that was based on substantial evidence supporting the use of the recommended thresholds. Therefore, the Proposed

Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. Impacts would be less than significant.

**4.9 HAZARDS AND HAZARDOUS MATERIALS**

9.	<b>HAZARDS AND HAZARDOUS MATERIALS. Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
(a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**4.9.1 Impact Analysis**

a) *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

**Less Than Significant Impact.** The Proposed Project does not involve routine transport of large quantities of hazardous materials like other industrial facilities. As noted by the Department of Toxic Substances Control (DTSC) and Code of Federal Regulations, generators producing hazardous waste exceeding 220 pounds would be considered to be significant quantities. Small quantities of potentially hazardous substances (e.g., petroleum and other chemicals used to operate and maintain equipment,

fertilizers, pesticides, etc.) may be utilized and stored on-site. However, none of these materials will be stored at the Project facilities in quantities to be considered a significant hazard.

Construction of the Proposed Project would result in the generation, transport, and use of various waste materials that would require recycling and/or disposal. Some of the waste generated could be classified as hazardous wastes/hazardous materials. Hazardous materials typically consist of chemicals that may be toxic, corrosive, flammable, reactive, an irritant, or a strong sensitizer. During construction, the Proposed Project will use potentially hazardous materials from petroleum-based fuels, lubricants, cleaning products, and other similar materials. The quantities of the used chemicals that will be present at the Project site would be limited and temporary.

During ongoing operations of the water tanks, potentially hazardous materials such as grease, oils, cleaning products, fuel, and other similar materials will involve routine use, handling, and disposal. However, the listed materials above will not create a significant hazard to the public or the environment because the handling, storage, and disposal of these materials during construction and operations shall be done in compliance with the manufacturer's standards for storage and spill procedures, and with existing regulations such as the California Health and Safety Code, Hazardous Materials Transportation Act, and Resource Conservation and Recovery Act. Impacts would be less than significant.

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

**Less Than Significant Impact.** According to the DTSC databases, the Project site is not located within 1,000 feet of any listed site in the Geotracker (SWRCB 2022) and Envirostor database (DTSC 2022). Terracon Consultants, Inc. (Terracon) prepared a Phase I Environmental Site Assessment (ESA) report for the Project site to identify of any potential recognized environmental conditions (RECs, presence, or likely presence of hazardous substances) that may be uncovered. Based on the analysis and surveys conducted by Terracon, no RECs or controlled recognized environmental conditions (CRECs, resulting from a past release of hazardous substances) were found and no additional investigations were warranted (Appendix D).

As discussed in part a), the Proposed Project will utilize potentially hazardous chemicals during construction and operations. While hazardous materials will be present on-site, the quantities will be limited, and the materials will be handled and stored according to the manufacturer's guidelines and be disposed of according to local, state, and federal guidelines. Any potential spills will be addressed through implementing construction BMPs to minimize the risk of release of polluted runoff. Impacts would be less than significant.

- c) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

**Less Than Significant Impact.** The Proposed Project site is located approximately 0.65 miles south of Mariposa Elementary School and at a lower elevation than the Project site (Google 2023). There are

no schools within a one-quarter mile of the Proposed Project. The potential for emission of hazardous materials within one-quarter mile of an existing or proposed school is less than significant.

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

**Less Than Significant Impact.** According to the SWRCB's GeoTracker database and the DTSC EnviroStor database, there are no listed hazardous waste sites within a one-mile radius and the results of the Phase I ESA indicated no RECs or CRECs recorded at the Project site (Appendix D). There is one listed hazardous waste site within an approximately 2-mile radius which is a 1.66-acre parcel located within the south-central part of the City of San Bernardino. The former gas plant site is currently vacant and fenced. The Proposed Project activities would not affect the former gas plant site due to its distance from the Project site. Less than significant impacts would occur associated with hazardous material sites located on the Project site.

- 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, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

**No Impact.** The closest airport to the Proposed Project site is the Redlands Municipal Airport, approximately 4.8 miles to the north. The Proposed Project site is not within the an airport municipal zone (Redlands Municipal Airport, 2023). Therefore, the Proposed Project would not result in a safety hazard or excessive noise for people residing or working in the Proposed Project area; therefore, no impact would occur.

- f) *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

**Less than Significant Impact.** Emergency response plans within the City include the Emergency Management coordinated within the Fire Department, San Bernardino County Emergency Operations Plan, Redlands Hazard Mitigation Plan (HMP) and San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). Development within the City, including during the preparation of the General Plan update sought to utilize the Redlands HMP, which is consistent with the MJHMP, as a guide for emergency planning to reduce local risks and improve emergency access, ingress, egress, and emergency preparedness (City 2018).

The Proposed Project will develop two new water tanks within City property. The Proposed Project is occurring on vacant and undeveloped land and does not propose construction of new facilities that would result in increased densities and new roadways that could affect implementing the HMP, thereby affecting adopted emergency plans. Because the Proposed Project would not impair or interfere with the City's emergency plans, impacts would be less than significant.

- g) *Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?*



**Less than Significant.** The California Department of Forestry and Fire Protection’s (CAL FIRE) Fire and Resource Assessment Program provides a Fire Hazards Severity Zone Viewer (FHSZ) to provide a visual reference to locate fire hazards areas in California. The maps were developed utilizing science and field-tested models that assign a hazard score based on factors that influence fire likelihood and behavior. Factors include but are not limited to fire history, existing and potential fuel (natural vegetation), predicted flame length, embers, terrain, and typical fire weather in the area. The Proposed Project site is not located within a very high fire hazard severity zone of state or local responsibility (Non-VHFHSZ) (CAL FIRE 2022). The nearest fire hazard zone within the City is located toward the north, towards Crafton Hills, approximately 1.2 miles. While the Project site is not located within a fire hazard zone, the open spaces could create an environment where wildland fires could occur especially during dry and high wind seasons. The Proposed Project will conform to City guidelines and regulations for new development to minimize fire hazard as outlined in the General Plan (Fire Hazards Principles and Actions). These requirements include but are not limited new using appropriate building material and design features, siting and designing development to avoid hazardous locations, incorporate fuel modification and brush clearances, and coordination with the Redlands Fire Department and other fire prevention agencies to review all applications for development. Conformance with these guidelines would result in less than significant impacts.

**4.10 HYDROLOGY AND WATER QUALITY**

10.	HYDROLOGY AND WATER QUALITY. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
	i) Result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flood on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	iii) 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; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

10.	HYDROLOGY AND WATER QUALITY. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**4.10.1 Impact Analysis**

a) *Would the project violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality?*

**Less Than significant Impact.** Impacts related to water quality would be categorized under short-term construction related impacts and long-term operational impacts. Construction related activities have the potential to degrade surface and groundwater quality by exposing soils to surface runoff from debris and other materials, including runoff from various construction equipment. Pollutants of concern during typical construction activities include sediments, dry and wet solid wastes, petroleum products, solvents, cleaning agents and other similar chemicals. During ground-disturbing activities, excavated soil would be exposed, thereby creating a potential for soil erosion. During a storm event or water spill, these pollutants and soil could be spilled, leaked, or transported as runoff into drainages or downstream waters, and potentially into receiving waters.

The Proposed Project will construct two new reservoir tanks located on City property to treat and store more water to meet public demands. Construction and operation of the reservoir tanks will result in ground disturbances and introduce impervious surfaces to the Project site. However, only a portion of the City owned parcels will be paved and the rest will remain undisturbed.

The City of Redlands Storm Water Program’s purpose is to implement the requirements of the NPDES Program which is federally mandated by the Environmental Protection Agency (EPA) to address water pollution. The disturbance area will be greater than 1 acre of soil, and therefore, the Proposed Project will be subject to the requirements of the SWRCB NPDES Permit and Waste Discharge Requirements (Order No. R8-2010-0036) for the San Bernardino County Flood Control District, County, and incorporated cities within the County and Santa Ana Region. This will require projects to implement a Storm Water Pollution Prevention Plan (SWPPP) and appropriate erosion and sediment control plans and construction and operational BMPs to ensure that runoff would not cause a nuisance to downstream properties and stream channels. Examples of BMPs include, but are not limited to, use of drip pans, stabilizers, dust control, temporary drains, and use of fences (RWQCB 2010).

The Proposed Project would not violate any water quality standards or waste discharge requirements, nor would it affect surface or groundwater quality. The Proposed Project will implement the requirements of the NPDES program by implementing construction and operational BMPs to minimize polluted runoff. Impacts would be less than significant.

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

**Less Than Significant Impact.** The Proposed Project is located within the Yucaipa groundwater subbasin, which is part of the Upper Santa Ana River Basin (City 2018). Water level records for the majority of the subbasin show small seasonal fluctuations with a steady decline. Groundwater within the basin is typically reached between 200 to 280 feet below the surface (California Department of Water Resources 2004).

According to the EPA's Sole Source Aquifer Program's mapping system, the Proposed Project is not located in an area containing sole source aquifers (EPA 2023). The Sustainable Groundwater Management (SGMA) Data Viewer does not show any groundwater monitoring sites within the Project area (California Department of Water Resources 2023).

The Proposed Project does not include activities involving groundwater wells. The installation of the water tanks will introduce impervious surfaces to the area which would introduce runoff. However, the majority of the City property will allow for continued percolation. Impacts therefore would be less than significant.

- c) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*
- d)
- i) *result in substantial erosion or siltation on- or off-site;*

**Less Than Significant Impact.** According to the Biological Resources Assessment, there are no NWI features present or defined channelization or bank to bank in the area. While there was an NHD feature shown to historically flow, it did not appear to connect to any other features downstream (Appendix B). While there are no streams or rivers at the Project site, the topography of the Project site could result in erosion if stormwater runoff is not managed. The Proposed Project will introduce impervious surfaces to the area (approximately 46% of the total Project area) while the remainder of the parcels will be undisturbed, and the location of water tanks will be limited to the paved surfaces. The Proposed Project will implement construction and operational BMPs to address potential erosion at the Project site. Therefore, impacts would be less than significant.

- ii) *substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;*

**Less Than Significant Impact.** As previously discussed, approximately 50% of the Project area will be impervious with the remainder to be undisturbed. The Proposed Project activities will not alter the path of any stream or rivers through the site as there are no features found and the majority of the existing drainage patterns will remain. The Proposed Project shall require compliance with the NPDES Program and implement BMPs involving site design source control, and other appropriate methods to minimize runoff. These include but are not limited to silt fencing and straw wattles. Conformance with these requirements would result in a less than significant impact.

*iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources or polluted runoff; or*

**Less Than Significant Impact.** The Proposed Project will install two new water tanks within City property to increase water storage in the City to meet the existing demand. The Proposed Project would generate stormwater runoff with the introduction of impervious surfaces where the water tanks will be constructed. Approximately 50% of the remainder of the Project site will remain undeveloped to allow for water to percolate into the soil. Additionally, the Proposed Project does not introduce construction of new residences or businesses, or activities that would create a significant increase in water use that would create additional runoff. Therefore, the proposed Project would not result in a significant contribution to runoff that would exceed the drainage systems.

*iv) impede or redirect flood flows?*

**Less than Significant Impact.** Flood flows result from off-site flows of water during rainy periods or when a stream or river overflows due to debris. According to the General Plan and Federal Emergency Management Agency (FEMA), the Project site is not located within a dam inundation area or flood hazard area. Additionally, it is located on a hillside in the City and does not contain any nearby streams or permanent water features (FEMA 2023). However, because of the topography of the Project site, flows may occur during rainy seasons. The Proposed Project would implement stormwater BMPs to address runoff and redirect flood flows into the appropriate channels and basins. Various BMPs include but are not limited to silt fencing and straw wattles. Therefore, the Proposed Project would not result in obstruction or redirection of flood flows. No impact would occur.

*e) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?*

**No Impact.** The Proposed Project is located inland and is not near the coastline or near any large body of water that would result in the Project being located in a flood hazard, tsunami, or seiche zones (Google 2023). No impact would occur.

*f) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

**Less Than Significant Impact.** As previously discussed, the Project is located in the Yucaipa subbasin where groundwater levels are typically found below 200 to 280 feet below the surface (California Department of Water Resources 2004). The Proposed Project does not include any improvements to the Santa Ana River and does not propose any groundwater extraction activities that could affect groundwater quality, or implementation of any groundwater management plan. Impacts therefore are less than significant.

**4.11 LAND USE AND PLANNING**

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

**4.11.1 Impact Analysis**

a) *Would the project physically divide an established community?*

**No Impact.** The Proposed Project includes the construction of two reservoirs for the purpose of storing water. The Project site is located on land which currently contains a city water tank and is zoned as Flood Plain. The Project Site is located adjacent to one single family residence and a residential neighborhood located to the north of the Project site. While the Proposed Project site is adjacent to residential properties to the north and southeast and within a mile of an elementary school, Proposed Project activities would not prevent resident access to the nearby roadways, transit facilities, or any other public service and utility, either during construction or operation of the facilities. No impact would occur.

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

**Less Than Significant Impact.** The Proposed Project site is surrounded by residential, institutional, and recreational land uses. As previously discussed, the Project site is located within SP 59 which permits residential development within its areas in addition to utility infrastructure. Therefore, the Proposed Project is consistent with the existing land use plans. Furthermore, the Project site is located within City property and adjacent to an existing water reservoir currently maintained and operated by the City. Therefore, impacts would be less than significant as the Proposed Project would not conflict with any land use policy or regulation.

**4.12 MINERAL RESOURCES**

12.	MINERAL RESOURCES Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**4.12.1 Impact Analysis**

a) *Would the project 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?*

**No Impact.** According to the California Division of Mines and Geology, no significant mineral deposits are known to exist in the City. In addition, Redlands is required by the Surface Mining and Reclamation Act of 1975 (SMARA) to adopt policies recognizing the importance of the identified mineral resources, clarifying the intent that this information is to be used when making land use decisions in areas designated to be of statewide or regional significance, and emphasizing the conservation and development of identified mineral deposits. The nearest mineral resource zone according to the Mineral Resources map in the Vital Environment section of the Redlands General Plan, is located 5.24 miles north of the Proposed Project site within the Santa Ana River. Materials found here are construction aggregates (City 2018).

The Proposed Project site is not identified as being within a significant mineral resource zone in the DOC’s Mineral Land Classification Map; nor would the Proposed Project involve any mining activities (DOC 1986). In addition, the Proposed Project will not include any oil exploration or drilling. No impact would occur.

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

**No Impact.** The Project proposes to develop on land that has not been designated to contain a locally significant resource for minerals. As noted above, no significant mineral deposits are known to exist in the City (City 2018). In addition, no mineral resource extraction would occur as part of the Proposed Project. No impact would occur.

**4.13 NOISE**

13.	NOISE Would the project result in:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b)	Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

(c)	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**4.13.1 Impact Analysis**

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

**Less than Significant Impact.** A Noise Impact Analysis was prepared for the Proposed Project in October 2023 by Vista Environmental. The Noise Impact Analysis was prepared to determine the noise impacts associated with the proposed construction and operations of the Proposed Project. The complete report including the noise models are provided in Appendix E.

The Proposed Project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the Proposed Project and compares the noise levels to the City standards.

**Construction-Related Noise**

The construction activities for the Proposed Project would include site preparation and grading of approximately 6.2 acres, building construction of the proposed reservoirs, paving of an onsite driveway and parking spaces, and application of architectural coatings. Noise impacts from construction activities associated with the Proposed Project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptor to the project site is a single-family home that is located as near as 280 feet south of the area that would be disturbed as part of the Proposed Project. There are also single-family homes as near as 730 feet northeast and 780 feet north of the area that would be disturbed as part of the Proposed Project.

Section 8.06.120(G) of the City’s Municipal Code exempts noise sources associated with new construction, remodeling, rehabilitation, or grading of any property from the City’s noise standards provided construction activities that occur do not take place between the hours of 6:00 p.m. and 7:00 a.m. on weekdays and Saturdays, with no activities occurring at any time on Sundays or federal holidays. However, the City construction noise standards do not provide any limits to the noise levels that may be created from construction activities and even with adherence to the City standards, the resultant construction noise levels may result in a significant substantial temporary noise increase to the nearby residents.

In order to determine if the proposed construction activities would create a significant substantial temporary noise increase, the Federal Transit Administration (FTA) construction noise criteria thresholds detailed in Appendix D have been utilized, which shows that a significant construction noise impact would occur if construction noise exceeded 80 A-weighted decibels (dBA) during the daytime at any of the nearby homes or school classrooms. The dBA is an expression of the relative loudness of sounds as perceived by the human ear.

Construction noise impacts to the nearby sensitive receptors have been calculated through use of the Federal Highway Administration’s (FHWA) Roadway Construction Noise Model (RCNM) and the parameters and assumptions detailed in Appendix D, which includes the construction equipment noise emissions and usage Factors. The results are shown below in Table 4-3 and the RCNM printouts are provided in Appendix D.

**Table 4-3: Construction Noise Levels at the Nearby Sensitive Receptors**

Construction Phase	Construction Noise Level (dBA Leq) at:		
	Home to South <sup>1</sup>	Home to Northeast <sup>2</sup>	Home to North <sup>3</sup>
Site Preparation	66	62	62
Grading	65	61	61
Building Construction	66	61	62
Paving	61	57	57
Painting	53	49	49
<b>FTA Construction Noise Threshold</b>	<b>80</b>	<b>80</b>	<b>80</b>
Exceed Thresholds?	No	No	No

Notes:

<sup>1</sup> The home to south is located as near as 530 feet from the center of the area disturbed.

<sup>2</sup> The home to northeast is located as near as 870 feet from the center of the area disturbed.

<sup>3</sup> The home to north is located as near as 840 feet from the center of the area disturbed.

Source: RCNM, Federal Highway Administration, 2006 (see Section 6.1 above for detailed description of modeling assumptions)

Table 4-3 shows that greatest construction noise impacts would occur during the site preparation, with noise levels as high as 66 dBA (equivalent sound level) at the nearest home to the south and 62 dBA at the homes to the northeast and north. All calculated construction noise levels shown in **Error! Reference source not found.** are within the FTA daytime construction noise standard of 80 dBA averaged over eight hours. Therefore, through adherence to the limitation of allowable construction times provided in Section 8.06.120(G) of the City’s Municipal Code, construction-related noise levels would not exceed any standards established in the General Plan or Noise Ordinance, nor would



construction activities create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

### **Operational-Related Noise**

In general, operation of the new reservoir tanks will be passive as there will be no equipment installed on the reservoir tanks that creates noise. The Proposed Project would include installation of new electric powdered water pumps to fill the reservoir tanks. The pumps would be located either in underground vaults or inside a pump house to protect pumps from the elements. This would also result in insulating the noise from the pumps so that the pumps would not be audible at nearby residential properties.

The existing water tank will continue to function while the new reservoir tanks are constructed. Currently, maintenance on the existing water tank occurs on a monthly and as-needed basis by City employees, which includes landscaping. No change would occur between the maintenance activities for the existing water tank and proposed reservoir tanks. As such, operation of the proposed project would not create any additional sources of noise, over which is currently being created, and no operational noise modeling was performed. As such, less than significant noise impacts would occur from operation of the Proposed Project.

- b) *Would the project result in generation of excessive groundborne vibration or groundborne noise levels?*

**Less than Significant Impact.**

### **Construction-Related Vibration Impacts**

The construction activities for the Proposed Project would include site preparation and grading of approximately 6.2 acres, building construction of the proposed reservoirs, paving of an on-site driveway and parking spaces, and application of architectural coatings. Vibration impacts from construction activities associated with the Proposed Project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptor to the project site is a single-family home that is located as near as 280 feet south of the area that would be disturbed as part of the Proposed Project.

Section 9.06.090(G) limits vibration activities to vibration levels that are not discernible at or beyond the boundary line of private property or at 150 feet from the vibration source if on a public space or public right of way. Based on these standards, there is potential that groundborne vibration may expose persons to excessive vibration levels. Since the City does not provide any quantitative vibration thresholds for what is considered discernible, the Caltrans vibration thresholds have been utilized in this analysis, which defines the threshold for building damage to structures at 0.5 inch per second peak particle velocity (PPV) and the threshold for distinctly perceptible human annoyance of 0.24 inch per second PPV from transient sources.

The primary source of vibration during construction would be from the operation of a bulldozer. A bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical

propagation rates, the vibration level at the nearest sensitive receptors (280 feet to the south) would be 0.006 inch per second PPV, which would be below both the 0.5 inch per second PPV threshold for damage to structures, and the human annoyance threshold of 0.24 inch per second PPV. Impacts would be less than significant.

#### **Operations-Related Vibration Impacts**

The Proposed Project would consist of the development of two new reservoir tanks. The ongoing operation of the Proposed Project would not include the operation of any equipment that creates vibration and would not include any other known vibration sources. Therefore, a less than significant vibration impact is anticipated from operation of the Proposed Project.

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

**No Impact.** The Proposed Project would not expose people residing or working in the Project area to excessive noise levels from aircraft. The nearest airport is Redlands Municipal Airport that is located approximately 4.8 miles north of the Project site. The Project site is located outside of the 60 dBA community noise equivalent level (CNEL) noise contours of Redlands Municipal Airport. No impact would occur from aircraft noise.

**4.14 POPULATION AND HOUSING**

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

**4.14.1 Impact Analysis**

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

**No Impact.** The Proposed Project does not provide permanent housing or include operations that could result in unplanned growth such as extension of roadways or expansion of existing infrastructure. The additional water storage would address water supply for the existing population and planned future growth. No impact would occur.

b) *Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

**No Impact.** The Proposed Project would not result in the displacement of a substantial number of people or housing and would not necessitate the construction of replacement housing. The Project site currently consists of constructing reservoir tanks on open land and is located adjacent to just one single standing residence to the southeast which will not be part of the Project activities. No impact would occur.

**4.15 PUBLIC SERVICES**

15.	PUBLIC SERVICES.	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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:				
	i) Fire Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	ii) Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**4.15.1 Impact Analysis**

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 fire protection?*

**Less Than Significant Impact.** The Proposed Project would not affect the service standards related to fire protection. The Proposed Project site is located approximately 2 miles southeast of Redlands Fire Station 262 (Google 2023). The Proposed Project will safeguard public health by expanding the capacities of the reservoirs to meet public drinking water demands which is critical as the City continues to be impacted by multi-decade drought. Development of the Proposed Project would not necessitate the expansion of services as it would not result in permanent population growth. While there may be temporary travel delays during construction with the presence of construction vehicles and equipment traveling along the roadways, these would occur during construction and is not expected to create long term and significant delay for fire protection in the area. Impacts would be less than significant.

b) *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 police protection?*

**Less than Significant Impact.** The Proposed Project would not affect the service standards related to police protection. The Proposed Project site is located approximately 4.31 miles southeast of the Redlands Police Station (Google 2023). The Proposed Project would not result in population growth

requiring the expansion of existing services or the creation of new services. In addition, there would be no demand for increased police protection throughout the area. The area is currently being serviced by the Redlands Police Station and would continue to receive the same services as nearby land uses. While there may be temporary travel delays during construction, these would occur during construction and is not expected to create a long-term and significant delay for police protection in the area. Impacts would be less than significant.

- c) *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 schools?*

**Less than Significant Impact.** The Proposed Project site is located approximately 0.65 miles south of Mariposa Elementary School. Despite its proximity, the development of the Proposed Project would not induce population growth requiring the creation of new services. Additionally, The Proposed Project would not increase the demand for schools in the City. While there may be temporary travel delays during construction with the presence of construction vehicles and equipment traveling along the roadway, these would occur during construction and is not expected to create long term and significant delay to those accessing the school campus. Impacts would be less than significant.

- d) *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 parks?*

**Less than Significant Impact.** The Proposed Project would not induce population growth requiring the extension of existing or creation of new park services. Oakmont and Caroline Park are located near the Project site. While there may be temporary travel delays during construction with the presence of construction vehicles and equipment traveling along the roadway, these would occur during construction and is not expected to create long term and significant delay in access to these parks. Impacts would be less than significant.

- e) *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 other public facilities?*

**No Impact.** The Proposed Project would not induce growth requiring the extension of existing or creation of new services. Construction of the two water tanks would not result in the demand for expansion or the addition of new service areas. The Proposed Project would not increase the demand for other public facilities. In fact, the intent of the Proposed Project is to increase water storage to meet existing demands in times of drought. No impact would occur.

**4.16 RECREATION**

16.	RECREATION. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**4.16.1 Impact Analysis**

- 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?*

**No Impact.** The Proposed Project does not include features or activities that would contribute to the increased use of the surrounding neighborhoods, regional parks, other recreational facilities and would not cause substantial deterioration of existing public facilities. The Proposed Project would not induce population growth as it does not include permanent or temporary housing. No impact would occur.

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

**No Impact.** The Proposed Project does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. The Proposed Project does not include introducing new job opportunities that would increase populations beyond what has been analyzed nor increase demands on recreational resources. No impacts will occur.

**4.17 TRANSPORTATION**

17.	TRANSPORTATION. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b)	Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
©	Substantially increase hazards due to a geometric design feature (e. g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d)	Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**4.17.1 Impact Analysis**

- a) *Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?*

**Less than Significant Impact.** The Proposed Project does not include creation of new roadways, sidewalks, or modifying the existing circulation system. The Proposed Project will be located within City property, adjacent to an existing water tank that is being maintained and operated by the City. Access to the Project site will use the same driveways currently being used for maintaining the current water reservoir tank. Furthermore, operation of the Proposed Project is a consistent use of the site per the Specific Plan. While the Project site may experience delays during construction, this will be temporary in nature. Operation of the new reservoir tanks will not increase the presence of employees on the site that would create interference with the existing circulation. Because the Proposed Project would not conflict with an existing circulation system or affect transit and pedestrian facilities, impacts would be less than significant.

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

**Less Than Significant Impact.** The Proposed Project would not create additional transportation to the Project site that would have a significant effect on the VMT in the area. The Proposed Project activities do not involve any land use or zoning designation revisions that would create an increase in VMT to the area such as construction of new housing or businesses. According to the CEQA guidelines on evaluating VMT prepared by the Office of Planning and Research (OPR), projects involving residential, office and retail projects tend to have the greatest influence on VMT (OPR 2008).

The Proposed Project consists of installing two new water reservoir tanks on City property to provide additional water storage. There is an existing water reservoir tank located adjacent to the Project site currently operated and maintained by the City. Future maintenance/operations of the Proposed Project is currently being done by the City in the same capacity and therefore, would not result in

additional VMTs to the Project site. Because the Proposed Project would not generate a potentially significant level of VMT and is not inconsistent with the Specific Plan, impacts would be less than significant.

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

**Less Than Significant Impact.** The Proposed Project does not propose any hazardous design features such as sharp curves or dangerous intersections. The Proposed Project will utilize the existing entry way and roadways currently being used by the City to operate and maintain the existing water reservoir tank located adjacent to the Project. Furthermore, the Proposed Project will be on City property and be accessible only to City employees and is not open to the general public. Any additional roadways or entrances that may be included in the Project area will be done in conformance with City engineering guidelines and with the approval of the City Engineer. Impacts would be less than significant.

- d) *Would the project result in inadequate emergency access?*

**Less than Significant Impact.** Project site access would be via Helen Court along Helen Drive. Helen Drive is located south of East Sunset Drive. East Sunset Drive becomes Alta Vista Drive to the east. Helen Court is a publicly accessed road which would not be altered as a result of construction. The Proposed Project would not result in inadequate emergency access; therefore, impacts would be less than significant.



**4.18 TRIBAL CULTURAL RESOURCES**

18.	<b>TRIBAL CULTURAL RESOURCES.</b> <b>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:</b>	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**4.18.1 Impact Analysis**

- a) *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 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)?*
- b) *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 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?*

Assembly Bill 52 requires public agencies to consult with tribes that may have a traditional affiliation to a project area to gather information on a site’s sensitivity and identify if any mitigation measures would be required to preserve discovered or undiscovered tribal cultural resources. The City sent letters to their list of tribes to conduct consultation on December 2023. The City received responses from the Yuhaaviatam of San Manuel Nation, Gabrieleno Band of Mission Indians – Kizh Nation, and Morongo Band of Mission Indians. The Gabrieleno Band of Mission Indians – Kizh Nation, and Morongo Band of Mission Indians requested consultation with the City. After review of the Project information, the Gabrieleno Band of Mission Indians – Kizh Nation responded deferring the Project

and the Morongo Band of Mission Indians – Kizh Nation provided mitigation measures to be incorporated to the Project. The Yuhaaviatam of San Manuel Nation provided their mitigation measures and noted that the measures may be modified to reflect other tribes' concerns.

Based on the consultation with the tribes, the Project area has potential for discovery of buried cultural resources. Therefore, the following mitigation measures provided by the tribes' shall be implemented.

**MM TCR-1: Tribal Monitoring Services Agreement**

Prior to the issuance of grading permits, the applicant shall enter into a Tribal Monitoring Services Agreement with the Morongo Band of Mission Indians (MBMI) for the Project. The Tribal Monitor shall be on-site during all ground-disturbing activities (including, but not limited to, clearing, grubbing, tree and bush removal, grading, trenching, fence post placement and removal, construction excavation, excavation for all utility and irrigation lines, and landscaping phases of any kind). The Tribal Monitor shall have the authority to temporarily divert, redirect, or halt the ground-disturbing activities to allow identification, evaluation, and potential recovery of cultural resources.

**MM TCR-2: Retention of Archaeologist**

Prior to any ground-disturbing activities (including, but not limited to, clearing, grubbing, tree and bush removal, grading, trenching, fence post replacement and removal, construction excavation, excavation for all utility and irrigation lines, and landscaping phases of any kind), and prior to the issuance of grading permits, the Applicant shall retain a Qualified Archaeologist who meets the U.S. Secretary of the Interior Standards (SOI). The Archaeologist shall be present during all ground-disturbing activities to identify any known or suspected archaeological and/or cultural resources. The Archaeologist will conduct a Cultural Resource Sensitivity Training, in conjunction with the Tribe[s] Tribal Historic Preservation Officer (THPO), and/or designated Tribal Representative. The training session will focus on the archaeological and tribal cultural resources that may be encountered during ground-disturbing activities as well as the procedures to be followed in such an event.

**MM TCR-3: Cultural Resource Management Plan**

Prior to any ground-disturbing activities the project Archaeologist shall develop a Cultural Resource Management Plan (CRMP) and/or Archaeological Monitoring and Treatment Plan (AMTP) to address the details, timing, and responsibilities of all archaeological and cultural resource activities that occur on the project site. This Plan shall be written in consultation with the consulting Tribe[s] and shall include the following: approved Mitigation Measures (MM)/Conditions of Approval (COA), contact information for all pertinent parties, parties' responsibilities, procedures for each MM or COA, and an overview of the project schedule.

**MM TCR-4: Pre-Grade Meeting**

The retained Qualified archeologist and Consulting Tribe[s] representative shall attend the pre-grade meeting with the grading contractors to explain and coordinate the requirements of the monitoring plan.

**MM TCR-5: On-site Monitoring**

During all ground-disturbing activities the Qualified Archaeologist and the Tribal Monitor shall be on-site full-time. The frequency of inspections shall depend on the rate of excavation, the materials excavated, and any discoveries of Tribal Cultural Resources as defined in California Public Resources Code Section 21074. Archaeological and Tribal Monitoring will be discontinued when the depth of grading and the soil conditions no longer retain the potential to contain cultural deposits. The Qualified Archaeologist, in consultation with the Tribal Monitor, shall be responsible for determining the duration and frequency of monitoring.

**MM TCR-6: Inadvertent Discovery of Cultural Resources**

In the event that previously unidentified cultural resources are unearthed during construction, the Qualified Archaeologist and the Tribal Monitor shall have the authority to temporarily divert and/or temporarily halt ground-disturbance operations in the area of discovery to allow for the evaluation of potentially significant cultural resources. Isolates and clearly non-significant deposits shall be minimally documented in the field and collected so the monitored grading can proceed.

If a potentially significant cultural resource(s) is discovered, work shall stop within a 60-foot perimeter of the discovery and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. All work shall be diverted away from the vicinity of the find, so that the find can be evaluated by the Qualified Archaeologist and Tribal Monitor[s]. The Archaeologist shall notify the Lead Agency and consulting Tribe[s] of said discovery. The Qualified Archaeologist, in consultation with the Lead Agency, the consulting Tribe[s], and the Tribal Monitor, shall determine the significance of the discovered resource. A recommendation for the treatment and disposition of the Tribal Cultural Resource shall be made by the Qualified Archaeologist in consultation with the Tribe[s] and the Tribal Monitor[s] and be submitted to the Lead Agency for review and approval. Below are the possible treatments and dispositions of significant cultural resources in order of CEQA preference:

- A. Full avoidance.
- B. If avoidance is not feasible, Preservation in place.
- C. If Preservation in place is not feasible, all items shall be reburied in an area away from any future impacts and reside in a permanent conservation easement or Deed Restriction.
- D. If all other options are proven to be infeasible, data recovery through excavation and then curation in a Curation Facility that meets the Federal Curation Standards (CFR 79.1)

**MM TCR-7: Inadvertent Discovery of Human Remains**

The Morongo Band of Mission Indians requests the following specific conditions to be imposed in order to protect Native American human remains and/or cremations. No photographs are to be taken except by the coroner, with written approval by the consulting Tribe[s].

- a. Should human remains and/or cremations be encountered on the surface or during any and all ground-disturbing activities (i.e., clearing, grubbing, tree and bush removal, grading, trenching, fence post placement and removal, construction excavation,

excavation for all water supply, electrical, and irrigation lines, and landscaping phases of any kind), work in the immediate vicinity of the discovery shall immediately stop within a 100-foot perimeter of the discovery. The area shall be protected; project personnel/observers will be restricted. The County Coroner is to be contacted within 24 hours of discovery. The County Coroner has 48 hours to make his/her determination pursuant to State and Safety Code §7050.5. and Public Resources Code (PRC) § 5097.98.

- b. In the event that the human remains and/or cremations are identified as Native American, the Coroner shall notify the Native American Heritage Commission within 24 hours of determination pursuant to subdivision (c) of HSC §7050.5.
- c. The Native American Heritage Commission shall immediately notify the person or persons it believes to be the Most Likely Descendant (MLD). The MLD has 48 hours, upon being granted access to the Project site, to inspect the site of discovery and make his/her recommendation for final treatment and disposition, with appropriate dignity, of the remains and all associated grave goods pursuant to PRC §5097.98
- d. If the Morongo Band of Mission Indians has been named the Most Likely Descendant (MLD), the Tribe may wish to rebury the human remains and/or cremation and sacred items in their place of discovery with no further disturbance where they will reside in perpetuity. The place(s) of reburial will not be disclosed by any party and is exempt from the California Public Records Act (California Government Code § 6254[r]). Reburial location of human remains and/or cremations will be determined by the Tribe's Most Likely Descendant (MLD), the landowner, and the City Planning Department.

**MM TCR-8: FINAL REPORT**

The final report[s] created as a part of the project (AMTP, isolate records, site records, survey reports, testing reports, etc.) shall be submitted to the Lead Agency and Consulting Tribe[s] for review and comment. After approval of all parties, the final reports are to be submitted to the Eastern Information Center, and the Consulting Tribe[s].

**4.19 UTILITIES AND SERVICE SYSTEMS**

19.	UTILITIES/SERVICE SYSTEMS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d)	Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(e)	Comply with federal, state, and local management and reduction statutes and regulations related to solid wastes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**4.19.1 Impact Analysis**

*a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or expansion of which could cause significant environmental effects?*

**Less Than Significant Impact.** There are existing utility infrastructures within the Project area for telecommunications, electric, natural gas, and wastewater treatment (City 2006). The Proposed Project will connect to existing utility services during operations. No off-site expansions are proposed.

The Proposed Project will install two new water tanks on City property to increase water storage in the City. The intent of the Proposed Project is to meet the critical public drinking water demands as the City continues to be impacted by a multi-decade drought. The City's Municipal Utilities Department operates and maintains a water distribution system with an approximately 54.5-million-gallon maximum storage capacity (City 2023b). The Proposed Project would increase the existing capacity by 14 MG and will utilize existing infrastructure for water distribution.

The Proposed Project would result in an increase of impervious surfaces to the area causing additional runoff. As previously discussed, the Proposed Project will comply with the NDPES Program by implementing SWPPP BMPs to address additional runoff.

Impacts therefore would be less than significant.

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

**Less than Significant Impact.** The Proposed Project would not result in requiring a significant increase in water supplies as there are no increase in personnel expected at the Project site. There is no proposed irrigation or landscaping that would require an increase in water supplies. In fact, the Proposed Project is to install additional water tanks to increase the City's water storage. No additional expansions or new entitlements are required for the Proposed Project. Impacts would be less than significant.

- c) *Would the project 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?*

**Less than Significant Impact.** The City's existing treatment facility will have adequate capacity to serve the Proposed Project because the proposed activities are not introducing additional water demands in the area. The Proposed Project intends to increase the City's water storage to address existing demands of the public. And as previously discussed, there are no proposed personnel increases or need of irrigation that would increase the need for wastewater treatment facilities. Impacts would be less than significant.

- d) *Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*

**Less Than Significant Impact.** The City's Sustainable Community Element identifies waste reduction and recycling goals within the City. Waste reduction goals include the reduction of generation of solid waste. These would meet the State's policy goal that not less than 75% of solid waste generated be source-reduced, recycled, or composted. .

The Proposed Project will be operating two new water tanks to be serviced by the existing employees maintaining the existing water tank adjacent to the Project site. The Project site would not result in a significant increase of employees that would create an increase of solid wastes generated.

Construction of the Proposed Project would result in generation of construction wastes. The construction activities will comply with the City's requirements for Construction and Demolition Recycling Requirements (Section 13.66.040 of the Municipal Code) which outlines the requirements for loading and collection areas, targeted materials for recycling, separation of materials, and compliance with the plan (City 2023a). There is no increase in long-term waste generation given that the Project site is not introducing new populations and will be serviced by existing employees of the City. Therefore, the Proposed Project would not result in generation of solid wastes in excess of state

or local standards and would not result in impairing solid waste reduction goals. Impacts therefore would be less than significant.

- e) *Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

**Less than Significant Impact.** As discussed above, generation of solid waste would be limited during construction and will comply with the federal State and local requirements including the City’s Construction and Demolition Requirements for managing solid waste, CalGreen Code, Chapter 13.64 Integrated Solid Waste Management ordinance. Impacts would be less than significant.

**4.20 WILDFIRE**

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

**4.20.1 Impact Analysis**

- a) *Would the project impair an adopted emergency response plan or emergency evacuation plan?*

**Less than Significant Impact.** The Proposed Project site is not located within a very high fire hazard severity zone of state or local responsibility (CAL FIRE 2022). In addition, the Proposed Project would not interfere with an evacuation or emergency plan as discussed in Section 4.9 Hazards and Hazardous Materials. Impacts would be less than significant.

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

**Less than Significant Impact.** As discussed above, the Proposed Project site is not located within a very high fire hazard severity zone of state or local responsibility (CAL FIRE 2022). In addition, the Project site is in an underdeveloped area and not within or adjacent to an area identified as a very high fire hazard severity zone.

While the Project site is not located within a fire hazard zone, the open spaces could create an environment where wildland fires could occur especially during dry and high wind seasons. The Proposed Project will conform to City guidelines and regulations for new development to minimize fire hazard as outlined in the General Plan (Fire Hazards Principles and Actions). These requirements include but are not limited to new using appropriate building material and design features, siting and designing development to avoid hazardous locations, incorporating fuel modification and brush clearances, and coordination with the Redlands Fire Department and other fire prevention agencies to review all applications for development. Conformance with these guidelines would result in less than significant impacts.

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

**Less than Significant Impact.** As noted in section a) and b), the Proposed Project is not located in an area deemed as a risk to wildfire. However, open spaces could create an environment where wildland fires could occur. Conformance with City guidelines and regulations for new development to minimize fire hazards would result in a less than significant impact.

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

**Less than Significant Impact.** The Proposed Project site is not in an area prone to wildfire or near any water bodies that could cause slope instability or drainage changes. However, as discussed in section a) and b), the open space and sloped hills could create an environment where wildfires could occur especially during dry and high wind seasons. The Proposed Project shall comply with City guidelines and regulations for new developments to minimize fire hazards (Fire Hazards Principles and Actions). Conformance with these guidelines would result in a less than significant impact.



**4.21 MANDATORY FINDINGS OF SIGNIFICANCE**

21.	MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(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?)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
©	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**4.21.1 Impact Analysis**

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

**Less than Significant Impact with Mitigation Incorporated.** A Biological Reconnaissance Assessment and Cultural Resources Survey and Study Letter Report were prepared to identify if the Proposed Project would have the potential to substantially degrade the quality of the environment and eliminate important examples of major periods of California history or prehistory.

The results of the Biological Reconnaissance Assessment, as analyzed in Section 4.4, resulted in less than significant impacts to most of the resources identified such as riparian habitats and natural communities, federally protected wetlands, migratory fish, or wildlife species, and for areas that have been identified to be in habitat conservation plans. Mitigation measures were identified to be required to ensure that special status plant species and nesting birds would have a less than significant impact during construction (MM BIO-1 and MM BIO-2).

The results of the Cultural Resources Survey and Study Letter Report, as analyzed in Section 4.5 Cultural Resources, and 4.7 Geology and Soils, resulted in less than significant impacts to historical

resources and less than significant impacts with mitigation related to archaeological and paleontological resources. While the results of report indicated that there were no physical or archival evidence of resource within the project site, and the Project site has evidence of past disturbances, the possibility of buried resources being identified below surface disturbances is not diminished. Implementation of mitigation measures CUL-1, CUL-2, CUL-3, PAL-1, and PAL-2 would result in less than significant impacts to these resources.

- 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?)*

**Less than Significant Impact.** According to the City’s Planning Division Major Project List 2023, updated in September 2023, there are no listed projects that are occurring on or adjacent to the Project site on Sunset Drive, Burns Lane, Kristin Court, Helen Court, or Copper Hill Lane (City 2023c).

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

**Less than Significant Impact.** Substantial adverse effects on human beings directly or indirectly are primarily resulting from impacts to air quality, geology and soil, greenhouse gas emissions, hazardous materials, land use, noise, and wildfire. As analyzed in this initial study, impacts have been determined to be less than significant as the Proposed Project’s construction and operations will comply with the City’s General Plan policies and Municipal Code. Impacts therefore will be less than significant.

## SECTION 5.0 – REFERENCES

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**AIR QUALITY AND GREENHOUSE GAS EMISSIONS  
IMPACT ANALYSIS  
SUNSET RESERVOIRS PROJECT  
CITY OF REDLANDS**

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*Lead Agency:*

**City of Redlands**  
Municipal Utilities & Engineering  
35 Cajon Street  
Redlands, CA 92373

*Prepared by:*

**Vista Environmental**  
1021 Didrickson Way  
Laguna Beach, CA 92651  
949 510 5355  
Greg Tonkovich, AICP

Project No. 22048

October 2, 2023

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## ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BSFC	Brake Specific Fuel Consumption
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
Cf <sub>4</sub>	tetrafluoromethane
C <sub>2</sub> F <sub>6</sub>	hexafluoroethane
CH <sub>4</sub>	Methane
City	City of Redlands
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
°F	Fahrenheit
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
GWP	Global warming potential
HAP	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change
kWhr	kilowatt-hour
LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds

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MATES	Multiple Air Toxics Exposure Study
MMTCO <sub>2e</sub>	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NO <sub>x</sub>	Nitrogen oxides
NO <sub>2</sub>	Nitrogen dioxide
OPR	Office of Planning and Research
Pfc	Perfluorocarbons
PM	Particle matter
PM <sub>10</sub>	Particles that are less than 10 micrometers in diameter
PM <sub>2.5</sub>	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion
PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SF <sub>6</sub>	Sulfur Hexafluoride
SIP	State Implementation Plan
SO <sub>x</sub>	Sulfur oxides
TAC	Toxic air contaminants
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile organic compounds

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## 1.0 INTRODUCTION

### ***1.1 Purpose of Analysis and Study Objectives***

This Air Quality and Greenhouse Gas (GHG) Emissions Impact Analysis has been completed to determine the air quality and GHG emissions impacts associated with the proposed Sunset Reservoirs project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality regulatory framework;
- A description of the GHG emissions regulatory framework;
- A description of the air quality and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP);
- An analysis of the short-term construction related and long-term operational air quality and GHG emissions impacts; and
- An analysis of the conformity of the proposed project with all applicable GHG emissions reduction plans and policies.

### ***1.2 Site Location and Study Area***

The project site is located south of Helen Drive in the City of Redlands (City). There is an existing City reservoir tank located on the west side of Helen Court and the proposed reservoir tanks would be located on the east side of Helen Court on parcels APN 0300-451-25 (7.78 acres) and APN 0300-451-14 (2.50 acres) that total 10.28 acres and are currently vacant. The project site is bounded by vacant land and Helen Drive to the north, vacant land to the east, a single-family home to the south, and Helen Court and the existing reservoir tank to the west. The project local study area is shown in Figure 1.

### ***Sensitive Receptors in Project Vicinity***

The nearest sensitive receptor to the project site is a single-family home that is located as near as 280 feet south of the area that would be disturbed as part of the proposed project. There are also single-family homes as near as 730 feet northeast and 780 feet north of the area that would be disturbed as part of the proposed project.

### ***1.3 Proposed Project Description***

The City of Redlands Municipal Utilities and Engineering Department proposes the construction of two new above ground 220 foot diameter factory-coated bolt carbon steel tanks that with an approximately 14 million gallon (MG) total capacity from both tanks. To provide uninterrupted water service to its users during the demolition, the City will keep its existing 3 MG reservoir active. It is anticipated that

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approximately 6.2 acres of the two parcels that total 10.28 acres will be disturbed as part of the proposed project. The proposed site plan is shown in Figure 2.

One driveway will connect the existing water tank and Helen Court. The driveway will be constructed utilizing asphalt/gravel. Two parking spaces will be installed for maintenance purposes. The site will remain unmanned. The existing water tank will continue to function while the new reservoir tanks will be constructed. Maintenance will occur on a monthly and as-needed basis by City employees. Landscaping will be maintained by the City.

The Project is expected to break ground in 2024 and be completed by 2025. Construction activities will take place between 7:00 a.m. to 6:00 p.m. Monday through Saturday. No construction work will occur on Sundays or holidays per the City's Community Noise Control Section Chapter 8.06 of the Municipal Code.

## ***1.4 Executive Summary***

### **Standard Air Quality and GHG Regulatory Conditions**

The proposed project will be required to comply with the following regulatory conditions from the SCAQMD and State of California (State).

#### South Coast Air Quality Management District Rules

The following lists the SCAQMD rules that are applicable, but not limited to the proposed project.

- Rule 402 Nuisance – Controls the emissions of odors and other air contaminants;
- Rule 403 Fugitive Dust – Controls the emissions of fugitive dust;
- Rules 1108 and 1108.1 Cutback and Emulsified Asphalt – Controls the VOC content in asphalt; and
- Rule 1113 Architectural Coatings – Controls the VOC content in paints and solvents.

#### State of California Rules

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to the proposed project.

- CCR Title 13, Article 4.8, Chapter 9, Section 2449 – In use Off-Road Diesel Vehicles;
- CCR Title 13, Section 2025 – On-Road Diesel Truck Fleets;
- CCR Title 24 Part 6 – California Building Energy Standards; and
- CCR Title 24 Part 11 – California Green Building Standards.

### **Summary of Analysis Results**

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality and GHG emissions checklist questions.

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

Less than significant impact.

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

Less than significant impact.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

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

Less than significant impact.

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

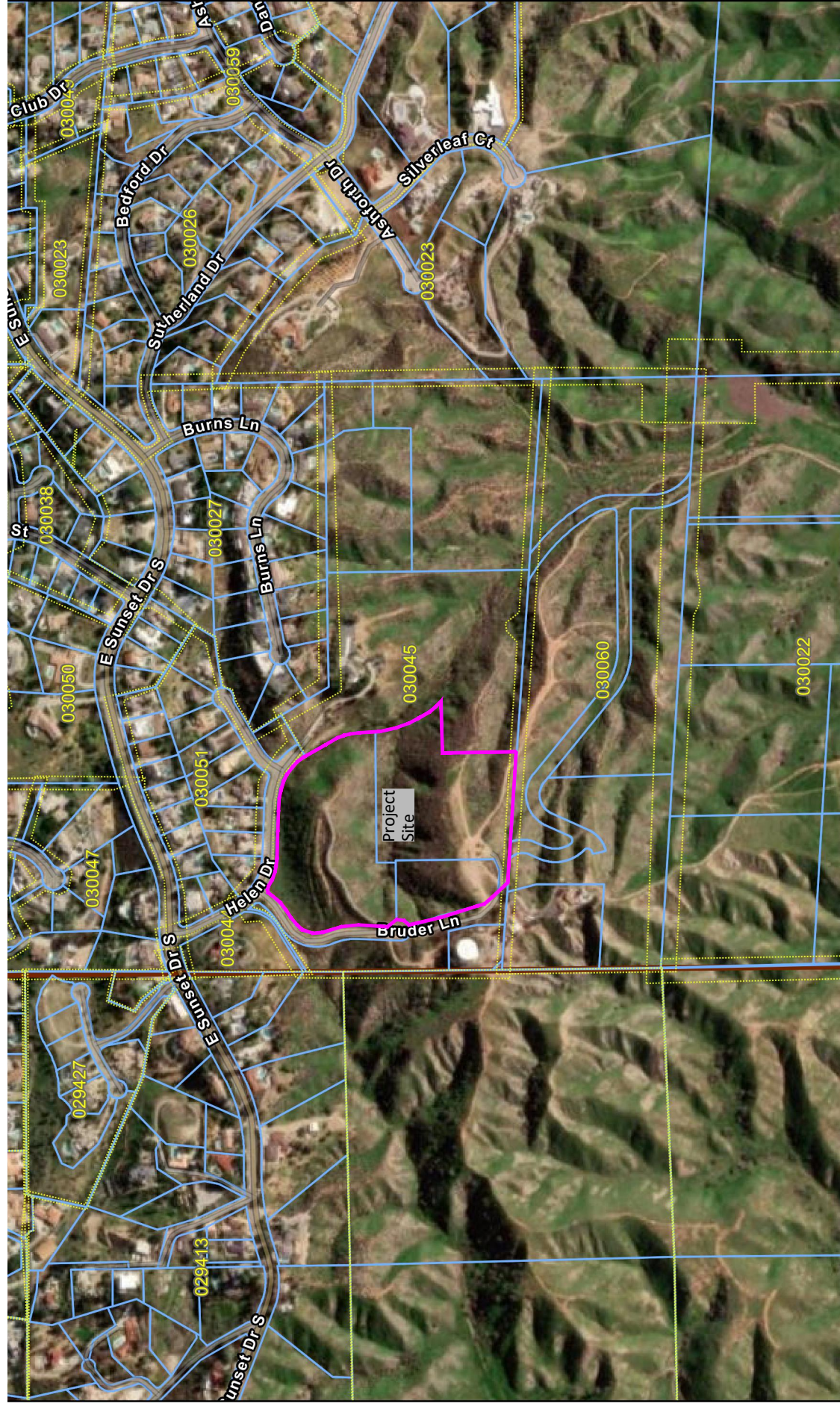
Less than significant impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Less than significant impact.

### ***1.5 Mitigation Measures for the Proposed Project***

This analysis found that implementation of the State and SCAQMD air quality and GHG emissions reductions regulations detailed in Section 1.4 above would limit criteria pollutants, toxic air contaminants, odors, and GHG emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality and GHG emissions.



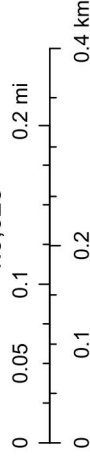
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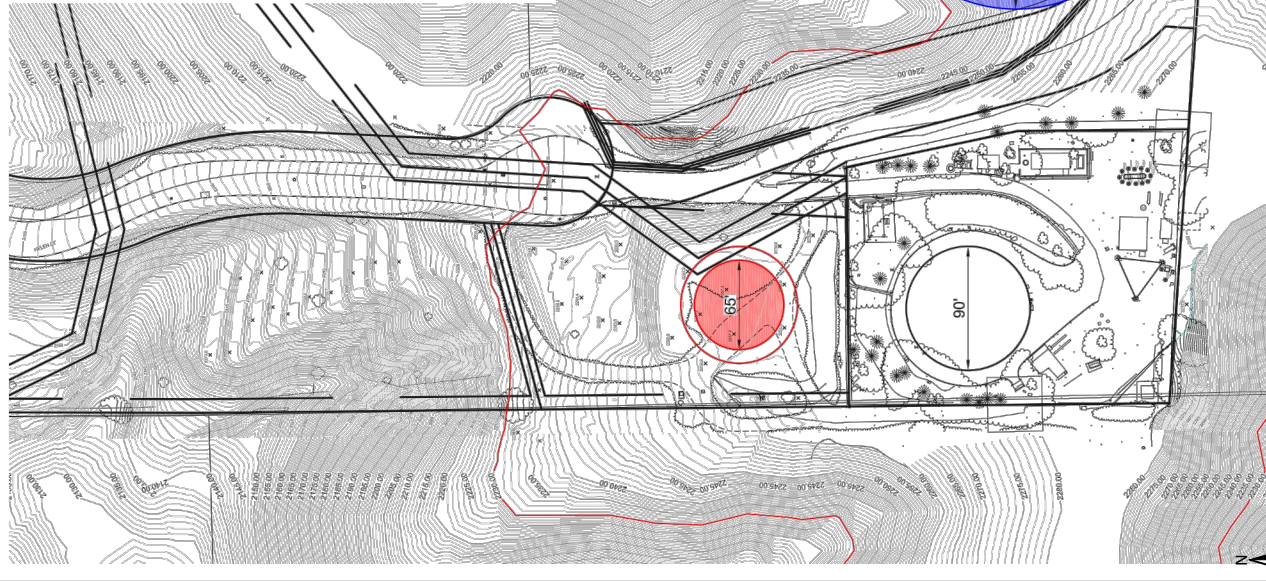
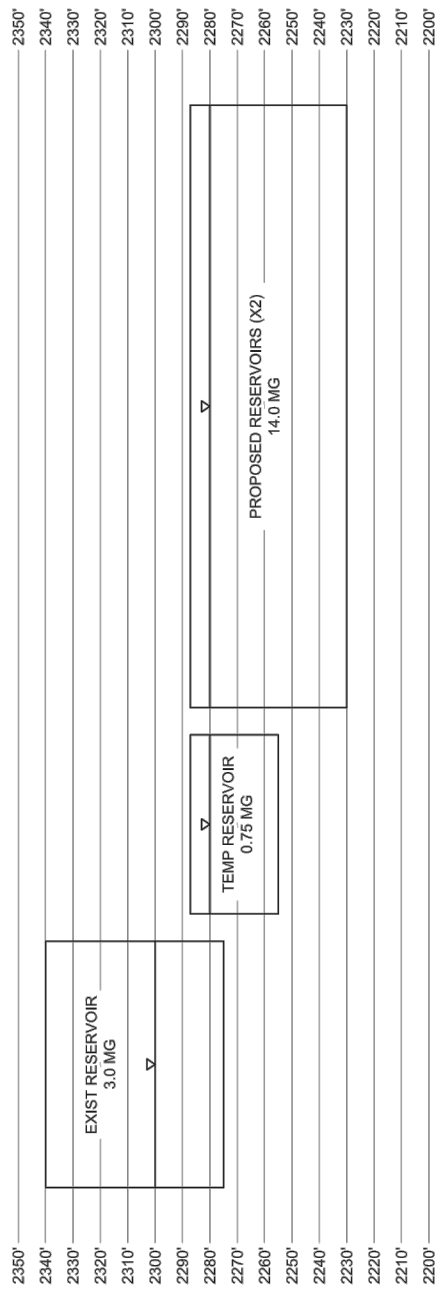
Esri Community Maps Contributors, Loma Linda University, City of Redlands, County of Riverside, County of San Bernardino, California State Parks, ©

SOURCE: Public San Bernardino County Parcel Viewer.



Figure 1  
Project Local Study Area

# SUNSET RESERVOIR PROFILES



SOURCE: City of Redlands.

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## 2.0 AIR POLLUTANTS

Air pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

### **2.1 Criteria Pollutants and Ozone Precursors**

The criteria pollutants consist of: ozone, nitrogen oxides (NO<sub>x</sub>), CO, sulfur oxides (SO<sub>x</sub>), lead, and particulate matter (PM). The ozone precursors consist of NO<sub>x</sub> and VOC. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants “criteria” air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants and ozone precursors.

#### **Nitrogen Oxides**

NO<sub>x</sub> is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NO<sub>x</sub> are colorless and odorless, concentrations of nitrogen dioxide (NO<sub>2</sub>) can often be seen as a reddish-brown layer over many urban areas. NO<sub>x</sub> form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO<sub>x</sub> are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NO<sub>x</sub> reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO<sub>2</sub>, which cause respiratory problems. NO<sub>x</sub> and the pollutants formed from NO<sub>x</sub> can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NO<sub>x</sub> is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

#### **Ozone**

Ozone is not usually emitted directly into the air, instead it is created by a chemical reaction between NO<sub>x</sub> and VOC in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NO<sub>x</sub> and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NO<sub>x</sub> and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NO<sub>x</sub> and VOC emissions.

#### **Carbon Monoxide**

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves,



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gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

### **Sulfur Oxides**

SOx gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

### **Lead**

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

### **Particulate Matter**

PM is the term for a mixture of solid particles and liquid droplets found in the air. PM is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) that are also known as *Respirable Particulate Matter* are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) that are also known as *Fine Particulate Matter* have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

### **Volatile Organic Compounds**

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of ozone are referred to and regulated as VOCs (also

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referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

VOC is not classified as a criteria pollutant, since VOCs by themselves are not a known source of adverse health effects. The primary health effects of VOCs result from the formation of ozone and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

## **2.2 Other Pollutants of Concern**

### **Toxic Air Contaminants**

In addition to the above-listed criteria pollutants, TACs are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is DPM. DPM is a subset of PM<sub>2.5</sub> because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

### **Asbestos**

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release

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asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California*, prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 45 miles southeast of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

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## 3.0 GREENHOUSE GASES

### 3.1 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric GHGs, play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), ozone, water vapor, nitrous oxide (N<sub>2</sub>O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Emissions of CO<sub>2</sub> and N<sub>2</sub>O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO<sub>2</sub>, where CO<sub>2</sub> is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

#### Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

#### Carbon Dioxide

The natural production and absorption of CO<sub>2</sub> is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid-1700s, each of these activities has increased in scale and distribution. CO<sub>2</sub> was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20<sup>th</sup> century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This

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could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

### **Methane**

CH<sub>4</sub> is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO<sub>2</sub>. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO<sub>2</sub>, N<sub>2</sub>O, and CFCs). CH<sub>4</sub> has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

### **Nitrous Oxide**

Concentrations of N<sub>2</sub>O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N<sub>2</sub>O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N<sub>2</sub>O is also commonly used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and race cars).

### **Chlorofluorocarbons**

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

### **Hydrofluorocarbons**

Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF<sub>3</sub>), HFC-134a (CF<sub>3</sub>CH<sub>2</sub>F), and HFC-152a (CH<sub>3</sub>CHF<sub>2</sub>). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

### **Perfluorocarbons**

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF<sub>4</sub>) and hexafluoroethane (C<sub>2</sub>F<sub>6</sub>).

Concentrations of CF<sub>4</sub> in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

### Sulfur Hexafluoride

Sulfur Hexafluoride (SF<sub>6</sub>) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF<sub>6</sub> has the highest global warming potential of any gas evaluated; 23,900 times that of CO<sub>2</sub>. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

### Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

## 3.2 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO<sub>2</sub>. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO<sub>2</sub> equivalent (CO<sub>2</sub>e). As such, the GWP of CO<sub>2</sub> is equal to 1. The GWP values used in this analysis are based on the 2007 IPCC Fourth Assessment Report, which are used in CARB’s 2014 Scoping Plan Update and the CalEEMod Model Version 2022.1 and are detailed in Table A. The IPCC has updated the Global Warming Potentials of some gases in their Fifth Assessment Report, however the new values have not yet been incorporated into the CalEEMod model that has been utilized in this analysis.

**Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs**

Gas	Atmospheric Lifetime (years) <sup>1</sup>	Global Warming Potential (100 Year Horizon) <sup>2</sup>	Atmospheric Abundance
Carbon Dioxide (CO <sub>2</sub> )	50-200	1	379 ppm
Methane (CH <sub>4</sub> )	9-15	25	1,774 ppb
Nitrous Oxide (N <sub>2</sub> O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF <sub>4</sub> )	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C <sub>2</sub> F <sub>6</sub> )	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF <sub>6</sub> )	3,200	22,800	5.6 ppt

Notes:

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<sup>1</sup> Defined as the half-life of the gas.

<sup>2</sup> Compared to the same quantity of CO<sub>2</sub> emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2022.1), that is used in this report (CalEEMod User Guide, May 2021).

Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion

Source: IPCC 2007, EPA 2015

### **3.3 Greenhouse Gas Emissions Inventory**

According to the Carbon Dioxide Information Analysis Center<sup>1</sup>, 9,855 million metric tons (MMT) of CO<sub>2</sub>e emissions were created globally in the year 2014. According to the Environmental Protection Agency (EPA), the breakdown of global GHG emissions by sector consists of: 25 percent from electricity and heat production; 21 percent from industry; 24 percent from agriculture, forestry and other land use activities; 14 percent from transportation; 6 percent from building energy use; and 10 percent from all other sources of energy use<sup>2</sup>.

According to *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020*, prepared by EPA, in 2020 total U.S. GHG emissions were 5,981.4 million metric tons (MMT) of CO<sub>2</sub>e emissions. Total U.S. emissions have decreased by 7.3 percent between 1990 and 2020, which is down from a high of 15.7 percent above 1990 levels in 2007. Emissions decreased from 2019 to 2020 by 9.0 percent. The sharp decline in emissions from 2019 to 2020 is largely due to the impacts of the coronavirus pandemic on travel and economic activity.

According to *California Greenhouse Gas Emissions for 2000 to 2020 Trends of Emissions and Other Indicators*, prepared by the CARB, October 26, 2022, the State of California created 369.2 million metric tons of carbon dioxide equivalent (MMTCO<sub>2</sub>e) in 2020. The 2020 emissions were 35.3 MMTCO<sub>2</sub>e lower than 2019 levels and almost 61.8 MMTCO<sub>2</sub>e below the State adopted year 2020 GHG limit of 431 MMTCO<sub>2</sub>e. The 2019 to 2020 decrease in emissions is likely an anomaly as it was due in large part to the impacts of the COVID-19 pandemic. The transportation sector showed the largest decline in emissions of 27 MMTCO<sub>2</sub>e (16 percent) compared to 2019. Between 2019 and 2020, California's Gross Domestic Product (GDP) contracted 2.8 percent, while GHG intensity of California's economy decreased 6.2 percent.

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1 Obtained from: [https://cdiac.ess-dive.lbl.gov/trends/emis/tre\\_glob\\_2014.html](https://cdiac.ess-dive.lbl.gov/trends/emis/tre_glob_2014.html)

2 Obtained from: <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data>

## 4.0 AIR QUALITY MANAGEMENT

The air quality at the project site is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

### 4.1 Federal – United States Environmental Protection Agency

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The EPA was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table B.

**Table B – State and Federal Criteria Pollutant Standards**

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O <sub>3</sub> )	0.09 ppm / 1-hour	0.070 ppm, / 8-hour	a) Pulmonary function decrements and localized lung injury in humans and animals; (b) asthma exacerbation; (c) chronic obstructive pulmonary disease (COPD) exacerbation; (d) respiratory infection; (e) increased school absences, and hospital admissions and emergency department (ED) visits for combined respiratory diseases; (e) increased mortality; (f) possible metabolic effects. Vegetation damage; property damage
	0.07 ppm / 8-hour		
Carbon Monoxide (CO)	20.0 ppm / 1-hour	35.0 ppm / 1-hour	Visibility reduction (a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) possible impairment of central nervous system functions; (d) possible increased risk to fetuses; (f) possible increased risk of pulmonary disease; (g) possible emergency department visits for respiratory diseases overall and visits for asthma.
	9.0 ppm / 8-hour	9.0 ppm / 8-hour	
Nitrogen Dioxide (NO <sub>2</sub> )	0.18 ppm / 1-hour	100 ppb / 1-hour	Short-term (a) asthma exacerbations (“asthma attacks”) Long-term (a) asthma development; (b) higher risk of all-cause, cardiovascular, and respiratory mortality. Both short and long term NO <sub>2</sub> exposure is also associated with chronic obstructive pulmonary disease (COPD) risk. Potential impacts on cardiovascular health, mortality and cancer, aggravate chronic respiratory disease. Contribution to atmospheric discoloration
	0.030 ppm / annual	0.053 ppm / annual	



Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Sulfur Dioxide (SO <sub>2</sub> )	0.25 ppm / 1-hour	75 ppb / 1-hour	Respiratory symptoms (bronchoconstriction, possible wheezing or shortness of breath) during exercise or physical activity in persons with asthma. Possible allergic sensitization, airway inflammation, asthma development.
	0.04 ppm / 24-hour		
Respirable Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> / 24-hour 20 µg/m <sup>3</sup> / annual	150 µg/m <sup>3</sup> / 24-hour	Short -term (a) increase in mortality rates; (b) increase in respiratory infections; (c) increase in number and severity of asthma attacks; (d) COPD exacerbation; (e) increase in combined respiratory-diseases and number of hospital admissions; (f) increased mortality due to cardiovascular or respiratory diseases; (g) increase in hospital admissions for acute respiratory conditions; (h) increase in school absences; (i) increase in lost work days; (j) decrease in respiratory function in children; (k) increase medication use in children and adults with asthma. Long-term (a) reduced lung function growth in children; (b) changes in lung development; (c) development of asthma in children; (d) increased risk of cardiovascular diseases; (e) increased total mortality from lung cancer; (f) increased risk of premature death. Possible link to metabolic, nervous system, and reproductive and developmental effects for short-term and long-term exposure to PM <sub>2.5</sub> .
Suspended Particulate Matter (PM <sub>2.5</sub> )	12 µg/m <sup>3</sup> / annual	35 µg/m <sup>3</sup> / 24-hour 12 µg/m <sup>3</sup> / annual	
Sulfates	25 µg/m <sup>3</sup> / 24-hour	No Federal Standards	
Lead	1.5 µg/m <sup>3</sup> / 30-day	0.15 µg/m <sup>3</sup> / 3-month rolling	(a) Learning disabilities; (b) impairment of blood formation and nerve function; (c) cardiovascular effects, including coronary heart disease and hypertension Possible male reproductive system effects
Hydrogen Sulfide	0.03 ppm / 1-hour	No Federal Standards	Exposure to lower ambient concentrations above the standard may result in objectionable odor and may be accompanied by symptoms such as headaches, nausea, dizziness, nasal irritation, cough, and shortness of breath

Source: 2022 AQMP, SCAQMD, 2022.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. The CARB defines attainment as the category given to an area with no violations in the past three years. As indicated below in Table C, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone and PM<sub>2.5</sub> and partial non-attainment for lead. Currently, the Air Basin is in attainment with the national ambient air quality standards for CO, PM<sub>10</sub>, SO<sub>2</sub>, and NO<sub>2</sub>.

**Table C – National Air Quality Standards Attainment Status – South Coast Air Basin**

Criteria Pollutant	Averaging Time	Designation <sup>a</sup>	Attainment Date <sup>b</sup>
Ozone	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 (revised deadline)
	2015 8-Hour (0.07 ppm) <sup>d</sup>	Nonattainment (Extreme)	8/3/2038
	2008 8-Hour (0.075 ppm) <sup>d</sup>	Nonattainment (Extreme)	7/20/2032
	1997 8-Hour (0.08 ppm) <sup>d</sup>	Nonattainment (Extreme)	6/15/2024
PM2.5 <sup>e</sup>	2006 24-Hour (35 µg/m <sup>3</sup> )	Nonattainment (Serious)	12/31/2019
	2012 Annual (12 µg/m <sup>3</sup> )	Nonattainment (Serious)	12/31/2021
	1997 Annual (15 µg/m <sup>3</sup> )	Attainment (final determination pending)	4/5/2015 (attained 2013)
PM10 <sup>f</sup>	1987 24-Hour (150 µg/m <sup>3</sup> )	Attainment (Maintenance)	7/26/2013 (attained)
Lead <sup>g</sup>	2008 3-Months Rolling (0.15 µg/m <sup>3</sup> )	Nonattainment (Partial) (Attainment determination requested)	12/31/2015
CO	1971 1-Hour (35 ppm)	Attainment (Maintenance)	6/11/2007
	1971 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007
NO <sub>2</sub> <sup>h</sup>	2010 1-Hour (100 ppb)	Unclassifiable/Attainment	N/A (attained)
	1971 Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
SO <sub>2</sub> <sup>i</sup>	2010 1-Hour (75 ppb)	Unclassifiable/Attainment	1/9/2018
	1971 24-Hour (0.14 ppm)	Unclassifiable/Attainment	3/19/1979

Source: SCAQMD, 2022

Notes:

- a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable.
- b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration.
- c) The 1979 1-hour ozone NAAQS (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard; original attainment date was 11/15/2010; the revised attainment date is 2/6/2023.
- d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm, effective 12/28/2015 with classifications and implementation goals to be finalized by 10/1/2017; the 1997 8-hour ozone NAAQS (0.08 ppm) was revoked in the 2008 ozone implementation rule, effective 4/6/2015; there are continuing obligations under the revoked 1997 and revised 2008 ozone NAAQS until they are attained.
- e) The attainment deadline for the 2006 24-Hour PM2.5 NAAQS was 12/31/15 for the former “moderate” classification; the EPA approved reclassification to “serious”, effective 2/12/16 with an attainment deadline of 12/31/2019; the 2012 (proposal year) annual PM2.5 NAAQS was revised on 1/15/2013, effective 3/18/2013, from 15 to 12 µg/m<sup>3</sup>; new annual designations were final 1/15/2015, effective 4/15/2015; on 7/25/2016 the EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m<sup>3</sup>) and 24-hour PM2.5 (65 µg/m<sup>3</sup>) NAAQS, effective 8/24/2016.
- f) The annual PM10 standard was revoked, effective 12/18/2006; the 24-hour PM10 NAAQS deadline was 12/31/2006; the Basin’s Attainment Re-designation Request and PM10 Maintenance Plan was approved by the EPA on 6/26/2103, effective 7/26/2013.
- g) Partial Nonattainment designation – Los Angeles County portion of the Basin only for near-source monitors; expect to remain in attainment based on current monitoring data; attainment re-designation request pending.
- h) New 1-hour NO<sub>2</sub> NAAQS became effective 8/2/2010, with attainment designations 1/20/2012; annual NO<sub>2</sub> NAAQS retained.
- i) The 1971 annual and 24-hour SO<sub>2</sub> NAAQS were revoked, effective 8/23/2010.

Despite substantial improvements in air quality over the past few decades, some air monitoring stations in the Air Basin still exceed the NAAQS and frequently record the highest ozone levels in the United States. In 2020, monitoring stations in the Air Basin exceeded the most current federal standards on a total of 181 days (49 percent of the year), including: 8-hour ozone (157 days over the 2015 ozone NAAQS), 24-hour PM2.5 (39 days), PM10 (3 days), and NO<sub>2</sub> (1 day). Nine of the top 10 stations in the nation most frequently exceeding the 2015 8-hour ozone NAAQS in 2020 were located within the Air Basin, including stations in San Bernardino, Riverside, and Los Angeles Counties (SCAQMD, 2022).

PM2.5 levels in the Air Basin have improved significantly in recent years. Since 2015, none of the monitoring stations in the Air Basin have recorded violations of the former 1997 annual PM2.5 NAAQS (15.0 µg/m<sup>3</sup>). On July 25, 2016 the U.S. EPA finalized a determination that the Air Basin attained the 1997 annual (15.0 µg/m<sup>3</sup>) and 24-hour PM2.5 (65 µg/m<sup>3</sup>) NAAQS, effective August 24, 2016. However, the Air Basin does not meet the 2012 annual PM2.5 NAAQS (12.0 µg/m<sup>3</sup>), with six monitoring stations having design values above the standard for the 2018-2020 period (SCAQMD, 2022)

#### 4.2 State – California Air Resources Board

The CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants in the Air Basin are shown in Table D. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

**Table D – California Ambient Air Quality Standards Attainment Status – South Coast Air Basin**

Criteria Pollutant	Averaging Time	Level <sup>a</sup>	Designation <sup>b</sup>
Ozone	1-Hour	0.09 ppm	Nonattainment
	8-Hour	0.070 ppm	Nonattainment
PM2.5	Annual	12 µg/m <sup>3</sup>	Nonattainment
PM10	24-Hour	50 µg/m <sup>3</sup>	Nonattainment
	Annual	20 µg/m <sup>3</sup>	Nonattainment
Lead	30-Day Average	1.5 µg/m <sup>3</sup>	Attainment
CO	1-Hour	20 ppm	Attainment
	8-Hour	9.0 ppm	Attainment
NO <sub>2</sub>	1-Hour	0.18 ppm	Attainment
	Annual	0.030	Attainment <sup>c</sup>
SO <sub>2</sub>	1-Hour	0.25 ppm	Attainment
	24-Hour	0.04 ppm	Attainment
Sulfates	24-Hour	25 µg/m <sup>3</sup>	Attainment
Hydrogen Sulfide	1-Hour	0.03 ppm	Unclassified

Source: SCAQMD, 2022

Notes:

- a) CA State standards, or CAAQS, for ozone, SO<sub>2</sub>, NO<sub>2</sub>, PM10 and PM2.5 are values not to be exceeded; lead, sulfates and H<sub>2</sub>S standards are values not to be equaled or exceeded; CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- b) CA State designations shown were updated by CARB in 2019, based on the 2016-2018 3-year period; stated designations are based on a 3-year data period after consideration of outliers and exceptional events.
- c) The CA-60 near road portion of San Bernardino, Riverside and Los Angeles Counties has recently been redesignated as an attainment area based on data collected between 2018 and 2020

As shown in Table D, the Air Basin has been designated by the CARB as a non-attainment area for ozone, PM10 and PM2.5 and partial nonattainment for NO<sub>2</sub>. Currently, the Air Basin is in attainment with the ambient air quality standards for lead, CO, SO<sub>2</sub> and sulfates, and is unclassified for Hydrogen Sulfide.

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to all residential projects in the State.

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## **Assembly Bill 2588**

The Air Toxics “Hot Spots” Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release in California. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

## **CARB Regulation for In-Use Off-Road Diesel Vehicles**

On July 26, 2007, the CARB adopted California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 to reduce DPM and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet’s average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0, Tier 1, or Tier 2 engine. It should be noted that commercial fleets may continue to use their existing Tier 0, 1 and 2 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

## **CARB Resolution 08-43 for On-Road Diesel Truck Fleets**

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

## **4.3 Regional – Southern California**

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

### **South Coast Air Quality Management District**

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. The *Final 2022 Air Quality Management Plan* (2022 AQMP) was adopted by ARB on January 26, 2023 and has been submitted to the U.S. EPA for final approval, which is anticipated to occur sometime this year. After the 2022 AQMP

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has been adopted by the U.S. EPA, the 2022 AQMP will be incorporated into the State Implementation Plan (SIP). The 2022 AQMP establishes actions and strategies to reduce ozone levels to the U.S. EPA 2015 ozone standard of 70 ppb by 2037. The 2022 AQMP promotes extensive use of zero-emission technologies across all stationary and mobile sources coupled with rules and regulations, investment strategies, and incentives.

Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the Air Basin. Instead, this is controlled through local jurisdictions in accordance to the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (SCAQMD CEQA Handbook), prepared by SCAQMD, 1993, with the most current updates found at <http://www.aqmd.gov/ceqa/hdbk.html>, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the Air Basin, and adverse impacts will be minimized.

The following lists the SCAQMD rules that are applicable but not limited to public works projects in the Air Basin.

#### Rule 402 - Nuisance

Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Compliance with Rule 402 will reduce local air quality and odor impacts to nearby sensitive receptors.

#### Rule 403- Fugitive Dust

Rule 403 governs emissions of fugitive dust during construction activities and requires that no person shall cause or allow the emissions of fugitive dust such that dust remains visible in the atmosphere beyond the property line or the dust emission exceeds 20 percent opacity, if the dust is from the operation of a motorized vehicle. Compliance with this rule is achieved through application of standard Best Available Control Measures, which include but are not limited to the measures below. Compliance with these rules would reduce local air quality impacts to nearby sensitive receptors.

- Utilize either a pad of washed gravel 50 feet long, 100 feet of paved surface, a wheel shaker, or a wheel washing device to remove material from vehicle tires and undercarriages before leaving project site.
- Do not allow any track out of material to extend more than 25 feet onto a public roadway and remove all track out at the end of each workday.

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- Water all exposed areas on active sites at least three times per day and pre-water all areas prior to clearing and soil moving activities.
  - Apply nontoxic chemical stabilizers according to manufacturer specifications to all construction areas that will remain inactive for 10 days or longer.
  - Pre-water all material to be exported prior to loading, and either cover all loads or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114.
  - Replant all disturbed area as soon as practical.
  - Suspend all grading activities when wind speeds (including wind gusts) exceed 25 miles per hour.
  - Restrict traffic speeds on all unpaved roads to 15 miles per hour or less.

#### Rules 1108 and 1108.1 – Cutback and Emulsified Asphalt

Rules 1108 and 1108.1 govern the sale, use, and manufacturing of asphalt and limits the VOC content in asphalt. This rule regulates the VOC contents of asphalt used during construction as well as any on-going maintenance during operations. Therefore, all asphalt used during construction and operation of the proposed project must comply with SCAQMD Rules 1108 and 1108.1.

#### Rule 1113 – Architectural Coatings

Rule 1113 governs the sale, use, and manufacturing of architectural coatings and limits the VOC content in sealers, coatings, paints and solvents. This rule regulates the VOC contents of paints available during construction. Therefore, all paints and solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1113.

### **Southern California Association of Governments**

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (Connect SoCal), adopted September 3, 2020 and the *2019 Federal Transportation Improvement Program* (2019 FTIP), adopted September 2018, which addresses regional development and growth forecasts. Although the Connect SoCal and 2019 FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Connect SoCal, 2019 FTIP, and AQMP are based on projections originating within the City and County General Plans.

#### **4.4 Local – City of Redlands**

Local jurisdictions, such as the City of Redlands, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also

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responsible for the implementation of transportation control measures as outlined in the AQMPs. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the County assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

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## 5.0 GLOBAL CLIMATE CHANGE MANAGEMENT

The regulatory setting related to global climate change is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for global climate change regulations are discussed below.

### ***5.1 International***

In 1988, the United Nations established the IPCC to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The Paris Agreement has been adopted by 195 nations with 147 ratifying it, including the United States by President Obama, who ratified it by Executive Order on September 3, 2016. On June 1, 2017, President Trump announced that the United States is withdrawing from the Paris Agreement and on January 21, 2021 President Biden signed an executive order rejoining the Paris Agreement.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

### ***5.2 Federal – United States Environmental Protection Agency***

The United States Environmental Protection Agency (EPA) is responsible for implementing federal policy to address global climate change. The Federal government administers a wide array of public-private partnerships to reduce U.S. GHG intensity. These programs focus on energy efficiency, renewable energy, methane, and other non-CO<sub>2</sub> gases, agricultural practices and implementation of technologies to achieve GHG reductions. EPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions.

In *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO<sub>2</sub> and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).



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In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO<sub>2</sub> per mega-watt hour (MWh) for fossil fuel-fired utility boilers and 1,000 pounds of CO<sub>2</sub> per MWh for large natural gas-fired combustion units.

On August 3, 2015, the EPA announced the Clean Power Plan, emissions guidelines for U.S. states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired power plants (Federal Register Vol. 80, No. 205, October 23 2015). On October 11, 2017, the EPA issued a formal proposal to repeal the Clean Power Plan and on June 19, 2019 the EPA replaced the Clean Power Plan with the Affordable Clean Energy rule that is anticipated to lower power sector GHG emissions by 11 million tons by the year 2030.

On April 30, 2020, the EPA and the National Highway Safety Administration published the Final Rule for the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). Part One of the Rule revokes California's authority to set its own GHG emissions standards and zero-emission vehicle mandates in California, which results in one emission standard to be used nationally for all passenger cars and light trucks that is set by the EPA.

### **5.3 State**

The CARB has the primary responsible for implementing state policy to address global climate change, however there are State regulations related to global climate change that affect a variety of State agencies. CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both the federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In 2008, CARB approved a Climate Change Scoping Plan that proposes a “comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health” (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions which include direct

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regulations; alternative compliance mechanisms; monetary and non-monetary incentives; voluntary actions; market-based mechanisms such as a cap-and-trade system. In 2014, CARB approved the First Update to the Climate Change Scoping Plan (CARB, 2014) that identifies additional strategies moving beyond the 2020 targets to the year 2050. On December 14, 2017 CARB adopted the California's 2017 Climate Change Scoping Plan, November 2017 (CARB, 2017) that provides specific statewide policies and measures to achieve the 2030 GHG reduction target of 40 percent below 1990 levels by 2030 and the aspirational 2050 GHG reduction target of 80 percent below 1990 levels by 2050. In addition, the State has passed the following laws directing CARB to develop actions to reduce GHG emissions, which are listed below in chronological order, with the most current first.

### **Executive Order B-55-18 and Assembly Bill 1279**

The California Governor issued Executive Order B-55-18 in September 2018 that establishes a new statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045. This executive order directs CARB to work with relevant State agencies to develop a framework for implementation and accounting that tracks progress toward this goal as well as ensuring future scoping plans identify and recommend measures to achieve this carbon neutrality goal. Assembly Bill 1279 was passed by the legislature in September 2022 that codifies the carbon neutrality targets provided in Executive Order B-55-18. The *2022 Scoping Plan for Achieving Carbon Neutrality*, prepared by CARB, November 16, 2022 that will be considered for adoption at CARB's December Board meeting, was prepared in order to meet the carbon neutrality goal targets developed in Executive Order B-55-18 and codified in Assembly Bill 1279.

### **Executive Order N-79-20**

The California Governor issued Executive Order N-79-20 on September 23, 2020 that requires all new passenger cars and trucks and commercial drayage trucks sold in California to be zero-emissions by the year 2035 and all medium- heavy-duty vehicles (commercial trucks) sold in the state to be zero-emission by 2045 for all operations where feasible. Executive Order N-79-20 also requires all off-road vehicles and equipment to transition to 100 percent zero-emission equipment, where feasible by 2035.

### **California Code of Regulations (CCR) Title 24, Part 6**

The CEC is also responsible for implementing the CCR Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* (Title 24 Part 6) that were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. In 2008 the State set an energy-use reduction goal of zero-net-energy use of all new homes by 2020 and the CEC was mandated to meet this goal through revisions to the Title 24, Part 6 regulations.

The Title 24 standards are updated on a three-year schedule and since 2008 the standards have been incrementally moving to the 2020 goal of the zero-net-energy use. The 2022 Title 24 standards are the current standards that went into effect on January 1, 2023.

According to the Title 24 Part 6 Fact Sheet, the CEC estimates that over 30 years the 2022 Title 24 standards will reduce 10 MMTCO<sub>2</sub>e of GHG emissions, which is equivalent to taking nearly 2.2 million cars off the road for a year. For single-family homes, the CEC estimates that the 2022 Title 24 changes from using natural gas furnaces to electric heat pumps to heat new homes and would reduce net CO<sub>2</sub> emissions by 16,230 MTCO<sub>2</sub>e per year, when compared to the 2019 Title 24 standards, which is equivalent of taking 3,641 gas cars off the road each year. The 2022 Title 24 standards will: (1) Increase onsite renewable energy generation; (2) Increases electric load flexibility to support grid reliability; (3) Reduces emissions

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from newly constructed buildings; (4) Reduces air pollution for improved public health; and (5) Encourages adoption of environmentally beneficial efficient electric technologies.

### **California Code of Regulations (CCR) Title 24, Part 11**

CCR Title 24, Part 11: *California Green Building Standards* (CalGreen Code) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The CalGreen Code is also updated every three years and the current version is the 2022 CalGreen Code.

The CalGreen Code contains requirements for construction site selection; storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency.

The CalGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others. Implementation of the CalGreen Code measures reduces energy consumption and vehicle trips and encourages the use of alternative-fuel vehicles, which reduces pollutant emissions.

Some of the notable changes in the 2022 CalGreen Code over the prior 2019 CalGreen Code for nonresidential development mandatory requirements include repeal of the designated parking spaces for clean air vehicles, an increase in the number of electric vehicle (EV) ready parking spaces and a new requirement for installed Level 2 or DCFC EV charging stations for autos and added EV charging readiness requirements to loading docks, enhanced thermal insulation requirements, and acoustical ceilings are now required.

### **Senate Bill 100 and Executive Order B-55-18**

Senate Bill 100 (SB 100) was adopted September 2018 and the California Governor issued Executive Order B-55-18 in September 2018, shortly before SB 100 was adopted. SB 100 and Executive Order B-55-18 requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity. SB 100 supersedes the renewable energy requirements set by SB 350, SB 1078, SB 107, and SB X1-2. However, the interim renewable energy thresholds from the prior Bills of 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, will remain in effect.

### **Executive Order B-48-18 and Assembly Bill 2127**

The California Governor issued Executive Order B-48-18 on January 26, 2018 that orders all state entities to work with the private sector to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025. Currently there are approximately 350,000 electric vehicles operating in California, which represents approximately 1.5 percent of the 24 million vehicles total currently operating in California. Implementation of Executive Order B-48-18 would result in approximately 20 percent of all vehicles in California to be zero emission electric vehicles. Assembly Bill 2127 (AB 2127) was codified into statute on September 13, 2018 and

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requires that the CEC working with CARB prepare biannual assessments of the statewide electric vehicle charging infrastructure needed to support the levels of zero emission vehicle adoption required for the State to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030.

### **Executive Order B-30-15, Senate Bill 32 and Assembly Bill 197**

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030 as detailed in Executive Order B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

### **Executive Order B-29-15**

The California Governor issued Executive Order B-29-15 on April 1, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles. Executive Order B-29-15 would reduce GHG emissions associated with the energy used to transport and filter water.

### **Assembly Bill 341 and Senate Bills 939 and 1374**

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and set a new target of a 75 percent reduction in solid waste generated by the year 2020.

### **Senate Bill 375**

Senate Bill 375 (SB 375) was adopted September 2008 in order to support the State's climate action goals to reduce GHG emissions through coordinated regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires CARB to set regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established targets for 2020 and 2035 for each Metropolitan Planning Organizations (MPO) within the State. It was up to each MPO to adopt a sustainable communities strategy (SCS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP) to meet CARB's 2020 and 2035 GHG emission reduction targets. These reduction targets are required to be updated every eight years and the most current targets are

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detailed at: <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>, which provides GHG emissions reduction targets for SCAG of 8 percent by 2020 and 19 percent by 2035.

The *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (Connect SoCal)*, adopted September 3, 2020 provides a 2035 GHG emission reduction target of 19 percent reduction over the 2005 per capita emissions levels. The Connect SoCal include new initiatives of land use, transportation and technology to meet the 2035 new 19 percent GHG emission reduction target for 2035. CARB is also charged with reviewing SCAG's RTP/SCS for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS. However, new provisions of CEQA incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS and categorized as "transit priority projects."

### **Assembly Bill 32**

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 MMTCO<sub>2</sub>e. The 2020 target of 431 MMTCO<sub>2</sub>e requires the reduction of 78 MMTCO<sub>2</sub>e, or approximately 16 percent from the State's projected 2020 business as usual emissions of 509 MMTCO<sub>2</sub>e (CARB, 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO<sub>2</sub> in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

CARB's Scoping Plan that was adopted in 2009, proposes a variety of measures including: strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the year 2050.

The Cap-and-Trade Program established under the Scoping Plan sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

### **Assembly Bill 1493**

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting

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the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. In June 2009, the EPA granted California the authority to implement GHG emission reduction standards for light duty vehicles, in September 2009, amendments to the Pavley I regulations were adopted by CARB and implementation of the “Pavley I” regulations started in 2009.

The second set of regulations “Pavley II” was developed in 2010, and is being phased in between model years 2017 through 2025 with the goal of reducing GHG emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards were developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the “LEV III” (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles and these GHG emissions standards are currently being implemented nationwide.

The EPA has performed a midterm evaluation of the longer-term standards for model years 2022-2025, and based on the findings of this midterm evaluation, the EPA proposed The Safer Affordable Fuel Efficient (SAFE) Vehicles Proposed Rule for Model Years 2021-2026 that amends the corporate average fuel economy (CAFE) and GHG emissions standards for light vehicles for model years 2021 through 2026. The SAFE Vehicles Rule was published on April 30, 2020 and made effective on June 29, 2020.

#### **5.4 Regional – Southern California**

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Air Basin. To that end, as a regional agency, the SCAQMD works directly with SCAG, county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

#### **South Coast Air Quality Management District**

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. The SCAQMD is also responsible for GHG emissions for projects where it is the lead agency. However, for other projects in the Air Basin where it is not the lead agency, it is limited to providing resources to other lead agencies in order to assist them in determining GHG emission thresholds and GHG reduction measures. In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a Working Group, which is described below.

#### SCAQMD Working Group

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that either provides a quantitative annual thresholds of 3,500 MTCO<sub>2</sub>e for residential uses, 1,400 MTCO<sub>2</sub>e for commercial uses, 3,000 MTCO<sub>2</sub>e for mixed uses, and 10,000 MTCO<sub>2</sub>e for industrial uses.

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## **Southern California Association of Governments**

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Connect SoCal and 2019 FTIP addresses regional development and growth forecasts. Although the Connect SoCal and 2019 FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Connect SoCal, 2019 FTIP, and AQMP are based on projections originating within the City and County General Plans.

### ***5.5 Local – City of Redlands***

Local jurisdictions, such as the City of Redlands, have the authority and responsibility to reduce GHG emissions through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of GHG emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the global climate change potential of new development projects, requires mitigation of potentially significant global climate change impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation. In order to address the State's GHG emissions reduction standards within the City, the *City of Redlands Climate Action Plan* (Redlands CAP), was adopted on December 5, 2017. The Redlands CAP incorporates the guidelines established in *California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan), prepared by CARB, November 2017. The 2017 Scoping Plan was prepared to meet the most current GHG emissions reduction targets set in Executive Order S-3-15 and SB 32 that recommends local governments to develop plans to reduce GHG emissions to 6 MTCO<sub>2e</sub> per capita per year by the year 2030 and 2 MTCO<sub>2e</sub> per capita per year by the year 2050. Since the Redlands CAP was prepared in coordination with the General Plan that has a horizon year of 2035, the Redlands CAP provides a year 2035 target of 5 MTCO<sub>2e</sub> per capita per year, which was determined through interpolation of the 2030 and 2035 GHG emissions targets.

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## 6.0 ATMOSPHERIC SETTING

### 6.1 South Coast Air Basin

The project site is located within City of Redlands within the County of San Bernardino, which is part of the South Coast Air Basin (Air Basin) that includes the non-desert portions of Riverside, San Bernardino, and Los Angeles Counties and all of Orange County. The Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

### 6.2 Local Climate

The climate of western San Bernardino County, technically called an interior valley subclimate of the Southern California's Mediterranean-type climate, is characterized by hot dry summers, mild moist winters with infrequent rainfall, moderate afternoon breezes, and generally fair weather. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. The clouds and fog that form along the area's coastline rarely extend as far inland as western San Bernardino County. When morning clouds and fog form, they typically burn off quickly after sunrise. The most important weather pattern from an air quality perspective is associated with the warm season airflow across the densely populated areas located west of the project site. This airflow brings polluted air into western San Bernardino County late in the afternoon. This transport pattern creates unhealthy air quality that may extend to the project site particularly during the summer months.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in western San Bernardino County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but as discussed above, these coastal winds carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion of the Air Basin into the interior valleys which become trapped by the mountains that border the eastern and northern edges of the Air Basin.

In the summer, strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloud.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the Redlands Monitoring station, which is the nearest weather station to the project site with historical data are shown below in Table E. Table E shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project



area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

**Table E – Monthly Climate Data**

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Total Precipitation (inches)
January	64.8	39.4	2.68
February	66.1	41.3	2.64
March	69.1	43.6	2.28
April	73.8	46.8	1.17
May	78.6	51.2	0.47
June	86.8	55.2	0.10
July	94.5	60.3	0.07
August	94.3	60.7	0.15
September	90.2	57.6	0.28
October	81.0	54.3	0.69
November	72.6	44.0	1.13
December	65.8	39.6	1.89
<b>Annual</b>	<b>78.1</b>	<b>49.2</b>	<b>13.56</b>

Source: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7306>

### **6.3 Monitored Local Air Quality**

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Air Basin. Improvements in cleaner technology and strict regulations have reduced ozone levels since its peak in the mid-twentieth century. However, ozone levels have remained unacceptably high over the past decade despite significant reductions. This trend is due to the changes in climate and other weather conditions such as the increase in hot, stagnant days that can lead to the formation of ozone that we have experienced in recent years. (SCAQMD, 2022).

SCAQMD has divided the Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in Air Monitoring Area 34, Central San Bernardino Valley, which covers the area from Fontana to the base of the San Bernardino Mountains. Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the project site have been used: Redlands-Dearborn Monitoring Station (Redlands Station) and San Bernardino-4<sup>th</sup> Street Monitoring Station (San Bernardino Station).

The Redlands Station is located approximately 3.2 miles north of the project site at 500 North Dearborn Street, Redlands and the San Bernardino Station is located approximately 10 miles northwest of the project site at 24302 4th Street, San Bernardino. Table F presents the monitored pollutant levels from these Monitoring Stations. Ozone and PM10 were measured at the Redlands Station and NO<sub>2</sub> and PM2.5 were measured at the San Bernardino Station. CO measurements have not been provided, since CO is currently in attainment in the Air Basin and monitoring of CO within the Air Basin ended on March 31, 2013. It should also be noted that due to the air monitoring stations distances from the project site,

recorded air pollution levels at the air monitoring stations reflect with varying degrees of accuracy, local air quality conditions at the project site.

**Table F – Local Area Air Quality Monitoring Summary**

Pollutant (Standard)	Year		
	2020	2021	2022
<b>Ozone:<sup>1</sup></b>			
Maximum 1-Hour Concentration (ppm)	0.173	0.145	0.135
Days > CAAQS (0.09 ppm)	<b>104</b>	<b>74</b>	<b>63</b>
Maximum 8-Hour Concentration (National Measurement) (ppm)	0.136	0.119	0.109
Days > NAAQS (0.070 ppm)	<b>141</b>	<b>114</b>	<b>104</b>
Days > CAAQs (0.070 ppm)	<b>145</b>	<b>118</b>	<b>106</b>
<b>Nitrogen Dioxide:<sup>2</sup></b>			
Maximum 1-Hour Concentration (ppb)	54.0	56.3	52.6
Days > NAAQS (100 ppb)	0	0	0
Days > CAAQS (180 ppb)	0	0	0
<b>Inhalable Particulates (PM10):<sup>1</sup></b>			
Maximum 24-Hour National Measurement (ug/m <sup>3</sup> )	87.7	44.2	50.5
Days > NAAQS (150 ug/m <sup>3</sup> )	0	0	0
Days > CAAQS (50 ug/m <sup>3</sup> )	<b>2</b>	0	0
Annual Arithmetic Mean (AAM) (ug/m <sup>3</sup> )	24.7	23.7	22.4
Annual > NAAQS (50 ug/m <sup>3</sup> )	No	No	No
Annual > CAAQS (20 ug/m <sup>3</sup> )	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>Ultra-Fine Particulates (PM2.5):<sup>2</sup></b>			
Maximum 24-Hour National Measurement (ug/m <sup>3</sup> )	56.6	57.9	40.1
Days > NAAQS (35 ug/m <sup>3</sup> )	<b>2</b>	<b>1</b>	<b>2</b>
Annual Arithmetic Mean (AAM) (ug/m <sup>3</sup> )	ND	11.9	11.3
Annual > NAAQS and CAAQS (12 ug/m <sup>3</sup> )	No	No	No

Notes: Exceedances are listed in **bold**. CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.

<sup>1</sup> Data obtained from the Redlands Station.

<sup>2</sup> Data obtained from the San Bernardino Station.

Source: <http://www.arb.ca.gov/adam/>

## Ozone

During the last three years, the State 1-hour concentration standard for ozone has been exceeded between 63 and 104 days each year at the Redlands Station. The State 8-hour ozone standard has been exceeded between 106 and 145 days each year over the last three years at the Redlands Station. The Federal 8-hour ozone standard has been exceeded between 104 and 141 days each year over the last three years at the Redlands Station. Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO<sub>2</sub>, which

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occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

### **Nitrogen Dioxide**

The San Bernardino Station did not record an exceedance of either the Federal or State 1-hour NO<sub>2</sub> standards for the last three years.

### **Particulate Matter**

The State 24-hour concentration standard for PM<sub>10</sub> has been exceeded for only two days in the year 2020 over the past three years at the Redlands Station. Over the past three years the Federal 24-hour standard for PM<sub>10</sub> has not been exceeded at the Redlands Station. The annual PM<sub>10</sub> concentration at the San Bernardino Station has exceeded the State standard for the past three years and has not exceeded the Federal standard for the past three years.

Over the past three years the federal 24-hour concentration standard for PM<sub>2.5</sub> has been exceeded between one and two days each year over the past three years at the San Bernardino Station. The annual PM<sub>2.5</sub> concentrations at the San Bernardino Station has been within both the State and Federal standards for the past three years. There does not appear to be a noticeable trend for PM<sub>10</sub> or PM<sub>2.5</sub> in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM<sub>10</sub> and PM<sub>2.5</sub>). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM<sub>10</sub> and PM<sub>2.5</sub>. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

## **6.4 Toxic Air Contaminant Levels in the Air Basin**

In order to determine the Air Basin-wide risks associated with major airborne carcinogens, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES) studies. According to the MATES V study (SCAQMD, 2021), the project site has an estimated cancer risk of 341 per million persons chance of cancer. In comparison, the average cancer risk for the Air Basin is 455 per million persons. The MATES V study monitored air toxins between May 1, 2018 to April 30, 2019, found that cancer risk from air toxics has declined significantly in the Air Basin with a 40 percent decrease in cancer risk since the monitoring for the MATES IV study that occurred between July 1, 2012 and June 30, 2013 and an 84 percent decrease in cancer risk since the monitoring for the MATES II study that occurred between April 1, 1998 and March 31, 1999.

The MATES V study also analyzed impacts specific to the communities experiencing environmental injustices (EJ communities) that were evaluated using the Senate Bill 535 definition of disadvantaged communities, which found that between MATES IV and MATES V, the cancer risk from air toxics decreased by 57 percent in EJ communities overall, compared to a 53 percent reduction in non-EJ communities.

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In order to provide a perspective of risk, it is often estimated that the incidence in cancer over a lifetime for the U.S. population ranges between 1 in 3 to 4 and 1 in 3, or a risk of about 300,000 per million persons. The MATES-III study referenced a Harvard Report on Cancer Prevention, which estimated that of cancers associated with known risk factors, about 30 percent were related to tobacco, about 30 percent were related to diet and obesity, and about 2 percent were associated with environmental pollution related exposures that includes hazardous air pollutants.

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## 7.0 MODELING PARAMETERS AND ASSUMPTIONS

### 7.1 CalEEMod Model Input Parameters

The criteria air pollution and GHG emissions impacts created by the proposed project have been analyzed through use of the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.19. CalEEMod is a computer model published by the California Air Pollution Control Officers Association (CAPCOA) for estimating air pollutant and GHG emissions. The CalEEMod program uses the EMFAC2021 computer program to calculate the emission rates specific for the South Coast Air Basin portion of San Bernardino County for employee, vendor and haul truck vehicle trips and the OFFROAD2007 and OFFROAD2011 computer programs to calculate emission rates for heavy equipment operations. EMFAC2021, OFFROAD2007 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour.

The project characteristics in the CalEEMod model were set to a project location of the South Coast Air Basin portion of San Bernardino County, utility companies of Southern California Edison and Southern California Gas and a project opening year of 2025.

#### Land Use Parameters

The proposed project consists of construction of two new above ground 220 foot diameter factory-coated bolt carbon steel tanks. It is anticipated that approximately 6.2 acres will be disturbed as part of the proposed project. A driveway will be constructed utilizing asphalt/gravel that connects the water tanks to Helen Court. Two parking spaces will also be installed for maintenance purposes. Since the final plans are not yet available, this analysis is based on the paved area covering up to 0.7 acres. The proposed project is expected to break ground in 2024 and be completed by 2025.

The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table G.

**Table G – CalEEMod Land Use Parameters**

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size <sup>1</sup>	Lot Acreage <sup>2</sup>	Building <sup>3</sup> (square feet)	Landscaped Area <sup>4</sup> (sq ft)
Proposed Reservoirs	User Defined Industrial	6 AC	5.50	76,027	23,951
Paved Areas	Other Asphalt Surfaces	1 AC	0.70	--	3,049

Notes:

<sup>1</sup> TSF = Thousand Square Feet; AC = Acres

<sup>2</sup> Lot acreage calculated based on the total disturbed area of 6.2-acres.

<sup>3</sup> Building square feet represents area where architectural coatings will be applied.

<sup>4</sup> Landscaped area based on 10 percent of the area disturbed, spread proportionally between land uses.

#### Construction Parameters

Construction of the proposed project is anticipated to start around May 2024 and was modeled based on the CalEEMod default timing that would have construction completed by July 2025. The construction-related GHG emissions were based on a 30-year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The phases of construction activities that have been

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analyzed are detailed below and include: 1) Site Preparation; 2) Grading, 3) Building construction, 4) Paving; and ) Application of architectural coatings.

The CalEEMod model provides the selection of “mitigation” to account for project conditions that would result in less emissions than a project without these conditions, however it should be noted that this “mitigation” may represent regulatory requirements. This includes the required to adherence to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions and was modeled in CalEEMod by selection of mitigation of water all exposed areas three times per day.

#### Site Preparation

The site preparation phase would consist of removing any vegetation, tree stumps, and stones onsite prior to grading. The site preparation phase was modeled as starting in May 2024 and was modeled as occurring over two weeks, which is based on the CalEEMod default timing. The site preparation activities would generate an average of 17.5 worker trips per day. In order to account for water truck emissions, three onsite truck trips per day with a 0.25-mile length was added to the site preparation phase. The onsite equipment would consist of three rubber-tired dozers, and four of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix.

#### Grading

The grading phase would occur after completion of the site preparation phase and was modeled as occurring over four weeks, which is based on the CalEEMod default timing. The grading would likely be balanced, which would result in no dirt being imported or exported from the project site. The grading activities would generate 15 worker trips per day. In order to account for water truck emissions, three onsite truck trips per day with a 0.25-mile length was added to the grading phase. The onsite equipment would consist of one excavator, one grader, one rubber-tired dozer, and three of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix.

#### Building Construction

The building construction would occur after the completion of the grading phase and was modeled as occurring over 11 months, which is based on the CalEEMod default timing. The building construction phase would generate an average of 31.9 worker trips and 12.5 vendor trips per day. The onsite equipment would consist of the simultaneous operation of one crane, three forklifts, one generator, one welder, and three of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix.

#### Paving

The paving phase would consist of paving the onsite driveway and parking. The paving phase would occur after the completion of the building construction phase and was modeled as occurring over four weeks, which is based on the CalEEMod default timing. The paving phase would generate an average of 15 worker trips per day. The onsite equipment would consist of the simultaneous operation of two pavers, two paving equipment, and two rollers, which is based on the CalEEMod default equipment mix.

#### Architectural Coating

The application of architectural coatings would occur after completion of the paving phase and was modeled as occurring over four weeks, which is based on the CalEEMod default timing. The architectural

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coating phase would generate an average of 6.4 worker trips per day. The onsite equipment would consist of one air compressor, which is based on the CalEEMod default equipment mix.

### **Operational Emissions Modeling**

In general, operation of the new reservoir tanks will be passive as there will be no equipment installed on the reservoir tanks that creates air emissions. The existing water tank will continue to function while the new reservoir tanks are constructed. Currently, maintenance on the existing water tank occurs on a monthly and as-needed basis by City employees, that includes landscaping. No change would occur between the maintenance activities for the existing water tank and proposed reservoir tanks. As such, operation of the proposed project would not create any additional air emissions, over which is currently being created, and no operational air emission modeling was performed.

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## 8.0 THRESHOLDS OF SIGNIFICANCE

### 8.1 Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the Air Basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table H.

**Table H – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance**

	Pollutant Emissions (pounds/day)						
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Lead
<b>Construction</b>	75	100	550	150	150	55	3
<b>Operation</b>	55	55	550	150	150	55	3

Source: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2>

### 8.2 Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. SCAQMD has also provided *Final Localized Significance Threshold Methodology* (LST Methodology), July 2008, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of the project site and distance to the nearest sensitive receptors. As detailed above in Section 6.3, the project site is located in Air Monitoring Area 34, Central San Bernardino Valley. The Look-Up Tables provided in the LST Methodology include project site acreage sizes of 1-acre, 2-acres and 5-acres. Since the proposed project would disturb up to 6.2 acres, the 5-acre thresholds were utilized, since it is the closest acreage size available. It should also be noted that no more than 5-acres would be disturbed in any workday as part of the proposed project.

The nearest sensitive receptor to the project site is a single-family home that is located as near as 280 feet (85 meters) south of the area that would be disturbed as part of the proposed project. As such, the 50 meter and 100 meter thresholds were interpolated to find the 85 meter thresholds. Table I below shows the LSTs for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> for both construction and operational activities.



**Table I – SCAQMD Local Air Quality Thresholds of Significance**

Activity	Allowable Emissions (pounds/day) <sup>1</sup>			
	NOx	CO	PM10	PM2.5
Construction	356	3,630	59	15
Operation	356	3,630	15	4

Notes:

<sup>1</sup> The nearest offsite sensitive receptor is a single-family home located as near as 280 feet (85 meters) south of the area that would be disturbed. As such, the 50 meter and 100 meter thresholds were interpolated to find the 85 meter thresholds.

Source: Calculated from SCAQMD's Mass Rate Look-up Tables for five acres in Air Monitoring Area 34, San Bernardino Valley.

### **8.3 Toxic Air Contaminants**

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to toxic air contaminants (TACs), the *Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*, (Diesel Analysis) prepared by SCAQMD, August 2003, recommends that if the proposed project is anticipated to create TACs through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the TAC and the toxicity of the HAP should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

### **8.4 Odor Impacts**

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

“A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.”

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

### **8.5 Greenhouse Gas Emissions**

The *City of Redlands Climate Action Plan* (Redlands CAP), was adopted on December 5, 2017. The Redlands CAP was prepared pursuant to Section 15183.5(b) of the CEQA Guidelines to be utilized as a tiering document for the General Plan as well as future projects within the City that are consistent with

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the General Plan. The Redlands CAP incorporates the guidelines established in CARB's 2017 Scoping Plan. The 2017 Scoping Plan was prepared to meet the most current GHG emissions reduction targets set in Executive Order S-3-15 and SB 32 that recommends local governments to develop plans to reduce GHG emissions to 6 MTCO<sub>2</sub>e per capita per year by the year 2030 and 2 MTCO<sub>2</sub>e per capita per year by the year 2050. Since the Redlands CAP was prepared in coordination with the General Plan that has a horizon year of 2035, the Redlands CAP provides a year 2035 target of 5 MTCO<sub>2</sub>e per capita per year, which was determined through interpolation of the 2030 and 2035 GHG emissions targets. Since a per capita threshold does not apply to the proposed, the SCAQMD thresholds has been utilized, instead.

In order to identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 MTCO<sub>2</sub>e for all land use projects.

The GHG emissions analysis for both construction and operation of the proposed project can be found below in Sections 9.6 and 9.7.

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## 9.0 IMPACT ANALYSIS

### 9.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality and GHG emissions would occur if the proposed project is determined to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

### 9.2 Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project's consistency with the SCAQMD AQMP.

#### SCAQMD Air Quality Management Plan

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD AQMP. Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

- (1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

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- (2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance discussed above in Section 8.1 or local thresholds of significance discussed above in Section 8.2. The ongoing operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance discussed above in Section 8.1. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not exceed the air quality standards. Therefore, a less than significant long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, the proposed project would be consistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the Connect SoCal and 2019 FTIP. The Connect SoCal is a major planning document for the regional transportation and land use network within Southern California. The Connect SoCal is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The 2019 FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of Redlands General Plan's Land Use Plan defines the assumptions that are represented in AQMP.

The project site is currently designated as Resource Preservation in the General Plan. The proposed reservoirs are an allowed use within this land use designation and would not require a General Plan Amendment. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

**Level of Significance**

Less than significant impact.

**9.3 Cumulative Net Increase in Non-Attainment Pollution**

The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard.

The SCAQMD has published a report on how to address cumulative impacts from air pollution: White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution (<http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf>). In this report the AQMD clearly states (Page D-3):

*“...the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or Environmental Impact Report (EIR). The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for TAC emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility- wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.”*

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD’s recommended daily thresholds for project- specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable. The following section calculates the potential air emissions associated with the construction and operations of the proposed project and compares the emissions to the SCAQMD standards.

### Construction Emissions

The construction activities for the proposed project are anticipated to include site preparation and grading of approximately 6.2 acres, building construction of the proposed reservoirs, paving of an onsite driveway and parking spaces, and application of architectural coatings. The CalEEMod model has been utilized to calculate the construction-related emissions from the proposed project and the input parameters utilized in this analysis have been detailed in Section 7.1. The maximum daily construction-related criteria pollutant emissions from the proposed project are shown below in Table J.

**Table J – Construction-Related Criteria Pollutant Emissions**

Season and Year of Construction	Maximum Daily Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO <sub>2</sub>	PM10	PM2.5
Summer 2024	3.74	36.1	34.4	0.05	8.04	4.26
Winter 2024	1.37	11.9	15.4	0.03	1.03	0.59
Summer 2025	35.8	11.0	15.8	0.03	0.96	0.53
Winter 2025	1.27	11.0	15.1	0.03	0.96	0.53
<b>Maximum Daily Construction Emissions</b>	<b>35.8</b>	<b>36.1</b>	<b>34.4</b>	<b>0.05</b>	<b>8.04</b>	<b>4.26</b>
<b>SCQAMD Regional Thresholds</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>SCAQMD Local Thresholds<sup>1</sup></b>	<b>--</b>	<b>356</b>	<b>3,630</b>	<b>--</b>	<b>59</b>	<b>15</b>
Exceeds Thresholds?	No	No	No	No	No	No

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Notes:

<sup>1</sup> The nearest sensitive receptor is a single-family home located as near as 280 feet (85 meters) south of the area that would be disturbed. As such, the 50 meter and 100 meter thresholds were interpolated to find the 85 meter thresholds. Calculated from SCAQMD's Mass Rate Look-up Tables for five acres in Air Monitoring Area 34, San Bernardino Valley.  
Source: CalEEMod Version 2022.1.

Table J shows that none of the analyzed criteria pollutants would exceed either the regional or local emissions thresholds during construction of the proposed project. Therefore, a less than significant regional or local air quality impact would occur from construction of the proposed project.

### **Operational Emissions**

In general, operation of the new reservoir tanks will be passive as there will be no equipment installed on the reservoir tanks that creates air emissions. The existing water tank will continue to function while the new reservoir tanks are constructed. Currently, maintenance on the existing water tank occurs on a monthly and as-needed basis by City employees, that includes landscaping. No change would occur between the maintenance activities for the existing water tank and proposed reservoir tanks. As such, operation of the proposed project would not create any additional air emissions, over which is currently being created, and no operational air emission modeling was performed. As such, less than significant air quality impacts would occur from operation of the proposed project.

Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

### **Level of Significance**

Less than significant impact.

## **9.4 Sensitive Receptors**

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the proposed project, which may expose sensitive receptors to substantial concentrations have been calculated above in Section 9.3 for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from local criteria pollutant and toxic air contaminant emissions.

### **Construction-Related Sensitive Receptor Impacts**

Construction activities may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from onsite construction equipment, which are described below.

#### Local Criteria Pollutant Impacts from Construction

The local air quality impacts from construction of the proposed project have been analyzed above in Section 9.3 and found that the construction of the proposed project would not exceed the local NO<sub>x</sub>, CO, PM<sub>10</sub> and PM<sub>2.5</sub> thresholds of significance discussed above in Section 8.2. Therefore, construction of the proposed project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

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### Toxic Air Contaminants Impacts from Construction

The greatest potential for toxic air contaminant emissions would be related to DPM emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30-year exposure period for the nearby sensitive receptors (OEHHA, 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet’s usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0, Tier 1 or Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, due to the limitations in off-road construction equipment DPM emissions from implementation of Section 2448, a less than significant short-term TAC impacts would occur during construction of the proposed project from DPM emissions.

As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

### **Operations-Related Sensitive Receptor Impacts**

In general, operation of the new reservoir tanks will be passive as there will be no equipment installed on the reservoir tanks that creates air emissions. The existing water tank will continue to function while the new reservoir tanks are constructed. Currently, maintenance on the existing water tank occurs on a monthly and as-needed basis by City employees, that includes landscaping. No change would occur between the maintenance activities for the existing water tank and proposed reservoir tanks. As such, operation of the proposed project would not create any additional air emissions, over which is currently being created, and no operational air emission modeling was performed. Therefore, operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

### **Level of Significance**

Less than significant impact.

### **9.5 Odor Emissions**

The proposed project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in

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the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

### **Construction-Related Odor Impacts**

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits VOC content in asphalt and Rule 1113 that limits the VOC content in paints and solvents would minimize odor impacts from construction. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

### **Operations-Related Odor Impacts**

The proposed project would consist of the development of two enclosed water reservoirs. Enclosed water reservoirs are not a known source of odors. Therefore, a less than significant odor impact would occur from operation of the proposed project.

### **Level of Significance**

Less than significant impact

## ***9.6 Generation of Greenhouse Gas Emissions***

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The proposed project would consist of the development of two water reservoirs. The proposed project is anticipated to generate GHG emissions from construction activities.

In general, operation of the new reservoir tanks will be passive as there will be no equipment installed on the reservoir tanks that creates GHG emissions. The existing water tank will continue to function while the new reservoir tanks are constructed. Currently, maintenance on the existing water tank occurs on a



monthly and as-needed basis by City employees, that includes landscaping. No change would occur between the maintenance activities for the existing water tank and proposed reservoir tanks. As such, operation of the proposed project would not create any additional GHG emissions, over which is currently being created, as such no operation-related GHG emissions would be created from the proposed project.

The project’s GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters detailed in Section 7.1 above. A summary of the results is shown below in Table K and the CalEEMod model run annual printouts are provided in Appendix B.

**Table K – Project Related Greenhouse Gas Annual Emissions**

Year of Construction	Greenhouse Gas Emissions (Metric Tons per Year)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
2024	233	0.01	0.01	235
2025	174	0.01	<0.01	176
<b>Total Construction Emissions</b>	<b>407</b>	<b>0.02</b>	<b>0.01</b>	<b>411</b>
<b>Amortized Construction Emissions<sup>1</sup> (30 years)</b>				<b>13.7</b>
<b>SCAQMD Draft Threshold</b>				<b>3,000</b>
<b>Exceed Threshold?</b>				No

Notes:

<sup>7</sup> Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.

Source: CalEEMod Version 2022.1.

The data provided in Table K **Error! Reference source not found.** above shows that the proposed project’s construction activities would generate a total of 411 MTCO<sub>2</sub>e. According to the SCAQMD recommended GHG emissions analysis methodology, construction-related GHG emissions should be amortized over 30 years, which results in the proposed project creating 13.7 MTCO<sub>2</sub>e per year. According to the SCAQMD draft threshold of significance detailed above in Section 8.5, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed 3,000 MTCO<sub>2</sub>e per year. Therefore, a less than significant generation of greenhouse gas emissions would occur from development of the proposed project. Impacts would be less than significant.

### Level of Significance

Less than significant impact.

### 9.7 Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The applicable plan for the proposed project is the Redlands CAP that was prepared pursuant to Section 15183.5(b) of the CEQA Guidelines to be utilized as a tiering document for the General Plan as well as future projects within the City that are consistent with the General Plan. Since the proposed project is consistent with the General Plan, the proposed project meets the criteria allowed for use of the Redlands CAP for analysis of the proposed project.

In addition, as detailed above in Section 9.6, the proposed project is anticipated to create 13.7 MTCO<sub>2</sub>e per year, which is well below the SCAQMD threshold of significance of 3,000 MTCO<sub>2</sub>e per year. The SCAQMD developed this threshold in order to meet the State GHG emissions reduction regulations that was based on substantial evidence supporting the use of the recommended thresholds. Therefore, the

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proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

**Level of Significance**

Less than significant impact.

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**APPENDIX A**

CalEEMod Model Printouts

# Sunset Reservoirs Detailed Report

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## 1. Basic Project Information

### 1.1. Basic Project Information

Data Field	Value
Project Name	Sunset Reservoirs
Construction Start Date	5/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	24.0
Location	34.0142921947767, -117.13757366796683
County	San Bernardino-South Coast
City	Redlands
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5390
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.19

### 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	6.00	User Defined Unit	5.50	76,027	23,951	—	—	—

Other Asphalt Surfaces	1.00	Acre	0.70	0.00	3,049	—	—	—
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### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

## 2. Emissions Summary

### 2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	35.8	36.1	34.4	0.05	8.04	4.26	5,556	0.23	0.09	2.93	5,578
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.37	11.9	15.4	0.03	1.03	0.59	3,210	0.15	0.09	0.08	3,241
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.39	5.99	7.24	0.01	0.78	0.41	1,408	0.06	0.03	0.46	1,420
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.44	1.09	1.32	< 0.005	0.14	0.08	233	0.01	0.01	0.08	235
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	150	55.0	—	—	—	—	—
Unmit.	No	No	No	No	No	No	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	150	55.0	—	—	—	—	—
Unmit.	No	No	No	No	No	No	—	—	—	—	—

## 2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2024	3.74	36.1	34.4	0.05	8.04	4.26	5,556	0.23	0.09	2.93	5,578
2025	35.8	11.0	15.8	0.03	0.96	0.53	3,232	0.15	0.09	2.75	3,266
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2024	1.37	11.9	15.4	0.03	1.03	0.59	3,210	0.15	0.09	0.08	3,241
2025	1.27	11.0	15.1	0.03	0.96	0.53	3,195	0.15	0.09	0.07	3,226
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2024	0.67	5.99	7.24	0.01	0.78	0.41	1,408	0.06	0.03	0.46	1,420
2025	2.39	3.73	5.19	0.01	0.32	0.18	1,051	0.05	0.03	0.38	1,061
Annual	—	—	—	—	—	—	—	—	—	—	—
2024	0.12	1.09	1.32	< 0.005	0.14	0.08	233	0.01	0.01	0.08	235
2025	0.44	0.68	0.95	< 0.005	0.06	0.03	174	0.01	< 0.005	0.06	176

## 3. Construction Emissions Details

### 3.1. Site Preparation (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.65	36.0	32.9	0.05	1.60	1.47	5,296	0.21	0.04	—	5,314

Dust From Material Movement	—	—	—	—	—	5.11	2.63	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	0.04	< 0.005	0.04	< 0.005	1.10	0.11	7.93	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	8.42
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.99	< 0.005	0.90	< 0.005	0.04	0.04	145	0.01	< 0.005	—	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	146
Dust From Material Movement	—	—	—	—	—	0.14	0.07	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	< 0.005	0.22	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.23
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.18	< 0.005	0.16	< 0.005	0.01	0.01	24.0	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	24.1
Dust From Material Movement	—	—	—	—	—	0.03	0.01	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.00	1.48	0.00	0.23	0.05	252	0.01	0.01	0.01	0.01	0.01	0.01	1.01	0.01	0.01	0.01	256
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.03	0.00	0.01	< 0.005	6.42	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	6.51
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.06	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.3. Grading (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	0.77	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	1.84	0.89	—	—	—	—	—
Onsite truck	< 0.005	0.04	0.04	< 0.005	1.10	0.11	7.93	< 0.005	< 0.005	0.01	8.42
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	1.00	1.03	< 0.005	0.05	0.04	162	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	0.10	0.05	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.01	0.44	< 0.005	< 0.005	< 0.005	0.46
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.18	0.19	< 0.005	0.01	0.01	26.8	< 0.005	< 0.005	—	26.9

Dust From Material Movement	—	—	—	—	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	0.07	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.08	
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	1.27	0.00	0.05	0.20	216	0.01	0.01	0.86	0.01	0.01	0.01	0.86	0.01	0.01	0.01	0.86	219	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	< 0.005	0.01	11.0	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	11.2	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.82	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.85	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

### 3.5. Building Construction (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	0.46	2,398	0.10	0.02	—	2,406

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	0.46	2,398	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,406	0.00
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.78	4.41	0.01	0.17	0.15	807	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	810	0.00
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.69	0.81	< 0.005	0.03	0.03	134	0.01	< 0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	134	0.00
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	2.70	0.00	0.42	0.10	460	0.02	0.02	0.02	1.84	467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.45	0.24	< 0.005	0.11	0.04	391	0.03	0.06	1.09	410	410	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.18	2.04	0.00	0.42	0.10	421	0.02	0.02	0.05	427	427	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.47	0.24	< 0.005	0.11	0.04	391	0.03	0.06	1.09	410	410	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.06	0.72	0.00	0.14	0.03	144	0.01	0.01	0.27	146	146	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	< 0.005	0.16	0.08	< 0.005	0.04	0.01	132	0.01	0.02	0.16	138	138	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Worker	0.01	0.01	0.13	0.00	0.03	0.01	23.8	< 0.005	< 0.005	0.04	24.1
Vendor	< 0.005	0.03	0.01	< 0.005	0.01	< 0.005	21.8	< 0.005	< 0.005	0.03	22.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.7. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	10.4	13.0	0.02	0.43	0.40	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	10.4	13.0	0.02	0.43	0.40	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	3.09	3.85	0.01	0.13	0.12	709	0.03	0.01	—	711
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.56	0.70	< 0.005	0.02	0.02	117	< 0.005	< 0.005	—	118
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	2.49	0.00	0.42	0.10	450	0.02	0.02	1.67	457

Vendor	0.01	0.43	0.23	< 0.005	0.11	0.04	384	0.03	0.06	1.08	404
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.15	1.87	0.00	0.42	0.10	413	0.02	0.02	0.04	418
Vendor	0.01	0.45	0.23	< 0.005	0.11	0.04	385	0.03	0.06	0.03	403
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.58	0.00	0.12	0.03	124	0.01	< 0.005	0.21	125
Vendor	< 0.005	0.13	0.07	< 0.005	0.03	0.01	114	0.01	0.02	0.14	119
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.02	0.01	20.5	< 0.005	< 0.005	0.04	20.8
Vendor	< 0.005	0.02	0.01	< 0.005	0.01	< 0.005	18.8	< 0.005	< 0.005	0.02	19.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.9. Paving (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	7.45	9.98	0.01	0.35	0.32	1,511	0.06	0.01	—	1,517
Paving	0.09	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04	0.41	0.55	< 0.005	0.02	0.02	82.8	< 0.005	< 0.005	—	83.1
Paving	0.01	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.10	< 0.005	< 0.005	< 0.005	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.17	0.00	0.20	0.05	211	0.01	0.01	0.78	215
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.01	< 0.005	10.8	< 0.005	< 0.005	0.02	10.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.78	< 0.005	< 0.005	< 0.005	1.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.11. Architectural Coating (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	----	-----	-------	--------	------	-----	-----	---	------

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.88	1.14	< 0.005	0.03	0.03	134	0.01	< 0.005	—	—	—	—	—	—	—	—	—	134
Architectural Coatings	35.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	< 0.005	7.32	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	7.34
Architectural Coatings	1.95	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	1.21	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	1.22
Architectural Coatings	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.50	0.00	0.08	0.02	90.0	< 0.005	< 0.005	0.33	—	—	—	—	—	—	—	—	91.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.02	0.00	< 0.005	< 0.005	4.58	< 0.005	< 0.005	0.01	4.65
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.76	< 0.005	< 0.005	< 0.005	0.77
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 4. Operations Emissions Details

### 4.10. Soil Carbon Accumulation By Vegetation Type

#### 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—

## 5. Activity Data

### 5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	5/30/2024	6/13/2024	5.00	10.0	—
Grading	Grading	6/14/2024	7/12/2024	5.00	20.0	—
Building Construction	Building Construction	7/13/2024	5/31/2025	5.00	230	—
Paving	Paving	6/1/2025	6/29/2025	5.00	20.0	—
Architectural Coating	Architectural Coating	6/30/2025	7/28/2025	5.00	20.0	—

### 5.2. Off-Road Equipment

#### 5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37

Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

### 5.3. Construction Vehicles

#### 5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	3.00	0.25	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT



Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	3.00	0.25	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	31.9	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	12.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	6.39	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

## 5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	114,041	38,014	1,830

## 5.6. Dust Mitigation

### 5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	15.0	0.00	—
Grading	—	—	20.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.70

### 5.6.2. Construction Earthmoving Control Strategies

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

## 5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%
Other Asphalt Surfaces	0.70	100%

## 5.8. Construction Electricity Consumption and Emissions Factors

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

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

## 5.18. Vegetation

### 5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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## 6. Climate Risk Detailed Report

### 6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	25.9	annual days of extreme heat
Extreme Precipitation	3.25	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	8.54	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi. Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

## 6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

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

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

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

## 6.3. Adjusted Climate Risk Scores

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

Drought	N/A	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	1	2

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

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

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

### 6.4. Climate Risk Reduction Measures

## 7. Health and Equity Details

### 7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	100
AQ-PM	53.5
AQ-DPM	54.7
Drinking Water	76.3
Lead Risk Housing	26.9
Pesticides	55.5
Toxic Releases	44.7
Traffic	69.5
Effect Indicators	—
CleanUp Sites	58.2
Groundwater	59.6
Haz Waste Facilities/Generators	78.4

Impaired Water Bodies	12.5
Solid Waste	0.00
Sensitive Population	—
Asthma	42.5
Cardio-vascular	61.2
Low Birth Weights	44.2
Socioeconomic Factor Indicators	—
Education	9.73
Housing	2.13
Linguistic	0.51
Poverty	11.9
Unemployment	55.0

## 7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	93.44283331
Employed	55.33170794
Median HI	93.45566534
Education	—
Bachelor's or higher	89.16976774
High school enrollment	100
Preschool enrollment	88.91312717
Transportation	—
Auto Access	76.73553189
Active commuting	3.131015013

Social	—
2-parent households	90.78660336
Voting	88.10470935
Neighborhood	—
Alcohol availability	87.29629154
Park access	34.23585269
Retail density	13.05017323
Supermarket access	10.39394328
Tree canopy	80.90594123
Housing	—
Homeownership	94.91851662
Housing habitability	96.04773515
Low-inc homeowner severe housing cost burden	89.38791223
Low-inc renter severe housing cost burden	78.59617606
Uncrowded housing	87.19363531
Health Outcomes	—
Insured adults	98.08802772
Arthritis	8.6
Asthma ER Admissions	59.1
High Blood Pressure	10.7
Cancer (excluding skin)	3.4
Asthma	76.7
Coronary Heart Disease	19.3
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	67.4
Life Expectancy at Birth	81.9
Cognitively Disabled	72.6

Physically Disabled	68.4
Heart Attack ER Admissions	18.3
Mental Health Not Good	93.4
Chronic Kidney Disease	45.1
Obesity	81.6
Pedestrian Injuries	66.4
Physical Health Not Good	81.0
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	60.3
Current Smoker	95.0
No Leisure Time for Physical Activity	93.5
Climate Change Exposures	—
Wildfire Risk	39.5
SLR Inundation Area	0.0
Children	53.3
Elderly	10.6
English Speaking	89.1
Foreign-born	11.7
Outdoor Workers	59.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	91.1
Traffic Density	67.1
Traffic Access	23.0
Other Indices	—
Hardship	16.4
Other Decision Support	—



2016 Voting	97.8
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### 7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	43.0
Healthy Places Index Score for Project Location (b)	91.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

### 7.4. Health & Equity Measures

No Health & Equity Measures selected.

### 7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

### 7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

## 8. User Changes to Default Data

Screen	Justification
Land Use	Total disturbed area 6.2 acres. Approx 0.7 acre will be paved and 10% of area will be landscaped.
Construction: Construction Phases	No Demolition

# Biological Reconnaissance Assessment the Sunset Reservoir Water Storage Tank Project

City of Redlands

**CHAMBERS**  
GROUP

September 21, 2023

3151 Airway Ave., Suite F-208  
Costa Mesa, CA 92626

City of Redlands  
Municipal Utilities and Engineering Department

## **Subject: Biological Reconnaissance Assessment for Report regarding the Sunset Reservoir Water Storage Tank Project, Redlands, California**

Chambers Group, Inc. (Chambers Group) was retained by the City of Redlands Municipal Utilities and Engineering Department to conduct a literature review and biological reconnaissance-level survey for the Sunset Reservoir Project (Project). The purpose of this survey was to document existing vegetation communities, identify special status species with a potential for occurrence, map habitats that could support special status wildlife species, and evaluate potential impacts of the Project to these resources.

### **Project Site Location and Description**

The City of Redlands Municipal Utilities and Engineering Department proposes the construction of two new reservoir tanks to improve drought resiliency by increasing storage capacity. Based on the water needs of the City, the Project proposes to install two new above ground factory-coated bolt carbon steel tank with an approximately 14 million gallon (MG) total capacity

The 21.91-acre Project site is located south of Helen Drive, in Redlands, San Bernardino County, California within Assessor's Parcel Numbers (APN) 0300-451-13, 14, 24, and 25. The existing reservoir is located west of Helen Court. The site is located within the United States Geological Survey (USGS) *Redlands*, California 7.5-minute topographic quadrangle. The proposed temporary reservoir will be located east of the existing reservoir. Both the existing reservoir and the proposed Project site are within City property. The reservoirs will be located within APN 0300-451-25 and 0300-451-14, consisting of approximately 10.28 acres. The elevational range of the Project site is between 2,100 to 2,300 feet above mean sea level (amsl). A map of the Project location and Project vicinity is provided in Attachment 1: Figure 1.

### **Literature Review**

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

### **Soils**

Prior to performing the biological reconnaissance survey, soil maps for the Project site were referenced in accordance with categories set forth by the U.S. Department of Agriculture (USDA) Soil Conservation Service and the USDA Natural Resources Conservation Service (NRCS 2023) Web Soil Survey (USDA 2023).

### **Hydrology**

Prior to performing the field survey, a database review of the U.S. Fish and Wildlife Service's (USFWS 2023) National Wetlands Inventory (NWI) and National Hydrography Database (NHD) blueline drainages was referenced (NHD 2023). A general assessment of waters potentially regulated by the U.S. Army Corps of Engineers (USACE), California Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) was conducted for the Project site. Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States. The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality



# Biological Reconnaissance Assessment the Sunset Reservoir Water Storage Tank Project

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Control Act (California Water Code, Division 7, §13000 et seq.). Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife. A desktop assessment was conducted of available data prior to the biological reconnaissance survey in the field.

## Special Status Habitats and Species

The most recent records of the California Natural Diversity Database (CNDDDB) managed by CDFW (2023) and the California Native Plant Society's Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California (CNPS 2023) were reviewed for the following USGS 7.5-minute quadrangles containing and surrounding the Project: *Yucaipa, San Bernardino South, Redlands, Harrison Mtn., San Bernardino North, Keller Peak, Sunnymead, El Casco, and Riverside East*. These databases contain records of reported occurrences of federally or State-listed endangered or threatened species, California Species of Special Concern (SSC), or otherwise special status species or habitats that may occur within or in the immediate vicinity of the Project site (Attachment 1: Figure 2 – CNDDDB Occurrences Map).

## Biological Reconnaissance Survey

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

## Results

Chambers Group biologists Heather Franklin and Jessica Calvillo conducted the biological reconnaissance survey within the Project site to identify vegetation communities, the potential for occurrence of special status species, and/or habitats that could support special status wildlife species. The survey was conducted on foot between 0830 and 1530 hours on July 31, 2023. Weather conditions during the survey included temperatures ranging from 80 to 92 degrees Fahrenheit, wind speeds between 1 and 3 miles per hour, with 60 percent cloud cover and 0 percent precipitation.

## Biological Site Conditions

### Soils

According to the results from the USDA NRCS Web Soil Survey (USDA 2023), the Project site is in the San Bernardino County Southwestern Part CA677 of the soil map. Two soil types are known to occur within and/or adjacent to the site. The soil types are described below (Attachment 1: Figure 4 – Soils Map).

**Ramona sandy loam, 15 to 30 percent slopes, eroded** occurs within a small northern section of the Project site. The parent material is alluvium derived from granite. The soil profile is sandy loam at the H1 layer (0 to 23 inches), loam at the H2 layer (23 to 32 inches), clay loam at the H3 layer (32 to 54 inches), and sandy loam at the H4 layer (54 to 60 inches). The available water storage is classified as moderate (approximately 7.9 inches) with a depth to the water table of more than 80 inches (USDA 2023).

**Saugus sandy loam, 30 to 50 percent slopes** occurs within the majority of the Project site. The parent material is Residuum weathered from sedimentary rock. The soil profile is sandy loam at the H1 layer (0 to 8 inches), loam at the H2 layer (8 to 40 inches), and weathered bedrock at the H3 layer (40 to 44 inches). The available water storage is classified as moderate (approximately 6.0 inches) with a depth to the water table of more than 80 inches (USDA 2023).



# Biological Reconnaissance Assessment the Sunset Reservoir Water Storage Tank Project

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## Hydrology

The Project is located within the Upper Santa Ana River Watershed (Hydrologic Unit Code [HUC 10] 1807020304) (USDA 2023) in San Bernardino County, California. The Upper Santa Ana River Watershed is bound to the north and east by mountains and southwest by the Pacific Ocean. The Santa Ana River is the major water source for the Upper Santa Ana River Watershed. The headwaters of the Santa Ana River are located in the San Bernardino Mountains. These waters ultimately end in the Pacific Ocean, a Traditional Navigable Water. Mill Creek, City Creek, San Timoteo Creek are all tributaries to the Santa Ana River Watershed. Lytle Creek is the largest tributary that feeds in from the San Gabriel Mountains to the north down through Riverside County.

No jurisdictional features such as drainages or swales were observed within the Project site (Attachment 1: Figure 5 – Jurisdictional Waters Map) during the survey. Three large NWI blue-line features and several additional NHD tributaries are shown to occur directly east, south, and west of the site outside of the Project boundary. These features are historically mapped by the NWI/NHD as riverine systems flowing away from the Project site. One NHD ephemeral feature is shown to flow west to east through the Project site and appears to connect to the mapped NWI blue-line feature just east of the Project boundary. However, during the survey, no defined channelization or bank to bank was observed in the area of the NHD feature. No bed and bank features were identified within the Project site. Work is anticipated to occur on the top of the slope near the existing water tank and no impacts are anticipated to occur outside of the Project boundary or to the NWI drainage features; therefore, with the implementation of Best Management Practices (BMPs) such as installation of silt fencing and/or weed free straw wattles to prevent sediment from traveling downhill, no impacts to waters of the United States or waters of the State are anticipated to occur as a result of this Project.

## Vegetation Communities and Other Areas

Four native vegetation communities, California Buckwheat Scrub, Disturbed California Buckwheat Scrub, Hoary Leaf Ceanothus Chaparral, and Disturbed Hoary Leaf Ceanothus Chaparral, and three other areas, Bare Ground, Developed, and Ruderal were found within the Project site during the biological reconnaissance survey. The majority of the Project site is comprised of Disturbed Hoary Leaf Ceanothus Chaparral. The communities are described in the following subsections.

### California Buckwheat Scrub

California Buckwheat Scrub is found in upland slopes, intermittently flooded arroyos, channels and washes, and rarely flooded low-gradient deposits. Soils are coarse, well drained, and moderately acidic to slightly saline (Sawyer et al. 2009). Stands do well on rocky sites and in shallow soils, and they establish after disturbance by fire or flood or after heavy grazing. In southern coastal California, this alliance is usually one of the first of the coastal scrubs to establish in mechanically disturbed areas such as road cuts or slope failures, and it persists in areas with light to moderate grazing (Sawyer et al. 2009). In this vegetation community, California buckwheat (*Eriogonum fasciculatum*) or yucca (*Hesperoyucca whipplei*) is dominant or co-dominant in the shrub canopy in cismontane stands with California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), sticky monkeyflower (*Diplacus aurantiacus*), brittlebush sunflower (*Encelia californica*), brittlebush (*Encelia farinosa*), coast goldenbush (*Isocoma menziesii*), deerweed (*Acmispon glaber*), white sage (*Salvia apiana*), or black sage (*Salvia mellifera*). The herbaceous layer is variable and may be grassy (Sawyer et al. 2009).

Areas with California Buckwheat Scrub vegetation are present within 0.61 acre of the Project site within several small pockets on site. Native plant species found on the Project site typical of this vegetation community included: California buckwheat, California sagebrush, deerweed, black sage, twiggy wreathplant (*Stephanomeria virgata*), sand-aster (*Corethrogyne filaginifolia*), and slender sunflower (*Helianthus gracilentus*) with occasional scattered chamise (*Adenostoma fasciculatum*) and hoary leaf ceanothus (*Ceanothus crassifolius*) also present. Non-native species



# Biological Reconnaissance Assessment the Sunset Reservoir Water Storage Tank Project

City of Redlands



included: shortpod mustard (*Hirschfeldia incana*), totalote (*Centaurea melitensis*), wild oat (*Avena fatua*), foxtail chess (*Bromus madritensis* subsp. *madritensis*), and Russian thistle (*Salsola tragus*).

## *Disturbed California Buckwheat Scrub*

A disturbed form of California Buckwheat Scrub is present within 1.04 acres of the Project site within several small pockets adjacent to undisturbed California Buckwheat Scrub. Disturbed areas have a high percentage of non-native weedy species (i.e., greater than 25 percent of the species cover). Native plant species found on the Project site typical of this vegetation community included: California buckwheat, California sagebrush, deerweed, black sage, twiggy wreathplant, sand-aster, and slender sunflower with a 25 percent cover of non-native species including shortpod mustard, totalote, wild oat, foxtail chess, and Russian thistle.

## *Hoary Leaf Ceanothus Chaparral*

Hoary Leaf Ceanothus Chaparral can be found on slopes, often south-facing with soils that are typically shallow and rocky (Sawyer et al. 2009). Hoary leaf ceanothus is dominant or co-dominant in the shrub canopy with chamise, big berry manzanita (*Arctostaphylos glauca*), chaparral whitethorn (*Ceanothus leucodermis*), mountain mahogany (*Cercocarpus betuloides*), sticky monkeyflower, California buckwheat, chaparral yucca, toyon (*Heteromeles arbutifolia*), chaparral beard tongue (*Keckiella antirrhinoides*), laurel sumac (*Malosma laurina*), scrub oak (*Quercus berberidifolia*), sugarbush (*Rhus ovata*) and black sage. Membership rules state that both hoary leaf ceanothus and chamise have a 30 to 60 percent relative cover in the shrub canopy (Sawyer et al. 2009). Emergent trees may be present at low cover, including coast live oak (*Quercus agrifolia*). The shrub canopy is typically less than 11 feet and is intermittent to continuous with an herbaceous layer that is open (Sawyer et al. 2009).

Areas with Hoary Leaf Ceanothus Chaparral vegetation are present within 3.79 acres of the Project site along the slopes. Native plant species found on the Project site typical of this vegetation community included: hoary leaf ceanothus, chaparral whitethorn, chamise, California buckwheat, black sage, scrub oak, skunk bush (*Rhus aromatica*), sacapellote (*Acourtia microcephala*), southern honeysuckle (*Lonicera subspicata*), and spiny redberry (*Rhamnus crocea*). Non-native species included: shortpod mustard, totalote, wild oat, foxtail chess, and Russian thistle.

## *Disturbed Hoary Leaf Ceanothus Chaparral*

A disturbed form of Hoary Leaf Ceanothus Chaparral is present within 7.94 acres of sloping areas of the Project site. Disturbed areas are those areas that have a high percentage of non-native weedy species (i.e., greater than 25 percent of the species cover). Native plant species found on the Project site typical of this vegetation community included: hoary leaf ceanothus, chaparral whitethorn, chamise, California buckwheat, black sage, scrub oak, skunk bush, sacapellote, southern honeysuckle, and spiny redberry with approximately 25 percent cover of non-native species including shortpod mustard, totalote, wild oat, foxtail chess, and Russian thistle.

## **Other Areas**

### *Developed*

Developed areas are areas that have been altered by humans and now display man-made structures such as houses, paved roads, buildings, parks, and other maintained areas.

Developed areas are present within the Project site along an eroding asphalt path that cuts through the center of the Project site. There are 0.23 acre of Developed areas on the Project Site. These areas were devoid of vegetation.

### *Bare Ground*

Bare Ground areas are generally devoid of vegetation, but do not contain any form of pavement or other developed structures. Bare Ground has higher water permeability. Areas with Bare Ground are found within 1.46 acres of the Project site bordering the southern portions of the site and adjacent to the existing water tower outside of the Project Site.



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## Ruderal

Areas classified as Ruderal tend to be dominated by pioneering herbaceous species that readily colonize disturbed ground and that are typically found in temporary, often frequently disturbed habitats (Barbour et al. 1999). The soils in ruderal areas are typically characterized as heavily-compacted or frequently-disturbed. The vegetation in these areas is adapted to living in compact soils where water does not readily penetrate the soil. Often, Ruderal areas are dominated by species of the *Centaurea*, *Brassica*, *Malva*, *Salsola*, *Eremocarpus*, *Amaranthus*, and *Atriplex* genera.

Areas with Ruderal vegetation were present within the Project site along the slopes and bordering Bare Ground areas. Ruderal plant species found on the Project site included: shortpod mustard, tocalote, wild oat, foxtail chess, and Russian thistle. Scattered native species present in low abundance included twiggy wreathplant, sand-aster, and slender sunflower. There are 6.84 acres of Ruderal vegetation on the Project site.

## General Plants

A total of 23 plant species were observed within the Project site during the biological reconnaissance survey (Attachment 2: Plant Species Observed). Plant species observed during the survey were representative of the existing Project site conditions. No special status plant species were observed during the survey.

## General Wildlife

A total of 16 wildlife species were observed within the Project site during the biological reconnaissance survey. Wildlife species observed or detected during the survey were characteristic of the existing Project site conditions. A complete list of wildlife species observed or detected is provided in Attachment 3 – Wildlife Species Observed/Detected List.

## Special Status Species

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

### CNPS California Rare Plant Rank (CRPR)

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

### CRPR Extensions

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

### Federal

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

### State

- ST = State listed; Threatened
- SE = State listed; Endangered



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

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

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

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

\*PFO: Potential for Occurrence

## Special Status Plant Species

Database searches (CDFW 2023; CNPS 2023) resulted in a list of 52 federally and/or State-listed threatened, endangered, or otherwise special status plant species documented to historically occur within the vicinity of Project site. Of the 52 plant species, it was determined that 43 plant species are considered **Absent**, one considered to have **Low** potential to occur, and 8 are considered to have a **Moderate** potential to occur within the Project site. No special status plant species were found during the biological reconnaissance survey.

The following 4 plant species are considered **Absent** from the Project site because the species are presumed extinct (CRPR 1A) in California, have not been observed within 5 miles of the Project site, and all records of historical occurrence are over 43 years old:

- Los Angeles sunflower (*Helianthus nuttallii* subsp. *parishii*) – CRPR 1A
- Parish's bush-mallow (*Malacothamnus parishii*) – CRPR 1A
- Pringle's monardella (*Monardella pringlei*) – CRPR 1A
- Parish's gooseberry (*Ribes divaricatum* var. *parishii*) – CRPR 1A



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The following 37 plant species are considered **Absent** from the Project site due to lack of suitable habitat:

- Mt. Pinos onion (*Allium howellii* var. *clokeyi*) – CRPR 1B.3
- Yucaipa onion (*Allium marvinii*) – CRPR 1B.2
- marsh sandwort (*Arenaria paludicola*) – **FE, SE**, CRPR 1B.1
- Horn's milk-vetch (*Astragalus hornii* var. *hornii*) – CRPR 1B.1
- San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*) – **FE**, CRPR 1B.1
- Davidson's saltscale (*Atriplex serenana* var. *davidsonii*) – CRPR 1B.2
- thread-leaved brodiaea (*Brodiaea filifolia*) – **FT, SE**, CRPR 1B.1
- Palmer's mariposa-lily (*Calochortus palmeri* var. *palmeri*) – CRPR 1B.2
- bristly sedge (*Carex comosa*) – CRPR 2B.1
- ash-gray paintbrush (*Castilleja cinerea*) – **FT**, CRPR 1B.2
- San Bernardino Mountains owl's-clover (*Castilleja lasiorhyncha*) – CRPR 1B.2
- smooth tarplant (*Centromadia pungens* subsp. *laevis*) – CRPR 1B.1
- salt marsh bird's-beak (*Chloropyron maritimum* subsp. *maritimum*) - **FE, SE**, CRPR 1B.2
- white-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*) – CRPR 1B.2
- Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*) – CRPR 2B.2
- San Bernardino Mountains monkeyflower (*Erythranthe exigua*) – CRPR 1B.2
- hot springs fimbriatylis (*Fimbristylis thermalis*) – CRPR 2B.2
- Alvin Meadow bedstraw (*Galium californicum* subsp. *primum*) – CRPR 1B.2
- Parish's alumroot (*Heuchera parishii*) – CRPR 1B.3
- California satintail (*Imperata brevifolia*) – CRPR 2B.1
- silver-haired ivesia (*Ivesia argyrocoma* var. *argyrocoma*) – CRPR 1B.2
- Coulter's goldfields (*Lasthenia glabrata* subsp. *coulteri*) – CRPR 1B.1
- lemon lily (*Lilium parryi*) – CRPR 1B.2
- mud nama (*Nama stenocarpa*) – CRPR 2B.2
- Gambel's water cress (*Nasturtium gambelii*) – **FE, ST**, CRPR 1B.1
- San Bernardino ragwort (*Packera bernardina*) – CRPR 1B.2
- Sonoran maiden fern (*Pelazoneuron puberulum* var. *sonorense*) – CRPR 2B.2
- Parish's yampah (*Perideridia parishii* subsp. *parishii*) – CRPR 2B.2
- black bog-rush (*Schoenus nigricans*) – CRPR 2B.2
- Parish's checkerbloom (*Sidalcea hickmanii* subsp. *parishii*) – CR, CRPR 1B.2
- Bear Valley checkerbloom (*Sidalcea malviflora* subsp. *dolosa*) – CRPR 1B.2
- salt spring checkerbloom (*Sidalcea neomexicana*) – CRPR 2B.2
- bird-foot checkerbloom (*Sidalcea pedata*) – **FE, SE**, CRPR 1B.1
- prairie wedge grass (*Sphenopholis obtusata*) – CRPR 2B.2
- southern jewelflower (*Streptanthus campestris*) – CRPR 1B.3
- San Bernardino aster (*Symphotrichum defoliatum*) – CRPR 1B.2
- Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*) – CRPR 2B.1

The following two plant species are considered **Absent** because their size and stature would have made them conspicuous during the reconnaissance-level survey and they were not observed within the Project site.

- Parish's desert-thorn (*Lycium parishii*) – CRPR 2B.3





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- Nevin's barberry (*Berberis nevinii*) – **FE, SE**, CRPR 1B.1

The following plant species is considered to have a **Low** potential for occurrence within the Project site as historical records of this species known to occur within the vicinity of the proposed Project site (approximately 5 miles) are more than 20 years old, but habitats or environmental conditions needed to support the species are present.

- slender-horned spineflower (*Dodecahema leptoceras*) – **FE, SE**, CRPR 1B.1

The following 6 plant species are considered to have a **Moderate** potential for occurrence within the proposed Project site because the habitat requirements or environmental conditions associated with the species occur within the Project site, but no historical records exist within 5 miles of the Project site.

### **chaparral sand-verbena (*Abronia villosa* var. *aurita*) – CRPR 1B.1**

Chaparral sand-verbena is a CRPR 1B.1 species. This perennial herb is in the Nyctaginaceae family and blooms from March to September and sometimes blooms as early as January. It is typically found in sandy soils within chaparral, coastal scrub, and desert dune habitats at elevations between 245 and 5,250 feet amsl. The known range includes Imperial, Orange, Riverside, San Bernardino, and San Diego counties. Chaparral sand-verbena is potentially threatened by non-native plants, alteration of fire regimes, road maintenance, flood control activities, vehicles, and development. The survey was conducted within the flowering period of this species when it would have been identifiable; however, due to the species' small stature and the Project's size and topography it was not observed within the scope of the reconnaissance-level survey. No historical records of this species have been found within 5 miles of this site, but appropriate chaparral and coastal scrub habitat with sandy soil is present on the Project site. Therefore, there is a **Moderate** potential for this species to occur within the Project site.

### **Jaeger's milk-vetch (*Astragalus pachypus* var. *jaegeri*) – CRPR 1B.1**

Jaeger's milk-vetch is a CRPR 1B.1 species. This perennial shrub is in the Fabaceae family and blooms from December to June. It is typically found in soils that are sometimes rocky or sandy within chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats at elevations between 1,200 and 3,200 feet amsl. The known range includes Riverside and San Diego counties. Jaeger's milk-vetch is potentially threatened by urbanization, vehicles, road maintenance, and agriculture. The survey was conducted outside the flowering period of this species. No historical records of this species have been found within 5 miles of this site but appropriate chaparral and coastal scrub habitat with sandy soil is present on the Project site. Therefore, there is a **Moderate** potential for this species to occur within the Project site.

### **mesa horkelia (*Horkelia cuneata* var. *puberula*) – CRPR 1B.1**

Mesa horkelia is a CRPR 1B.2 species. This perennial herb is in the Rosaceae family and blooms from February to September. It is typically found in sandy or gravelly soils, within maritime chaparral, cismontane woodland, and coastal scrub habitats at elevations between 230 and 2,657 feet amsl. The known range includes Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, and Ventura counties. Further study is required to confirm status of occurrences and for true species representation. Mesa horkelia is potentially threatened by habitat conversion. The survey was conducted within the flowering period of this species when it would have been identifiable; however, due to the species' small stature and the Project's size and topography it was not observed within the scope of the reconnaissance-level survey. No historical records of this species have been found within 5 miles of this site but appropriate chaparral and coastal scrub habitat with sandy soil is present on the Project site. Therefore, there is a **Moderate** potential for this species to occur within the Project site.



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## Hall's monardella (*Monardella macrantha* subsp. *hallii*) – CRPR 1B.3

Hall's monardella is a CRPR 1B.3 species. This perennial rhizomatous herb is in the Lamiaceae family and blooms from June to October. It is typically found in broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland habitats at elevations between 2,395 and 7,200 feet amsl. The known range includes Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. Hall's monardella is threatened by road maintenance and recreational activities. The survey was conducted within the flowering period of this species when it would have been identifiable; however, due to the species' small stature and the Project's size and topography it was not observed within the scope of the reconnaissance-level survey. No historical records of this species have been found within 5 miles of this site, but appropriate chaparral habitat is present on the Project site. Therefore, there is a **Moderate** potential for this species to occur within the Project site.

## Brand's star phacelia (*Phacelia stellaris*) – CRPR 1B.1

Brand's star phacelia is a CRPR 1B.1 species. This annual herb is in the Hydrophyllaceae family and blooms from March and June. It is typically found on coastal dunes and coastal scrub habitat at elevations between 5 and 1,310 feet amsl. The known range includes Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. Brand's star phacelia is potentially threatened by development, foot traffic/trampling, and non-native plant impacts (CNPS 2023). The survey was conducted outside the flowering period of this species. No historical records of this species have been found within 5 miles of this site, but appropriate coastal scrub habitat is present on the Project site. Therefore, there is a **Moderate** potential for this species to occur within the Project site.

## chaparral ragwort (*Senecio aphanactis*) – CRPR 2B.2

Chaparral ragwort is a CRPR 2.2 species. It is an annual herb in the Asteraceae family that blooms between January and April. This species occurs in chaparral, cismontane woodland, and coastal scrub in soils that are sometimes alkaline at elevations between 50 and 2,600 feet amsl. The known range of this species exists in Alameda, Contra Costa, Fresno, Los Angeles, Merced, Monterey, Orange, Riverside, Santa Barbara, Santa Clara, San Diego, San Luis Obispo, Solano, and Ventura counties; and on Santa Catalina Island; Santa Cruz Island; Santa Rosa Island; and Baja California. The survey was conducted outside the flowering period of this species. No historical records of this species have been found within 5 miles of this site, but appropriate chaparral and coastal scrub habitat is present on the Project site. Therefore, there is a **Moderate** potential for this species to occur within the Project site.

The following 2 plant species are considered to have a **Moderate** potential for occurrence within the Project site because historical records (within the past 20 years) exist for the species within the vicinity (approximately 5 miles) of the proposed Project site and habitat exists on the Project site.

## Parry's spineflower (*Chorizanthe parryi* var. *parryi*) – CRPR 1B.1

Parry's spineflower is a CRPR 1B.1 species. This annual herb is in the Polygonaceae family and blooms from April to June in sandy to gravelly open areas of chaparral and coastal scrub at elevations between 130 to 6,000 feet amsl. Known ranges include Los Angeles, Riverside, and San Bernardino counties. Habitat for Parry's spineflower is rapidly declining due to urbanization and may already be extirpated in Los Angeles County. This species has been previously confused with prostrate spineflower (*Chorizanthe procumbens*) and is often misidentified as this plant. The survey was conducted outside the flowering period of this species. Most recent historical records indicate an extant population has been observed 5 years ago within 4.78 miles of the Project site "approximately 0.75 air mile [northeast] of the junction of Opal Ave with San



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Bernardino Ave., Redlands” (CDFW 2023). Therefore, there is a **Moderate** potential for this species to occur within the Project site.

## **Santa Ana River woollystar (*Eriastrum densifolium* subsp. *sanctorum*) – FE, SE, CRPR 1B.1**

Santa Ana River woollystar is a CRPR 1B.1 species. This annual herb is in the Polemoniaceae family and blooms from April to September in sometimes sandy to sometimes gravelly chaparral and alluvial fans within coastal scrub at elevations between 300 to 2,000 feet amsl. Known ranges include Orange, Riverside, and San Bernardino counties. This species is threatened by development, vehicles, foot traffic, sand and gravel mining, hydrological alterations, illegal dumping, road construction, flood control projects, and non-native plants. The survey was conducted within the flowering period of this species when it would have been identifiable; however due to the species’ small stature and the Project’s size and topography it was not observed within the scope of the reconnaissance-level survey. However, appropriate sandy chaparral habitat occurs within the Project site. Most recent historical records indicate an extant population has been observed 9 years ago within 4.75 miles of the Project site and that “2 plants [were] observed in 2014; 1 flowering and one dormant/dead” (CDFW 2023). Therefore, there is a **Moderate** potential for this species to occur within the Project site.

## *Special Status Wildlife Species*

Database searches (CDFW 2023; USFWS 2023) resulted in a list of 47 federally and/or State listed endangered or threatened, State SSC, or otherwise special status wildlife species documented to occur within the Project site. After a literature review and the assessment of the various habitat types within the Project site, it was determined that **43** special status wildlife species are considered absent and four species have a low potential to occur within the site.

The following 43 wildlife species are considered **Absent** from the Project site due to lack of suitable habitat present within the site, lack of riparian habitat within the vicinity of the site, or no known occurrences within the last 25 years:

- American badger (*Taxidea taxus*) – SSC
- arroyo chub (*Gila orcuttii*) – SSC
- bald eagle (*Haliaeetus leucocephalus*)—SE
- burrowing owl (*Athene cunicularia*) – SSC
- California black rail (*Laterallus jamaicensis coturniculus*)—ST
- California red-legged frog (*Rana draytonii*) – FT, SSC
- coast horned lizard (*Phrynosoma blainvillii*) – SSC
- coastal California gnatcatcher (*Polioptila californica californica*)—FT, SSC
- Delhi sands flower-loving fly (*Rhaphiomidas terminates abdominalis*)—FE
- least Bell’s vireo (*Vireo bellii pusillus*) – FE, SE
- lesser long-nosed bat (*Leptonycteris yerbabuenae*) – SSC
- Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) – SSC
- loggerhead shrike (*Lanius ludovicianus*) – SSC
- northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) – SSC
- pallid bat (*Antrozous pallidus*) – SSC
- pocketed free-tailed bat (*Nyctinomops femorosaccus*) – SSC
- quino checkerspot butterfly (*Euphydryas Editha quino*)—FE
- red diamond rattlesnake (*Crotalus ruber*) – SSC
- Riverside fairy shrimp (*Streptocephalus woottoni*) – FE
- San Bernardino flying squirrel (*Glaucomys oregonensis californicus*) – SSC



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- San Bernardino kangaroo rat (*Dipodomys merriami parvus*)—FE, SSC
- Santa Ana speckled dace (*Rhinichthys osculus* ssp. 8) – SSC
- Santa Ana sucker (*Catostomus santaanae*)—FT
- San Diego banded gecko (*Coleonyx variegatus abbotti*) – SSC
- San Diego desert woodrat (*Neotoma lepida intermedia*) – SSC
- California glossy snake (*Arizona elegans occidentalis*) – SSC
- southern grasshopper mouse (*Onychomys torridus ramona*) – SSC
- southern mountain yellow-legged frog (*Rana muscosa*) – FE, SE
- southern rubber boa (*Charina umbratica*) – ST
- southwestern willow flycatcher (*Empidonax traillii extimus*) – FE, SE
- steelhead-Southern California DPS (*Oncorhynchus mykiss irideus* pop.10)—FE
- Stephens' kangaroo rat (*Dipodomys stephensi*)—FT, ST
- Swainson's hawk (*Buteo swainsoni*)—ST
- tricolored blackbird (*Agelaius tricolor*)—ST
- two-striped garter snake (*Thamnophis hammondi*) – SSC
- western mastiff bat (*Eumops perotis californicus*) – SSC
- western pond turtle (*Emys marmorata*) – SSC
- western spadefoot (*Spea hammondi*) – SSC
- western yellow bat (*Lasiurus xanthinus*) – SSC
- western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)—FT, SE
- white-eared pocket mouse (*Perognathus alticola alticola*) – SSC
- yellow-breasted chat (*Icteria virens*) – SSC
- yellow warbler (*Setophaga petechia*) – SSC

The analysis of the CNDDDB search and field survey resulted in four species with a **low** potential to occur directly adjacent to the Project site.

- coast patch-nosed snake (*Salvadora hexalepis virgulata*) – SSC
- coastal whiptail (*Aspidoscelis tigris stejnegeri*) – SSC orange-throated whiptail (*Aspidoscelis hyperythra*) SSC
- southern California legless lizard (*Anniella stebbinsi*) – SSC

## United States Fish Wildlife Service Critical Habitat

Critical Habitat is defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated Critical Habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Designated Critical Habitats require special management and protection of existing resources, including water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types. Designated Critical Habitat delineates all suitable habitat, occupied or not, that is essential to the survival and recovery of the species. According to the USFWS Critical Habitat WebGIS map, the Project site does not fall within Designated Critical Habitat (USFWS 2023). Critical habitat for southwestern willow flycatcher occurs approximately 1.85 miles west of the Project site; however, the Project site lacks any riparian habitat or water sources required by this species and therefore, this species is not anticipated to occur with the site.



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## Special Status Communities

Five special status communities, Riversidian Alluvial Fan Sage Scrub, Southern Coast Live Oak Riparian Forest, Southern Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub were found within 5 miles of the proposed Project site but were not present on or adjacent the proposed Project site.

## Conclusions and Recommendations

### Hydrology

No USFWS NWI features are present within the Project site. One NHD ephemeral feature is shown to historically flow through the Project site; however, based on the results of the field survey, no defined channelization or bank to bank was observed in the area of the NHD feature and it appears this area just facilitates nuisance flow during rain events and becomes sheet flow at the bottom of the hill and does not appear to connect to any other features downstream. In addition, Project impacts are proposed to occur on the top of the hill near the existing water tower and no work is anticipated to occur along the hillsides. Therefore, no impacts to jurisdictional waters are anticipated to occur as a result of Project activities. In order to minimize temporary impacts along the surrounding hillsides, BMP's including silt fencing and straw waddle are recommended throughout construction activities.

### Special Status Plant Species

Following the literature review and after the reconnaissance level field assessment of the various habitat types in the Project site, it was determined that of the 52 special status plant species that have been observed within one of the surrounding quadrangles of the site, 43 are considered **Absent**, one is considered to have a **Low** potential for occurrence, and eight are considered to have a **Moderate** potential to occur within the Project site. No special status plant species were found during the biological reconnaissance survey. Focused protocol-level plant surveys are recommended in order to determine if the one **Low** or eight **Moderate** species with a potential to occur are present on the Project site. Surveys should be conducted during June in order to ensure all species are surveyed during the blooming period.

### Special Status Communities

Five special status communities, Riversidian Alluvial Fan Sage Scrub, Southern Coast Live Oak Riparian Forest, Southern Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub were found within 5 miles of the proposed Project site but were not present on the proposed Project site.

### Special Status Wildlife Species

Following the literature review and the assessment of the various habitat types within the Project site, it was determined that 43 of 47 special status wildlife species known to occur within the Project site are considered absent due to a lack of suitable habitat for these species. Four species, coastal patch-nosed snake, coastal whiptail, orange-throated whiptail, and southern California legless lizard have been observed within two miles of the site; however, the Project site lacks contains only marginal quality habitat and is not adjacent to any riparian areas, which is often associated with these species. Therefore, these species have a low potential to occur within the Project site and no impacts are anticipated to occur to these species as a result of Project activities. Coastal California gnatcatcher and yellow-billed cuckoo have been recorded within two miles of the site; however, the Project site is composed of low to moderate quality habitat for California gnatcatcher and lacks any riparian habitat required by yellow-billed cuckoo. Therefore, these species are not anticipated to occur within the site. No sensitive wildlife species were observed during the field survey.

To minimize potential impacts to nesting birds protected under the Migratory Bird Treaty Act (MBTA), construction activities should take place outside nesting season (February 1 to August 31) to the greatest extent practicable.



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If construction activities occur during nesting season, a preconstruction nesting bird survey should be conducted prior to initiation of ground-disturbing activities. To the maximum extent practicable, a minimum buffer zone around occupied nests should be determined by a qualified biologist to avoid impacts to the active nest. The buffer should be maintained during physical ground-disturbing activities. Once nesting has ceased and the nestlings has fledged, the buffer may be removed.

Please contact me at (949) 261-5414 or [hfranklin@chambersgroupinc.com](mailto:hfranklin@chambersgroupinc.com) if you have any questions or concerns regarding this report.

Sincerely,

**CHAMBERS GROUP, INC.**



**Heather Franklin**

*Senior Biologist*

[hfranklin@chambersgroupinc.com](mailto:hfranklin@chambersgroupinc.com)



# Biological Reconnaissance Assessment the Sunset Reservoir Water Storage Tank Project

City of Redlands

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## Attachments

- Attachment 1:** Figure 1 – Project Location and Vicinity Map
- Figure 2 – CNDDDB Occurrences Map
- Figure 3 – Vegetation Communities Map
- Figure 4 – Soils Map
- Figure 5 – Jurisdictional Waters Map
- Attachment 2:** Plant Species Observed
- Attachment 3:** Wildlife Species Observed
- Attachment 4:** Site Photographs



# Biological Reconnaissance Assessment the Sunset Reservoir Water Storage Tank Project

City of Redlands

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## References

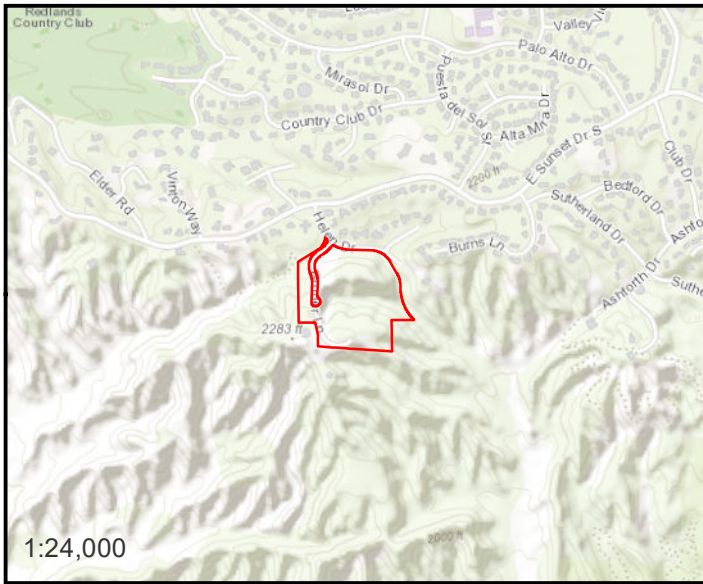
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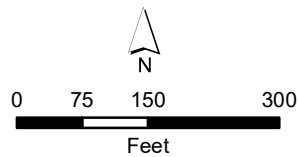


## **ATTACHMENT 1 – FIGURES**

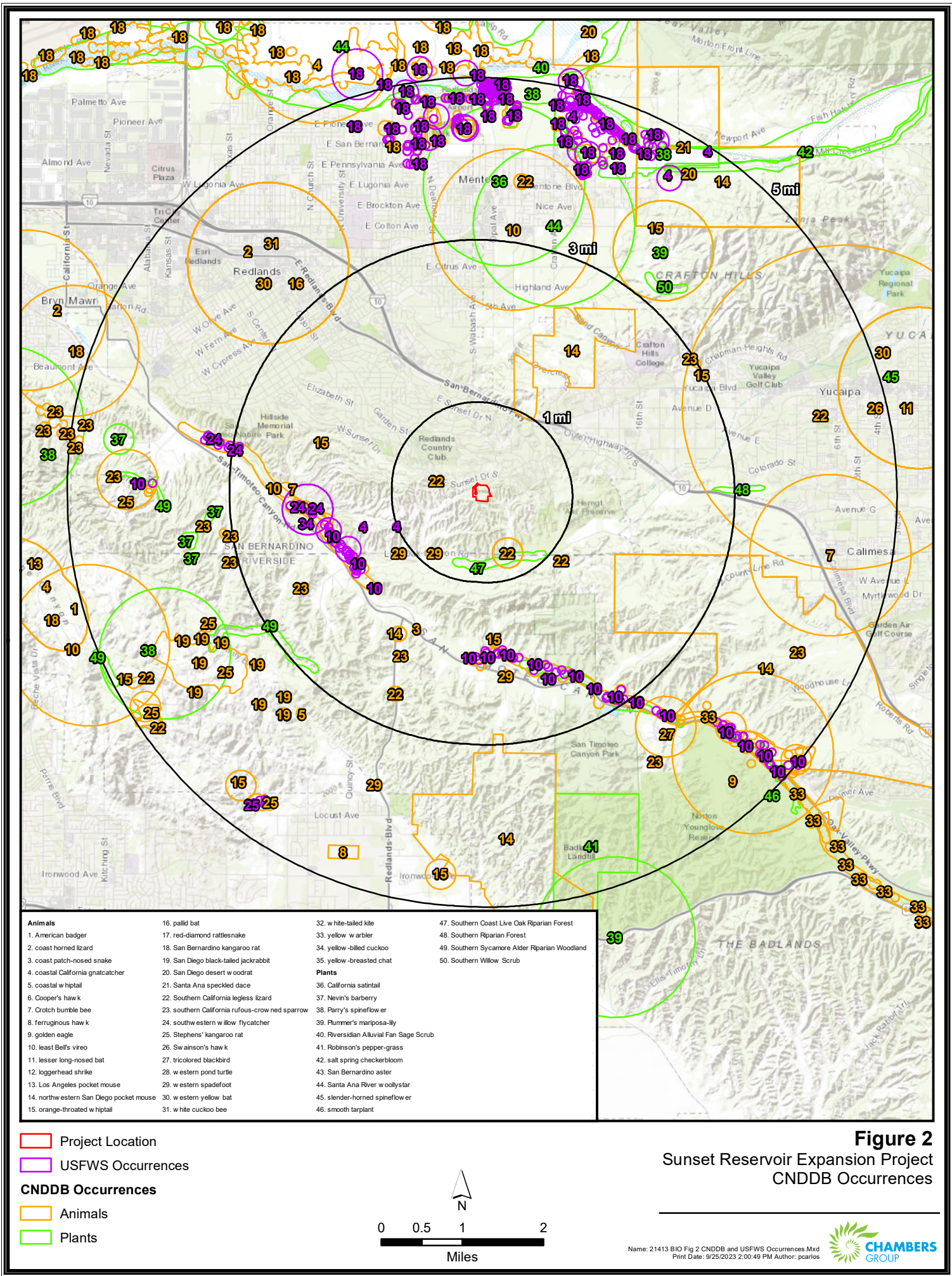




 Project Location

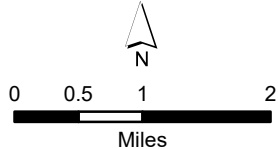


**Figure 1**  
Sunset Reservoir Expansion Project  
Project Location and Vicinity

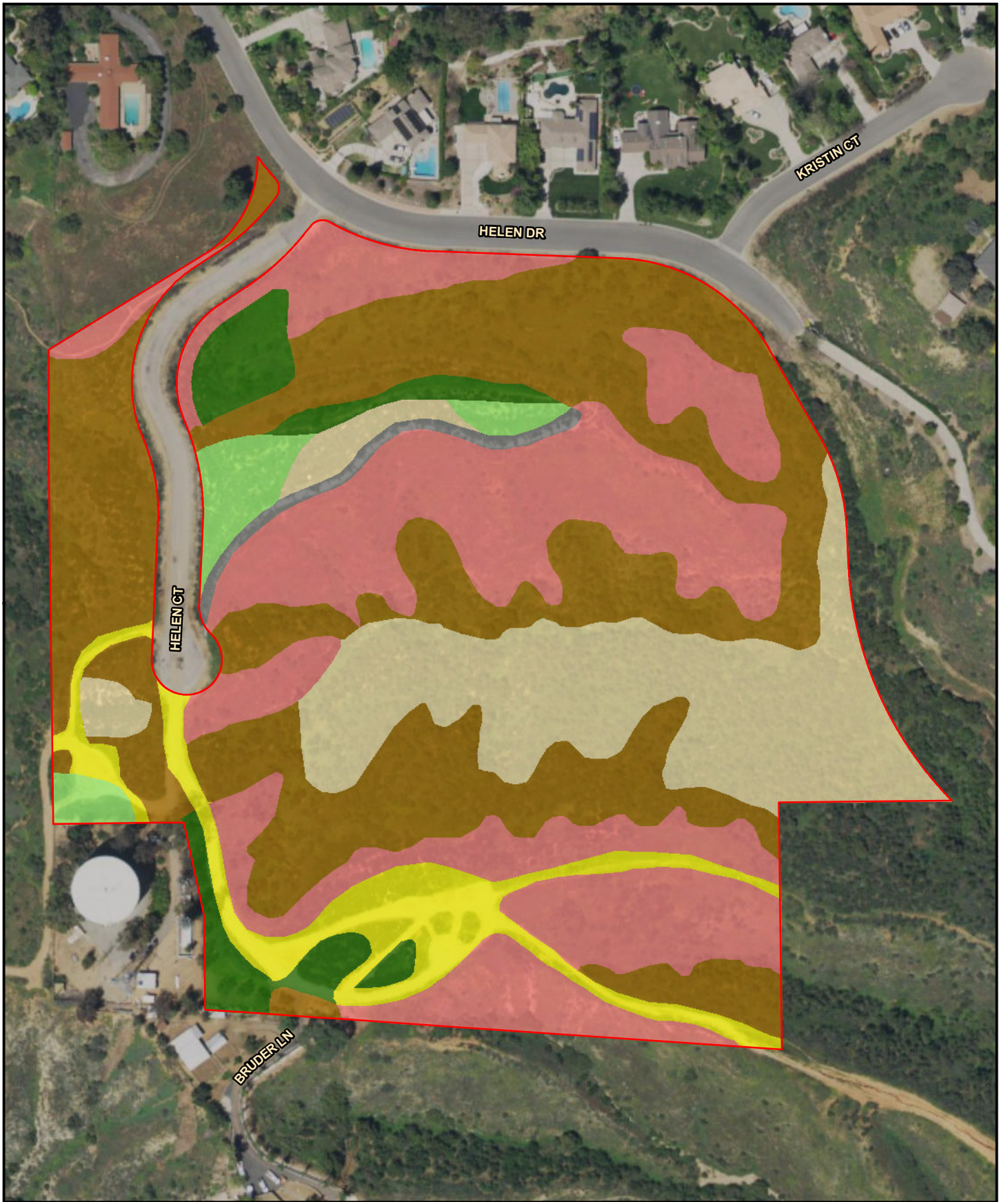


<b>Animals</b>	16. pallid bat	32. w hite-tailed kite	47. Southern Coast Live Oak Riparian Forest
1. American badger	17. red-diamond rattlesnake	33. yellow warbler	48. Southern Riparian Forest
2. coast horned lizard	18. San Bernardino kangaroo rat	34. yellow-billed cuckoo	49. Southern Sycamore Alder Riparian Woodland
3. coast patch-nosed snake	19. San Diego black-tailed jackrabbit	35. yellow-breasted chat	50. Southern Willow Scrub
4. coastal California gnatcatcher	20. San Diego desert w oodrat	<b>Plants</b>	
5. coastal w hiptail	21. Santa Ana speckled dace	36. California satintail	
6. Cooper's hawk k	22. Southern California legless lizard	37. Nevin's barberry	
7. Crotch bumble bee	23. southern California rufous-crow ned sparrow	38. Parry's spinneflow er	
8. ferruginous hawk k	24. southw estern w ilow fycatcher	39. Plummer's mariposa-illy	
9. golden eagle	25. Stephens' kangaroo rat	40. Riversidian Alluvial Fan Sage Scrub	
10. least Bell's vireo	26. Sw ainson's hawk k	41. Robinson's pepper-grass	
11. lesser long-nosed bat	27. tricolored blackbird	42. salt spring checkerbloom	
12. loggerhead shrike	28. w estern pond turtle	43. San Bernardino aster	
13. Los Angeles pocket mouse	29. w estern spadefoot	44. Santa Ana River w oollystar	
14. northw estern San Diego pocket mouse	30. w estern yellow bat	45. slender-horned spinneflow er	
15. orange-throated w hiptail	31. w hite cuckoo bee	46. smooth tarplant	

- ▭ Project Location
- ▭ USFWS Occurrences
- CNDDDB Occurrences**
- ▭ Animals
- ▭ Plants



**Figure 2**  
Sunset Reservoir Expansion Project  
CNDDDB Occurrences



Project Location

**Vegetation Communities**

Hoary Leaf Ceanothus Chaparral

Disturbed Hoary Leaf Ceanothus Chaparral

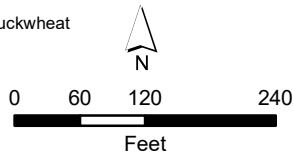
California Buckwheat Scrub

Developed

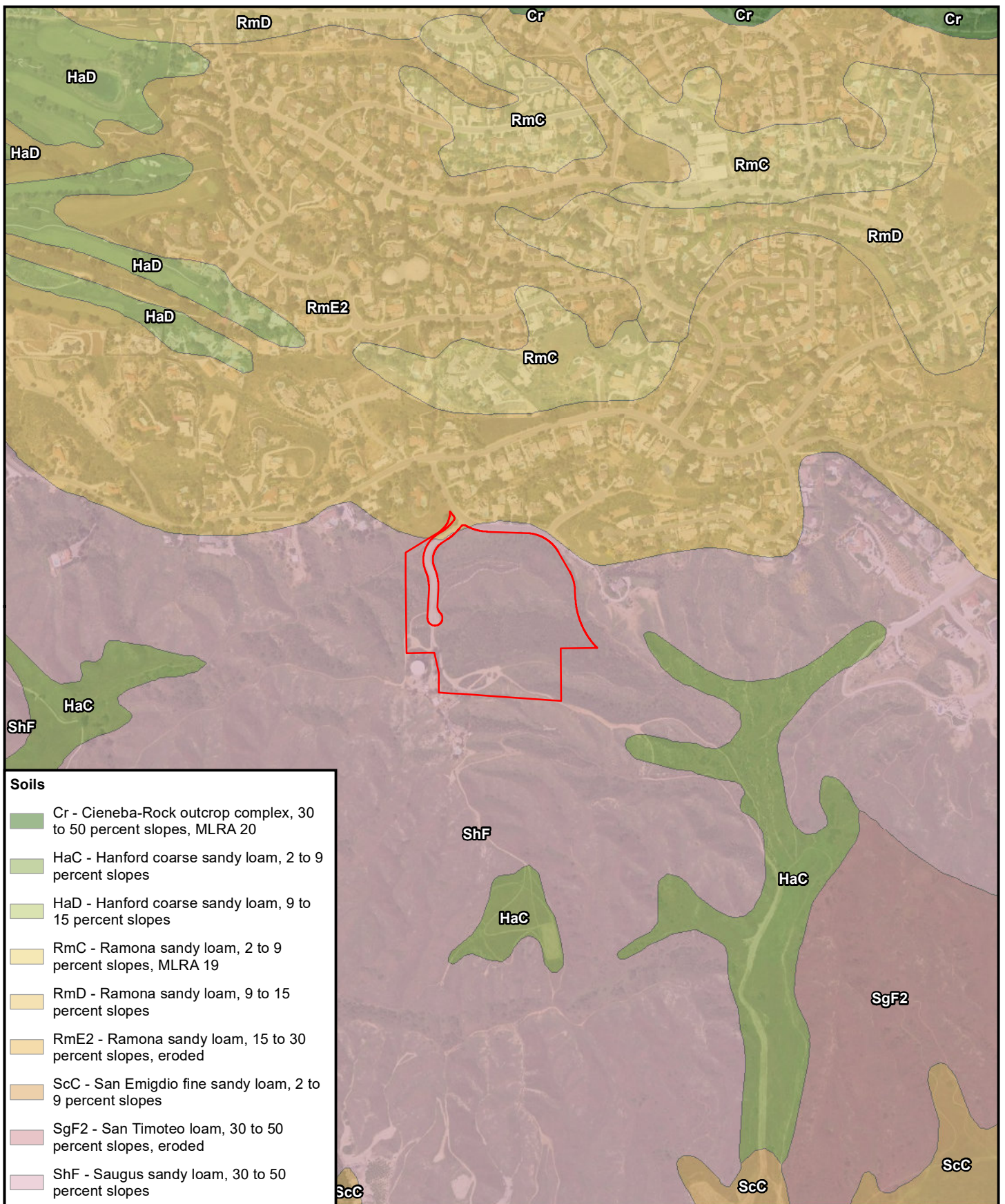
Disturbed California Buckwheat Scrub

Ruderal

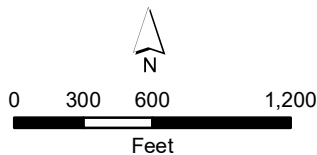
Bare Ground

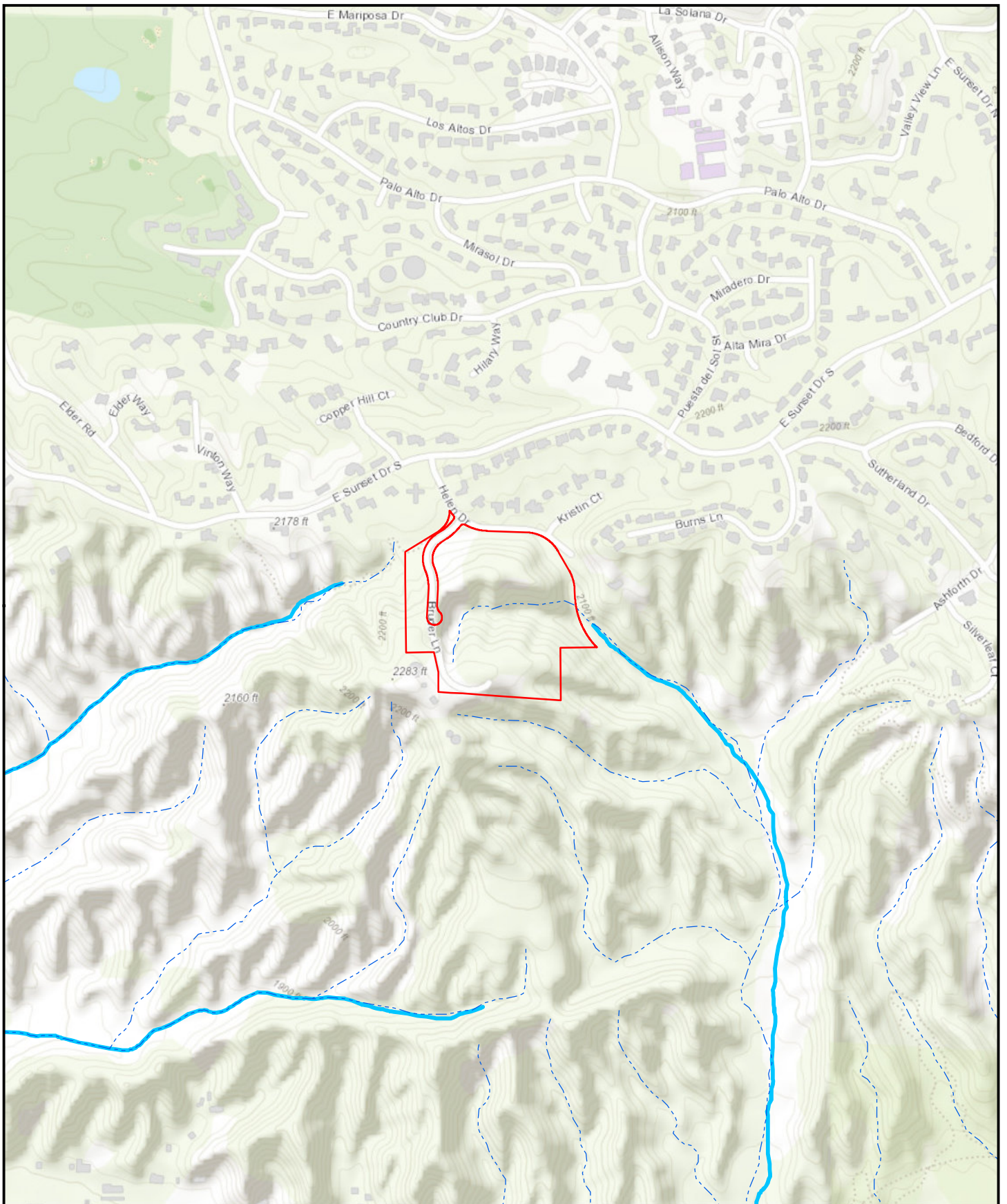


**Figure 3**  
Sunset Reservoir Expansion Project  
Vegetation Communities

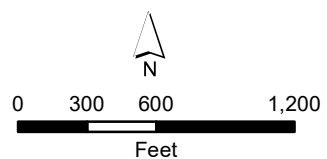


**Figure 4**  
Sunset Reservoir Expansion Project  
Soils





- Project Location
- NHD**
- Stream/River
- NWI**
- Riverine



**Figure 5**  
Sunset Reservoir Expansion Project  
Jurisdictional Waters

**ATTACHMENT 2 – PLANT SPECIES OBSERVED**



ATTACHMENT 2– PLANT SPECIES OBSERVED

Scientific Name	Common Name
<b>ANGIOSPERMS (EUDICOTS)</b>	
<b>ADOXACEAE</b>	<b>MUSKROOT FAMILY</b>
<i>Sambucus mexicana</i>	blue elderberry
<b>ANACARDIACEAE</b>	<b>SUMAC OR CASHEW FAMILY</b>
<i>Rhus aromatica</i>	skunkbrush
<i>Rhus ovata</i>	sugar bush
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>
<i>Acourtia microcephala</i>	sacapellote
<i>Artemisia californica</i>	California sagebrush
<i>Centaurea melitensis</i> *	totalote
<i>Corethrogyne filaginifolia</i>	sand-aster
<i>Helianthus gracilentus</i>	slender sunflower
<i>Stephanomeria virgata</i>	twiggy wreathplant
<b>BORAGINACEAE</b>	<b>BORAGE FAMILY</b>
<b>BRASSICACEAE</b>	<b>MUSTARD FAMILY</b>
<i>Hirschfeldia incana</i> *	shortpod mustard
<b>CAPRIFOLIACEAE</b>	<b>HONEYSUCKLE FAMILY</b>
<i>Lonicera subspicata</i>	southern honeysuckle
<b>CHENOPODIACEAE</b>	<b>GOOSEFOOT FAMILY</b>
<i>Salsola tragus</i> *	Russian thistle
<b>FABACEAE</b>	<b>LEGUME FAMILY</b>
<i>Acmispon glaber</i>	deerweed
<b>FAGACEAE</b>	<b>OAK FAMILY</b>
<i>Quercus berberidifolia</i>	scrub oak
<b>LAMIACEAE</b>	<b>MINT FAMILY</b>
<i>Salvia mellifera</i>	black sage
<b>ONAGRACEAE</b>	<b>EVENING PRIMROSE FAMILY</b>
<i>Eulobus californicus</i>	California evening primrose
<b>POLYGONACEAE</b>	<b>BUCKWHEAT FAMILY</b>
<i>Eriogonum fasciculatum</i>	California buckwheat
<b>RHAMNACEAE</b>	<b>BUCKTHORN FAMILY</b>
<i>Ceanothus crassifolius</i>	hoary leaf ceanothus
<i>Ceanothus foliosus</i> var. <i>foliosus</i>	wavy-leaf-lilac
<i>Rhamnus crocea</i>	spiny redberry
<b>ROSACEAE</b>	<b>ROSE FAMILY</b>
<i>Adenostoma fasciculatum</i>	chamise
<b>ANGIOSPERMS (MONOCOTS)</b>	
<b>POACEAE</b>	<b>GRASS FAMILY</b>



<i>Avena fatua</i> *	wild oat
<i>Bromus madritensis</i> subsp. <i>madritensis</i> *	foxtail chess
*Non-Native Species, +Ornamental, Unlikely to be Invasive	

**ATTACHMENT 3 – WILDLIFE SPECIES OBSERVED/DETECTED**



Attachment 3 – Wildlife Species Observed

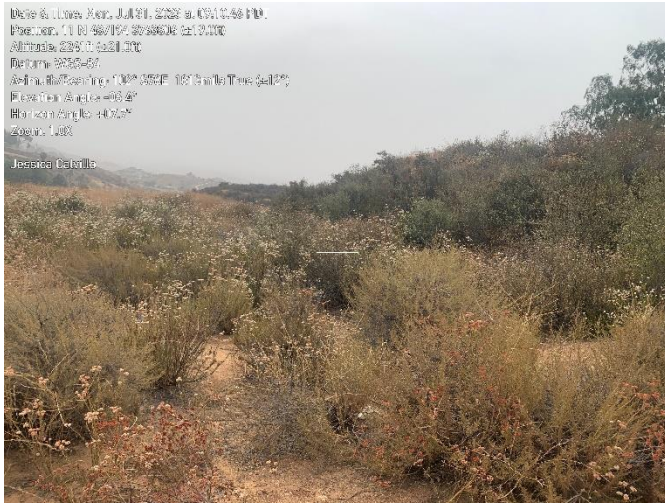
Scientific Name	Common Name
<b>CLASS REPTILIA</b>	<b>REPTILES</b>
<b>PHRYNOSOMATIDAE</b>	<b>ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS</b>
<i>Sceloporus occidentalis</i>	western fence lizard
<i>Uta stansburiana</i>	side-blotched lizard
<b>CLASS AVES</b>	<b>BIRDS</b>
<b>CATHARTIDAE</b>	<b>NEW WORLD VULTURES</b>
<i>Cathartes aura</i>	turkey vulture
<b>ACCIPITRIDAE</b>	<b>HAWKS, KITES, EAGLES</b>
<i>Buteo jamaicensis</i>	red-tailed hawk
<b>ODONTOPHORIDAE</b>	<b>NEW WORLD QUAIL</b>
<i>Callipepla californica</i>	California quail
<b>COLUMBIDAE</b>	<b>PIGEONS &amp; DOVES</b>
<i>Zenaida macroura</i>	mourning dove
<b>TROCHILIDAE</b>	<b>HUMMINGBIRDS</b>
<i>Calypte anna</i>	Anna's hummingbird
<b>CORVIDAE</b>	<b>JAYS &amp; CROWS</b>
<i>Aphelocoma californica</i>	California scrub-jay
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	common raven
<b>AEGITHALIDAE</b>	<b>BUSHTITS</b>
<i>Psaltriparus minimus</i>	Bushtit
<b>TROGLODYTIDAE</b>	<b>WRENS</b>
<i>Thryomanes bewickii</i>	bewick's wren
<b>SYLVIIDAE</b>	<b>OLD WORLD WARBLERS</b>
<i>Chamaea fasciata</i>	wrenit
<b>POLIOPTILIDAE</b>	<b>GNATCATCHERS</b>
<i>Polioptila caerulea</i>	blue-gray gnatcatcher
<b>MIMIDAE</b>	<b>MOCKINGBIRDS, THRASHERS</b>
<i>Toxostoma redivivum</i>	California thrasher
<b>EMBERIZIDAE</b>	<b>EMBERIZIDS</b>
<i>Melospiza melodia</i>	song sparrow
<i>Melospiza crissalis</i>	California towhee
<i>Pipilo maculatus</i>	spotted towhee
<b>CARDINALIDAE</b>	<b>CARDINALS</b>
<i>Pheucticus melanocephalus</i>	black-headed grosbeak
<b>FRINGILLIDAE</b>	<b>FINCHES</b>
<i>Spinus psaltria</i>	lesser goldfinch

Scientific Name	Common Name
<i>Carpodacus mexicanus</i>	house finch

## **ATTACHMENT 4 – SITE PHOTOGRAPHS**



ATTACHMENT 4 – SITE PHOTOGRAPHS



**Photo 1**

Photo depicting California Buckwheat Scrub.



**Photo 2**

Photo depicting California Buckwheat Scrub and Bare Ground by the existing water tower just outside the Project site.



**Photo 3**

Photo depicting Disturbed California Buckwheat Scrub.



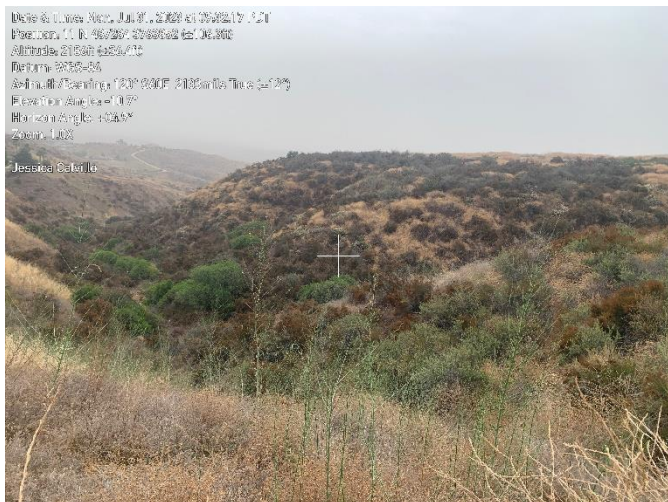
**Photo 4**

Photo depicting Ruderal vegetation with Hoary Leaf Ceanothus Chaparral along the slopes.



**Photo 5**

Photo depicting Ruderal vegetation with Hoary Leaf Ceanothus Chaparral along the slopes.



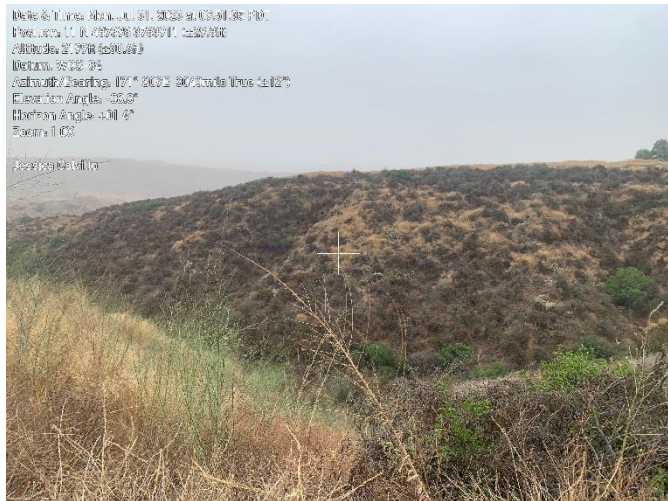
**Photo 6**

Photo depicting Ruderal vegetation with Hoary Leaf Ceanothus Chaparral along the slopes.



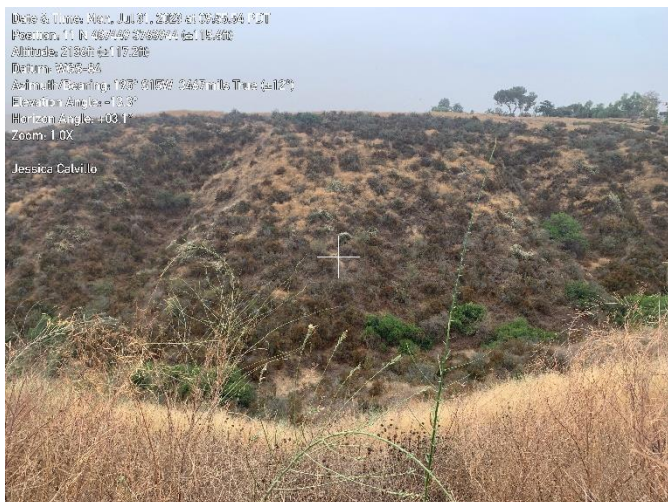
**Photo 7**

Photo depicting California Buckwheat Scrub with Ruderal vegetation along the paved road.



**Photo 8**

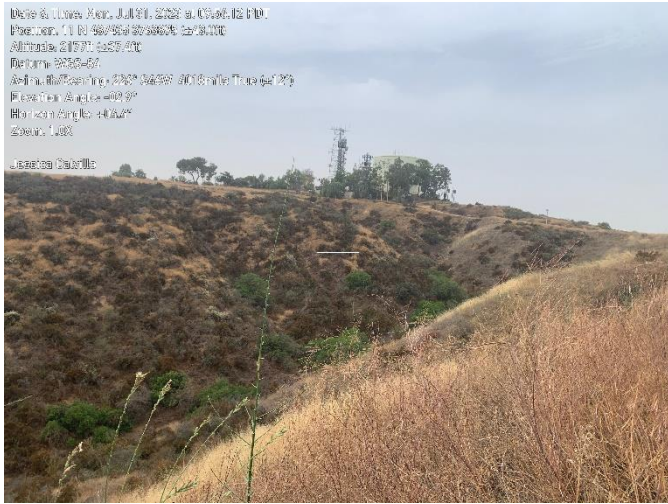
Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral, Hoary Leaf Ceanothus Chaparral and Ruderal vegetation.



**Photo 9**

Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral, Hoary Leaf Ceanothus Chaparral and Ruderal vegetation.





**Photo 10**

Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral, Hoary Leaf Ceanothus Chaparral and Ruderal vegetation.



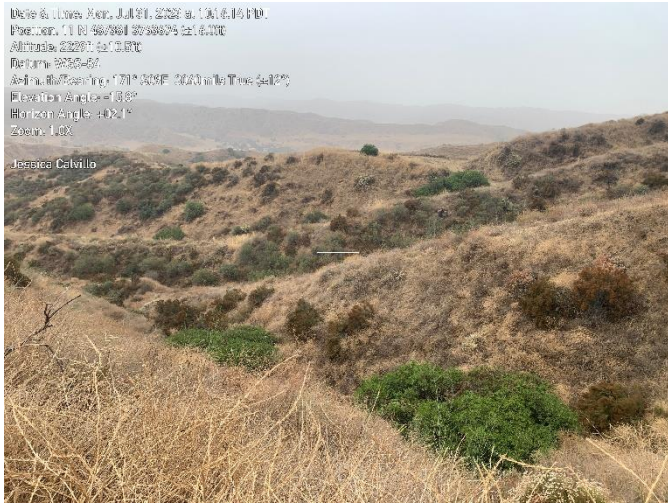
**Photo 11**

Photo depicting Ruderal vegetation and large Bare Ground area at Southern end of the Project site.



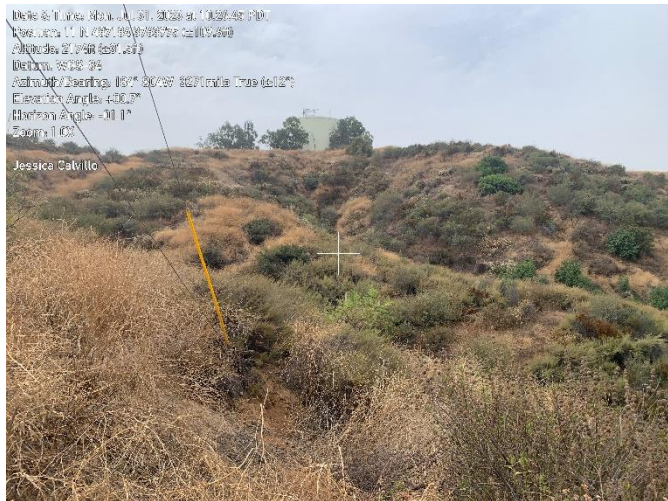
**Photo 12**

Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral and Ruderal vegetation.



**Photo 13**

Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral, Hoary Leaf Ceanothus Chaparral and Ruderal vegetation.



**Photo 14**

Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral, Hoary Leaf Ceanothus Chaparral and Ruderal vegetation.



**Photo 15**

Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral, Hoary Leaf Ceanothus Chaparral and Ruderal vegetation.



**Photo 16**

Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral, Hoary Leaf Ceanothus Chaparral, Ruderal vegetation, with Disturbed California Buckwheat Scrub in the foreground.



**Photo 17**

Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral and Ruderal vegetation along Helen Dr..



**Photo 18**

Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral and Ruderal vegetation along Helen Dr..



**Photo 19**  
Photo depicting Disturbed Hoary Leaf Ceanothus Chaparral and Ruderal vegetation along Helen Dr..

# Cultural Resources Survey and Study Letter Report for the Sunset Reservoir Expansion Project

City of Redlands

**CHAMBERS**  
GROUP

September 22, 2023  
9620 Chesapeake Drive, Suite 202  
San Diego, CA 92123  
(21413)

Veronica Medina  
City of Redlands  
City Municipal Utilities and Engineering Department  
35 Cajon Street  
Redlands, CA 92373

**Subject: Cultural Resources Survey and Study Letter Report for the Sunset Reservoir Expansion Project, San Bernardino County, California.**

Dear Ms. Medina,

Chambers Group provides this Cultural Resources Letter Report to the City of Redlands (City) in support of the proposed Sunset Reservoir Expansion Project (Project) in San Bernardino County, California. This assessment includes the results of a cultural resources survey of the Project site, and a cultural resources records search and literature review of a surrounding half-mile radius (study area) (Figure 1). The purpose of the study is to gather and analyze information needed to assess the potential for impacts to cultural resources within the Project site.

## Project Description and Location

The City, acting as Lead Agency, is proposing to construct two new reservoir tanks adjacent to the existing reservoir tank located on Helen Court, near East Sunset Drive in the City of Redlands. The existing reservoir is located west of Helen Court, to the southwest of the Project site. The proposed two new reservoir tanks will be located to the east of the existing reservoir on parcel 0300-451-25 and 0300-451-14. Further Project description details are available within the associated Environmental Document prepared for the Project.

The Project site is located within City property south of Helen Drive, Redlands, San Bernardino County, California 92373, and consists of an approximately 22-acre tract of generally vacant and undeveloped, densely vegetated land. The Project is located in a residential neighborhood within assessor parcel numbers (APNs): 0300-451-13, 0300-451-14, 0300-451-24, and 0300-451-25. The Project is depicted on the United States Geological Survey (USGS) 7.5-minute *Redlands*, California Quadrangle, Township 2 South, Range 2 West, Section 7 (Figure 1). Parcels to the north and northeast of the Project site are developed as residential; land to the south, east, and west are undeveloped aside from the reservoir tank directly to the southwest of the Project site and minimally maintained various access roads.

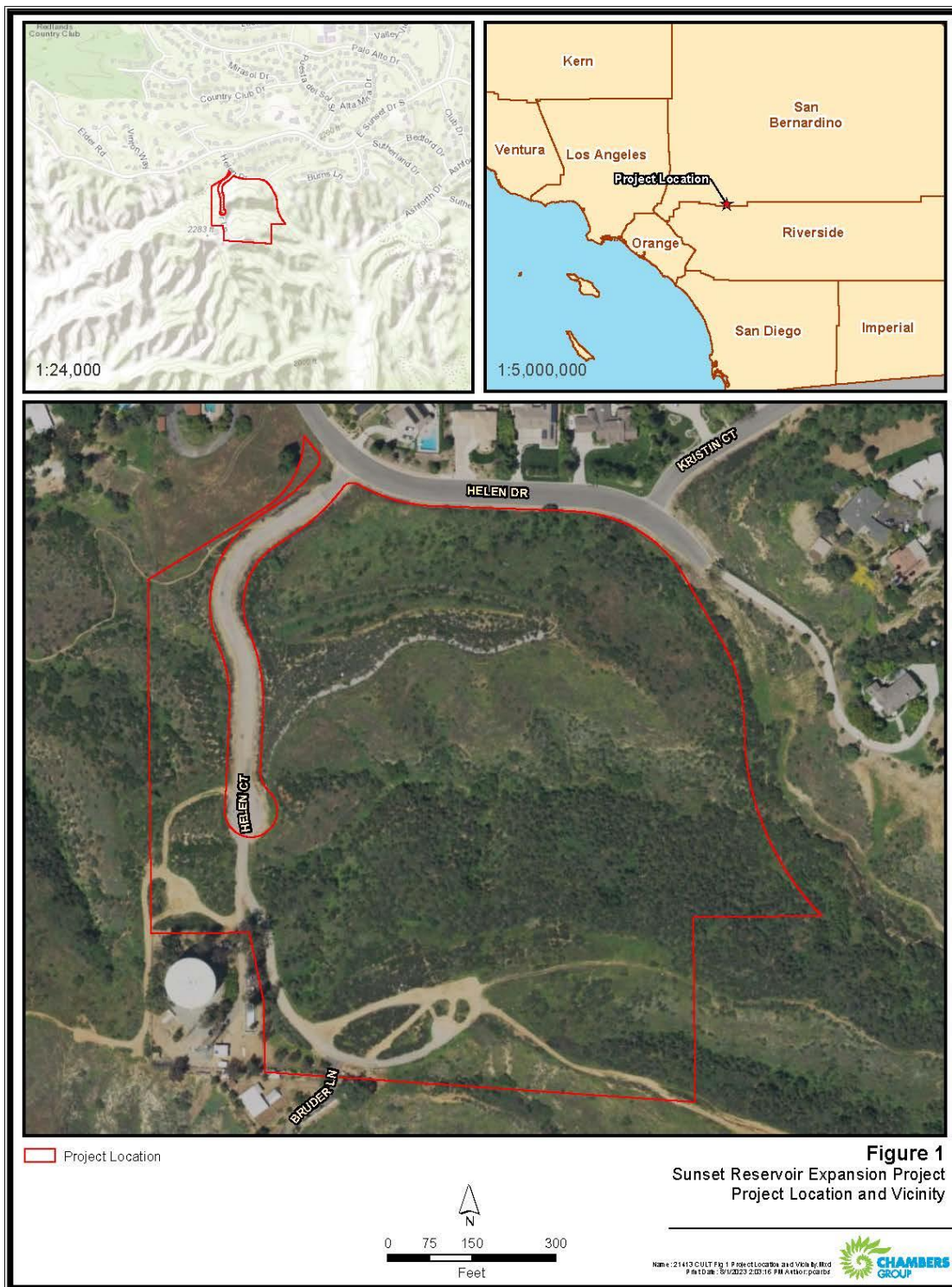


# Cultural Resources Survey and Study Letter Report for the Sunset Reservoir Expansion Project

City of Redlands



Figure 1: Project Location



# Cultural Resources Survey and Study Letter Report for the Sunset Reservoir Expansion Project

City of Redlands

## Regulatory Context

As the California Environmental Quality Act (CEQA) lead agency for the Project, the City must determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC] Section 21084.1). In addition to State of California (State) and county regulations, projects in the City are also subject to several local regulations relating to cultural resources. Chapter 2 of the City of Redlands' General Plan pertains specifically to the identification and protection of cultural, historical, archaeological, and paleontological resources within the City. The regulatory framework as it pertains to cultural resources under CEQA is detailed below.

Under the provisions of CEQA, including the CEQA Statutes (PRC §§ 21083.2 and 21084.1), CEQA Guidelines (Title 14 California Code of Regulations [CCR] § 15064.5), and PRC § 5024.1 (Title 14 CCR § 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for eligibility for listing in the California Register of Historical Resources (CRHR).

## California Register of Historical Resources

The purpose of the CRHR is to maintain listings of the State's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term *historical resources* include a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR § 15064.5[a]). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP). The California Office of Historic Preservation (OHP 1995:2) regards "any physical evidence of human activities over 45 years old" as meriting recordation and evaluation.

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing in the CRHR. The CRHR was designed to be used by State and local agencies, private groups, and citizens to identify existing cultural resources within the State and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a "unique archeological resource" as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section. A *unique archeological resource* is defined as follows:

An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
- Has a special and particular quality, such as being the oldest of its type or the best available example of its type; and
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.



# Cultural Resources Survey and Study Letter Report for the Sunset Reservoir Expansion Project

City of Redlands

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a “unique archaeological resource” under CEQA PRC § 21083.2 are viewed as not significant. Under CEQA, “A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects” (PRC § 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project:

1. physically destroys or damages all or part of a resource;
2. changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or
3. introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

## Assembly Bill 52

Assembly Bill (AB) 52 was enacted in 2015 and expands CEQA by defining a new resource category: tribal cultural resources (TCR). AB 52 establishes that “a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment” (PRC Section 21084.2). AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. AB 52 requires that lead agencies “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those that have requested notice of projects proposed in the jurisdiction of the lead agency. It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3). PRC Section 21074 (a)(1)(A) and (B) define TCRs as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” which meet either of the following criteria:

- Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k)
- 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 PRC Section 5024.1 (in applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe)

## Local

### City of Redlands

In addition to State and County regulations, projects built in the City are also subject to several local regulations relating to cultural and paleontological resources. Chapter 2, *Distinctive City*, of the City of Redlands 2035 General Plan outlines principles and actions to protect and preserve Redlands’ cultural, historical, archaeological, and paleontological resources within the City (City of Redlands, 2017). Per Chapter 2, Section 2.2, Cultural Resources, of the City of Redlands General Plan, the following sections outline its principles and actions as follows:

### Cultural Resources

Principle 2-P.8 Identify, maintain, protect, and enhance Redlands’ cultural, historic, social, economic, architectural, agricultural, archaeological, and scenic heritage. In so doing, Redlands will preserve its unique character and beauty, foster community pride, conserve the character and architecture of its neighborhoods and commercial and rural areas, enable citizens and visitors to enjoy and learn about local history, and provide a framework for making appropriate physical changes.





# Cultural Resources Survey and Study Letter Report for the Sunset Reservoir Expansion Project

City of Redlands

Principle 2-P.9 Provide incentives to protect, preserve, and maintain the city's heritage.

Principle 2-P.10 Foster an understanding and appreciation of history and architecture.

Principle 2-P.11 Encourage retention of the character of existing historic structures and urban design elements that define the built environment of the city's older neighborhoods.

Principle 2-P.12 Encourage retention of historic structures in their original use or reconversion to their original use where feasible. Encourage sensitive, adaptive reuse where the original use is no longer feasible.

Principle 2-P.13 Encourage preservation of and public access to defined and established significant scenic vistas, viewpoints, and view corridors.

Principle 2-P.14 Coordinate preservation of historic resources with policies designed to preserve neighborhoods and support the affordability of housing in historical structures.

Principle 2-P.15 Balance the preservation of historic resources with the desire of property owners of historic structures to adopt energy efficient strategies.

Principle 2-P.17 Protect archaeological and paleontological resources for their aesthetic, scientific, educational, and cultural values.

Action 2-A.71 Using an annually updated Archaeological Resource Sensitivity Map, review proposed development projects to determine whether a site contains known prehistoric or historic cultural resources and/or to determine the potential for discovery of additional cultural resources.

Action 2-A.72 Require that applicants for projects identified by the South Coastal Information Center as potentially affecting sensitive resource sites hire a consulting archaeologist to develop an archaeological resource mitigation plan and to monitor the project to ensure that mitigation measures are implemented.

Action 2-A.73 Require that areas found during construction to contain significant historic or prehistoric archaeological artifacts be examined by a qualified consulting archaeologist (RPA certified) or historian for appropriate protection and preservation.

Action 2-A.74 Proactively coordinate with the area's native tribes in the review and protection of any tribal cultural resources discovered at development sites.

## **Paleontological Resources**

Principle 2-P.16 Work with local paleontologists to identify significant non-renewable paleontological resources.

Principle 2-P.17 Protect archaeological and paleontological resources for their aesthetic, scientific, educational, and cultural values.

Action 2-A.75 Require, as a standard condition of approval, that project applicants provide an assessment as to whether grading for the Proposed Project would impact underlying soil units or geologic formations that have a moderate to high potential to yield fossiliferous materials, prior to issuance of a grading permit. If the potential for fossil discovery is moderate to high, require applicants to provide a paleontological monitor during rough grading of the project.

Action 2-A.76 Establish a procedure for the management of paleontological materials found onsite during a development, including the following provisions:

- If materials are found on-site during grading, require that work be halted until a qualified professional evaluates the find to determine if it represents a significant paleontological resource.
- If the resource is determined to be significant, the paleontologist shall supervise removal of the material and determine the most appropriate archival storage of the material.
- Appropriate materials shall be prepared, catalogued, and archived at the applicant's expense and shall be retained within San Bernardino County if feasible.



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## Environmental Setting

The City of Redlands is situated at the base of the San Bernardino Mountains, located in southwest San Bernardino County in Southern California. The city is situated between the northern margin of the Peninsular Range Geomorphic Province and the Transverse Ranges Geomorphic Province and lies within the broad alluvial flood plain derived from Santa Ana River deposits and eroding mountain hillsides (Morton and Miller 2006). The topography of the Project site is characterized as predominately hilly, with slopes up to 42 degrees, and has an elevation averaging approximately 2,200 feet above mean sea level (AMSL).

The Project site is underlain by older surficial sediments (Qoa) that are weakly indurated alluvial fan deposits derived from local terrains of plutonic rocks. These alluvial fan deposits consist of sand and minor gravel of the Pleistocene age (Dibblee and Minch 2003). The Davis SoilWeb database (2023) describes the soil classification as the San Bernardino County Southwestern Part (CA677) and as Saugus sandy loam (ShF) with 30 to 50 percent slopes.

The Project site is currently vacant, undeveloped land, and is densely vegetated by plant species from the chaparral community. Common native plants typically include oak and scrub oak, sycamore, chamise, cacti, agave, yucca, species of sage, chía, and various grasses (Munz and Keck 1968). The nearest water source is Yucaipa Creek, in Live Oak Canyon, approximately 0.75 miles south of the Project site.

## Cultural Setting

### Prehistoric Overview

During the twentieth century, many archaeologists developed chronological sequences to explain prehistoric cultural changes within all or portions of Southern California (Moratto 1984; Jones and Klar 2007). A prehistoric chronology was devised for the Southern California coastal region based on early studies and focused on data synthesis that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric (Wallace 1955, 1978). Although initially lacking the chronological precision of absolute dates (Moratto 1984:159), Wallace's 1955 synthesis has been modified and improved using thousands of radiocarbon dates obtained by Southern California researchers over recent decades (Byrd and Raab 2007:217; Koerper and Drover 1983; Koerper et al. 2002). The prehistoric chronological sequence for Southern California presented below is a composite based on Wallace (1955) and Warren (1968) as well as later studies, including Koerper and Drover (1983).

It is generally believed that human occupation of Southern California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000- and 6,000-years BP, a predominantly hunting and gathering economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. The most heavily exploited species were likely those species still alive today. Bones of extinct species have been found but cannot definitively be associated with human artifacts in California, unlike other regions of the continent. Although small animal bones and plant grinding tools are rarely found within archaeological sites of this period, small game and vegetal foods were likely exploited. A lack of deep cultural deposits from this period has been interpreted by some researchers as indicative that the region was occupied by small groups that practiced high residential mobility during this period (Wallace 1978).

The three major periods of prehistory for the greater Los Angeles Basin region have been refined by recent research using radiocarbon dates from archaeological sites in coastal Southern California (Koerper and Drover 1983; Mason and Peterson 1994):

- Millingstone Period (6,000 –1,000 BP, or about 8,000–3,000 years ago)
- Intermediate Period (1,000 BC – AD 650, or 3,000–1,350 years ago)
- Late Prehistoric Period (AD 650 – about AD 1800, or 1,350–200 years ago)

Around 6,000 years BP, a shift in focus from hunting toward a greater reliance on vegetal resources occurred. Archaeological evidence of this trend consists of a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter (Wallace 1978). This period, termed by archaeologists as the Millingstone



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Period, was a long cultural phase characterized by small, mobile groups that likely relied on a seasonal round of settlements that included both inland and coastal residential bases. Seeds from sage and grasses, rather than acorns, provided calories and carbohydrates. Faunal remains from sites dating to this period indicate that similar animals to those in the prior period were hunted. Inland Millingstone sites are characterized by numerous manos, metates, and hammerstones. Shell middens are common at coastal Millingstone sites. Coarse-grained lithic materials, such as quartzite and rhyolite, are more common than fine-grained materials in flaked stone tools from this time. Projectile points are found in archaeological sites from this period, but they are far fewer in number than from sites dating to before 6,000 years BP. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period (Wallace 1978).

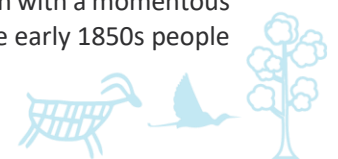
In sites post-dating roughly 3,000 years BP, archaeological evidence indicates the reliance on both plant gathering and hunting continued but was more specialized and locally adapted to particular environments. Mortars and pestles were added to metates and manos for grinding seeds and other vegetable material. Chipped-stone tools became more refined and specialized, and bone tools appear to be more common. During this period, peoples from the Great Basin began entering Southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples. The exact time of their entry into the region is not known; however, they were present in Southern California during the final phase of prehistory. During this period, population densities were higher than before; and settlement became concentrated in villages and communities along the coast and interior valleys (Erlandson 1994; McCawley 1996). During the Intermediate Period, mortars and pestles appeared, indicating the beginning of acorn exploitation. Use of the acorn – a high-calorie, storable food source – probably facilitated greater sedentism and increased social organization. Large projectile points from archaeological sites of this period indicate that the bow and arrow, a hallmark of the Late Prehistoric Period, had not yet been introduced, and hunting was likely accomplished using the atlatl (spear thrower) instead. Settlement patterns during this time are not well understood. The semi-sedentary settlement pattern characteristic of the Late Prehistoric Period may have begun during the Intermediate Period, although territoriality may not yet have developed because of lower population densities. Regional subcultures also started to develop, each with its own geographical territory and language or dialect (Kroeber 1925; McCawley 1996; Moratto 1984). These were most likely the basis for the groups encountered by the first Europeans during the eighteenth century (Wallace 1978). Despite the regional differences, many material culture traits were shared among groups, indicating a great deal of interaction (Erlandson 1994). The Late Prehistoric Period is better understood than earlier periods largely through ethnographic analogy made possible by ethnographic and anthropological research of the descendants of these groups in the late nineteenth and early twentieth centuries.

## Ethnographic Overview

The Project site lies within an area known to be transitionally occupied by the Gabrielino, whose villages stretched from the Pacific coast to the San Bernardino Mountains to the east. The Cahuilla's traditional use area ranged over the entire San Bernardino basin, the San Jacinto Mountains, the Coachella Valley, and portions of the southern Mojave. The Serrano territory included the entire San Bernardino range of mountains, west into the San Gabriel Mountains, south across the San Bernardino Valley, and eastward to near Twentynine Palms.

## Historic Overview

Post-European contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848 – present). Briefly, and in very general terms, the Spanish Period encompassed the earliest historic-period explorations of the West, colonization, missionization and proselytization across the western frontier, the establishment of major centers such as Los Angeles and Monterey and a line of missions and presidios with attendant satellite communities, minor prospecting, and a foundational economic structure based on the rancho system. The Mexican Period initiated with a continuation of the same structures; however, commensurate with the political changes that led to the establishment of the Mexican state, the missions and presidios were secularized, the lands parceled, and Indian laborers released. Increased global trade introduced both foreign and American actors into the Mexican economic and political sphere, both coincidentally, and purposefully, smoothing the transition to the American Period. The American Period was ushered in with a momentous influx of people seeking fortune in the Sierra foothills where gold was “discovered” in 1848. By the early 1850s people



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from all over the globe had made their way to California. Expansive industries were required to supply the early mining operations, such as forestry products and food networks. Grains, poultry, cattle, and water systems, which were initiated in the early Mexican Period, were intensified into a broad system of ranches and supply networks. Additionally, this period witnessed the development and expansion of port cities to supply hard goods and clothes, animals, and people transported along improved trail and road networks throughout the interior regions of the state. California cycled through boom and bust for several decades until World War I, when the Department of the Navy began porting war ships along the west coast. Subsequently, California has grown and contracted, predominantly around military policy along the west coast and the Pacific Ocean. Following the industrial expansion related to World War II and the Cold War, technology and systems associated have come to fore as economic drivers.

## City of Redlands

The City of Redlands, also known in 1900 as “The City of Millionaires” and later as “The City of Beautiful Homes,” was founded in 1881 and became incorporated in 1888. Redlands is characterized as the quintessential “big town” with a “small town” feel. For much of its history Redlands was the “Washington Navel Orange Growing Capital of the World” with the citrus industry as the main focus of its economy. Some of the City’s most renowned buildings and landmarks are the A.K. Smiley Public Library, a Moorish-style library built in 1898, the University of Redlands, founded in 1907, and the Redlands Bowl, built in 1930 and home of the oldest continuously free outdoor concert series in California (City of Redlands 2023). The City of Redlands boasts a rich historical background and is the home of a variety of historic resources valued by the community. Redlands’ early period of growth remains strongly visible in the community today, in the form of mature street trees, citrus groves, and exquisitely detailed historic buildings (City of Redlands 2017).

## Study Methods

Chambers Group requested a records search from the California Historical Resources Information System (CHRIS) South-Central Coastal Information Center (SCCIC) at California State University, Fullerton, on March 3, 2023. A records search of the Project site and surrounding study area was requested to provide context and additional information regarding types and extent of resources recorded within the Study area. These data provide the greater basis for this review. The SCCIC returned the records search results on April 11, 2023, providing information on all documented cultural resources and previous archaeological investigations within the study area. Resources consulted during the records search conducted by the SCCIC included the NRHP, California Historical Landmarks (CHL), California Points of Historical Interest (CPHI), California Department of Transportation (Caltrans) Historic Highway Bridge Inventory, the California State Historic Resources Inventory, local registries of historic properties, and a review of available Sanborn Fire Insurance maps as well as historical photographs, maps, and aerial imagery. The task also included a search for potential prehistoric and/or historic burials (human remains) evident in previous site records and/or historical maps. In addition, Chambers Group submitted a request to the Native American Heritage Commission (NAHC) for a review of the Sacred Land Files (SLF) for the Project site and surrounding vicinity. Results of the NACH SLF records search and additional outreach are detailed below and included in Attachment A. The results of the SCCIC records search are also detailed below and included in confidential Attachment B.

Chambers Group also requested a paleontological records search from the Western Science Center (WCS) on April 27, 2023. This information was requested with the intent to provide further context related to the paleontological sensitivity of the area based on known fossil locations identified within the Project site and study area. The paleontological records provide insight into what associated geological formations are most likely to contain fossils as well as the associated depths and placement of the known fossil locals relative to the geological formations in the area. On May 3, 2023, Chambers Group received the results of the paleontological records search. These results are detailed below.

Additionally, a survey of the Project site was conducted on July 31, 2023. The pedestrian survey consisted of a systematic surface inspection of the areas of the Project site that were safely accessible and visible. The Project site was transected at 10-meter intervals to ensure that any evidence of surface-exposed cultural materials and/or evidence of paleontological resources could be identified.



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Chambers Group Cultural Resources Department Lead Lucas Tutschulte managed the Project tasks related to cultural resources. Chambers Group cultural resources specialist Edevijes Davis-Mullens completed the pedestrian survey. Cultural resources specialist Kellie Kandybowicz conducted background research and authored the report. Richard Shultz, MA, RPA, served as Principal Investigator for cultural resources and performed quality control for the report.

## Results

### Previous Cultural Resources Reports

Based on the records on-file with the SCCIC, nine cultural resource studies have previously been completed within the study area. Table 1 provides further details of these nine studies. Of these nine reports, two bisect the Project site. These projects are bolded in the Table. A map (Figure 2) of the record search results is included in confidential Attachment B.

**Table 1: Previous Cultural Resources Studies within a Half-Mile Radius of the Project Site**

Report Number	Year	Author	Title	Within Project Site?
SB-00440	1976	Hearn, Joseph E.	Archaeological - Historical Resources Assessment of Tentative Tract 9178, Redlands Area	No
<b>SB-00685</b>	<b>1978</b>	<b>Hearn, Joseph E.</b>	<b>Archaeological - Historical - Paleontological Resources Assessment of Tract 9932</b>	<b>Yes</b>
SB-03004	1993	Anthony, Chet	Sunset Canyons	No
SB-04056	2002	Bonner, Wayne and Don Lewis	Cultural Resource Assessment: CM 365-11; Redlands Water Tank, 9 Helen Dr, Redlands, CA 13pp	No
<b>SB-04601</b>	<b>2004</b>	<b>White, Robert S. and Laura S. White</b>	<b>A Cultural Resources Assessment of the 284.28 Acre Sector 8 Specific Plan Located in the Southeast Portion of the City of Redlands, San Bernardino County, California.</b>	<b>Yes</b>
SB-04825	2005	Aislin-Kay, Marnie	Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate CM-365-02 (ES-022-02) City of Redlands Water Tank, 31280 "B" Helen Court, Redlands, San Bernardino County, California	No
SB-06741	2010	Sander, Jay K.	Cultural Resources Records Search and Site Visit for T-Mobile USA Inc., 1E04365A / CM365 Redlands Water District, 31280 Helen Court, Redlands, San Bernardino County, California 92373	No
SB-06841	2011	Bonner, Wayne H and Kathleen A. Crawford	Direct APE Historic Architectural Assessment for T-Mobile USA Candidate IE25507-A (Redlands Country Club), 1749 Garden Street, Redlands, and Frederich and Mary Jane Auerbachet Residence, 121 Sierra Vista, Redlands, San Bernardino County, California	No
SB-07569	2003	McDougall, Dennis P., and Jill A. Onken	Inland Feeder Pipeline Project: Final Synthetic Report of Archaeological Findings, San Bernardino County, California	Yes



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## Previously Recorded Cultural Resources

Based upon the records search conducted by the SCCIC, two previously recorded cultural resources are recorded within the study area (Table 2). None are located within the Project site. A map (Figure 2) displaying the record search results is included in confidential Attachment B.

**Table 2: Previously Recorded Cultural Resources within a Half-Mile Radius of the Project Site**

Primary No.	Trinomial	Resource Name	Site Description	Within Project Site?
P-36-007835	CA-SBR-007835H	Alphonso Edwards Redland Hermit	AH02. Foundation/structure pad; AH03. Landscaping/orchard; AH04. Privy/dump/trash scatter; AH05. Well/cistern; AH16. Other	No
P-36-022622		Redlands Country Club Golf Course; 1749 Garden St, Redlands	HP39. Country Club and Golf Course	No

## Additional Background Research Results

In addition to the records search review, Chambers Group archaeologists completed background research to determine if any additional historic properties, landmarks, bridges, or other potentially significant or listed properties are located within the Project site or within the study area. This background research included, but was not limited to, the NRHP, California State Historic Property Data Files, California State Historical Landmarks, California Points of Historical Interest, Office of Historic Preservation Archaeological Determinations of Eligibility, historic aerial imagery accessed via NETR Online, Historic U.S. Geological Survey topographic maps, Built Environment Resource Directory (BERD), and Caltrans, and State and local bridge surveys. Additionally, Chambers Group archaeologists reviewed the San Bernardino County Historical Landmarks inventory designated by the County of San Bernardino Cultural Heritage Board as well as the San Bernardino Historical Society and local historical newspaper clippings via Newspapers.com, ProQuest Historical Newspapers.com, and the California Digital Newspaper Collection.

As a result of the records search review and archival research, no previously recorded resources or other listed or potentially significant properties are recorded within the Project site. Based on the review of available historic maps and imagery, the Project site was bisected by a dirt road by at least 1901, as illustrated on the 1901 *Redlands* USGS topographic map. By the mid-1930s, an access route to a water tank to the southwest of the Project site had already been established, as shown in the 1938 aerial photograph and housing development and construction began in the immediate vicinity during the 1960s (NETROnline 2023). The Project site was also partially cleared by 1980 for use during the development of the surrounding housing tracts to the north (NETROnline 2023).

## NAHC SLF Search Results

Chambers Group submitted a request for a search of the Sacred Lands Files housed at the California NAHC on March 10, 2023. The results of the search were returned on March 29, 2023, and were negative, stating that the absence of specific site information in the SLF does not indicate the absence of cultural resources in the Project site that still may be impacted by Project development.



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Additional consultation with the tribes, as indicated in the NAHC SLF letter (Attachment A), would be required to determine the nature of any existing resources located during ground-disturbing activities. PRC Section 21074 defines a resource as a TCR if it meets either of the following criteria:

1. Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k)
2. 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 PRC Section 5024.1 (in applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe)

The NAHC response provided contact information for 25 Native American tribal contacts that may have information on cultural resources on the Project site (Attachment A). The associated Native American contact list provided contacts from the Agua Caliente Band of Cahuilla Indians, Augustine Band of Cahuilla Mission Indians, Cabazon Band of Mission Indians, Cahuilla Band of Indians, Gabrieleno Band of Mission Indians – Kizh Nation, Los Coyotes Band of Cahuilla and Cupeño Indians, Morongo Band of Mission Indians, Pala Band of Mission Indians, Pechanga Band of Luiseño Indians, Quechan Tribe of the Fort Yuma Reservation, Ramona Band of Cahuilla, Rincon Band of Luiseño Indians, Santa Rosa Band of Cahuilla Indians, Serrano Nation of Mission Indians, Soboba Band of Luiseno Indians, Torres–Martinez Desert Cahuilla Indians, and Yuhaaviatam of San Manuel Nation (formerly the San Manuel Band of Mission Indians).

## AB 52 Notification and Tribal Consultation

At this time, Chambers Group assumes the City, as Lead Agency, is conducting AB 52 tribal consultation as necessary for the Project. As such, no details of consultation are included in this document.

## Paleontological Resources

On May 3, 2023, Chambers Group received the results of the paleontological records search from the WSC. The results show that no fossil localities are documented directly within the Project site, but there are recorded fossil localities from the same sedimentary deposit that underlays the Project site.

Potential fossil-bearing units are present within the Project site, as stated in the WSC record search results. Based on the records search results, which covered only the records of the WSC, the paleontological sensitivity of the Project site could be considered moderate due to the previously recorded and known fossil localities in the same sedimentary deposits as mapped in the Project site and within the study area (Stoneburg 2023).

The geologic mapping of the region by Dibblee and Minch (2003) indicates the entire Project site is underlain by quaternary alluvial fan deposits of sand and gravel from the Pleistocene epoch. These Pleistocene period deposits are composed of older surficial sediments (Qoa) that are weakly indurated dissected alluvial fan deposits derived from local terrains of plutonic rocks. Pleistocene alluvial units are considered highly sensitive for paleontological resources. The Davis SoilWeb database (2023) describes soils associated with the Project site as Saugus sandy loam (ShF) with 30 to 50 percent slopes, which are part of the San Bernardino County Southwestern Part (CA677) classification. Based on the records search results and review of publicly available geologic mapping, the Project site's underlying sedimentary deposits have potential to yield previously undocumented fossil localities during construction.

## Field Survey Results

Chambers Group cultural resources specialist Edevijes Davis-Mullens conducted the pedestrian survey on July 31, 2023. All areas within the Project site that were safely accessible were surveyed, including proposed construction equipment access and staging areas for the proposed locations for the two new tanks. The western and mid-section areas of the Project site show evidence of disturbance related to previous construction for the existing water tank reservoir access roads, dating to as early as 1938. Additionally, surrounding housing development activity began in the 1960s adding to disturbances along East Sunset Drive South (NETROnline 2023).

The Project site terrain is composed primarily of undeveloped land, with steep slopes averaging a 40-degree angle with dense vegetation. Thus, much of the site was not surveyed intensively due to the safety concerns and the understanding



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that there is less potential to encounter intact cultural resources on the surface of steep slopes. The dense vegetation observed on site is mainly composed of chaparral vegetation community species and tall grasses, and further limited access and ground surface visibility. Due to the dense vegetation, much of the Project site was observed with an average of 5 to 10 percent ground surface visibility (Photographs 1, 4, 5). Due to these safety and visibility constraints, approximately 8 acres (roughly 36 percent) of the approximately 22-acre Project site was surveyed intensively with 10-meter transects. Additionally, the maintained access roads and cleared areas within the Project site were observed with 97 to 100 percent visibility (Photographs 2 & 3). These access roads and cleared areas were subject to intensive survey for possible associated historic age items and features as they largely match previous historic age road alignments, leading to the extant reservoir tank adjacent to the southwest corner of the Project site, which can be observed as early as 1938 in historic aerial imagery (NETROnline 2023). Only a sparse collection of modern trash and furniture was observed at the south end of the Project site near Bruner Lane (Photograph 6).

No evidence of cultural or paleontological resources was observed during the field survey.



**Photograph 1:** Overview of current conditions at Sunset Reservoir Expansion Proposed Project location showing dense vegetation and steep slopes. View to the northeast.





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**Photograph 2:** Access Road leading to reservoir tank to the southwest of the Project site. View to the southwest.



**Photograph 3:** Overview of current conditions at Sunset Reservoir Expansion Proposed Project location showing vegetation overgrowth on road. View to the east.



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**Photograph 4:** Overview of current conditions at Sunset Reservoir Expansion Proposed Project location showing dense vegetation. View to the north.



**Photograph 5:** Overview of current conditions at Sunset Reservoir Expansion Proposed Project location showing dense vegetation and steep slopes. View to the southwest.



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**Photograph 6:** Overview of current conditions at Sunset Reservoir Expansion Proposed Project location showing modern debris and disturbance. View to the east.

## Discussion

As detailed above, Chambers Group conducted a Project site-specific study that included cultural resources records searches, literature review, and a pedestrian survey for the proposed Project in accordance CEQA, as well as the City's goals and policies regarding the protection of archaeological, tribal, historical, and paleontological resources (City of Redlands 2017). City of Redlands' Chapter 2, Section 2.2 - Cultural Resources policies and actions, which protect the archaeological, paleontological, and historical resources within the City, will be applicable if resources are encountered during the Project.

An archival records search through the CHRIS database at the SCCIC, background research of the Project site, and a field survey were conducted as part of this study. A paleontological records search was also conducted by the WSC. In addition, Chambers Group requested a SLF search from the NAHC to determine the presence or absence of data regarding any known tribal cultural resources reported within the Project site or its study area.

The SCCIC records search identified two previous cultural resources studies that included the Project site; no cultural resources have been recorded within the Project site. The paleontological record search resulted in no documented fossil localities within the Project site. However, the results also indicated fossils localities have been recorded within the study area in the same sedimentary deposits as those mapped underlying the Project site. The NAHC SLF search was negative for documented resources important to the local Tribal groups in the Project site and/or surrounding area.

Additionally, based on the review of available historic maps and imagery, Chambers Group archaeologists observed that the Project site was bisected by a dirt road by the early 1900s, as shown in the 1901 *Redlands* topographic map, and by 1938, as shown in the aerial imagery, slightly rerouted westward for access to a water tank reservoir southwest of the current Proposed Project site. The Project site was also partially cleared by 1980 for use during the development of the surrounding housing tracts to the north (NETROnline 2023).

During the field survey, no evidence of cultural or paleontological resources was observed. While there are no previously recorded cultural or paleontological resources in the Project site, there remains potential to uncover archaeological deposits during construction due to the nature of soil deposition and dense vegetation overgrowth



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within areas of the Project site which appear to be previously undisturbed. Due to the mapped geologic formations underlying the Project site known to bear paleontological resources and the known fossil localities provided in the surrounding study area, there remains potential that new fossils could be exposed during the Project.

In summary, Chambers Group found no physical or archival evidence of cultural or paleontological resources within the Project site. While no surficial evidence of prehistoric or historic archaeological resources was observed, the ground surface visibility was limited due to dense vegetation and steep slopes in much of the Project site. While no evidence of paleontological resources was observed during the survey, background research and WSC records indicate moderate sensitivity for fossil localities within the Project site and its study area. Additionally, WSC noted the existence of similar fossil-bearing geologic units mapped underlying the Project site. Finally, although the Project site has evidence of past disturbance and while the potential for encountering intact resources within the upper sediments is low, the possibility of buried resources being identified below surface disturbances is not diminished. Research indicates geologic units known to be fossil-bearing underlay the Project site and could be encountered during Project-related ground-disturbing construction activities. Additionally, due to the surface nature of the previous disturbance and limited surface visibility during survey, there is potential that intact native soil formations, which have been known to bear cultural resources, underly the Project site. Thus, there remains potential that buried cultural and paleontological resources could be encountered during the Project.

## Recommendations

Per CEQA Guidelines, the Project should be designed to avoid impacts to cultural resources within the Project site whenever feasible. While Chambers Group did not identify any cultural resources through background research or through survey of the Project site, Chambers Group recommends the following mitigation measures be implemented as part of Project approval to ensure that potential impacts to cultural and paleontological resources are less than significant.

**MM CUL-1** The City shall retain the services of a Qualified Archaeologist, meeting the Secretary of the Interior Standards, or County requirements, whichever is the greater. The Qualified Archaeologist shall remain on-call throughout the Project. Upon approval or request by the City, a cultural resources mitigation plan (CRMP) outlining procedures for cultural resources monitoring, mitigation, treatment, and data recovery of any unanticipated discovery shall be prepared for the Project and submitted to the City for review and approval. The development and implementation of the CRMP shall include consultations with the City as well as a requirement that the curation of any significant cultural resources recovered under any scenario shall be through an appropriate repository agreed upon by the City. If the City accepts ownership, the curation location may be revised.

**MM CUL-2** In the event of the discovery of previously unidentified and/or potential cultural resources, the City, and/or its Contractor, shall immediately cease all work activities within an area of not less than 50 feet of the discovery. The City or its Contractor shall immediately contact the City and the City-retained on-call Qualified Archaeologist. Except in the case of cultural items that fall within the scope of the California Health and Safety Code 7050.5, CEQA Section 15064.5, or California PRC Section 5097.98, the discovery of any cultural resource within the Project site shall not be grounds for a project-wide "stop work" notice or otherwise interfere with the Project's continuation except as set forth in this mitigation measure. Additionally, any consulting Native American Tribal groups that requested notification of any unanticipated discovery of cultural resources on the Project shall be notified and included in subsequent consultation appropriately. In the event of an unanticipated discovery of cultural resources during construction, the City-retained Qualified Archaeologist shall be contacted to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If a CRMP is prepared for the Project, the protocols for mitigation or treatment of cultural resources will be implemented. If the Qualified Archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the City shall implement an archaeological data recovery program.



# Cultural Resources Survey and Study Letter Report for the Sunset Reservoir Expansion Project

City of Redlands

**MM-CUL-3** If cultural resources are encountered during the Project, the Qualified Archaeologist shall prepare a report summarizing any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the SCCIC, as required.

**MM PAL-1** Prior to issuance of a grading permit, the City shall be required to obtain the services of a Qualified Project Paleontologist to remain on call for the duration of the proposed ground-disturbing construction activity. The paleontologist selected must be approved by the City. Upon approval or request by the City, a paleontological mitigation plan (PMP) outlining procedures for paleontological data recovery shall be prepared for the Project and submitted to the City for review and approval. The development and implementation of the PMP shall include consultations with the District's Engineering Geologist as well as a requirement that the curation of all specimens recovered under any scenario shall be through an appropriate repository agreed upon by the City. If the District accepts ownership, the curation location may be revised. The PMP shall include developing a multilevel ranking system, or Potential Fossil Yield Classification (PFYC), as a tool to demonstrate the potential yield of fossils within a given stratigraphic unit. The PMP shall outline the monitoring and salvage protocols to address paleontological resources encountered during Project-related ground-disturbing activities, as well as the appropriate recording, collection, and processing protocols to appropriately address any resources discovered.

**MM-PAL-2** At the completion of all ground-disturbing activities, the Project Paleontologist shall prepare a final paleontological mitigation report summarizing all monitoring efforts and observations, as performed in line with the PMP, and all paleontological resources encountered, if any, as well as providing follow-up reports of any specific discovery, if necessary.

**HUMAN REMAINS – LEGAL REQUIREMENTS** In the event that human remains are discovered during ground-disturbing activities, then the proposed Project would be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California PRC Section 5097.98. If human remains are found during ground-disturbing activities, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner shall be notified immediately. If the human remains are determined to be prehistoric, the County Coroner shall notify the NAHC, which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials (National Park Service 1983).

Chambers Group is available to assist with any further support or document preparation related to Cultural Resources, including tribal consultation. Please contact the cultural resources staff at the contact information below if you have any questions or comments regarding this report.

Sincerely,

**CHAMBERS GROUP, INC.**



**Kellie Kandybowicz**

*Cultural Resources Specialist*

9620 Chesapeake Drive, Suite 202

San Diego, CA 92123

kkandybowicz@chambersgroupinc.com



# Cultural Resources Survey and Study Letter Report for the Sunset Reservoir Expansion Project

City of Redlands



**Lucas Tutschulte**

*Cultural Department Lead*

9620 Chesapeake Drive, Suite 202

San Diego, CA 92123

ltutschulte@chambersgrouping.com



**Richard Shultz, MA, RPA**

*Cultural Resources Principal Investigator*

9620 Chesapeake Drive, Suite 202

San Diego, CA 92123

rshultz@chambersgroupinc.com

## **Attachments**

Attachment A: NAHC SLF Records Search Results Letter

Attachment B (Confidential): Record Search Results

# CHAMBERS GROUP



# Cultural Resources Survey and Study Letter Report for the Sunset Reservoir Expansion Project

City of Redlands

**CHAMBERS**  
GROUP

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# Cultural Resources Survey and Study Letter Report for the Sunset Reservoir Expansion Project

City of Redlands

**CHAMBERS**  
GROUP

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**ATTACHMENT A – NAHC SLF RECORDS SEARCH RESULTS LETTER**



# Attachment A: NAHC SLF Records Search Results Letter



STATE OF CALIFORNIA

Gavin Newsom, Governor

## NATIVE AMERICAN HERITAGE COMMISSION

March 29, 2023

Kellie Kandybowicz  
The Chambers Group, Inc.

Via Email to: [kkandybowicz@chambersgroupinc.com](mailto:kkandybowicz@chambersgroupinc.com)

CHAIRPERSON  
**Laura Miranda**  
Luiseño

VICE CHAIRPERSON  
**Reginald Pagaling**  
Chumash

SECRETARY  
**Sara Dutschke**  
Miwok

COMMISSIONER  
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Nomlaki

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Luiseño

COMMISSIONER  
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Kumeyaay

COMMISSIONER  
**[Vacant]**

COMMISSIONER  
**[Vacant]**

EXECUTIVE SECRETARY  
**Raymond C.  
Hitchcock**  
Miwok/Nisenan

**NAHC HEADQUARTERS**  
1550 Harbor Boulevard  
Suite 100  
West Sacramento,  
California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)

**Re: Redlands Sunset Reservoir Project (21413) Project, San Bernardino County**

Dear Ms. Kandybowicz:

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

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: [Cameron.vela@nahc.ca.gov](mailto:Cameron.vela@nahc.ca.gov).

Sincerely,

*Cameron Vela*

Cameron Vela  
Cultural Resources Analyst

Attachment

**Native American Heritage Commission  
Native American Contact List  
San Bernardino County  
3/29/2023**

**Agua Caliente Band of Cahuilla  
Indians**

Patricia Garcia-Plotkin, Director  
5401 Dinah Shore Drive  
Palm Springs, CA, 92264  
Phone: (760) 699 - 6907  
Fax: (760) 699-6924  
ACBCI-THPO@aguacaliente.net

Cahuilla

**Los Coyotes Band of Cahuilla  
and Cupeño Indians**

Ray Chapparosa, Chairperson  
P.O. Box 189  
Warner Springs, CA, 92086-0189  
Phone: (760) 782 - 0711  
Fax: (760) 782-0712

Cahuilla

**Agua Caliente Band of Cahuilla  
Indians**

Reid Milanovich, Chairperson  
5401 Dinah Shore Drive  
Palm Springs, CA, 92264  
Phone: (760) 699 - 6800  
Fax: (760) 699-6919  
laviles@aguacaliente.net

Cahuilla

**Morongo Band of Mission  
Indians**

Robert Martin, Chairperson  
12700 Pumarra Road  
Banning, CA, 92220  
Phone: (951) 755 - 5110  
Fax: (951) 755-5177  
abrierty@morongo-nsn.gov

Cahuilla  
Serrano

**Augustine Band of Cahuilla  
Mission Indians**

Amanda Vance, Chairperson  
84-001 Avenue 54  
Coachella, CA, 92236  
Phone: (760) 398 - 4722  
Fax: (760) 369-7161  
hhaines@augustinetribe.com

Cahuilla

**Morongo Band of Mission  
Indians**

Ann Brierty, THPO  
12700 Pumarra Road  
Banning, CA, 92220  
Phone: (951) 755 - 5259  
Fax: (951) 572-6004  
abrierty@morongo-nsn.gov

Cahuilla  
Serrano

**Cabazon Band of Mission  
Indians**

Doug Welmas, Chairperson  
84-245 Indio Springs Parkway  
Indio, CA, 92203  
Phone: (760) 342 - 2593  
Fax: (760) 347-7880  
jstapp@cabazonindians-nsn.gov

Cahuilla

**Pala Band of Mission Indians**

Shasta Gaughen, Tribal Historic  
Preservation Officer  
PMB 50, 35008 Pala Temecula  
Road  
Pala, CA, 92059  
Phone: (760) 891 - 3515  
Fax: (760) 742-3189  
sgaughen@palatribe.com

Cupeno  
Luiseno

**Cahuilla Band of Indians**

Daniel Salgado, Chairperson  
52701 U.S. Highway 371  
Anza, CA, 92539  
Phone: (951) 763 - 5549  
Fax: (951) 763-2808  
Chairman@cahuilla.net

Cahuilla

**Pala Band of Mission Indians**

Alexis Wallick, Assistant THPO  
PMB 50, 35008 Pala Temecula  
Road  
Pala, CA, 92059  
Phone: (760) 891 - 3537  
awallick@palatribe.com

Cupeno  
Luiseno

**Gabrieleno Band of Mission  
Indians - Kizh Nation**

Andrew Salas, Chairperson  
P.O. Box 393  
Covina, CA, 91723  
Phone: (844) 390 - 0787  
admin@gabrielenoindians.org

Gabrieleno

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

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Redlands Sunset Reservoir Project (21413) Project, San Bernardino County.

**Native American Heritage Commission  
Native American Contact List  
San Bernardino County  
3/29/2023**

***Pechanga Band of Indians***

Paul Macarro, Cultural Resources  
Coordinator  
P.O. Box 1477 Luiseno  
Temecula, CA, 92593  
Phone: (951) 770 - 6306  
Fax: (951) 506-9491  
pmacarro@pechanga-nsn.gov

***Ramona Band of Cahuilla***

John Gomez, Environmental  
Coordinator  
P. O. Box 391670 Cahuilla  
Anza, CA, 92539  
Phone: (951) 763 - 4105  
Fax: (951) 763-4325  
jgomez@ramona-nsn.gov

***Pechanga Band of Indians***

Mark Macarro, Chairperson  
P.O. Box 1477 Luiseno  
Temecula, CA, 92593  
Phone: (951) 770 - 6000  
Fax: (951) 695-1778  
epreston@pechanga-nsn.gov

***Rincon Band of Luiseno Indians***

Bo Mazzetti, Chairperson  
One Government Center Lane Luiseno  
Valley Center, CA, 92082  
Phone: (760) 749 - 1051  
Fax: (760) 749-5144  
bomazzetti@aol.com

***Quechan Tribe of the Fort Yuma  
Reservation***

Manfred Scott, Acting Chairman  
Kw'ts'an Cultural Committee  
P.O. Box 1899 Quechan  
Yuma, AZ, 85366  
Phone: (928) 750 - 2516  
scottmanfred@yahoo.com

***Rincon Band of Luiseno Indians***

Cheryl Madrigal, Tribal Historic  
Preservation Officer  
One Government Center Lane Luiseno  
Valley Center, CA, 92082  
Phone: (760) 297 - 2635  
crd@rincon-nsn.gov

***Quechan Tribe of the Fort Yuma  
Reservation***

Jill McCormick, Historic  
Preservation Officer  
P.O. Box 1899 Quechan  
Yuma, AZ, 85366  
Phone: (760) 572 - 2423  
historicpreservation@quechantribe.com

***San Manuel Band of Mission  
Indians***

Alexandra McCleary, Cultural  
Lands Manager  
26569 Community Center Drive Serrano  
Highland, CA, 92346  
Phone: (909) 633 - 0054  
alexandra.mccleary@sanmanuel-nsn.gov

***Ramona Band of Cahuilla***

Joseph Hamilton, Chairperson  
P.O. Box 391670 Cahuilla  
Anza, CA, 92539  
Phone: (951) 763 - 4105  
Fax: (951) 763-4325  
admin@ramona-nsn.gov

***Santa Rosa Band of Cahuilla  
Indians***

Lovina Redner, Tribal Chair  
P.O. Box 391820 Cahuilla  
Anza, CA, 92539  
Phone: (951) 659 - 2700  
Fax: (951) 659-2228  
lsaul@santarosa-nsn.gov

***Serrano Nation of Mission  
Indians***

Mark Cochrane, Co-Chairperson  
P. O. Box 343 Serrano  
Patton, CA, 92369  
Phone: (909) 528 - 9032  
serranonation1@gmail.com

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

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Redlands Sunset Reservoir Project (21413) Project, San Bernardino County.



**ATTACHMENT B – CONFIDENTIAL RECORD SEARCH RESULTS**



# Phase I Environmental Site Assessment

Macknet Property

South of Helen Drive

Redlands, San Bernardino County, California

March 8, 2022

Terracon Project No. CB227029



**Prepared for:**

City of Redlands  
Redlands, California

**Prepared by:**

Terracon Consultants, Inc.  
Colton, California

[terracon.com](http://terracon.com)

**Terracon**

Environmental



Facilities



Geotechnical



Materials



March 8, 2022

City of Redlands  
35 Cajon Street, Suite 15A  
Redlands, California 92373

Attn: Ms. Veronica Medina, E.I.T., Assistant Engineer  
P: (909) 798-7584 ext. 6  
E: [vmedina@cityofredlands.org](mailto:vmedina@cityofredlands.org)

Re: Phase I Environmental Site Assessment  
Macknet Property  
South of Helen Drive  
Redlands, San Bernardino County, California 92373  
Terracon Project No. CB227029

Dear Ms. Medina:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Phase I Environmental Site Assessment (ESA) report for the above-referenced site. This assessment was performed in accordance with Terracon Proposal No. PCB227029, dated February 7, 2022, and Purchase Order, dated February 14, 2022.

We appreciate the opportunity to be of service to you on this project. In addition to Phase I services, our professionals provide geotechnical, environmental, construction materials, and facilities services on a wide variety of projects locally, regionally and nationally. For more detailed information on all of Terracon's services please visit our website at [www.terracon.com](http://www.terracon.com). If there are any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,  
**Terracon Consultants, Inc.**

Laura S. Hedman  
Staff Geologist

Todd G. McFarland, PG #7685, CHG #979  
Senior Geologist / Department Manager I

Carl A. Parten  
Senior Principal / Office Manager III

Attachments

Terracon Consultants Inc. 1355 East Cooley Drive, Colton, California 92324-3954

P 909-824-7311 F 909-301-6016 [terracon.com](http://terracon.com)



Environmental



Facilities



Geotechnical



Materials



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APPENDIX C	Historical Documentation and User Questionnaire
APPENDIX D	Environmental Database Information
APPENDIX E	Credentials
APPENDIX F	Description of Terms and Acronyms

## **EXECUTIVE SUMMARY**

This Phase I Environmental Site Assessment (ESA) was performed in accordance with Terracon Proposal No. PCB227029, dated February 7, 2022, and Purchase Order, dated February 14, 2022, and was conducted consistent with the procedures included in ASTM E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* and Client Scope of Work. The ESA was conducted under the supervision or responsible charge of Carl A. Parten, Environmental Professional. Laura S. Hedman performed the site reconnaissance on March 2, 2022.

### **Findings and Opinions**

A summary of findings is provided below. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein.

#### Site Description and Use

The site is located at south of Helen Drive, Redlands, San Bernardino County, California 92373, and consists of an approximately 22-acre tract of generally vacant and undeveloped, densely vegetated land (chaparral), located in a residential neighborhood south of Helen Drive. The site is further identified by San Bernardino County Assessor parcel numbers (APNs): 0300-451-13, 0300-451-14, 0300-451-24, and 0300-451-25. At the time of the visual reconnaissance, the site was owned by the Macknet family members.

#### Historical Information

Based on review of the historical information, the site consisted of undeveloped vacant land from as early as 1899 and has remained relatively unchanged through the present.

The surrounding properties consisted of undeveloped vacant land from as early as 1899. By 1938, the existing water tower was depicted southwest of the site. By 1949, a road (Bruder Lane) appears developed abutting the southern portion of the site. By 1959, existing residential neighborhood developed abuts northwest (130413-130515 East Sunset Drive) and a road depicted east of the site (Kristen Court). The adjoining property to the northeast appeared developed with existing residential homes (13151 Helen Drive) by 1967. By 1975, a residential home developed adjoining south (13202 Bruder Lane). By 1985, road appears developed (Helen Drive), and an existing residential neighborhood developed abuts north and northeast (13039-13087 Helen Drive). The adjoining property to the east was developed with a driveway (Helen Court) and an existing residential home (31280 Helen Court) by 1995. Vacant undeveloped land abuts west, followed by a water tank.

#### Records Review

Selected federal and state environmental regulatory databases as well as responses from state and local regulatory agencies were reviewed. The site was not identified in the current regulatory

databases. The facilities listed in the databases do not appear to represent RECs to the site at this time, based upon regulatory status, apparent topographic gradient, and/or distance from the site.

#### Site Reconnaissance

During the site reconnaissance, a concrete storm water discharge pipe and miscellaneous household trash were identified. Based on visual observations, RECs were not identified in connection with the site.

#### Adjoining Properties

Helen Drive and Sunset Drive abuts the site to the north, followed by residential neighborhood (13039-13087 Helen Drive) and another residential neighborhood (30413-30515 East Sunset Drive). Kristen Court and Helen Court abuts the site to the east, followed by residential neighborhood (13151 Helen Drive and 31280 Helen Court). Bruder Lane abuts the site to the south, followed by a residential home (13202 Bruder Lane).

#### **Significant Data Gaps**

No significant data gaps were identified.

#### **Conclusions**

We have performed a Phase I ESA consistent with the procedures included in ASTM Practice E 1527-13 of the Macknet Property, located south of Helen Drive, Redlands, San Bernardino County, California 92373, the site, Assessor Parcel Number (APN): 0300-451-13, 0300-451-14, 0300-451-24, and 0300-451-25. RECs or Controlled RECs (CREC) were not identified in connection with the site.

#### **Recommendations**

Based on the scope of services, limitations, and conclusions of this assessment, Terracon did not identify RECs or CRECs. As such, no additional investigation is warranted at this time.

## 1.0 INTRODUCTION

### 1.1 Site Description

<b>Site Name</b>	Macknet Property
<b>Site Location/Address</b>	South of Helen Drive, Redlands, San Bernardino, California 92373
<b>Land Area</b>	The site is an approximately 22-acres tract of land, identified by APNs: 0300-451-13, 0300-451-14, 0300-451-24, and 0300-451-25.
<b>Site Improvements</b>	The site is generally undeveloped.
<b>Anticipated Future Site Use</b>	Development of a new water tower.
<b>Purpose of the ESA</b>	Acquiring the site.

The location of the site is depicted on Exhibit 1 of Appendix A, which was reproduced from a portion of the Redlands, Yucaipa, El Casco, and Sunnymead, California USGS 7.5-minute series topographic map (2018). The site and adjoining properties are depicted on the Site Diagram, which is included as Exhibit 2 of Appendix A. Acronyms and terms used in this report are described in Appendix F.

### 1.2 Scope of Services

This Phase I ESA was performed in accordance with Terracon Proposal No. PCB227029, dated February 7, 2022, and Purchase Order, dated February 14, 2022, and was conducted consistent with the procedures included in ASTM E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* and Client Scope of Work. The purpose of this ESA was to assist the client in developing information to identify RECs in connection with the site as reflected by the scope of this report. This purpose was undertaken through user-provided information, a regulatory database review, historical and physical records review, interviews, including local government inquiries, as applicable, and a visual noninvasive reconnaissance of the site and adjoining properties. Limitations, ASTM deviations, and significant data gaps (if identified) are noted in the applicable sections of the report.

ASTM E1527-13 contains a new definition of "migrate/migration," which refers to "the movement of hazardous substances or petroleum products in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface." By including this explicit reference to migration in ASTM E1527-13, the Standard clarifies that the potential for vapor migration should be addressed as part of a Phase I ESA. This Phase I ESA has considered vapor migration in evaluation of RECs associated with the site.

### **1.3 Standard of Care**

This ESA was performed in accordance with generally accepted practices of this profession, undertaken in similar studies at the same time and in the same geographical area. We have endeavored to meet this standard of care, but may be limited by conditions encountered during performance, a client-driven scope of work, or inability to review information not received by the report date. Where appropriate, these limitations are discussed in the text of the report, and an evaluation of their significance with respect to our findings has been conducted.

Phase I ESAs, such as the one performed at this site, are of limited scope, are noninvasive, and cannot eliminate the potential that hazardous, toxic, or petroleum substances are present or have been released at the site beyond what is identified by the limited scope of this ESA. In conducting the limited scope of services described herein, certain sources of information and public records were not reviewed. It should be recognized that environmental concerns may be documented in public records that were not reviewed. No ESA can wholly eliminate uncertainty regarding the potential for RECs in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs. No warranties, express or implied, are intended or made. The limitations herein must be considered when the user of this report formulates opinions as to risks associated with the site or otherwise uses the report for any other purpose. These risks may be further evaluated – but not eliminated – through additional research or assessment. We will, upon request, advise you of additional research or assessment options that may be available and associated costs.

### **1.4 Additional Scope Limitations, ASTM Deviations and Data Gaps**

Based upon the agreed-on scope of services, this ESA did not include subsurface or other invasive assessments, vapor intrusion assessments or indoor air quality assessments (i.e. evaluation of the presence of vapors within a building structure), business environmental risk evaluations, or other services not particularly identified and discussed herein. Credentials of the company (Statement of Qualifications) have not been included in this report but are available upon request. Pertinent documents are referred to in the text of this report, and a separate reference section has not been included. Reasonable attempts were made to obtain information within the scope and time constraints set forth by the client; however, in some instances, information requested is not, or was not, received by the issuance date of the report. Information obtained for this ESA was received from several sources that we believe to be reliable; nonetheless, the authenticity or reliability of these sources cannot and is not warranted hereunder. This ESA was further limited by the following:

- Reasonable attempts were made to contact the local and state regulatory agencies; however, at the issuance of this report, a response from the San Bernardino County Environmental Health/Department of Public Health (EHS/DPH) and the City of Redlands remains pending. Based on a review of historical information and the regulatory databases, the absence of this response does not represent a significant data gap.

An evaluation of the significance of limitations and missing information with respect to our findings has been conducted, and where appropriate, significant data gaps are identified and discussed in the text of the report. However, it should be recognized that an evaluation of significant data gaps is based on the information available at the time of report issuance, and an evaluation of information received after the report issuance date may result in an alteration of our conclusions, recommendations, or opinions. We have no obligation to provide information obtained or discovered by us after the issuance date of the report, or to perform any additional services, regardless of whether the information would affect any conclusions, recommendations, or opinions in the report. This disclaimer specifically applies to any information that has not been provided by the client.

This report represents our service to you as of the report date and constitutes our final document; its text may not be altered after final issuance. Findings in this report are based upon the site's current utilization, information derived from the most recent reconnaissance and from other activities described herein; such information is subject to change. Certain indicators of the presence of hazardous substances or petroleum products may have been latent, inaccessible, unobservable, or not present during the most recent reconnaissance and may subsequently become observable (such as after site renovation or development). Further, these services are not to be construed as legal interpretation or advice.

## **1.5 Reliance**

This ESA report is prepared for the exclusive use and reliance of, City of Redlands. Use or reliance by any other party is prohibited without the written authorization of City of Redlands and Terracon Consultants, Inc. (Terracon).

Reliance on the ESA by the client and all authorized parties will be subject to the terms, conditions and limitations stated in the proposal, ESA report, and Terracon's Agreement For Services. The limitation of liability defined in Terracon's Agreement For Services is the aggregate limit of Terracon's liability to the client and all relying parties.

Continued viability of this report is subject to ASTM E1527-13 Sections 4.6 and 4.8. If the ESA will be used by a different user (third party) than the user for whom the ESA was originally prepared, the third party must also satisfy the user's responsibilities in Section 6 of ASTM E1527-13.

## **1.6 Client Provided Information**

Prior to the site visit, Ms. Veronica Medina, client's representative, was asked to provide the following user questionnaire information as described in ASTM E1527-13 Section 6.

### Client Questionnaire Responses

Client Questionnaire Item	Client Did Not Respond	Client's Response	
		Yes	No
Specialized Knowledge or Experience that is material to a REC in connection with the site.			X
Actual Knowledge of Environmental Liens or Activity Use Limitations (AULs) that may encumber the site.			X
Actual Knowledge of a Lower Purchase Price because contamination is known or believed to be present at the site.			X
Commonly Known or Reasonably Ascertainable Information that is material to a REC in connection with the site.			X
Obvious Indicators of Contamination at the site.			X

Terracon's consideration of the client provided information did not identify RECs. A copy of the questionnaire is included in Appendix C.

## 2.0 PHYSICAL SETTING

Physical Setting Information		Source
<b>Topography</b>		
Site Elevation	Approximately 2,100 to 2,220 feet above the National Geodetic Vertical Datum (NGVD).	See Exhibit 1 in Appendix A – Redlands, Yucaipa, El Casco, and Sunnymead, California (2018)  USGS Topographic Map Google Map Data (2022), <a href="http://www.google.com/maps">www.google.com/maps</a>
Topographic Gradient	Multi-directional; however, steeply sloping generally toward the west.	
Closest Surface Water	Earthen pond located approximately 3,500 feet northwest of the site (Redlands Country Club).	
<b>Soil Characteristics</b>		
Soil Type	Saugus sandy loam (ShF)	Soil Survey of San Bernardino County Southwestern Part, California (CA677);  United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS);  issued 2021. <a href="https://websoilsurvey.sc.egov.usda.gov">https://websoilsurvey.sc.egov.usda.gov</a>
Description	ShF: Moderate infiltration rates, Deep and moderately deep, moderately well and well drained soils with moderately coarse textures; 30 to 50 percent slopes.	
<b>Geology/Hydrogeology</b>		
Formation	Older Surficial Sediments (Qoa)	



Physical Setting Information		Source
Description	Weakly indurated alluvial fan deposits derived from local terrains of plutonic rocks; alluvial fan deposits of sand, minor gravel, top surface slope more than 40 ft per 0.7 mile from the source terrains and dissected by stream channel from the source terrains (Pleistocene).	Geologic map of the Sunnymead/south ½ of Redlands quadrangles California (Dibblee, T.W. and Minch, J.A.; Dibblee Geological Foundation) Dated 2003 <a href="https://ngmdb.usgs.gov/mapview">https://ngmdb.usgs.gov/mapview</a>
Estimated Depth to First Occurrence of Groundwater	<u>Site</u> : Unknown, no data readily available. <u>Vicinity</u> : Measured at approximately 176 feet below ground surface (bgs) in a irrigation well located approximately 1.4 miles northwest (last measured in December 6, 2021).	California Department of Water Resources Water Data Library State Well No. 02S03W01D001S Local Well Name: Redlands Hghts <a href="https://wdl.water.ca.gov">https://wdl.water.ca.gov</a>
*Hydrogeologic Gradient	<u>Site</u> : Unknown, no data readily available. <u>Vicinity/Regional</u> : May be inferred to be parallel to topographic gradient (primarily to the west).	

\* The groundwater flow direction and the depth to shallow, unconfined groundwater, if present, would likely vary depending upon seasonal variations in rainfall and other hydrogeological features. Without the benefit of on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the site cannot be directly ascertained.

### 3.0 HISTORICAL USE INFORMATION

Terracon reviewed the following historical sources to develop a history of the previous uses of the site and surrounding area, in order to help identify RECs associated with past uses. Copies of selected historical documents are included in Appendix C.

#### 3.1 Historical Topographic Maps, Aerial Photographs, Sanborn Maps

Readily available historical USGS topographic maps, selected historical aerial photographs (at approximately 10- to 15-year intervals) and historical fire insurance maps produced by the Sanborn Map Company were reviewed to evaluate land development and obtain information concerning the history of development on and near the site. Reviewed historical topographic maps and aerial photographs maps are summarized below.

Historical fire insurance maps produced by the Sanborn Map Company were requested from Environmental Data Resources, Inc. (EDR) to evaluate past uses and relevant characteristics of the site and surrounding properties. Based upon inquiries to the above-listed Sanborn provider, Sanborn maps were not available for the site.

- Topographic map:
  - Redlands, California, published in **1899** and **1901**; El Casco, California photo revised in 1954 from **1952** aerial photograph (1:62,500)
  - El Casco, California photo revised in 1953 from **1951** aerial photograph; photo revised in 1967 from **1966** aerial photograph; photo revised in 1979 from **1976** aerial photograph; photo revised in 1996 from **1996** aerial photograph; published in **2012**, **2015**, and **2018** (1:24,000)
  - Sunnymead, California photo revised in 1953 from **1951** aerial photograph; photo revised in 1967 from **1966** aerial photograph; photo revised in 1973 from **1973** aerial photograph; photo revised in 1980 from **1978** aerial photograph; published in **2012**, **2015**, and **2018** (1:24,000)
  - Yucaipa, California photo revised in 1954 from **1952** aerial photograph; photo revised in 1967 from **1966** aerial photograph; photo revised in 1973 from **1973** aerial photograph; photo revised in 1980 from **1978** aerial photograph; photo revised in 1988 from **1985** aerial photograph; photo revised in 1996 from **1994** aerial photograph; published in **2012**, **2015**, and **2018** (1:24,000)
  - Redlands, California photo revised in 1967 from **1966** aerial photograph; photo revised in 1973 from **1973** aerial photograph; photo revised in 1975 from **1975** aerial photograph; photo revised in 1980 from **1978** aerial photograph; photo revised in 1988 from **1985** aerial photograph; photo revised in 1996 from **1994** aerial photograph; published in **2012**, **2015**, and **2018** (1:24,000)
  
- Aerial photograph:
  - USDA, **1938**, **1949**, **1953**, **1959**, **1961**, **1967**, **1978**, **1985**, and **1989**, 1" =500'
  - USGS, **1975**, 1" =500'
  - USGS/DOQQ, **1995**, and **2002**, 1" =500'
  - USDA/NAIP, **2006**, **2009**, **2012**, and **2016** 1" =500'

### Historical Maps and Aerial Photographs

Direction	Description
Site	Undeveloped vacant land (1899-2018).
North	Undeveloped vacant land (1899-1938); land to the northwest appears graded (1949-1953); residential homes developed abuts northwest (1959-2018); northern and northeastern adjoining properties appear graded (1978); a road appears developed as Helen Drive (1985); residential homes developed abuts north and northeast (1985-2018).

Direction	Description
East	Undeveloped vacant land (1899-1949); land abuts northeast appears graded (1949-1953); a road depicted as Kristen Court (1959); northeastern adjoining property developed with residential homes (1967-2018); a driveway (Helen Court) and a residential home developed abutting east to the site (1995-2018).
South	Undeveloped vacant land (1899-1938); a road appears developed as Bruder Lane (1949-2018); residential home depicted (1975-2018).
West	Undeveloped vacant land (1899-1901) water tower depicted southwest of the site (1938-2018).

### 3.2 Historical City Directories

The EDR Digital Archive, Haines Criss-Cross Directory, and Luskey Brothers & Co. Publishers city directories used in this study were made available through EDR (selected years reviewed: 1992 through 2017) and were reviewed at approximate five-year intervals, if readily available. East State Street listings were not available prior to 1992. The current street address for the site was identified as South of Helen Drive.

#### Historical City Directories

Direction	Description
Site	No addresses reported
North	<b><u>13075 Helen Drive</u></b> : Salvesen, John A (1992-1995); Farris, Terry A (2005-2014) <b><u>13087 Helen Drive</u></b> : Richey, Mark A (1992-2017); Silvergleid, Arthur J (2000); Lindemer, Curtis A (2005) <b><u>13039 Helen Drive</u></b> : Slayyeh, Yaser A (2005-2017) <b><u>13051 Helen Drive</u></b> : Fairchild, James L (2005); Brickley, Tom M (2010-2014) <b><u>30413-30515 East Sunset Drive</u></b> : no listings
South	<b><u>13202 Bruder Lane</u></b> : no listings
East	<b><u>13151 Helen Drive</u></b> : Jutzy, Kenneth R (2005-2017) <b><u>31280 Helen Court</u></b> : City of Redlands
West	No addresses reported

### 3.3 Site Ownership

Based on a review of information obtained from the San Bernardino County Assessor’s Office online database at [www.sbcounty.gov/ARC/Main/Assor/PropertyInformation](http://www.sbcounty.gov/ARC/Main/Assor/PropertyInformation), the site, located at South of Helen Drive, Redlands, San Bernardino, California, 92373, consists of an approximately 22-acre parcel identified by San Bernardino County Assessor parcel numbers (APNs): 0300-451-13, 0300-451-14, 0300-451-24, and 0300-451-25, currently owned by Macknet family members.

### 3.4 Title Search

At the direction of the client, a title search was not included as part of the scope of services. Unless notified otherwise, we assume that the client is evaluating this information outside the scope of this report.

### 3.5 Environmental Liens and Activity and Use Limitations

The EDR regulatory database report included a review of both Federal and State Engineering Control (EC) and Institutional Control (IC) databases. Based on a review of the database report, the site was not listed on the EC or IC databases. Please note that in addition to these federal and state listings, AULs can be recorded at the county and municipal level that may not be listed in the regulatory database report. Environmental lien and activity and use limitation records recorded against the site were not provided by the client. At the direction of the client, performance of a review of these records was not included as part of the scope of services and unless notified otherwise, we assume that the client is evaluating this information outside the scope of this report.

### 3.6 Interviews Regarding Current and Historical Site Uses

The following individuals were interviewed regarding the current and historical use of the site.

#### Interviews

Interviewer	Name / Phone #	Title	Date/Time
Ms. Laura S. Hedman	Mr. Mark Macknet / (909) 363-6238	Site land owner	March 2, 2022 / During the site visit

Terracon interviewed Mr. Mark Macknet, site land owner, during the site reconnaissance. Mr. Macknet indicated that he and his family have owned the site since the 1980's, and during that time, there have not been concerns with the site or the adjoining properties. Mr. Macknet stated that the site was partially graded at one point, but that their had not been any structures developed on-site. Mr. Macknet further stated he was not aware of any septic tanks, water wells, AST's or UST's associated with the site. Mr. Macknet indicated he was not aware of pending, past, and/or threatened environmental litigation and notices of possible violations of environmental law, liability and/or potential environmental concerns associated with site.

### 3.7 Prior Report Review

Terracon requested the client provide any previous environmental reports, permits, registrations, and geotechnical reports they are aware of for the site. Previous reports were not provided by the client to Terracon for review.

## 4.0 RECORDS REVIEW

Regulatory database information was provided by EDR, a contract information services company. The purpose of the records review was to identify RECs in connection with the site. Information in this section is subject to the accuracy of the data provided by the information services company and the date at which the information is updated. The scope herein did not include confirmation of facilities listed as "unmappable" by regulatory databases.

In some of the following subsections, the words up-gradient, cross-gradient and down-gradient refer to the topographic gradient in relation to the site. As stated previously, the groundwater flow direction and the depth to shallow groundwater, if present, would likely vary depending upon seasonal variations in rainfall and the depth to the soil/bedrock interface. Without the benefit of on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the site cannot be directly ascertained.

### 4.1 Federal and State/Tribal Databases

Listed below are the facility listings identified on federal and state/tribal databases within the ASTM-required search distances from the approximate site boundaries. Database definition, descriptions, and the database search report are included in Appendix D.

#### Federal Databases

Database	Description	Distance (miles)	Listings
CERCLIS	Comprehensive Environmental Response, Compensation, & Liability Information System	0.5	0
CERCLIS / NFRAP	Comprehensive Environmental Response, Compensation, & Liability Information System/No Further Remedial Action Planned	0.5	0
ERNS	Emergency Response Notification System	Site	0
FUDS	Formerly Used Defense Sites	1.0	0
IC / EC	Institutional Control/Engineering Control	Site	0
NPL	National Priorities List	1.0	0
NPL (Delisted)	National Priorities Delisted List	0.5	0
RCRA CORRACTS/ TSD	RCRA Corrective Action Activity	1.0	0
RCRA Generators	Resource Conservation and Recovery Act	Site and adjoining properties	0
RCRA NonGen / NLR	RCRA – Non-Generators / No Longer Regulated	0.25	0

Database	Description	Distance (miles)	Listings
RCRA Non-CORRACTS/TSD	RCRA Non-Corrective Action Activity	0.5	0
UXO	Unexploded Ordnance Site	1.0	0

**State/Tribal Databases**

Database	Description	Distance (miles)	Listings
CALSITES	CalSites Database	1.0	0
CALSITES (AWP)	Active Annual Workplan Sites	1.0	0
CA FID UST	Facility Inventory Database	0.25	0
CERS	CalEPA Regulated Site Portal Data	Site	0
CERS TANKS	California Environmental Reporting System (CERS) Tanks	0.25	
CERS HAZ WASTE	CERS HAZ Waste	0.25	0
CORTESE	"Cortese" Hazardous Waste & Substances Sites List	0.5	0
CHMIRS	California Hazardous Material Incident Report System	Site	0
CPS-SLIC	Statewide SLIC Cases (GEOTRACKER)	0.5	0
EDR HIST AUTO	EDR Exclusive Historical Auto Stations	0.25	0
EDR HIST CLEANER	EDR Exclusive Historical Cleaners	0.25	0
EDR MGP	EDR Proprietary Manufactured Gas Plants	1.0	0
DRYCEANERS	Cleaning Facilities	0.25	0
EMI	Emissions Inventory Data	Site	0
ENVIROSTOR	EnviroStor Database	1.0	1
FINDS	Facility Index System/Facility Registry System	Site	0
HAZNET	Facility and Manifest Data	Site	0
HIST CORTESE	Hazardous Waste & Substance Site List	0.5	0
HIST UST	Hazardous Substance Storage Container Database	0.25	0
HWTS	Hazardous Waste Tracking System	0.25	0
LUST	Leaking Underground Storage Tanks	0.5	0
San Ber. Co. Permit	San Bernardino County Permitted Facility	0.25	1
SWEEPS UST	Statewide Environmental Evaluation and Planning System UST Listing	0.25	0
SWF/LF	Solid Waste Facilities/Landfills	0.5	0
WIP	Well Investigation Program Case List	0.25	0

Database	Description	Distance (miles)	Listings
AST / UST	Aboveground Storage Tank / Underground Storage Tank Facilities	Site and adjoining properties	0
VCP	Voluntary Cleanup Program	0.5	0

In addition to the above ASTM-required listings, Terracon reviewed other federal, state, local, and proprietary databases provided by the database firm. A list of the additional reviewed databases is included in the regulatory database report included in Appendix D.

The site was not listed in the regulatory database report.

The following table summarizes the site-specific information provided by the database and/or gathered by this office for identified facilities. Facilities within 500 feet of the site are listed in order of proximity to the site. Additional discussion for selected facilities follows the summary table.

### Listed Facilities

Facility Name and Location	Estimated Distance / Direction/Gradient	Database Listings	Is a REC, CREC, or HREC to the Site
AT & T Mobility-ES0022-02 (CM365) Redlands Water Tank 31280 B Helen Court	Adjacent / West-southwest / Down-gradient	HWTS, San Bern. Co. Permit	No, based on file review, status, and topographic gradient,

The remaining facilities listed in the database report do not appear to represent RECs to the site at this time based upon regulatory status, apparent topographic gradient, and/or distance from the site.

Unmapped facilities are those that do not contain sufficient address or location information to evaluate the facility listing locations relative to the site. The report listed twenty-four facilities in the unmapped section. Determining the location of unmapped facilities is beyond the scope of this assessment; however, none of these facilities were identified as the site or adjacent properties. These facilities are listed in the database report in Appendix D.

## 4.2 Local Agency Inquiries

Agency Contacted/ Contact Method	Response
San Bernardino County Department of Public Health (DPH) / Environmental Health Services (EHS) Fax: (909) 387-4323	At the issuance of this report, a response has not been obtained from the DPH/EHS.

Agency Contacted/ Contact Method	Response
South Coast Air Quality Management District (SCAQMD) / online portal: <a href="http://www.aqmd.gov/nav/online-services/public-records">http://www.aqmd.gov/nav/online-services/public-records</a>	According to the SCAQMD, no records were found for the site, because they are unable to provide site information based on APN's or similar geographic site data.
Santa Ana Regional Water Quality Control Board / Email: <a href="mailto:filereview8@waterboards.ca.gov">filereview8@waterboards.ca.gov</a>	According to RWQCB File Review Desk, no records were found for the site, because they are unable to provide site information based on APN's or similar geographic site data.
Department of Toxic Substances Control (DTSC) / Email: <a href="mailto:pubreqact@dtsc.ca.gov">pubreqact@dtsc.ca.gov</a> DTSC online EnviroStor Database, <a href="http://www.envirostor.dtsc.ca.gov">www.envirostor.dtsc.ca.gov</a>	According to the DTSC, no records were found associated with the site. Based on a review of the DTSC online EnviroStor Database no records were found associated with the site.
Redland's City Clerk Office online portal: <a href="https://www.cityofredlands.org">https://www.cityofredlands.org</a>	At the issuance of this report, a response has not been obtained from the City of Redlands.
San Bernardino County Fire Department / Email: <a href="mailto:mmolina@sbcfire.org">mmolina@sbcfire.org</a>	The San Bernardino County Fire Department informed Terracon that search fees apply to each parcel and/or address, which is beyond the scope of the ESA and a search request was not submitted. Based on a review of historical information and the regulatory database, the absence of this regulatory information does not represent a significant data gap.

### 4.3 Local Area Knowledge

Based on a review of the California Geologic Energy management Division (CalGEM), <https://www.conservation.ca.gov/calgem> (formerly the California Department of Conservation Division of Oil, Gas, and Geothermal Resource Well Finder (DOGGR), there are no active or plugged oil production wells located at the site or adjoining properties.

## 5.0 SITE RECONNAISSANCE

### 5.1 General Site Information

Information contained in this section is based on a visual reconnaissance conducted while walking through the site and the accessible interior areas of structures, if any, located on the site. The site and adjoining properties are depicted on the Site Diagram, which is included in Exhibit 2 of Appendix A. Photo documentation of the site at the time of the visual reconnaissance is provided in Appendix B. Credentials of the individuals planning and conducting the site visit are included in Appendix E.



### General Site Information

Site Reconnaissance	
Field Personnel	Laura S. Hedman
Reconnaissance Date	March 2, 2022
Weather Conditions	Mostly sunny / 77° F
Site Contact/Title	Mr. Mark Macknet / Site land owner
Site Utilities	
Drinking Water	City of Redlands
Wastewater	City of Redlands
Electric	Southern California Edison
Natural Gas	None

### 5.2 Overview of Current Site Occupants and Operations

The site is located at South of Helen Drive, Redlands, San Bernardino County, California 92373, and consists of an approximately 22-acres tract of generally vacant and undeveloped, densely vegetated land (chaparral), located in a residential neighborhood south of Helen Drive. The site is further identified by San Bernardino County Assessor parcel numbers (APNs): 0300-451-13, 0300-451-14, 0300-451-24, and 0300-451-25. At the time of the visual reconnaissance, the site was owned by the Macknet family members.

### 5.3 Site Observations

The following table summarizes site observations and interviews. Affirmative responses (designated by an “X”) are discussed in more detail following the table.

#### Site Characteristics

Category	Item or Feature	Observed or Identified
Site Operations, Processes, and Equipment	Emergency generators	
	Elevators	
	Air compressors	
	Hydraulic lifts	
	Dry cleaning	
	Photo processing	
	Ventilation hoods and/or incinerators	
	Waste treatment systems and/or water treatment systems	
	Heating and/or cooling systems	

Category	Item or Feature	Observed or Identified
	Paint booths	
	Sub-grade mechanic pits	
	Wash-down areas or carwashes	
	Pesticide/herbicide production or storage	
	Printing operations	
	Metal finishing (e.g., electroplating, chrome plating, galvanizing, etc.)	
	Salvage operations	
	Oil, gas or mineral production	
	Other processes or equipment	
Aboveground Chemical or Waste Storage	Aboveground storage tanks	
	Drums, barrels and/or containers ≥ 5 gallons	
	MSDS or SDS	
Underground Chemical or Waste Storage, Drainage or Collection Systems	Underground storage tanks or ancillary UST equipment	
	Sumps, cisterns, French drains, catch basins and/or dry wells	
	Grease traps	
	Septic tanks and/or leach fields	
	Oil/water separators, clarifiers, sand traps, triple traps, interceptors	
	Pipeline markers	
	Interior floor drains	
Electrical Transformers/PCBs	Transformers and/or capacitors	
	Other equipment	
Releases or Potential Releases	Stressed vegetation	
	Stained soil	
	Stained pavement or similar surface	
	Leachate and/or waste seeps	
	Trash, debris and/or other waste materials	X
	Dumping or disposal areas	
	Construction/demolition debris and/or dumped fill dirt	
	Surface water discoloration, odor, sheen, and/or free floating product	
	Strong, pungent or noxious odors	
	Exterior pipe discharges and/or other effluent discharges	X
	Surface water bodies	

Category	Item or Feature	Observed or Identified
Other Notable Site Features	Quarries or pits	
	Wastewater lagoons	
	Wells	

## Releases or Potential Releases

### Trash, debris and/or other waste materials

At the time of the visual reconnaissance, Terracon observed miscellaneous household trash (clothing items, paper, plastics bags, paper cups), located on the southern portion of the site. Noxious odors or hazardous waste disposal was not observed in the vicinity of the miscellaneous household trash. Based on site observations, the miscellaneous household trash does not constitute a REC in connection with the site.

### Exterior pipe discharges and/or other effluent discharges

At the time of the visual reconnaissance, Terracon observed a storm water discharge pipe (concrete), located on the central portion of the site. Noxious odors or hazardous waste disposal was not observed in the vicinity of the discharge pipe. Based on site observations, the discharge pipe does not constitute a REC in connection with the site.

## 6.0 ADJOINING PROPERTY RECONNAISSANCE

Visual observations of adjoining properties (from site boundaries) are summarized below.

### Adjoining Properties

Direction	Description
North	Helen Drive followed by residential neighborhood (13039-13087 Helen Drive). Sunset Drive, further north, followed by a residential neighborhood (30413-30515 East Sunset Drive).
East	Kristen Court and Helen Court followed by residential neighborhood (13151 Helen Drive and 31280 Helen Court).
South	Bruder Lane followed by a residential home (13202 Bruder Lane), and undeveloped densely vegetated land (chaparral).
West	Vacant undeveloped densely vegetated land (chaparral) followed by a water tank.

RECs were not observed with the adjoining properties.

## **7.0 ADDITIONAL SERVICES**

Per the agreed scope of services specified in the proposal, additional services (e.g. asbestos sampling, lead-based paint sampling, wetlands evaluation, lead in drinking water testing, radon testing, vapor encroachment screening, etc.) were not conducted.

## **8.0 DECLARATION**

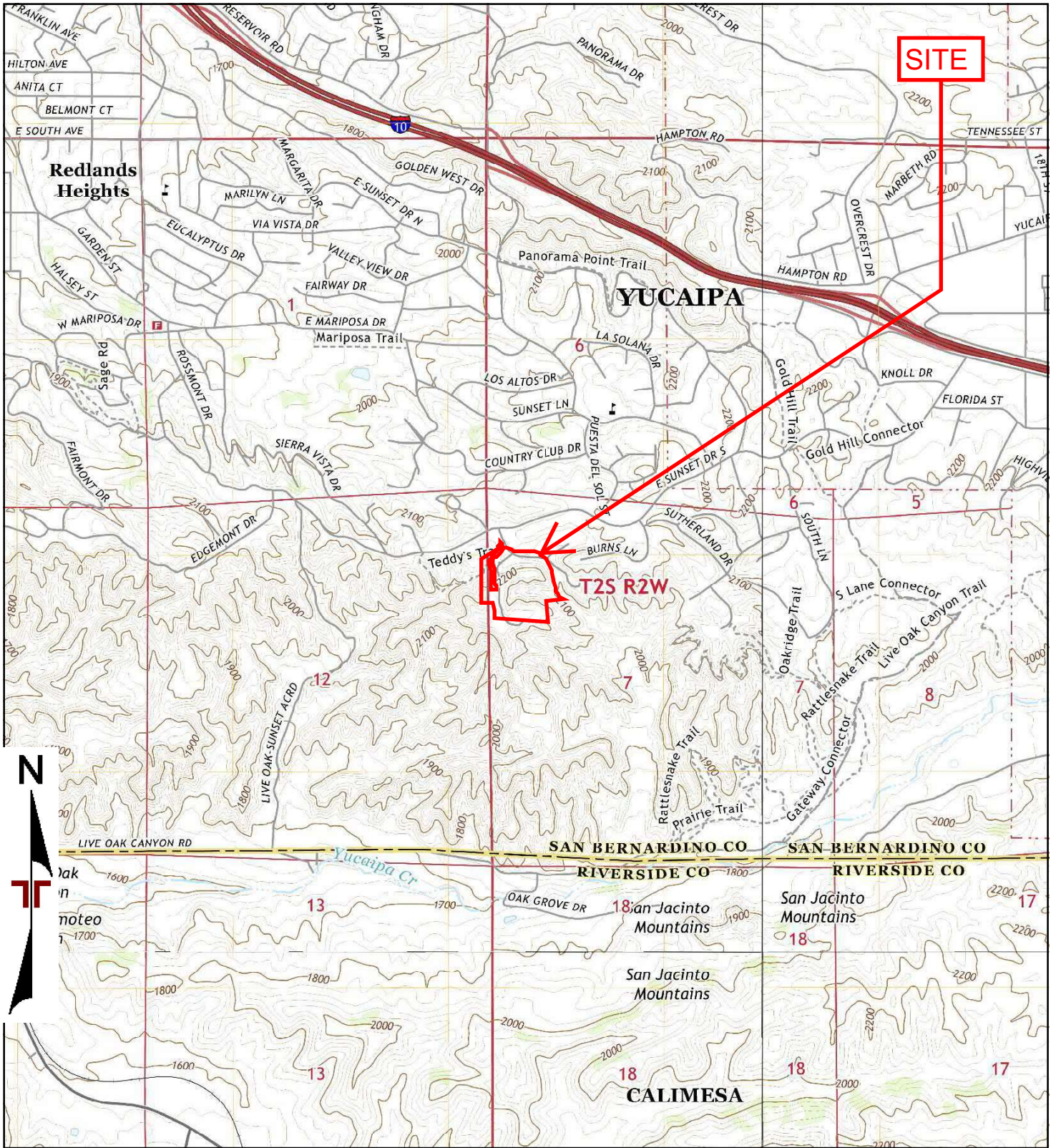
I, Carl A. Parten, declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR 312; and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the site. I have developed and performed the All Appropriate Inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



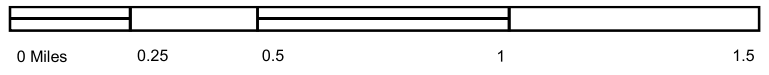
---

Carl A. Parten  
Senior Principal / Office Manager III

**APPENDIX A**  
**EXHIBIT 1 – TOPOGRAPHIC MAP**  
**EXHIBIT 2 – SITE DIAGRAM**



TP, Redlands, 2018, 7.5-minute  
 NE, Yucaipa, 2018, 7.5-minute  
 SE, El Casco, 2018, 7.5-minute  
 SW, Sunnymead, 2018, 7.5-minute

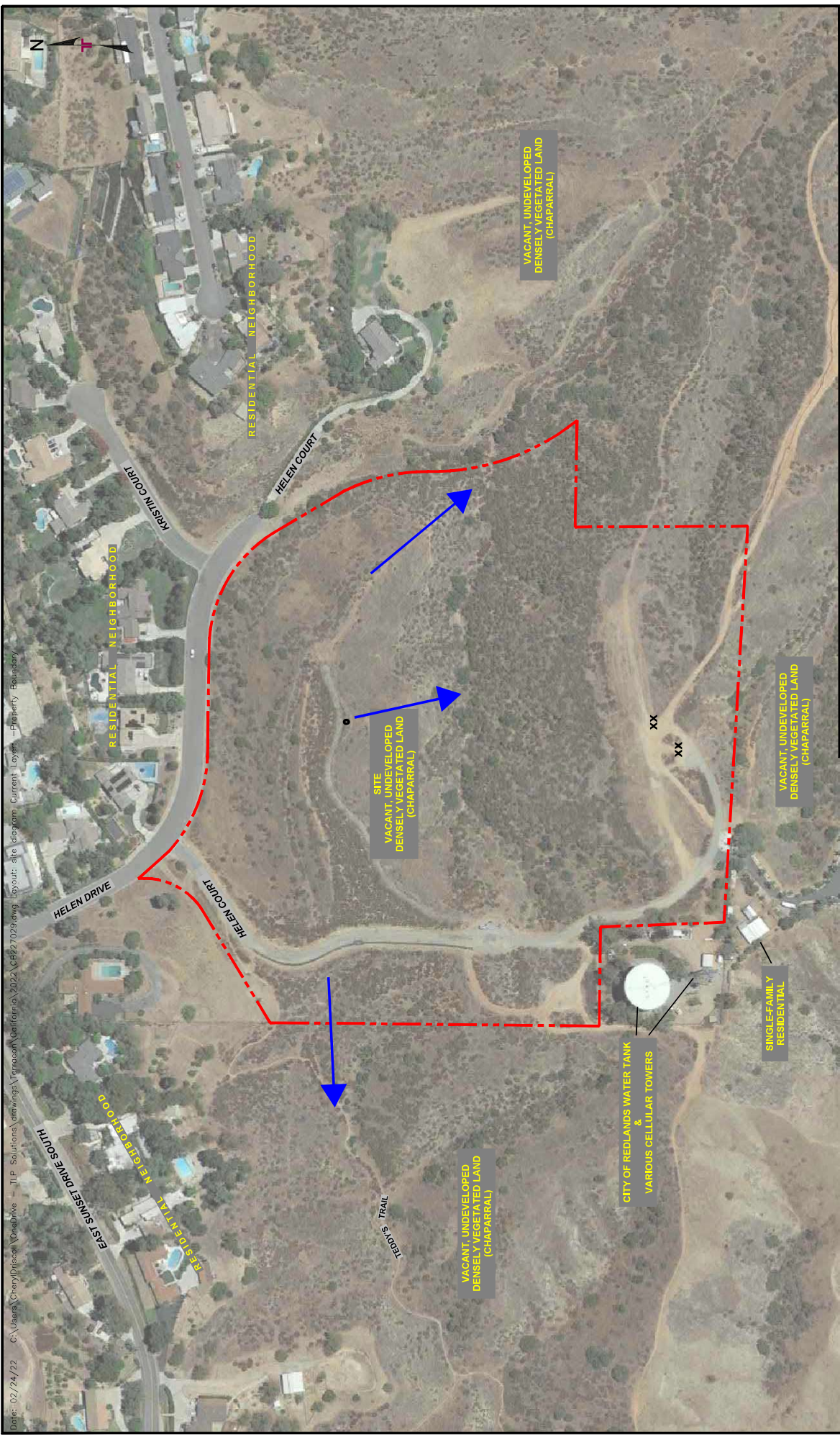


Project Manager:	Project No.
JSV	CB227029
Drawn by:	Scale:
SHC	As Shown
Checked by:	File Name:
LSH	
Approved by:	Date:
CAP	2018

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

**2018 TOPOGRAPHIC MAP**  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Exhibit
<b>1</b>



Date: 02/24/22 C:\Users\Cheryl\OneDrive - TLP Solutions\Drawings\Terracon\California\2022\CB227029.dwg Layout: site diagram Current Layer: Property Boundary

<b>LEGEND:</b> - - - - - SITE BOUNDARY ● STORM WATER DISCHARGE PIPE (CONCRETE) XX MISCELLANEOUS HOUSEHOLD TRASH		SOURCE: GOOGLE EARTH, 2022, IMAGERY DATE: 8/9/2021 TOPOGRAPHIC GRADIENT 0 88 175 FEET APPROXIMATE SCALE		<b>Terracon</b> Consulting Engineers and Scientists 1355 E. Cooley Drive, Suite C Colton, CA 92324		<b>SITE DIAGRAM</b> MACKNET PROPERTY SOUTH OF HELEN DRIVE REDLANDS, RIVERSIDE COUNTY, CALIFORNIA 92373		<b>EXHIBIT</b> 2	
Project No.	CB227029	Drawn By	LSH	Checked By	LSH	Scale	AS SHOWN	Approved By	CAP
Date	02/24/22	Drawn By	LSH	Checked By	LSH	Scale	AS SHOWN	Approved By	CAP

THIS DRAWING SHOULD NOT BE USED SEPARATELY FROM ORIGINAL REPORT.

**APPENDIX B**  
**SITE PHOTOGRAPHS**





**Photo #1** View of site facing south from the north-central portion of the site.



**Photo #2** View of site facing southwest from the central portion of the site.



**Photo #3** View of the south-central portion of the site (partially graded), facing west (with miscellaneous household trash visible).



**Photo #4** View of storm water drainage pipe (concrete), located on the central portion of the site.



**Photo #5** View of adjacent property located to the north of the site (residential neighborhood and vacant vegetated land).



**Photo #6** View of adjacent property located to the east of the site (residential neighborhood and vacant densely vegetated land).



**Photo #7** View of adjacent property located to the south-southeast of the site (vacant densely vegetated land).



**Photo #8** View of adjacent property located to the west of the site (vacant densely vegetated land).

**APPENDIX C**  
**HISTORICAL DOCUMENTATION AND USER QUESTIONNAIRE**

Macknet Property  
South of Helen Drive  
Redlands, San Bernardino County, California 92373

Inquiry Number: 6867268.4

February 22, 2022

# EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Historical Topo Map Report

02/22/22

**Site Name:**

Macknet Property  
South of Helen Drive  
Redlands, CA 92373  
EDR Inquiry # 6867268.4

**Client Name:**

Terracon  
1355 East Cooley Drive  
Colton, CA 92324  
Contact: Laura Hedman



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Terracon were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

**Search Results:****Coordinates:**

<b>P.O.#</b>	NA	<b>Latitude:</b>	34.0157 34° 0' 57" North
<b>Project:</b>	CB227029	<b>Longitude:</b>	-117.136868 -117° 8' 13" West
		<b>UTM Zone:</b>	Zone 11 North
		<b>UTM X Meters:</b>	487362.86
		<b>UTM Y Meters:</b>	3763905.21
		<b>Elevation:</b>	2217.07' above sea level

**Maps Provided:**

2018	1967
2015	1954
2012	1953, 1954
1996	1901
1988	1899
1979, 1980	
1975	
1973	

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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**Topo Sheet Key**

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

**2018 Source Sheets**



Redlands

7.5-minute, 24000



Yucaipa

7.5-minute, 24000



Sunnymead

7.5-minute, 24000



El Casco

7.5-minute, 24000

**2015 Source Sheets**



Redlands

7.5-minute, 24000



Yucaipa

7.5-minute, 24000



Sunnymead

7.5-minute, 24000



El Casco

7.5-minute, 24000

**2012 Source Sheets**



Redlands

7.5-minute, 24000



Yucaipa

7.5-minute, 24000



Sunnymead

7.5-minute, 24000



El Casco

7.5-minute, 24000

**1996 Source Sheets**



El Casco

7.5-minute, 24000  
Aerial Photo Revised 1996



Redlands

7.5-minute, 24000  
Aerial Photo Revised 1994



Yucaipa

7.5-minute, 24000  
Aerial Photo Revised 1994

## Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### 1988 Source Sheets



Redlands

7.5-minute, 24000  
Aerial Photo Revised 1985



Yucaipa

7.5-minute, 24000  
Aerial Photo Revised 1985

### 1979, 1980 Source Sheets



El Casco

7.5-minute, 24000  
Aerial Photo Revised 1976



Sunnymead

7.5-minute, 24000  
Aerial Photo Revised 1978



Yucaipa

7.5-minute, 24000  
Aerial Photo Revised 1978



Redlands

7.5-minute, 24000  
Aerial Photo Revised 1978

### 1975 Source Sheets



Redlands

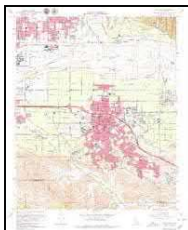
7.5-minute, 24000  
Aerial Photo Revised 1975

### 1973 Source Sheets



Sunnymead

7.5-minute, 24000  
Aerial Photo Revised 1973



Redlands

7.5-minute, 24000  
Aerial Photo Revised 1973



Yucaipa

7.5-minute, 24000  
Aerial Photo Revised 1973

## Topo Sheet Key

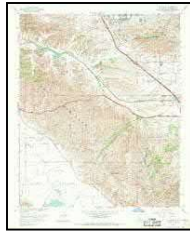
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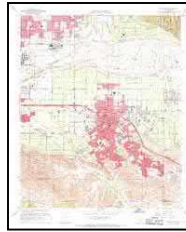
Yucaipa

7.5-minute, 24000  
Aerial Photo Revised 1966



El Casco

7.5-minute, 24000  
Aerial Photo Revised 1966



Redlands

7.5-minute, 24000  
Aerial Photo Revised 1966



Sunnymead

7.5-minute, 24000  
Aerial Photo Revised 1966

### 1954 Source Sheets



Redlands

15-minute, 62500  
Aerial Photo Revised 1952

### 1953, 1954 Source Sheets



El Casco

7.5-minute, 24000  
Aerial Photo Revised 1951



Sunnymead

7.5-minute, 24000  
Aerial Photo Revised 1951



Yucaipa

7.5-minute, 24000  
Aerial Photo Revised 1952

### 1901 Source Sheets



Redlands

15-minute, 62500



## **Topo Sheet Key**

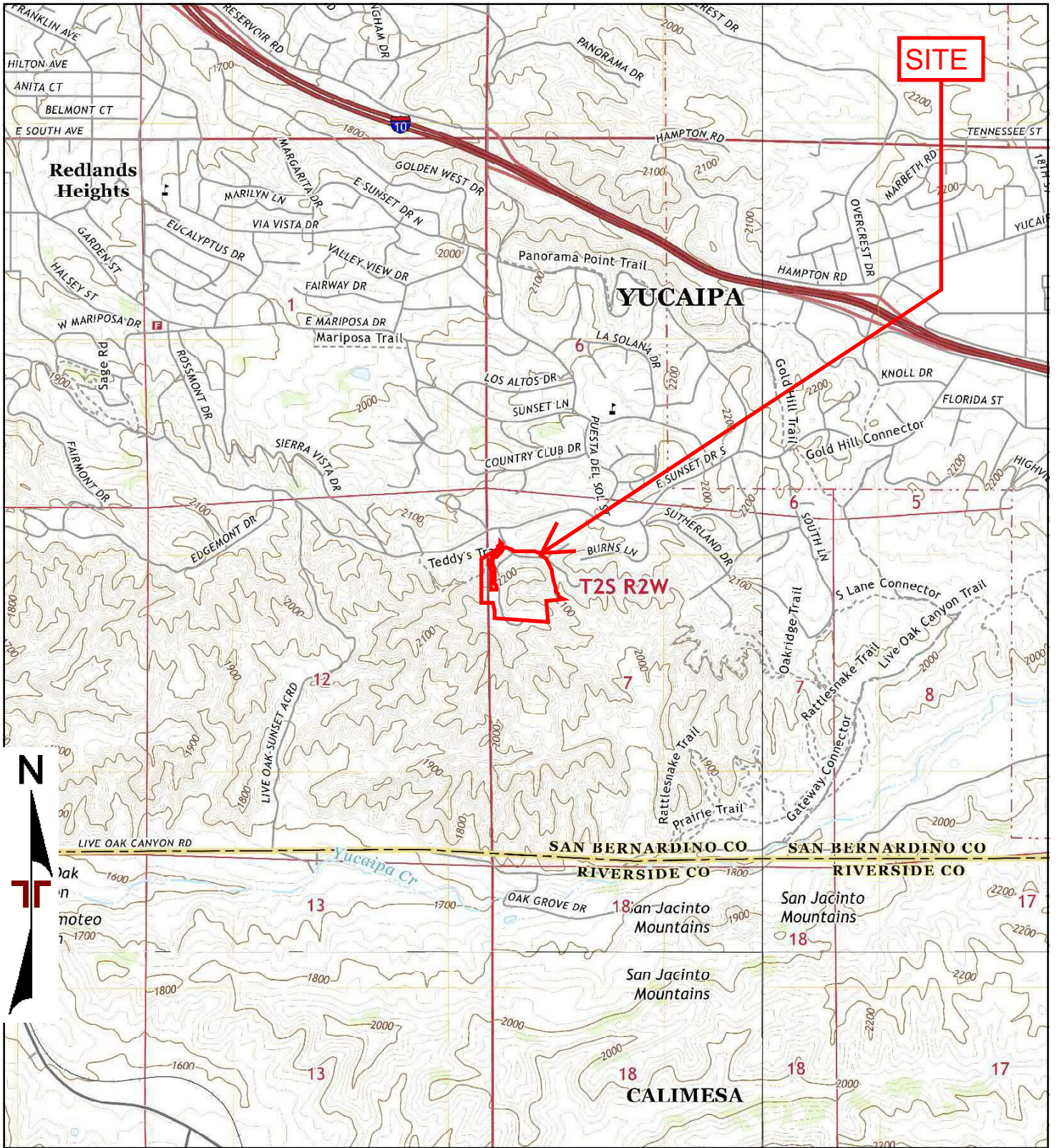
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### **1899 Source Sheets**

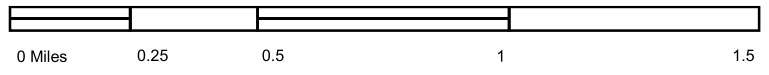


Redlands

15-minute, 62500



TP, Redlands, 2018, 7.5-minute  
 NE, Yucaipa, 2018, 7.5-minute  
 SE, El Casco, 2018, 7.5-minute  
 SW, Sunnymead, 2018, 7.5-minute

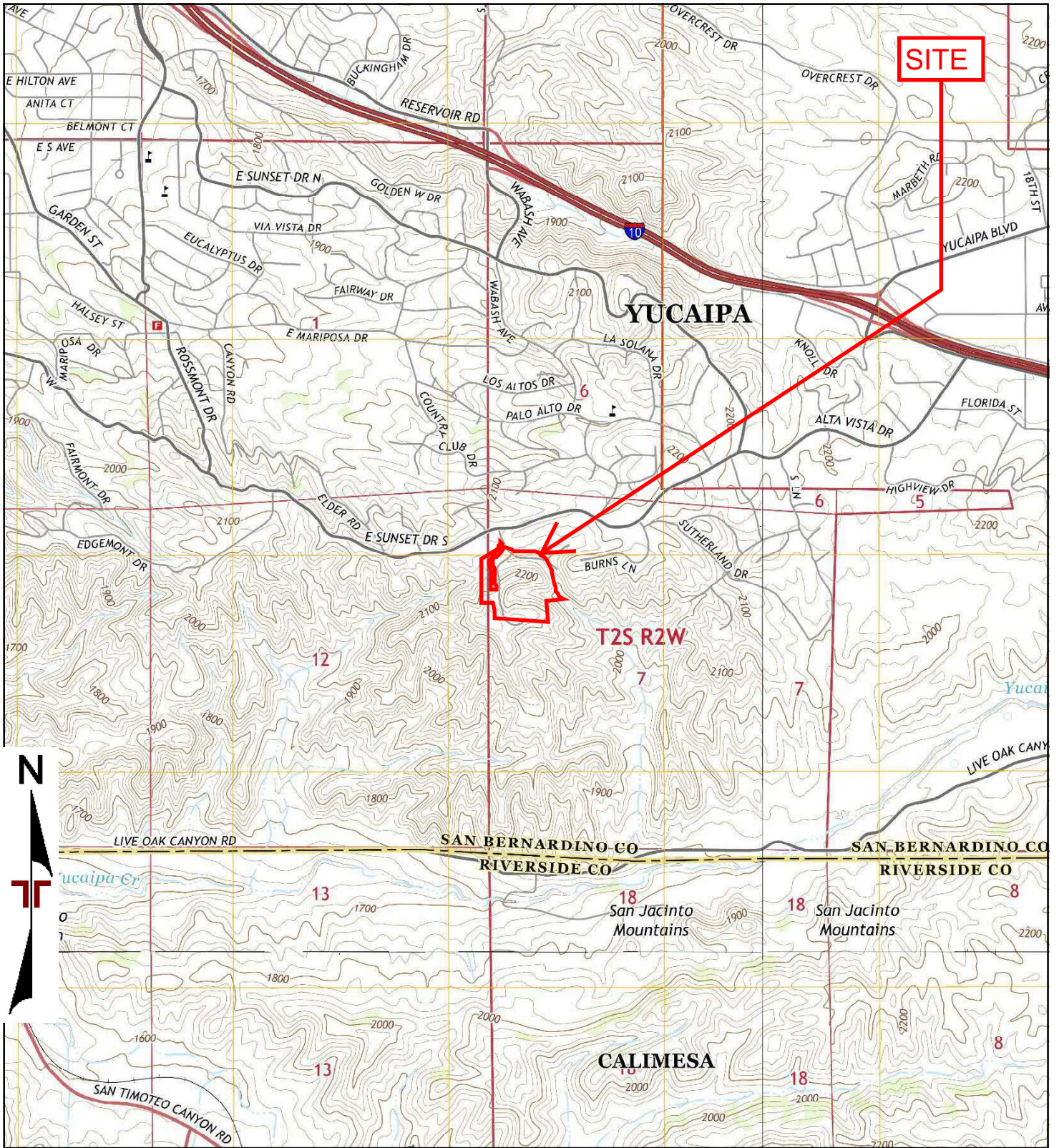


Project Manager:	Project No.
JSV	CB227029
Drawn by:	Scale:
SHC	As Shown
Checked by:	File Name:
LSH	
Approved by:	Date:
CAP	2018

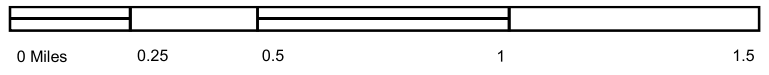
1355 East Cooley Drive  
 Colton, California 92324

**2018 TOPOGRAPHIC MAP**  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
<b>C</b>



TP, Redlands, 2015, 7.5-minute  
 NE, Yucaipa, 2015, 7.5-minute  
 SE, El Casco, 2015, 7.5-minute  
 SW, Sunnymead, 2015, 7.5-minute

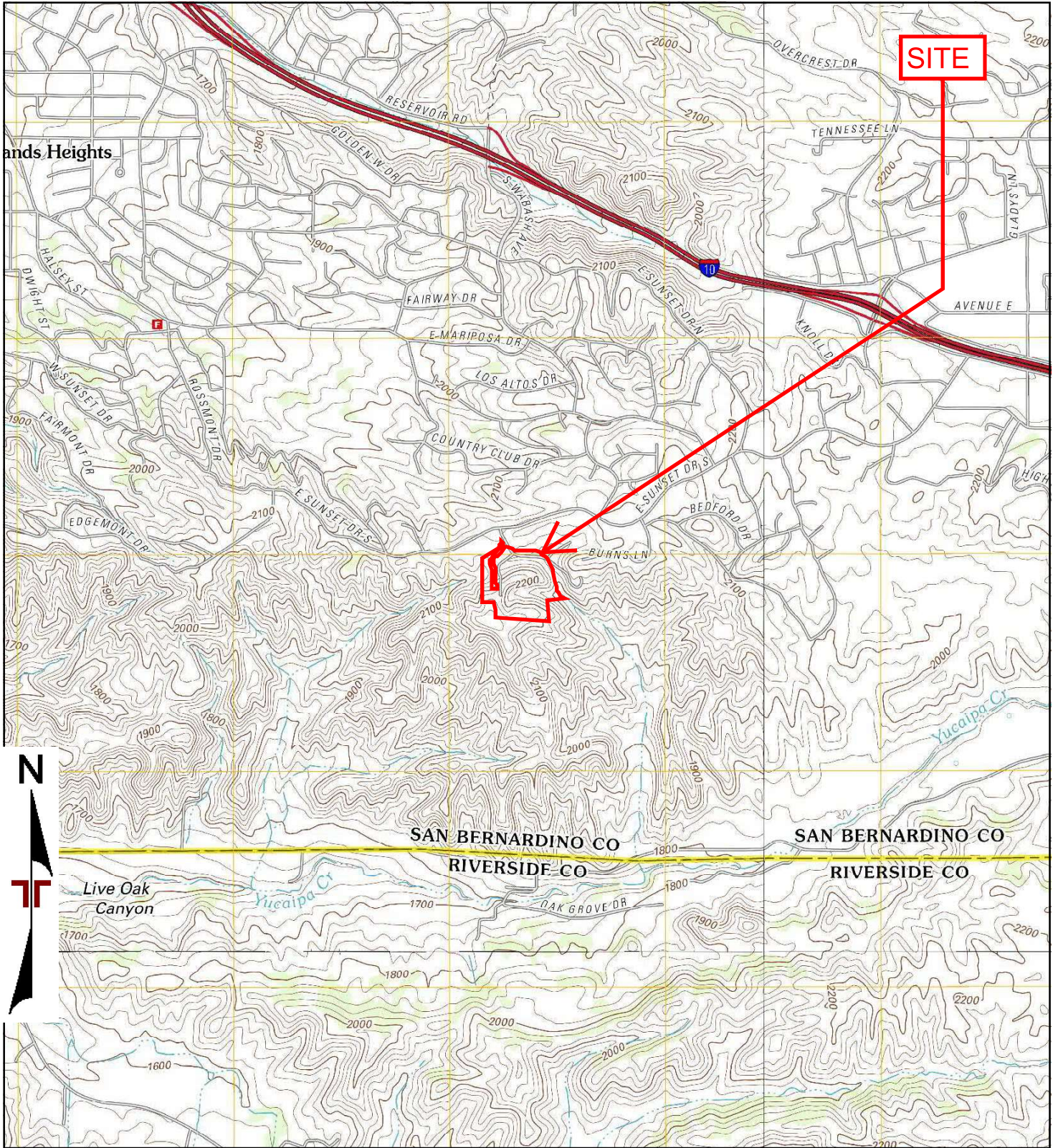


Project Manager:	Project No.
JSV	CB227029
Drawn by:	Scale:
SHC	As Shown
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LSH	
Approved by:	Date:
CAP	2015

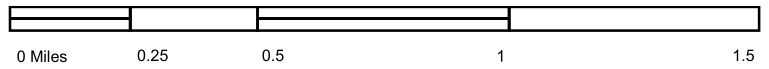
1355 East Cooley Drive  
 Colton, California 92324

**2015 TOPOGRAPHIC MAP**  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix  
**C**



TP, Redlands, 2012, 7.5-minute  
 NE, Yucaipa, 2012, 7.5-minute  
 SE, El Casco, 2012, 7.5-minute  
 SW, Sunnymead, 2012, 7.5-minute

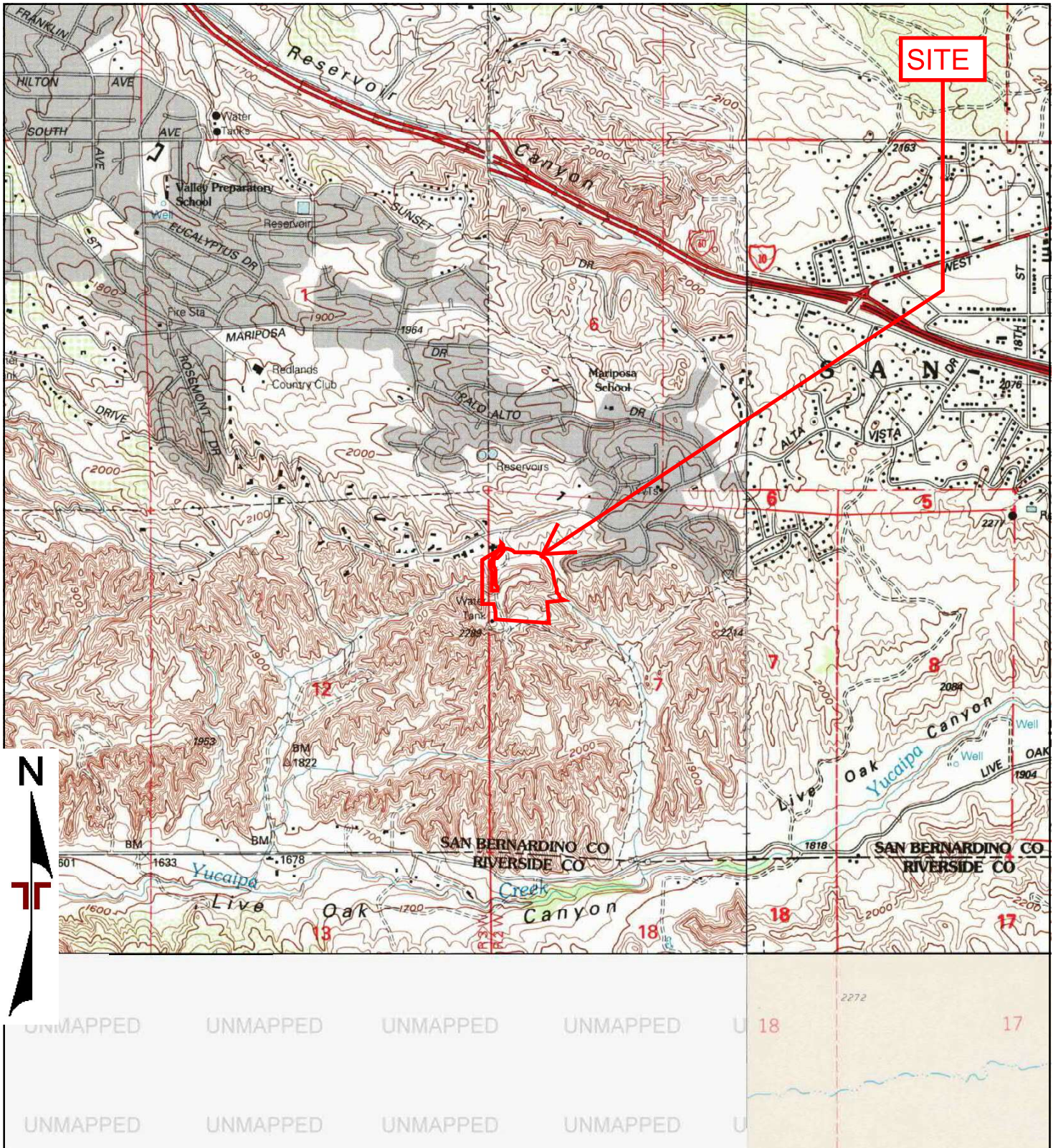


Project Manager:	Project No.
JSV	CB227029
Drawn by:	Scale:
SHC	As Shown
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LSH	
Approved by:	Date:
CAP	2012

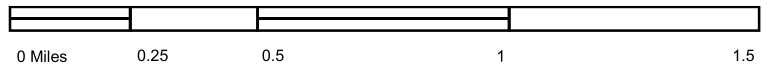
1355 East Cooley Drive  
 Colton, California 92324

**2012 TOPOGRAPHIC MAP**  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix  
**C**



TP, Redlands, 1996, 7.5-minute  
 NE, Yucaipa, 1996, 7.5-minute  
 SE, El Casco, 1996, 7.5-minute

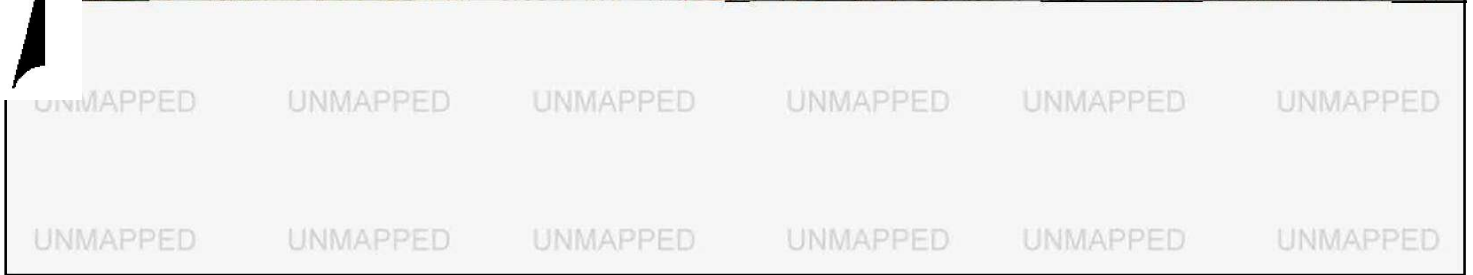
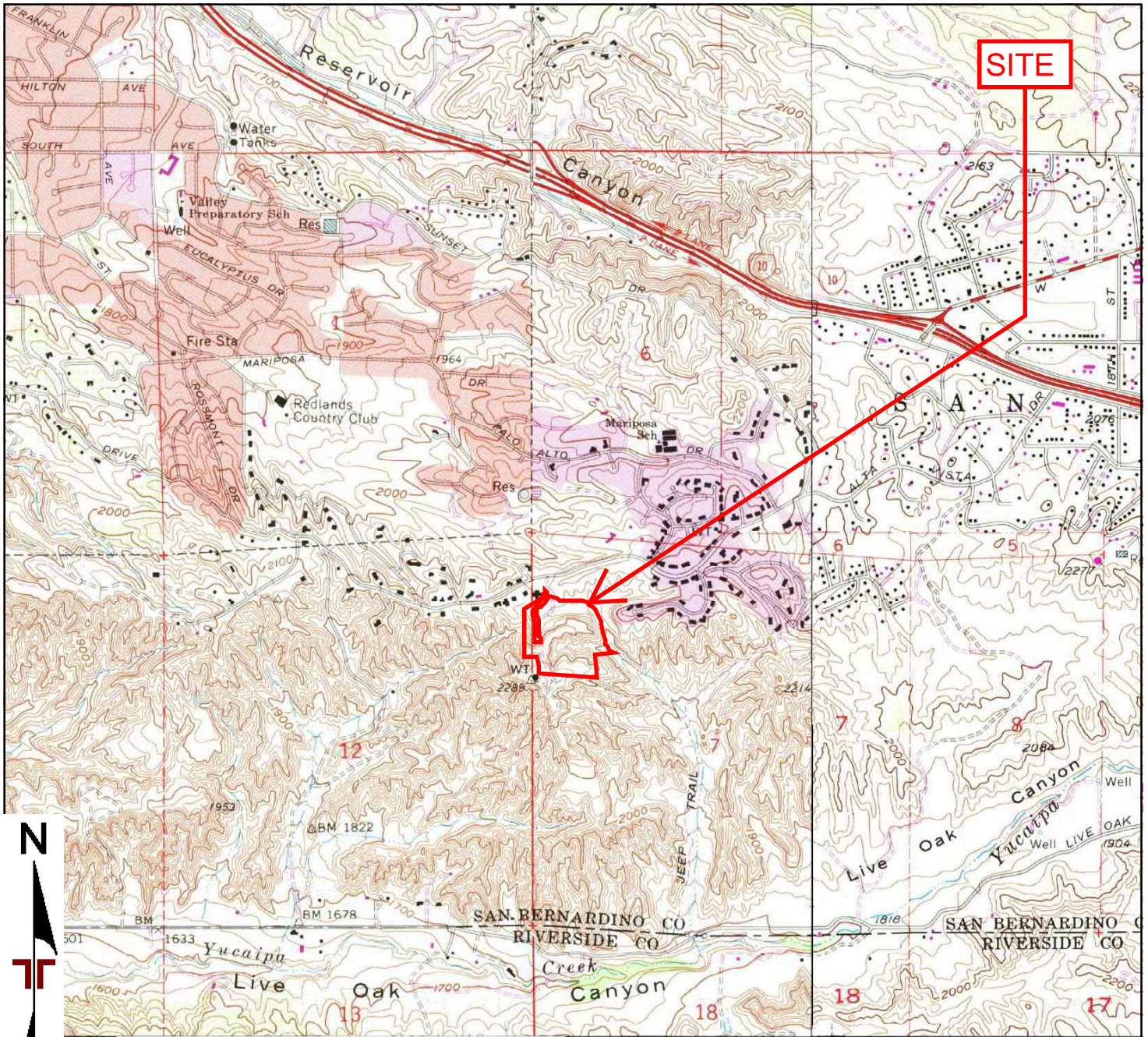


Project Manager:	Project No.
JSV	CB227029
Drawn by:	Scale:
SHC	As Shown
Checked by:	File Name:
LSH	
Approved by:	Date:
CAP	1996

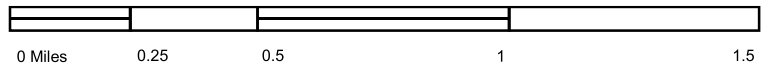
**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

**1996 TOPOGRAPHIC MAP**  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix  
**C**



TP, Redlands, 1988, 7.5-minute  
 NE, Yucaipa, 1988, 7.5-minute

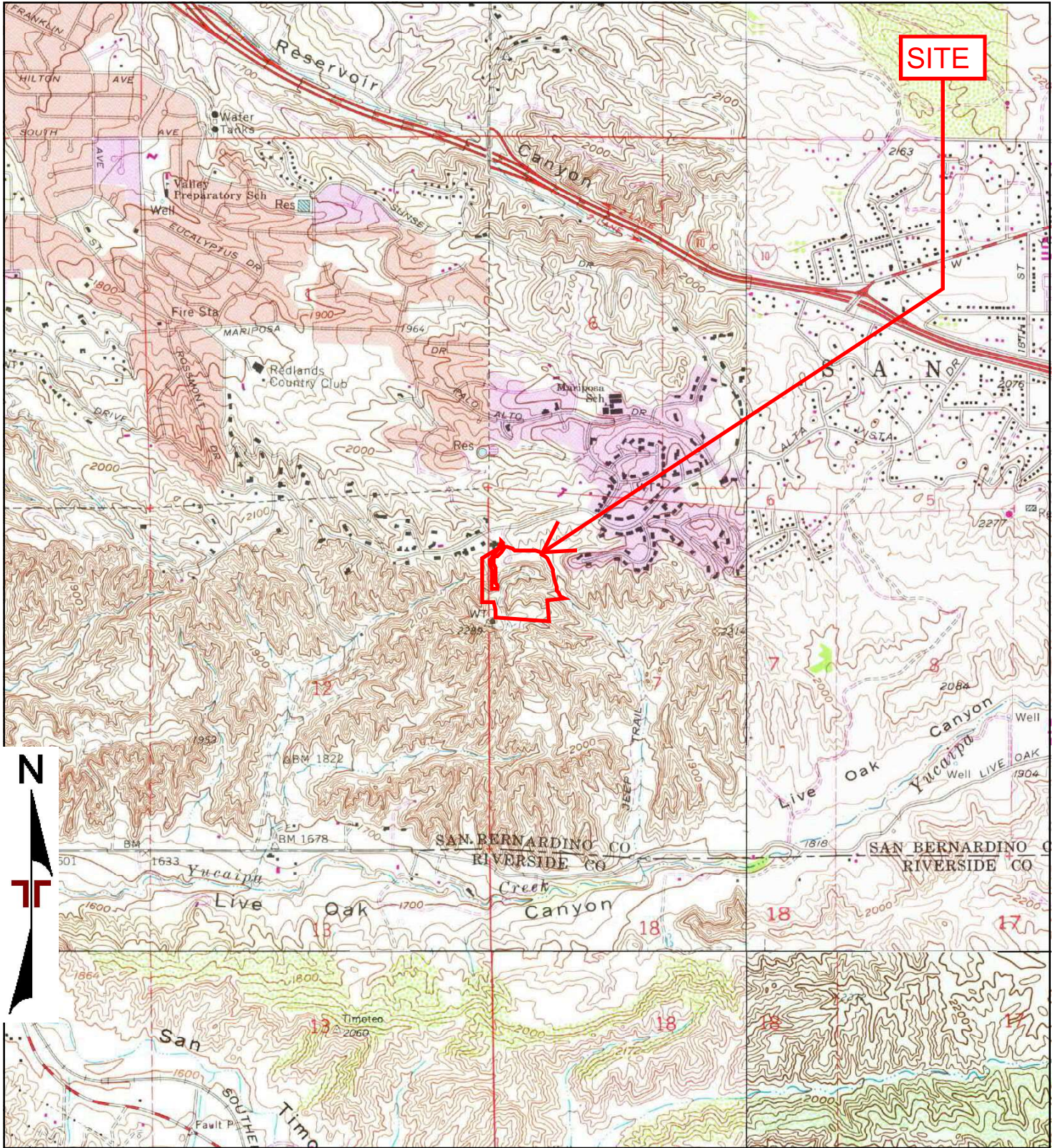


Project Manager:	Project No.
JSV	CB227029
Drawn by:	Scale:
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Checked by:	File Name:
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Approved by:	Date:
CAP	1988

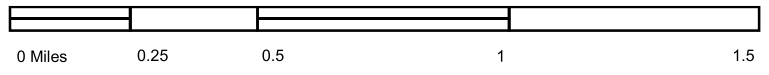
**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

**1988 TOPOGRAPHIC MAP**  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix  
**C**



TP, Redlands, 1980, 7.5-minute  
 NE, Yucaipa, 1980, 7.5-minute  
 SE, El Casco, 1979, 7.5-minute  
 SW, Sunnymead, 1980, 7.5-minute

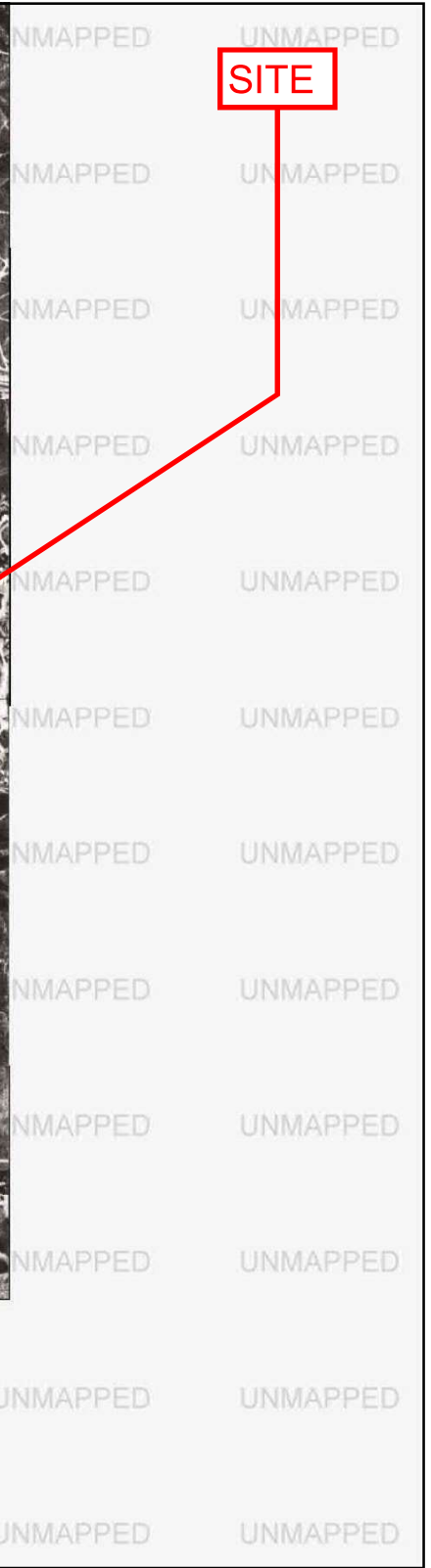
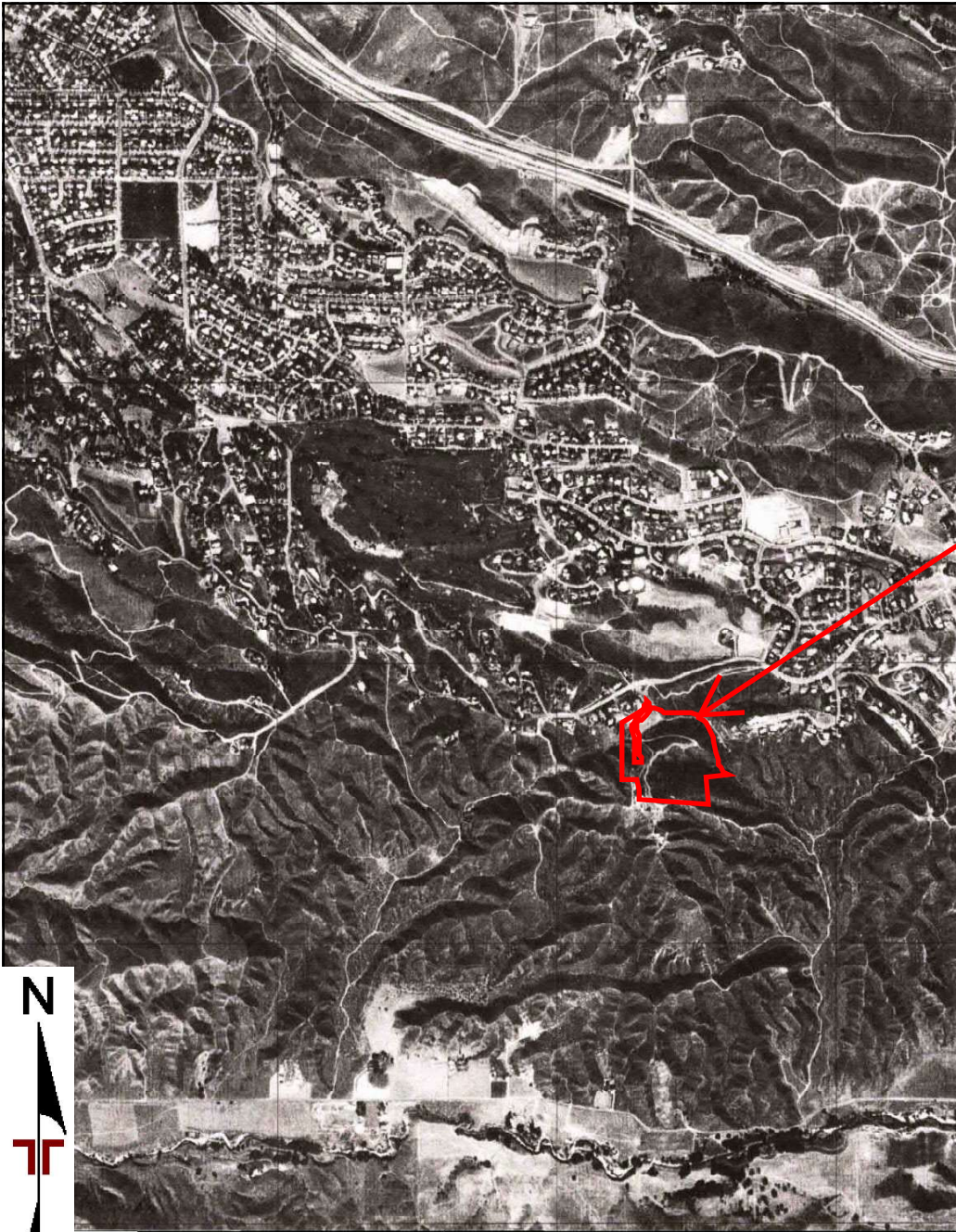


Project Manager:	Project No.
JSV	CB227029
Drawn by:	Scale:
SHC	As Shown
Checked by:	File Name:
LSH	
Approved by:	Date:
CAP	1979, 1980

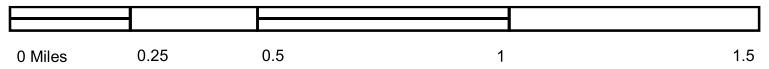
1355 East Cooley Drive  
 Colton, California 92324

1979, 1980 TOPOGRAPHIC MAP  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix  
**C**



TP, Redlands, 1975, 7.5-minute



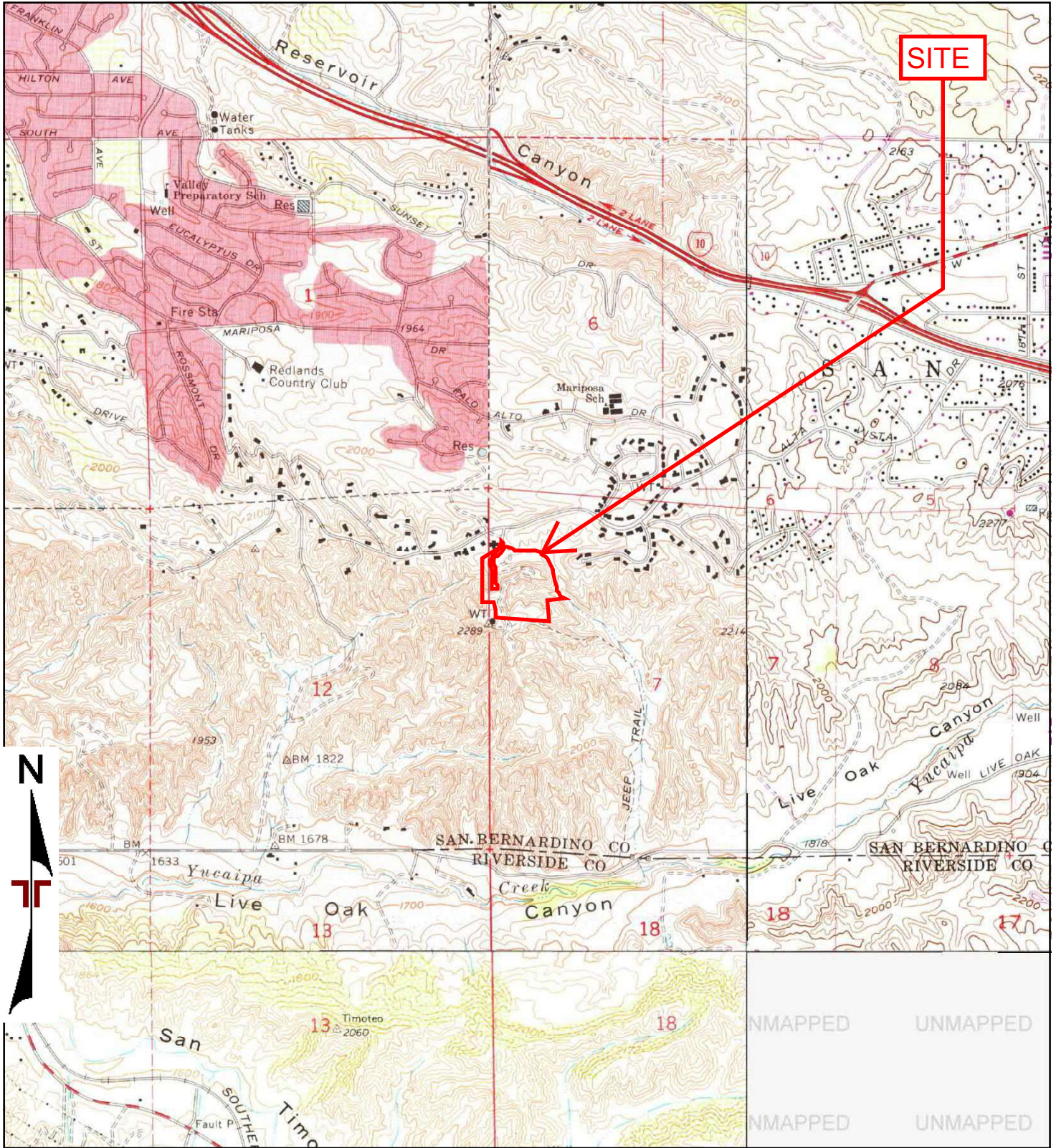
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Drawn by: SHC	Scale: As Shown
Checked by: LSH	File Name:
Approved by: CAP	Date: 1975

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

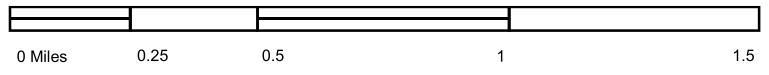
**1975 TOPOGRAPHIC MAP**  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
<b>C</b>





TP, Redlands, 1973, 7.5-minute  
 NE, Yucaipa, 1973, 7.5-minute  
 SW, Sunnymead, 1973, 7.5-minute

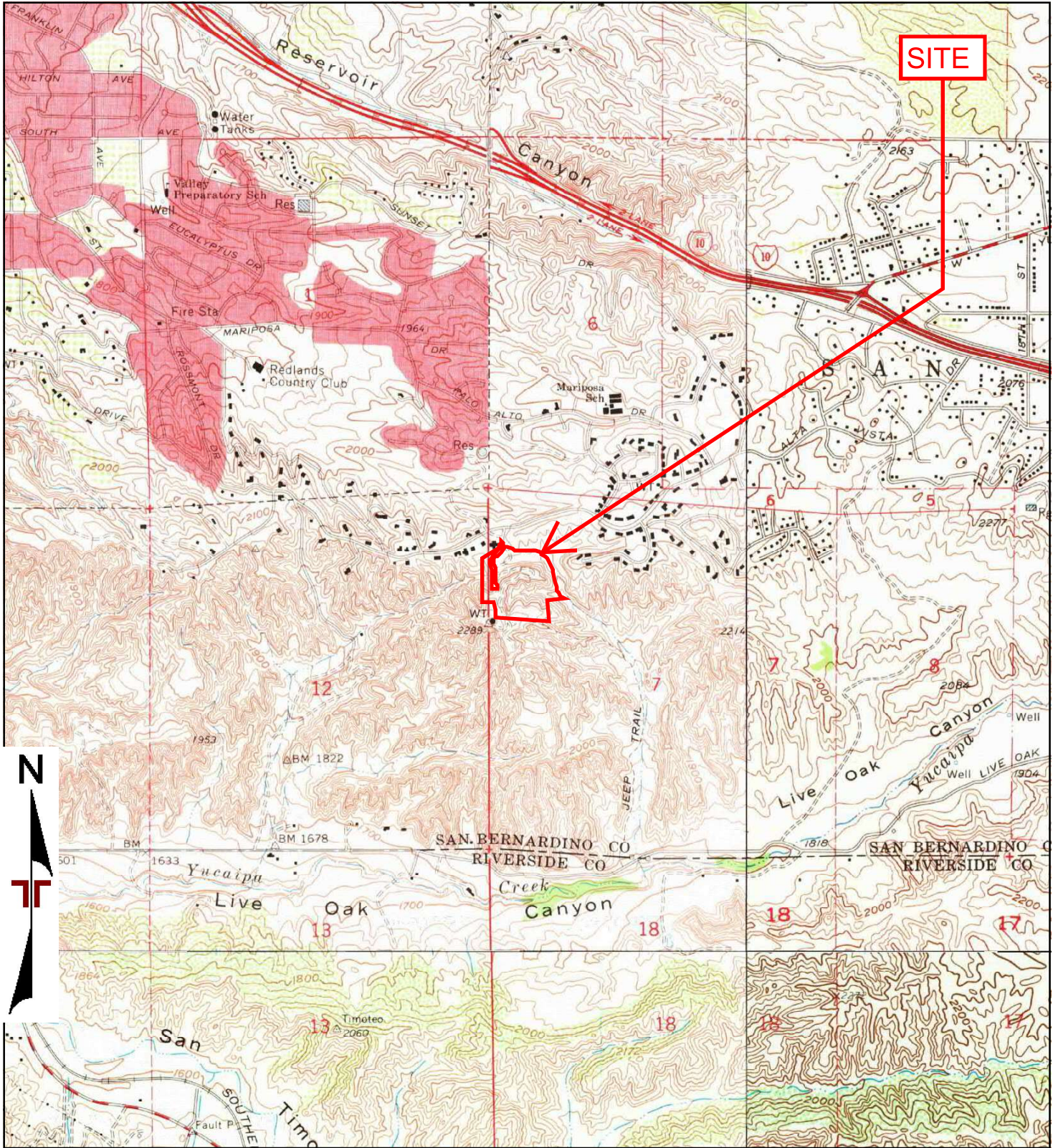


Project Manager:	Project No.
JSV	CB227029
Drawn by:	Scale:
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Checked by:	File Name:
LSH	
Approved by:	Date:
CAP	1973

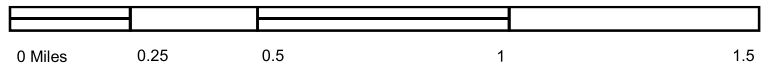
**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

**1973 TOPOGRAPHIC MAP**  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
<b>C</b>



TP, Redlands, 1967, 7.5-minute  
 NE, Yucaipa, 1967, 7.5-minute  
 SE, El Casco, 1967, 7.5-minute  
 SW, Sunnymead, 1967, 7.5-minute

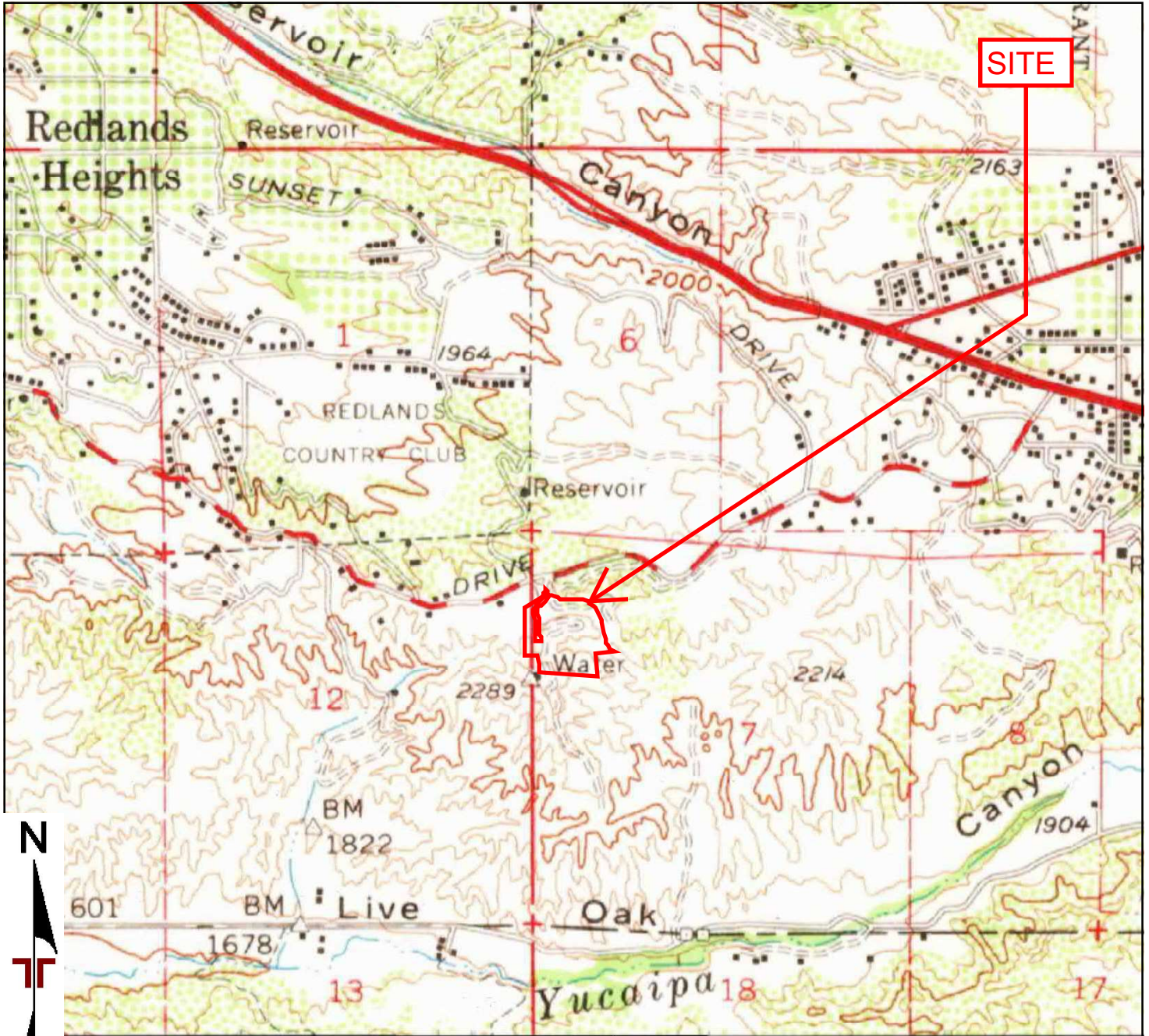


Project Manager:	Project No.
JSV	CB227029
Drawn by:	Scale:
SHC	As Shown
Checked by:	File Name:
LSH	
Approved by:	Date:
CAP	1967

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1967 TOPOGRAPHIC MAP  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix  
**C**



UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED  
 UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED

TP, Redlands, 1954, 15-minute

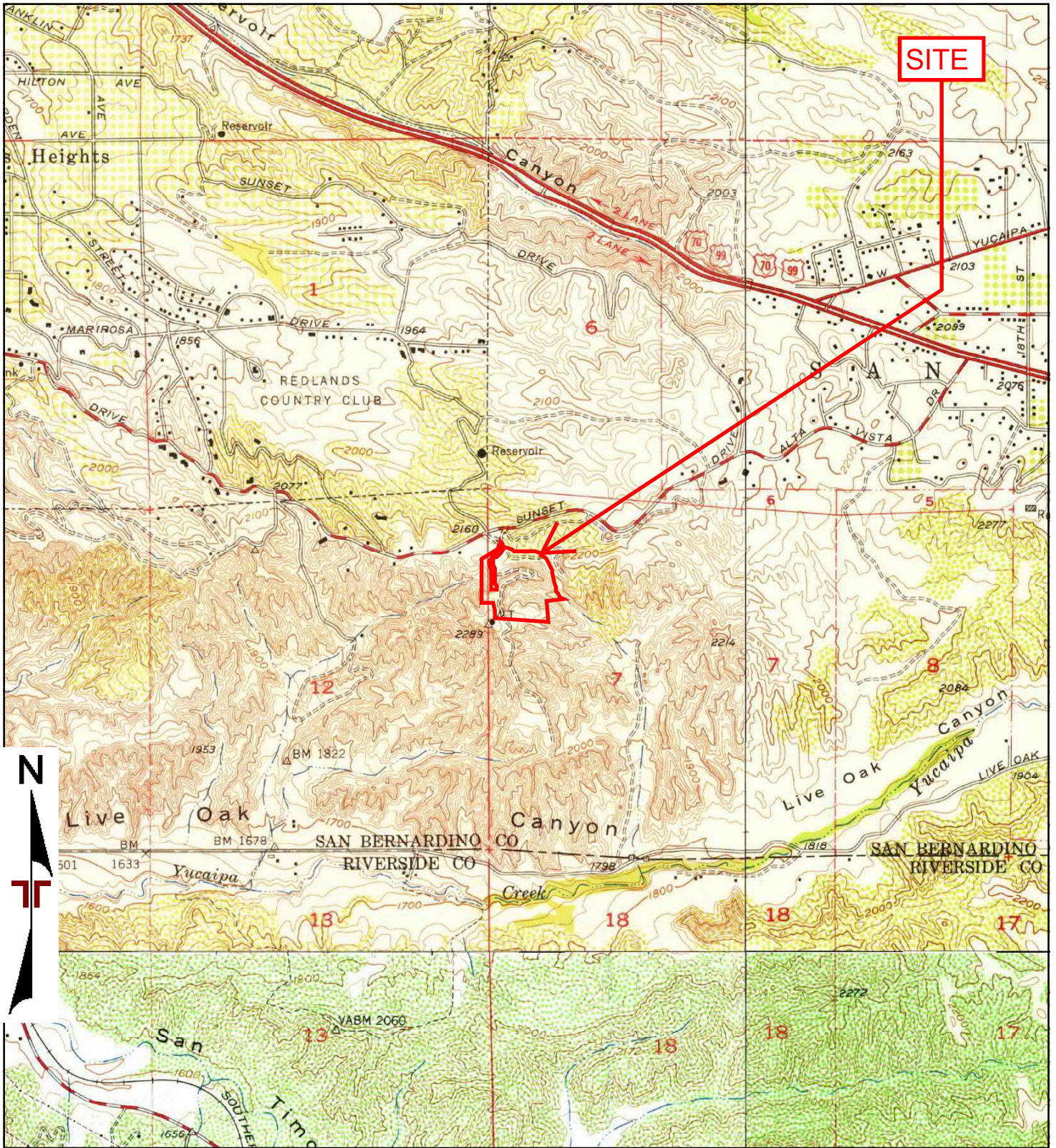
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Drawn by: SHC	Scale: As Shown
Checked by: LSH	File Name:
Approved by: CAP	Date: 1954

1355 East Cooley Drive  
 Colton, California 92324

1954 TOPOGRAPHIC MAP

Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
C



TP, Redlands, 1954, 7.5-minute  
 NE, Yucaipa, 1954, 7.5-minute  
 SE, El Casco, 1953, 7.5-minute  
 SW, Sunnymead, 1953, 7.5-minute

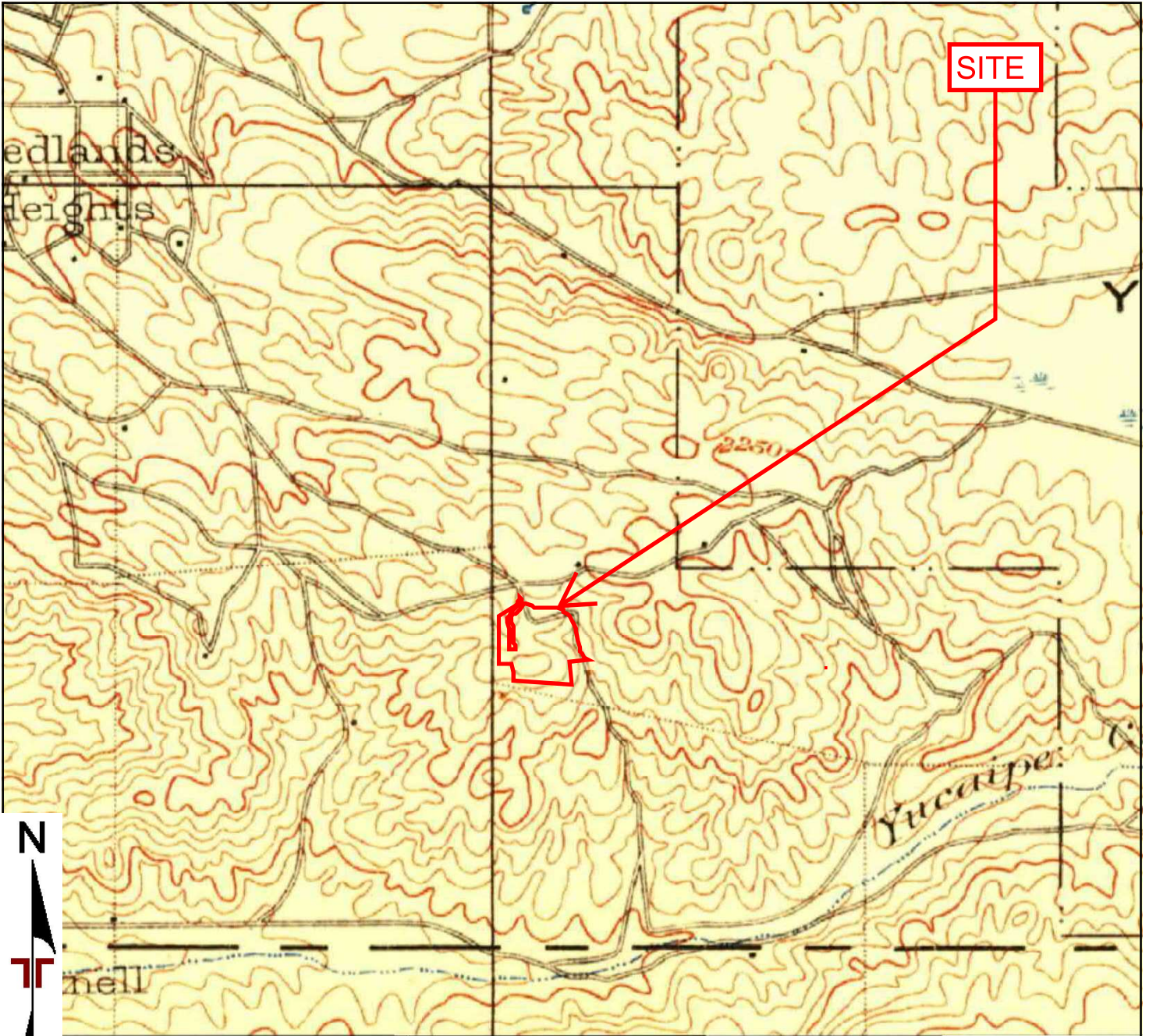


Project Manager:	Project No.
JSV	CB227029
Drawn by:	Scale:
SHC	As Shown
Checked by:	File Name:
LSH	
Approved by:	Date:
CAP	1953, 1954

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1953, 1954 TOPOGRAPHIC MAP  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
<b>C</b>



TP, Redlands, 1901, 15-minute

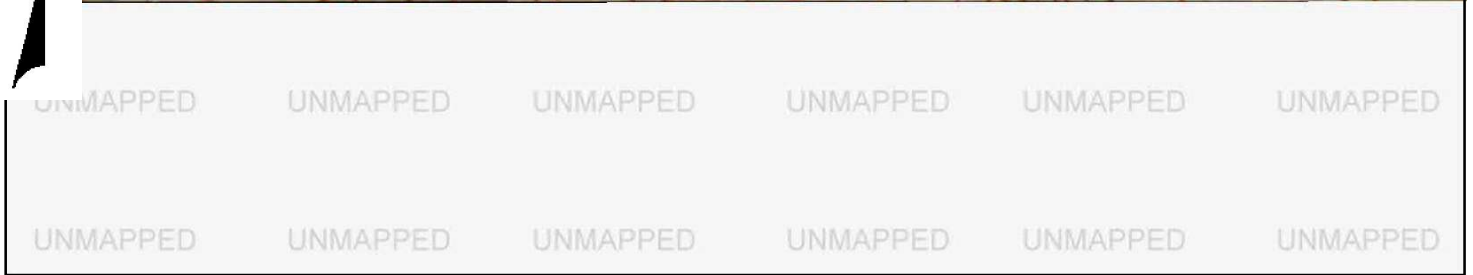
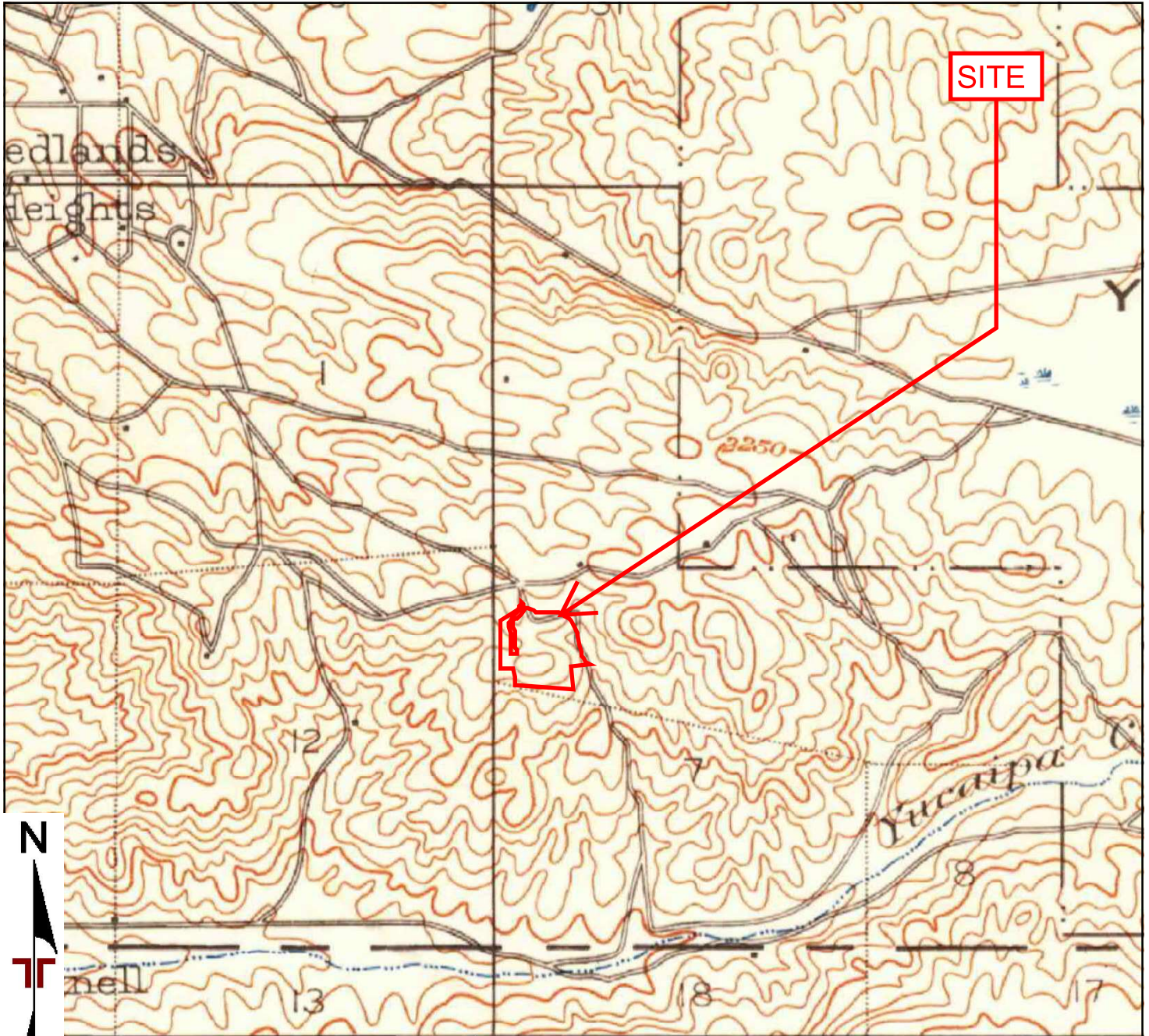
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Checked by: LSH	File Name:
Approved by: CAP	Date: 1901

1355 East Cooley Drive  
Colton, California 92324

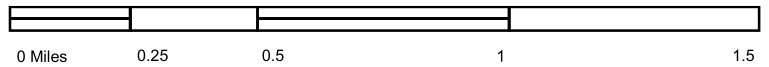
**1901 TOPOGRAPHIC MAP**

Macknet Property  
South of Helen Drive  
Redlands, San Bernardino County, California 92373

Appendix
<b>C</b>



TP, Redlands, 1899, 15-minute



Project Manager: JSV	Project No. CB227029
Drawn by: SHC	Scale: As Shown
Checked by: LSH	File Name:
Approved by: CAP	Date: 1899

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

**1899 TOPOGRAPHIC MAP**  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
<b>C</b>



## **Macknet Property**

South of Helen Drive

Redlands, San Bernardino County, California 92373

Inquiry Number: 6867268.8

February 22, 2022

# The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Aerial Photo Decade Package

02/22/22

**Site Name:**

Macknet Property  
South of Helen Drive  
Redlands, CA 92373  
EDR Inquiry # 6867268.8

**Client Name:**

Terracon  
1355 East Cooley Drive  
Colton, CA 92324  
Contact: Laura Hedman



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

**Search Results:**

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
2002	1"=500'	Acquisition Date: January 01, 2002	USGS/DOQQ
1995	1"=500'	Acquisition Date: January 01, 1995	USGS/DOQQ
1989	1"=500'	Flight Date: August 15, 1989	USDA
1985	1"=500'	Flight Date: July 28, 1985	USDA
1978	1"=500'	Flight Date: September 20, 1978	USDA
1975	1"=500'	Flight Date: August 01, 1975	USGS
1967	1"=500'	Flight Date: July 15, 1967	USDA
1961	1"=500'	Flight Date: June 14, 1961	USDA
1959	1"=500'	Flight Date: October 15, 1959	USDA
1953	1"=500'	Flight Date: February 16, 1953	USDA
1949	1"=500'	Flight Date: May 23, 1949	USDA
1938	1"=500'	Flight Date: August 09, 1938	USDA

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0 Feet

500

1000

2000

Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	2016

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

2016 AERIAL PHOTOGRAPH

Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
C



0 Feet

500

1000

2000

Project Manager: JSV	Project No: CB227029
Drawn By: SHC	Scale: As Shown
Checked By: LSH	File Name:
Approved By: CAP	Date: 2012

**Terracon**

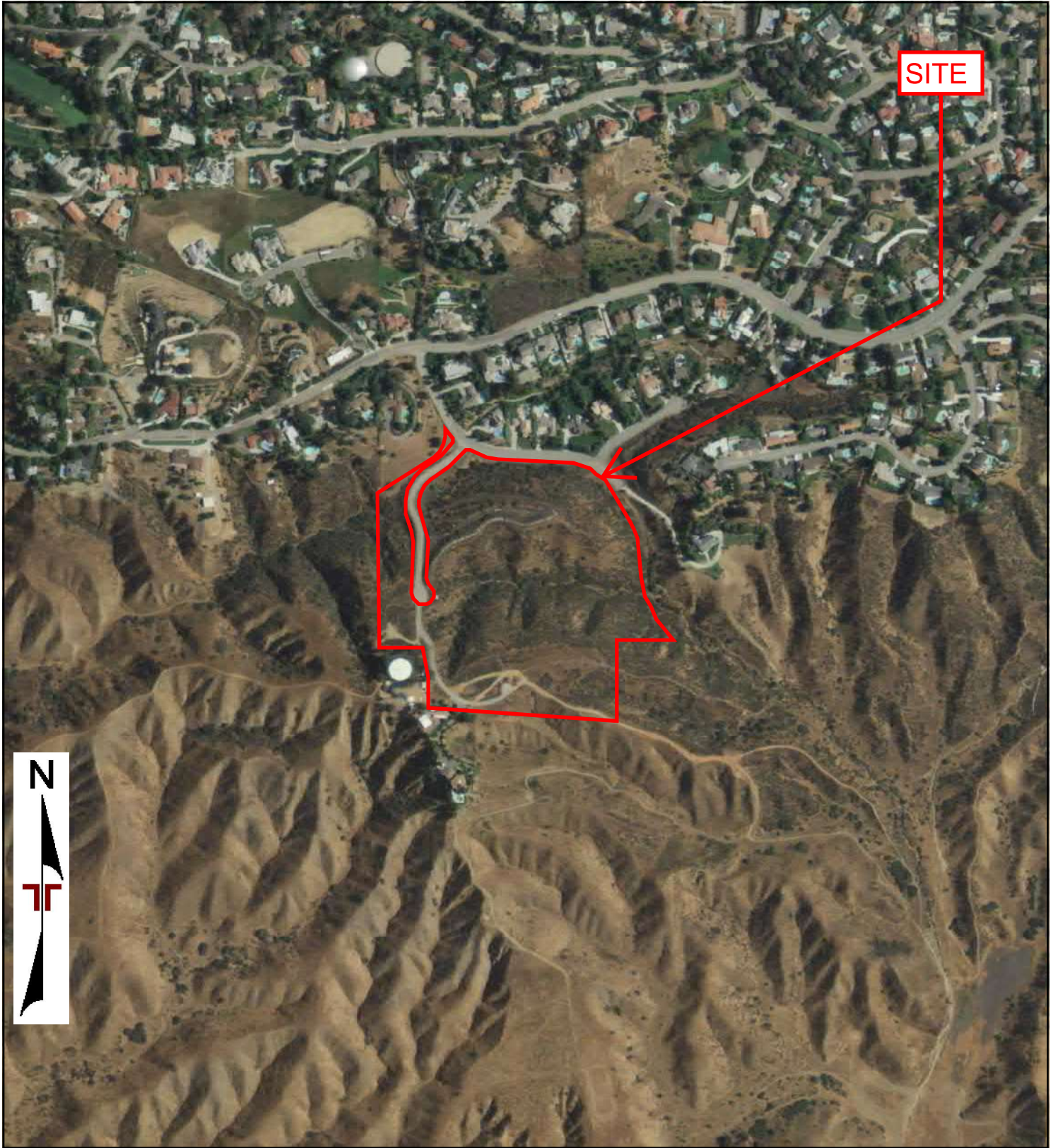
1355 East Cooley Drive  
Colton, California 92324

2012 AERIAL PHOTOGRAPH

Macknet Property  
South of Helen Drive  
Redlands, San Bernardino County, California 92373

Appendix

C



0 Feet

500

1000

2000

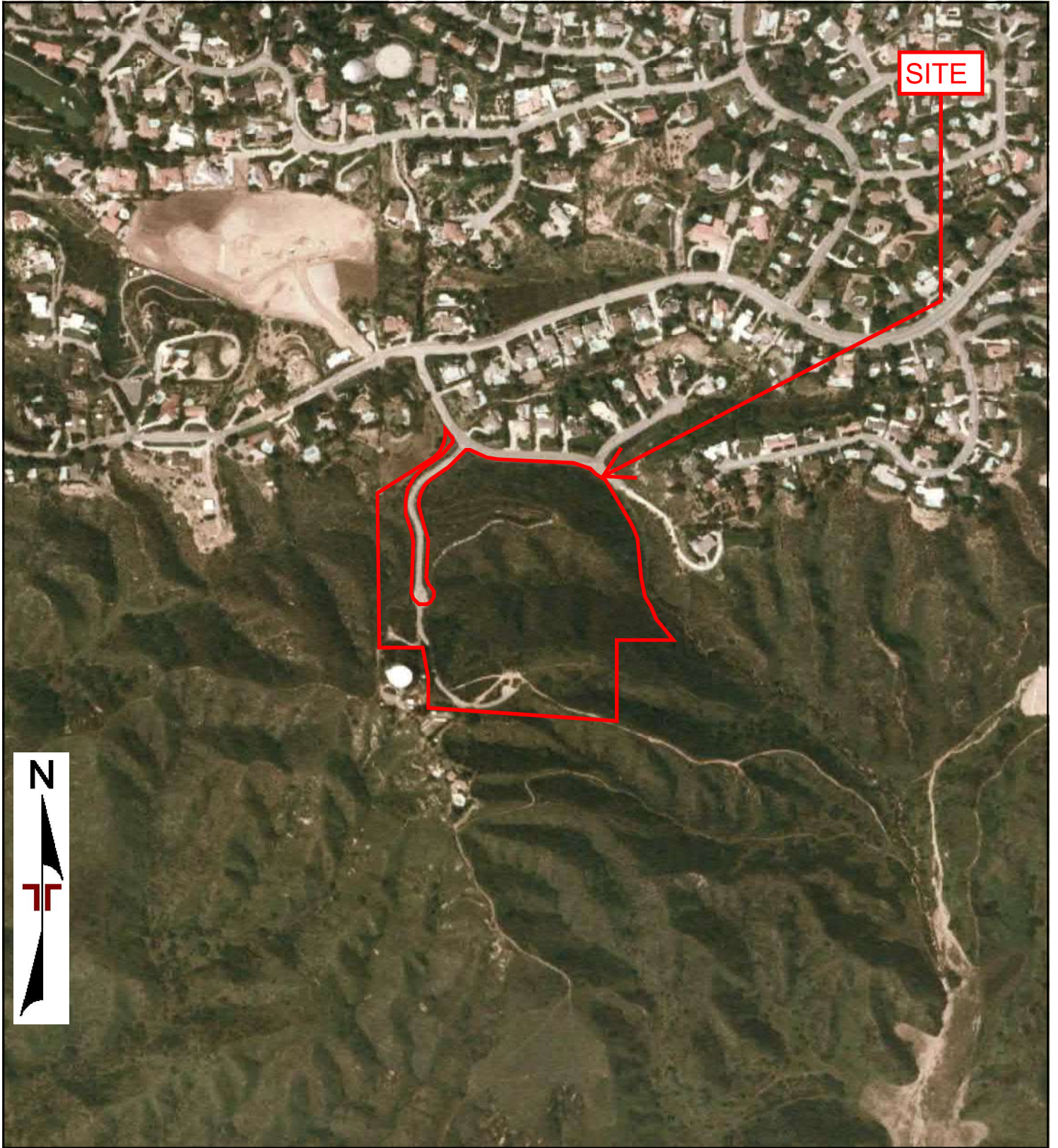
Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	2009

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

2009 AERIAL PHOTOGRAPH

Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
C



0 Feet

500

1000

2000

Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	2006

**Terracon**

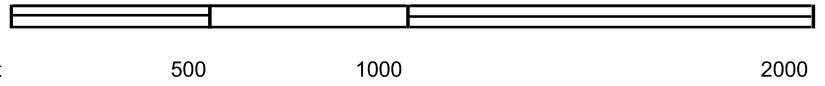
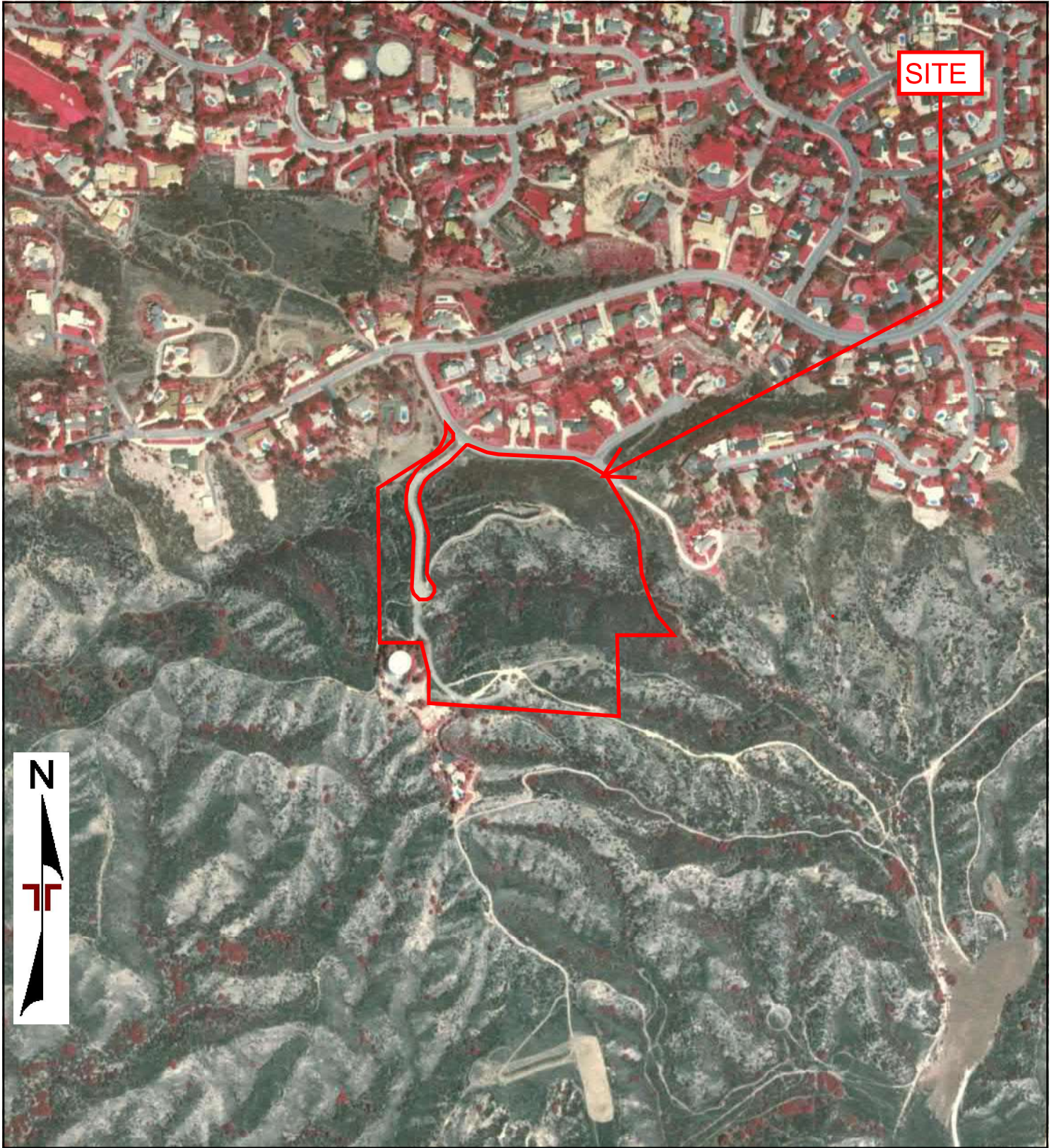
1355 East Cooley Drive  
Colton, California 92324

2006 AERIAL PHOTOGRAPH

Macknet Property  
South of Helen Drive  
Redlands, San Bernardino County, California 92373

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C



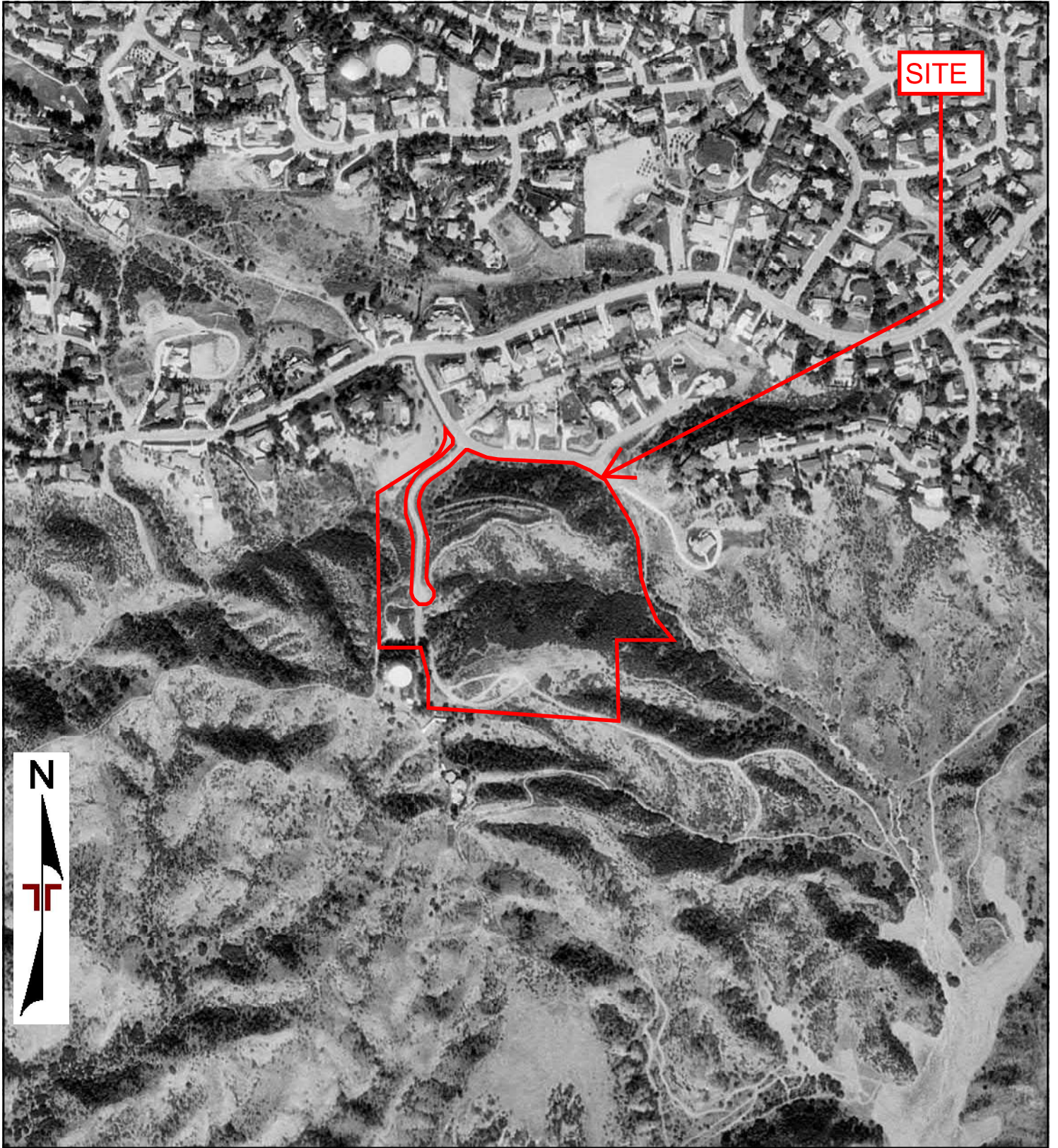
Project Manager: JSV	Project No: CB227029
Drawn By: SHC	Scale: As Shown
Checked By: LSH	File Name:
Approved By: CAP	Date: 2002

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

2002 AERIAL PHOTOGRAPH

Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

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C



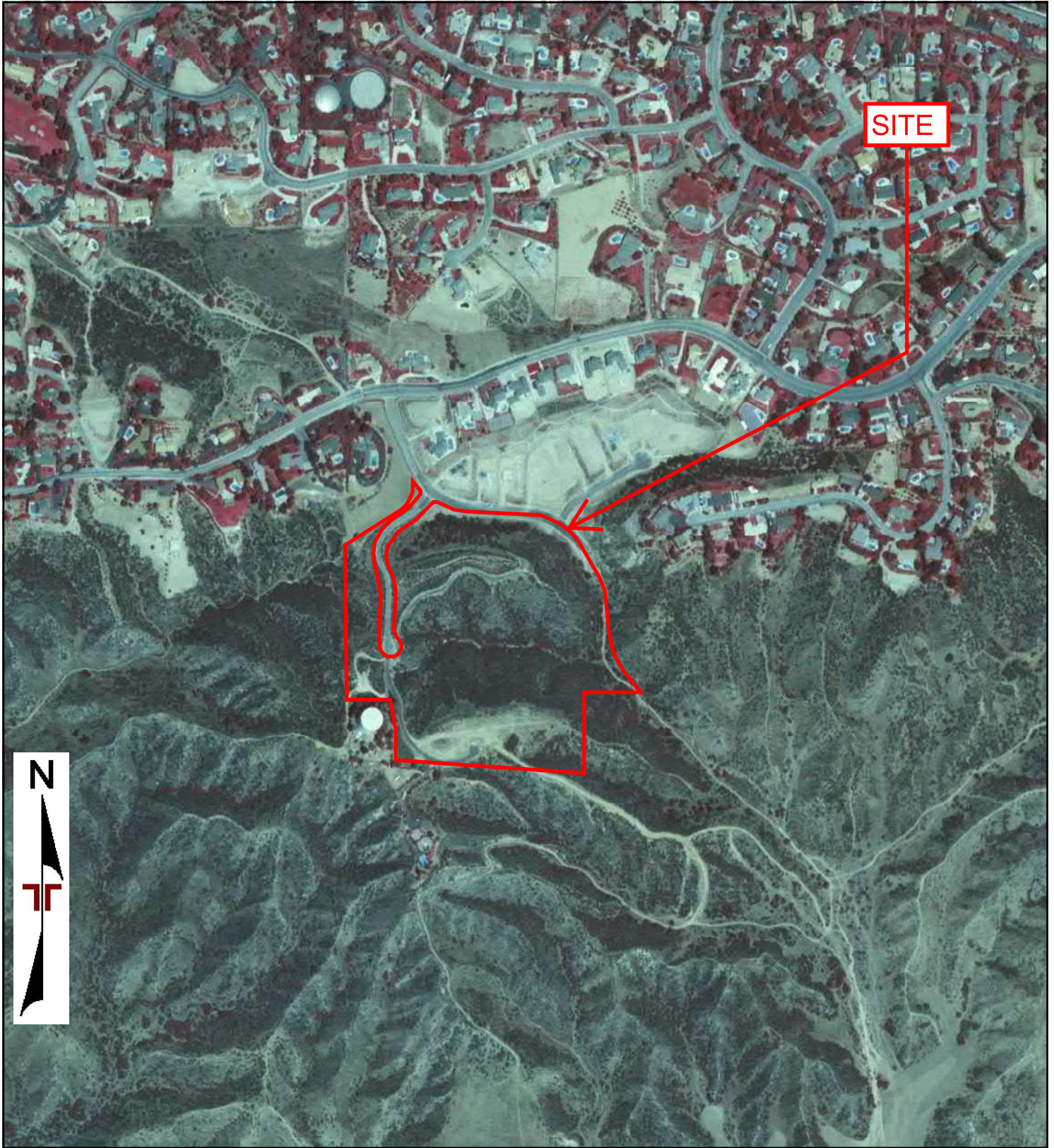
0 Feet                      500                      1000                      2000

Project Manager: JSV	Project No: CB227029
Drawn By: SHC	Scale: As Shown
Checked By: LSH	File Name:
Approved By: CAP	Date: 1995

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1995 AERIAL PHOTOGRAPH  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
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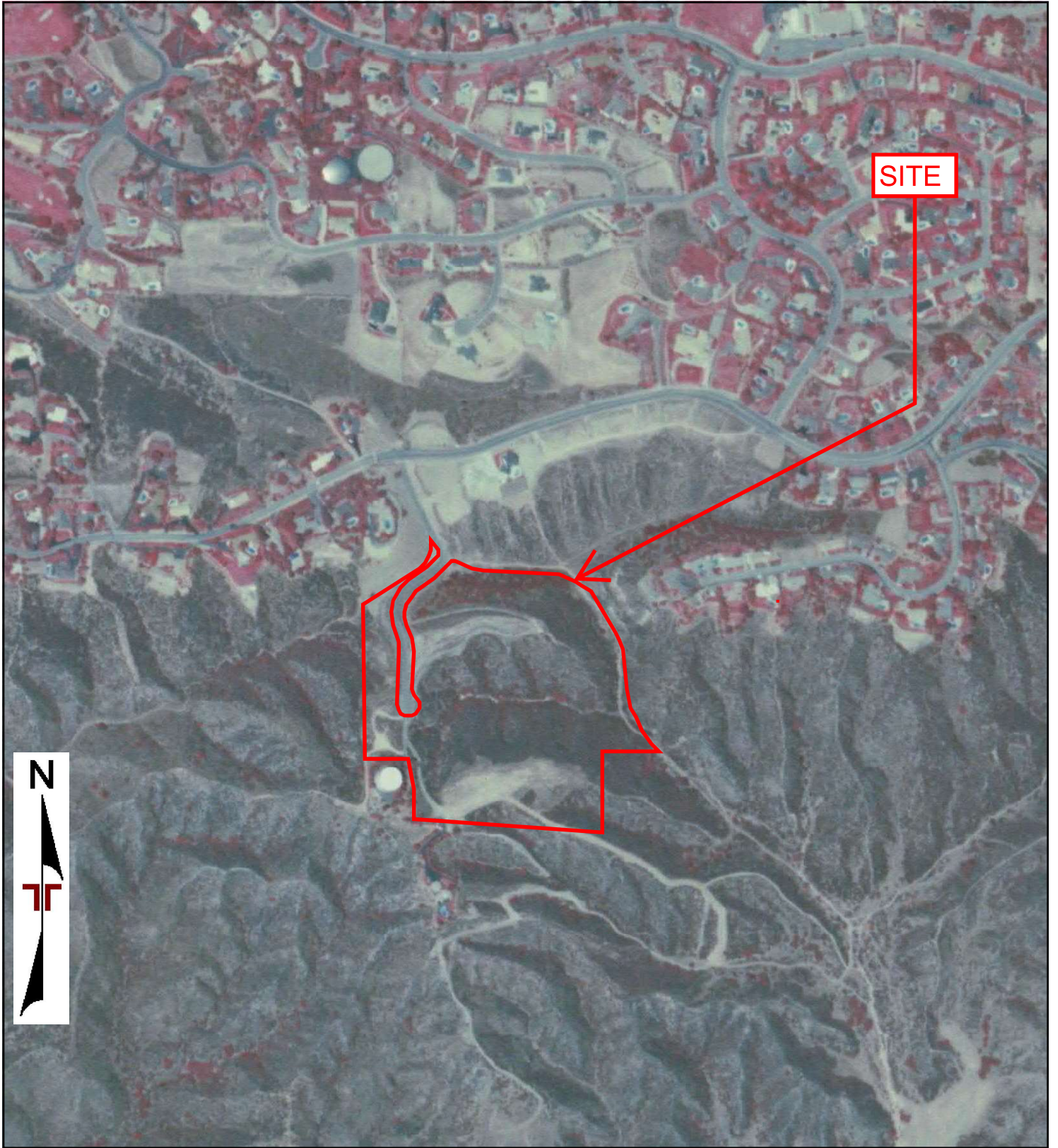
0 Feet                      500                      1000                      2000

Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	1989

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1989 AERIAL PHOTOGRAPH  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

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0 Feet

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2000

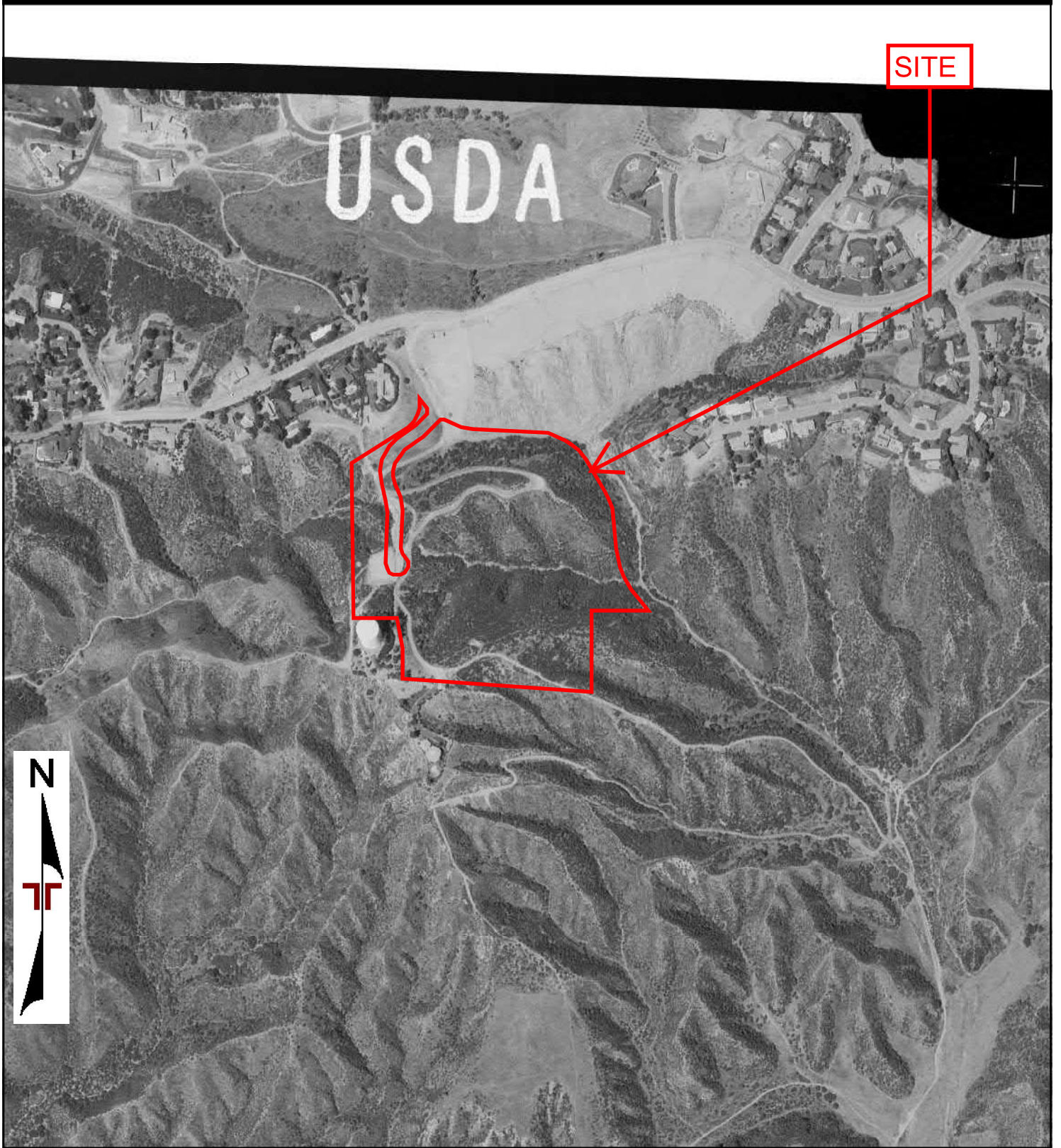
Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	1985

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1985 AERIAL PHOTOGRAPH  
 Macknet Property  
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 Redlands, San Bernardino County, California 92373

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0 Feet                      500                      1000                      2000

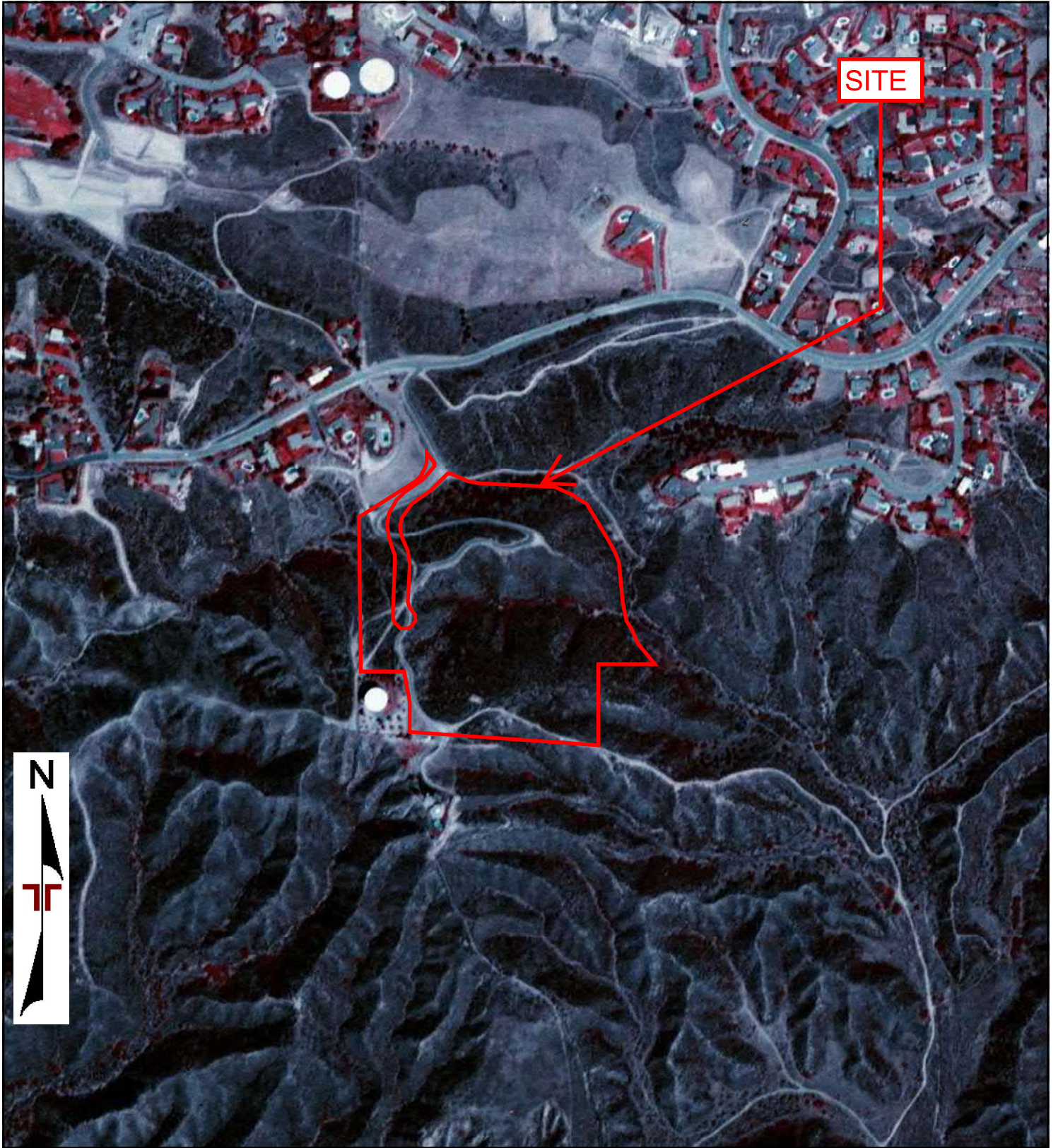
Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	1978

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1978 AERIAL PHOTOGRAPH

Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
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0 Feet                      500                      1000                      2000

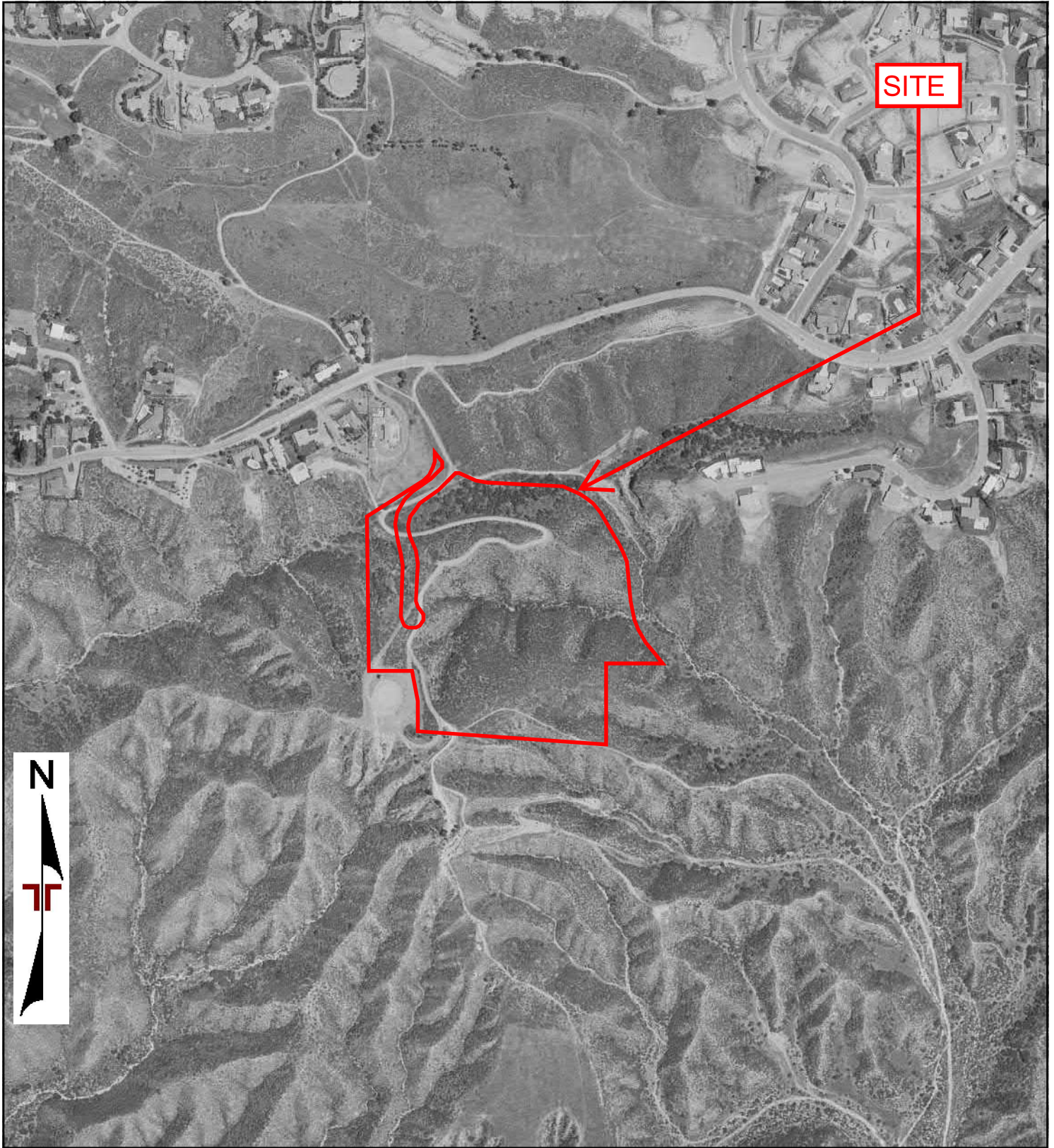
Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	1975

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1975 AERIAL PHOTOGRAPH

Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
C



0 Feet

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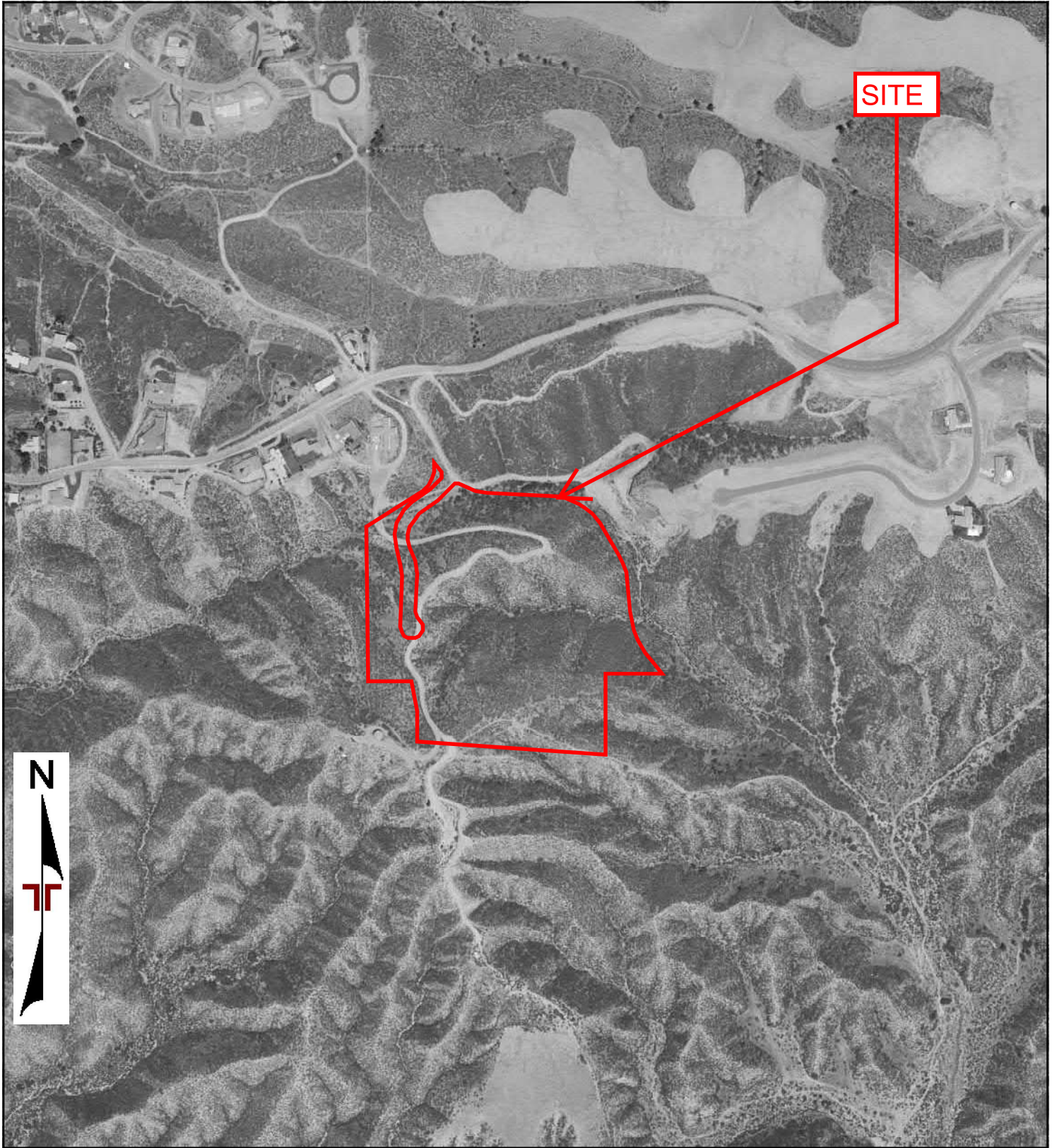
2000

Project Manager: JSV	Project No: CB227029
Drawn By: SHC	Scale: As Shown
Checked By: LSH	File Name:
Approved By: CAP	Date: 1967

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1967 AERIAL PHOTOGRAPH  
 Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

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C



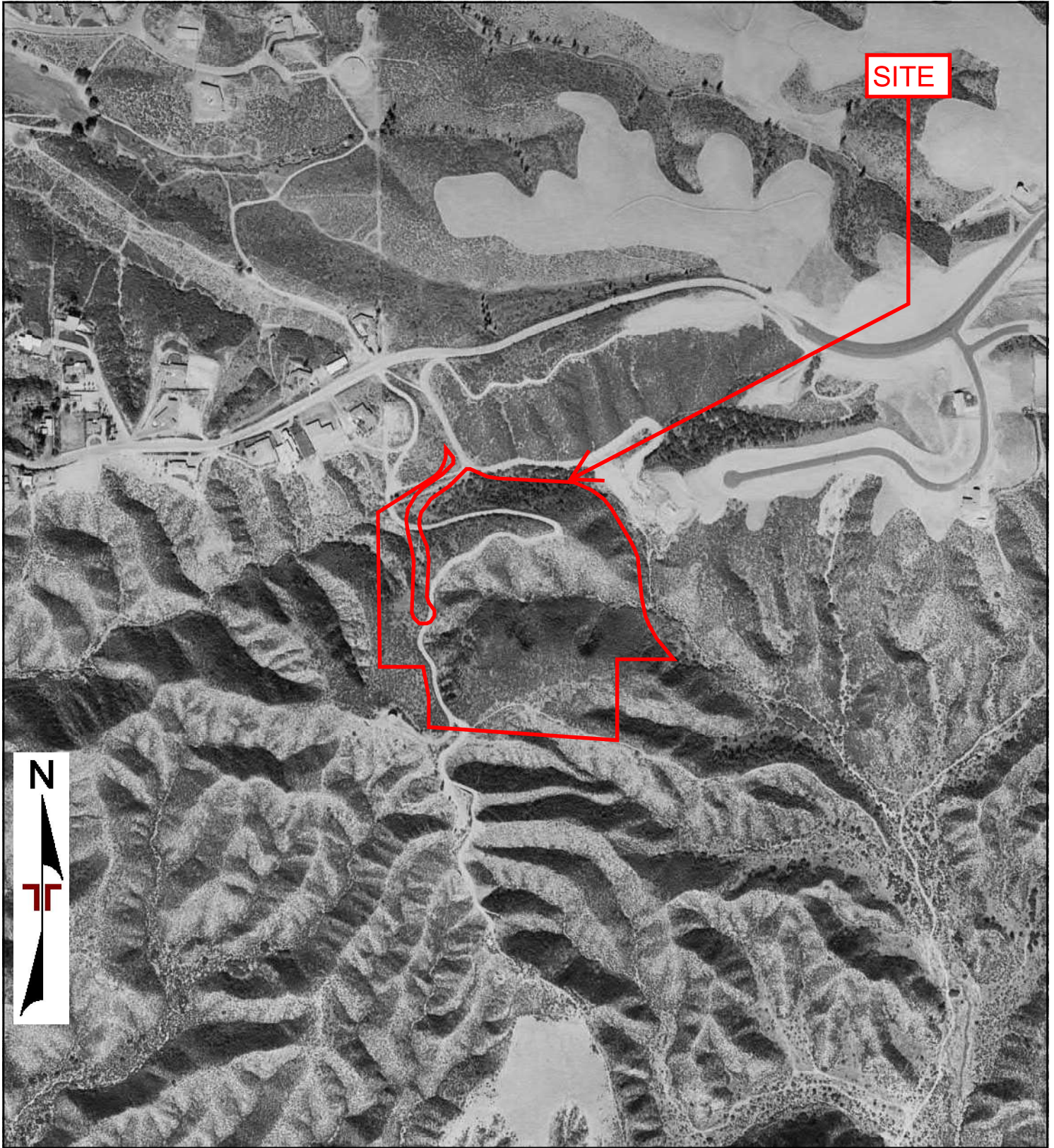
0 Feet                      500                      1000                      2000

Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	1961

**Terracon**  
1355 East Cooley Drive  
Colton, California 92324

1961 AERIAL PHOTOGRAPH  
Macknet Property  
South of Helen Drive  
Redlands, San Bernardino County, California 92373

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0 Feet                      500                      1000                      2000

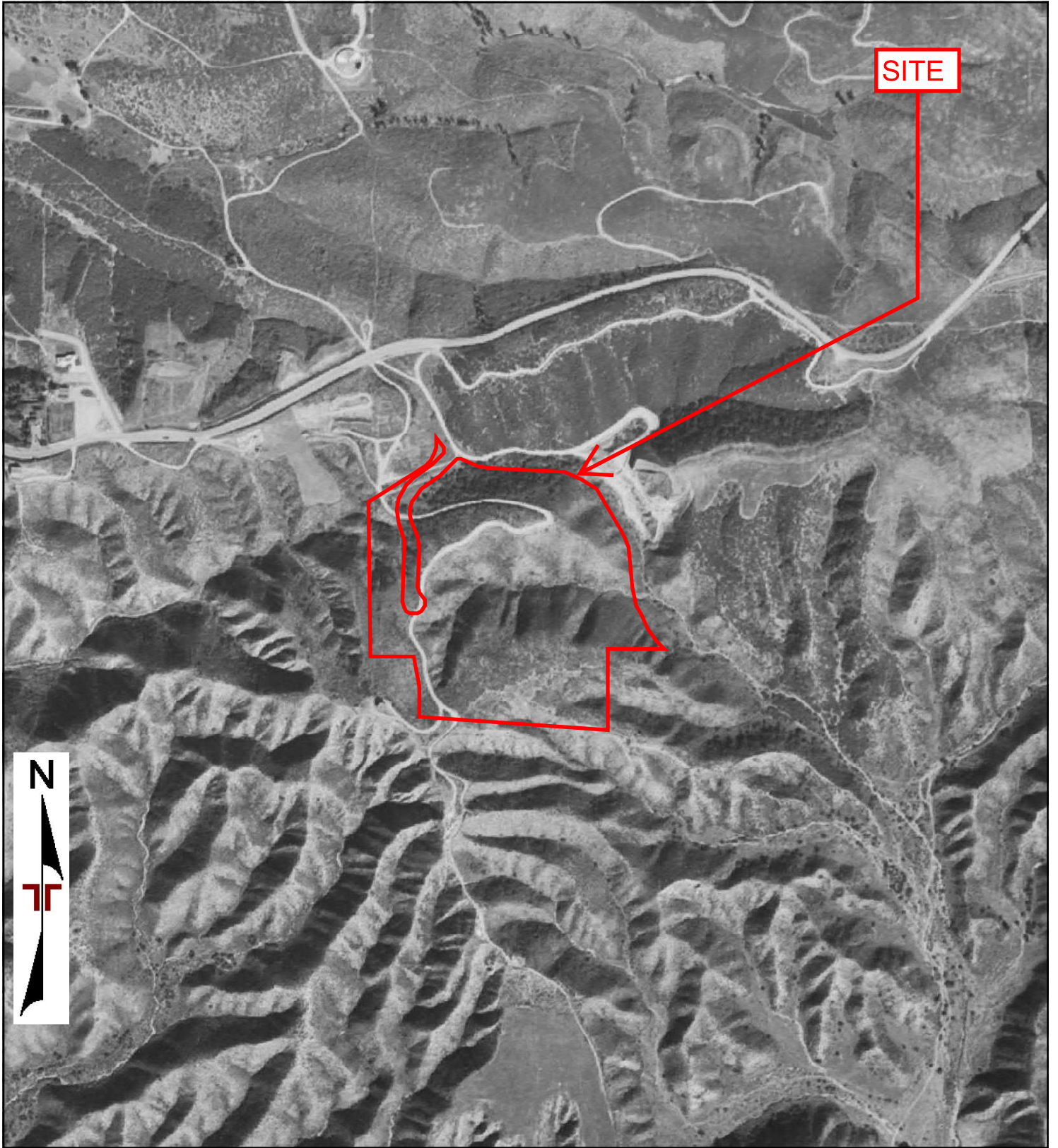
Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	1959

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1959 AERIAL PHOTOGRAPH

Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
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0 Feet

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2000

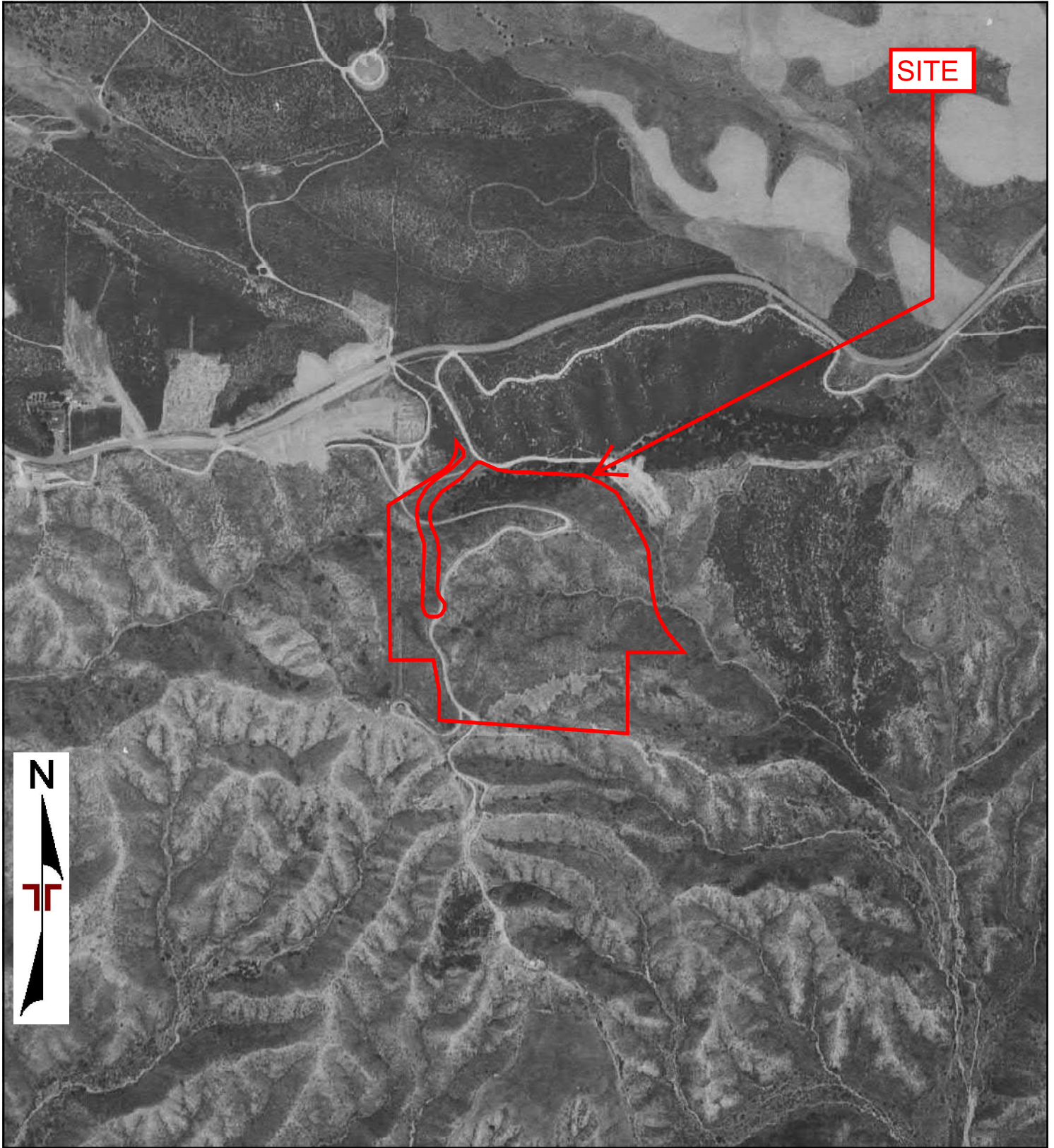
Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	1953

**Terracon**  
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1953 AERIAL PHOTOGRAPH

Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

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0 Feet                      500                      1000                      2000

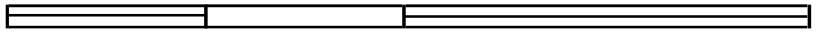
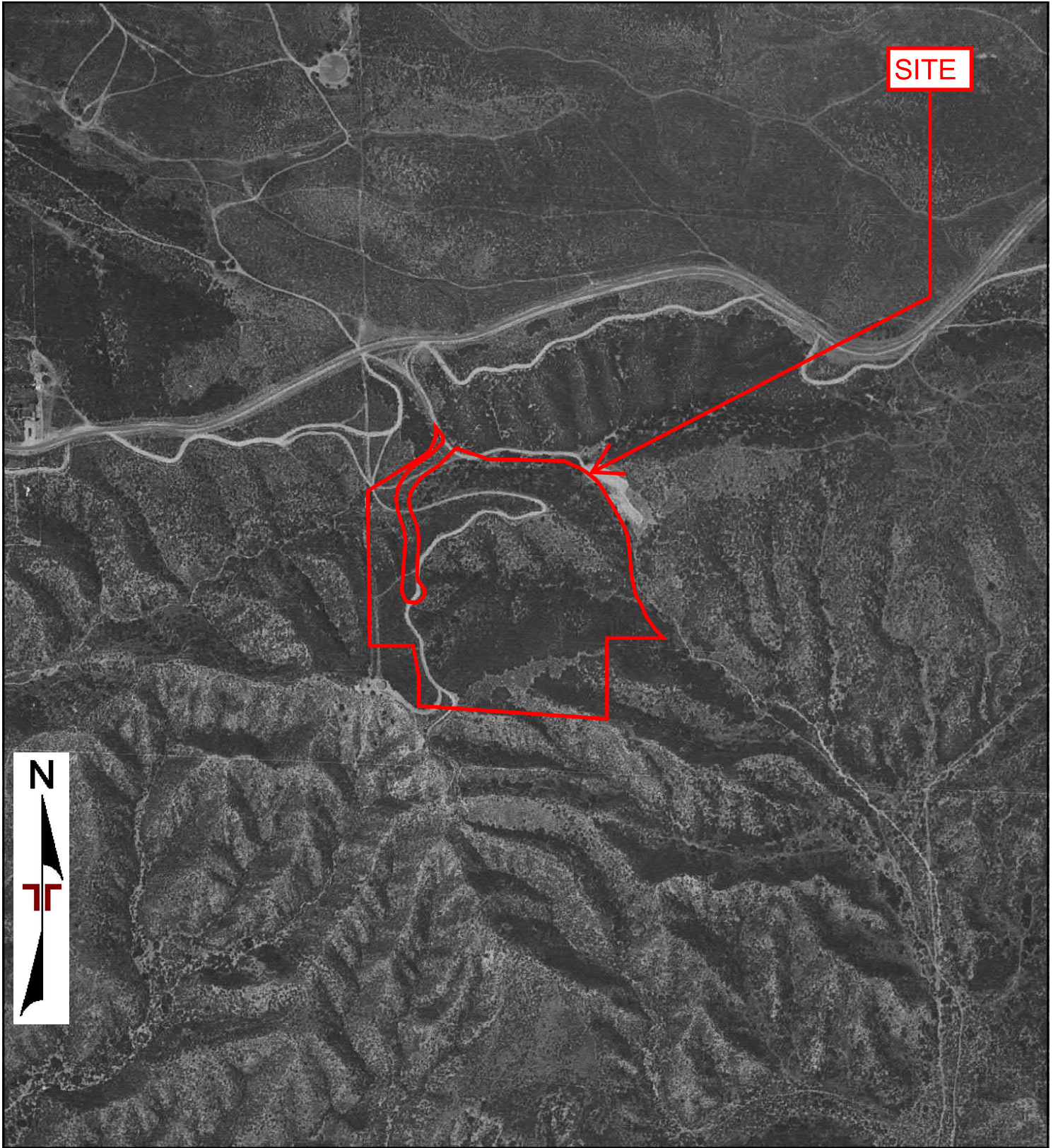
Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	1949

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1949 AERIAL PHOTOGRAPH

Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

Appendix
C



0 Feet

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1000

2000

Project Manager:	Project No:
JSV	CB227029
Drawn By:	Scale:
SHC	As Shown
Checked By:	File Name:
LSH	
Approved By:	Date:
CAP	1938

**Terracon**  
 1355 East Cooley Drive  
 Colton, California 92324

1938 AERIAL PHOTOGRAPH

Macknet Property  
 South of Helen Drive  
 Redlands, San Bernardino County, California 92373

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**Macknet Property**

South of Helen Drive

Redlands, San Bernardino County, California 92373

Inquiry Number: 6867268.5

February 23, 2022

# The EDR-City Directory Image Report

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### SECTION

Executive Summary

Findings

City Directory Images

*Thank you for your business.*

Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## EXECUTIVE SUMMARY

### DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

### RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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### RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2017	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2010	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2005	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
1995	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
1992	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
1986	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1980	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1976	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1971	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1965	<input type="checkbox"/>	<input type="checkbox"/>	Lusky Brothers & Co. Publications

## FINDINGS

### TARGET PROPERTY STREET

South of Helen Drive  
Redlands, CA 92373

<u>Year</u>	<u>CD Image</u>	<u>Source</u>
-------------	-----------------	---------------

#### HELEN DR

2017	pg A2	EDR Digital Archive	
2014	pg A3	EDR Digital Archive	
2010	pg A4	EDR Digital Archive	
2005	pg A5	EDR Digital Archive	
2000	pg A6	EDR Digital Archive	
1995	pg A7	EDR Digital Archive	
1992	pg A8	EDR Digital Archive	
1986	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1976	-	Haines Criss-Cross Directory	Street not listed in Source
1971	-	Haines Criss-Cross Directory	Street not listed in Source
1965	-	Luskey Brothers & Co. Publications	Street not listed in Source

## FINDINGS

### CROSS STREETS

<u>Year</u>	<u>CD Image</u>	<u>Source</u>	
<b><u>HELEN CT</u></b>			
2017	pg. A1	EDR Digital Archive	
2014	-	EDR Digital Archive	Street not listed in Source
2010	-	EDR Digital Archive	Street not listed in Source
2005	-	EDR Digital Archive	Street not listed in Source
2000	-	EDR Digital Archive	Street not listed in Source
1995	-	EDR Digital Archive	Street not listed in Source
1992	-	EDR Digital Archive	Street not listed in Source
1986	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1976	-	Haines Criss-Cross Directory	Street not listed in Source
1971	-	Haines Criss-Cross Directory	Street not listed in Source
1965	-	Luskey Brothers & Co. Publications	Street not listed in Source

## **City Directory Images**

**HELEN CT 2017**

31280 CITY OF REDLANDS



-

**HELEN DR 2017**

13039 SLAYYEH, YASER A  
13063 RUNGCHARASSAENG, KITICHAJ  
13087 RICHEY, MARK A  
13151 JUTZY, KENNETH R





-

**HELEN DR 2014**

13039 SLAYYEH, YASER A  
13051 BRICKLEY, TOM M  
13063 LINDEMER, CURTIS A  
13075 FARRIS, TERRY A  
13087 RICHEY, MARK A  
13151 JUTZY, KENNETH R



-

**HELEN DR 2010**

13039 OCCUPANT UNKNOWN,  
13051 BRICKLEY, TOM M  
13075 FARRIS, TERRY A  
13087 RICHEY, MARK A  
13151 JUTZY, KENNETH R



-

**HELEN DR 2005**

13039 SLAYYEH, YASER A  
13051 FAIRCHILD, JAMES L  
13063 LINDEMER, CURTIS A  
13075 FARRIS, TERRY A  
13087 RICHEY, MARK A  
13151 JUTZY, KENNETH R



-

**HELEN DR 2000**

13039 OCCUPANT UNKNOWN,  
13051 OCCUPANT UNKNOWN,  
13063 SILVERGLEID, ARTHUR J  
13075 OCCUPANT UNKNOWN,  
13087 RICHEY, MARK



-

**HELEN DR 1995**

13075 SALVESEN, JOHN A  
13087 RICHEY, MARK



-

**HELEN DR 1992**

13075 SALVESEN, JOHN A  
13087 RICHEY, MARK A

## Client/User Required Questionnaire



<b>Person Completing Questionnaire</b>	Name: Veronica Medina Company: City of Redlands	Phone: (909) 798-7584 x 6 Email: vmedina@cityofredlands.org
<b>Site Name</b>	Macknet Property	
<b>Site Address</b>	South of Helen Drive, Redlands, California	
<b>Point of Contact for Access</b>	Name: Mark Macknet Company:	Phone: (909) 363-6238 Email: mmacknet@mac.com
<b>Access Restrictions or Special Site Requirements?</b>	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (If yes, please explain)	
<b>Confidentiality Requirements?</b>	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (If yes, please explain)	
<b>Current Site Owner</b>	Name: Mark Macknet, Dale Macknet, Cathy Macknet Company:	Phone: (909) 363-6238 (Mark) / (909) 214-7771 (Cathy) Email: mmacknet@mac.com / dmacknet@gmail.com / cmacknet@hotmail.com
<b>Current Site Operator</b>	Name: See "Current Site Owner" Company:	Phone: Email:
<b>Reasons for ESA</b> (e.g., financing, acquisition, lease, etc.)	The City is looking into purchasing the site with the purpose of removing and replacing the existing water reservoir (white circle near the corner of property). The new reservoir will be placed within the subject property.	
<b>Anticipated Future Site Use</b>	Reservoir location	
<b>Relevant Documents?</b>	Please provide Terracon copies of prior Phase I or II ESAs, Asbestos Surveys, Environmental Permits or Audit documents, Underground Storage Tank documents, Geotechnical Investigations, Site Surveys, Diagrams or Maps, or other relevant reports or documents.	
<b>ASTM User Questionnaire</b>		
In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Relief and Brownfields Revitalization Act of 2001 (the "Brownfields Amendments"), the user must respond to the following questions. Failure to provide this information to the environmental professional may result in significant data gaps, which may limit our ability to identify recognized environmental conditions resulting in a determination that "all appropriate inquiry" is not complete. This form represents a type of interview and as such, the user has an obligation to answer all questions in good faith, to the extent of their actual knowledge.		
1) Did a search of recorded land title records (or judicial records where appropriate) identify any environmental liens filed or recorded against the property under federal, tribal, state, or local law (40 CFR 312.25)? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (If yes, explain below and send Terracon a copy of the title records or judicial records reviewed.)		
2) Did a search of recorded land title records (or judicial records where appropriate) identify any activity and use limitations (AULs), such as engineering controls, land use restrictions, or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state, or local law (40 CFR 312.26)? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (If yes, explain below and send Terracon a copy of the title records or judicial records reviewed.)		
3) Do you have any specialized knowledge or experience related to the site or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the site or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business (40 CFR 312-28)? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (If yes, explain below)		
4) Do you have actual knowledge of a lower purchase price because contamination is known or believed to be present at the site (40 CFR 312.29)? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not applicable (If yes or Not applicable, explain below)		
5) Are you aware of commonly known or reasonably ascertainable information about the site that would help the environmental professional to identify conditions indicative of releases or threatened releases (40 CFR 312.30)? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (If yes, explain below)		
6) Based on your knowledge and experience related to the site, are there any obvious indicators that point to the presence or likely presence of contamination at the site (40 CFR 312.31)? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (If yes, explain below)		
<b>Comments or explanations:</b>   		

Please return this form with the signed authorization to proceed.

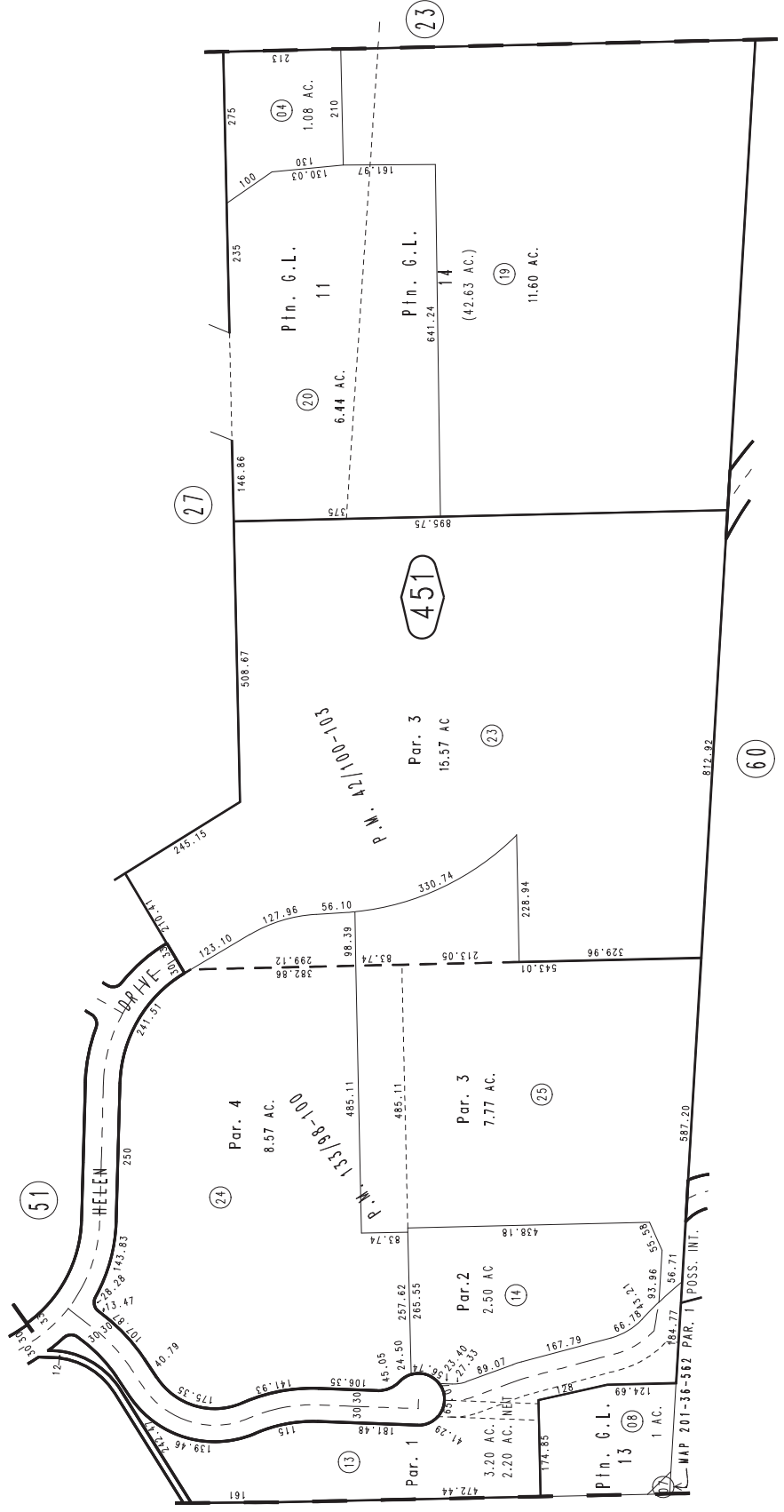
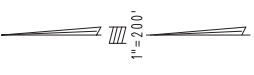
Proposal No. PCB227029

Ptn. N.W.1/4, Sec. 7, T.2S., R.2W. S.B.M.

City of Redlands  
Tax Rate Area  
5011

0300-45

THIS MAP IS FOR THE PURPOSE  
OF AD VALOREM TAXATION ONLY.



REVISED  
07/28/15 CW  
07/31/15 CW  
10/02/15 KC  
10/21/15 KC

Assessor's Map  
Book 0300 Page 45  
San Bernardino County

Parcel Map No. 5422, P.M. 133/98-100  
Plat. Parcel Map No. 4750, P.M. 42/100-103

NOV. 1978



# Property Information Management System

San Bernardino County

Office of the Assessor



OWNERSHIP HISTORY REPORT FOR PARCEL 0300-451-13-0000



**Parcel** 0300451130000  
**Parcel Status** ACTIVE  
**Parcel Type** REAL PROPERTY  
**Property ID**  
**Tax Status** ASSESSED BY COUNTY  
**Use Code** VACANT  
**Land Access** PUBLIC PAVED  
**Size** 1.501 TO 3.500 ACRES  
**Land Type** SINGLE FAMILY  
 RESIDENTIAL  
**District** SAN BERNARDINO  
**Resp Group** REAL PROPERTY  
**Resp Unit** RES ZONE(MAX 14  
 UTS)&USE EX HPC/MHM(1-  
 14 UTS,CHURC

**Ownership History**

**Owner Name: MACKNET, CATHY A**

<b>R/I</b> JOINT TENANCY	<b>Document Numbers</b>
<b>% Int</b> 33.3333000	20200256178
<b>Type</b> OTHER OWNER	
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 07/27/2020	
<b>Inactive Date</b> NONE	

**Owner Name: MACKNET, KENNETH D II**

<b>R/I</b> JOINT TENANCY	<b>Document Numbers</b>
<b>% Int</b> 33.3333000	20200256178
<b>Type</b> BILLED OWNER	
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 07/27/2020	
<b>Inactive Date</b> NONE	



**Owner Name: MACKNET, MARK R**

---

<b>R/I</b> JOINT TENANCY	<b>Document Numbers</b>
<b>% Int</b> 33.3333000	20200256178
<b>Type</b> JOINT MAIL OWNER	
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 07/27/2020	
<b>Inactive Date</b> NONE	

**Owner Name: MACKNET, ELAINE**

---

<b>R/I</b> SOLE OWNER	<b>Document Numbers</b>
<b>% Int</b> 50.0000000	20200256177
<b>Type</b> BILLED OWNER	
<b>Acquisition Date</b> 04/02/2018	
<b>Document Date</b> 07/27/2020	
<b>Inactive Date</b> 07/26/2020	

**Owner Name: MACKNET, ELAINE**

---

<b>R/I</b> SPOUSAL	<b>Document Numbers</b>
<b>% Int</b> 50.0000000	20160185616
<b>Type</b> JOINT MAIL OWNER	
<b>Acquisition Date</b> 05/12/2016	
<b>Document Date</b> 05/12/2016	
<b>Inactive Date</b> 07/26/2020	

**Owner Name: MACKNET, KENNETH D**

---

<b>R/I</b> SPOUSAL	<b>Document Numbers</b>
<b>% Int</b> 50.0000000	20160185616
<b>Type</b> BILLED OWNER	
<b>Acquisition Date</b> 05/12/2016	
<b>Document Date</b> 05/12/2016	
<b>Inactive Date</b> 04/01/2018	



**Owner Name: MACKNET, K D DEFINED BENEFIT PENSION**

---

**R/I** SOLE OWNER

**Document Numbers**

---

**% Int** 100.0000000

8900000000000

**Type** BILLED OWNER

**Acquisition Date** 02/20/1986

**Document Date** 03/01/1988

**Inactive Date** 05/11/2016

# Property Information Management System

San Bernardino County  
Office of the Assessor



OWNERSHIP HISTORY REPORT FOR PARCEL 0300-451-14-0000



Parcel 0300451140000  
**Parcel Status** ACTIVE  
**Parcel Type** REAL PROPERTY  
**Property ID**  
**Tax Status** ASSESSED BY COUNTY  
**Use Code** VACANT  
**Land Access** PUBLIC PAVED  
**Size** 1.501 TO 3.500 ACRES  
**Land Type** SINGLE FAMILY  
RESIDENTIAL  
**District** SAN BERNARDINO  
**Resp Group** REAL PROPERTY  
**Resp Unit** RES ZONE(MAX 14  
UTS)&USE EX HPC/MHM(1-  
14 UTS,CHURC

**Ownership History**

**Owner Name: MACKNET, CATHY A**

<b>R/I</b> JOINT TENANCY	<b>Document Numbers</b>
<b>% Int</b> 33.3333000	<u>20200256180</u>
<b>Type</b> OTHER OWNER	
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 07/27/2020	
<b>Inactive Date</b> NONE	

**Owner Name: MACKNET, KENNETH D II**

<b>R/I</b> JOINT TENANCY	<b>Document Numbers</b>
<b>% Int</b> 33.3333000	<u>20200256180</u>
<b>Type</b> BILLED OWNER	
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 07/27/2020	
<b>Inactive Date</b> NONE	



**Owner Name: MACKNET, MARK R**

---

<b>R/I</b> JOINT TENANCY	<b>Document Numbers</b>
<b>% Int</b> 33.3333000	20200256180
<b>Type</b> JOINT MAIL OWNER	
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 07/27/2020	
<b>Inactive Date</b> NONE	

**Owner Name: MACKNET, ELAINE**

---

<b>R/I</b> SOLE OWNER	<b>Document Numbers</b>
<b>% Int</b> 50.0000000	20200256179
<b>Type</b> BILLED OWNER	
<b>Acquisition Date</b> 04/02/2018	
<b>Document Date</b> 07/27/2020	
<b>Inactive Date</b> 07/26/2020	

**Owner Name: MACKNET, ELAINE**

---

<b>R/I</b> SPOUSAL	<b>Document Numbers</b>
<b>% Int</b> 50.0000000	20160185615
<b>Type</b> JOINT MAIL OWNER	
<b>Acquisition Date</b> 05/12/2016	
<b>Document Date</b> 05/12/2016	
<b>Inactive Date</b> 07/26/2020	

**Owner Name: MACKNET, KENNETH D**

---

<b>R/I</b> SPOUSAL	<b>Document Numbers</b>
<b>% Int</b> 50.0000000	20160185615
<b>Type</b> BILLED OWNER	
<b>Acquisition Date</b> 05/12/2016	
<b>Document Date</b> 05/12/2016	
<b>Inactive Date</b> 04/01/2018	



**Owner Name: MACKNET, K D DEFINED BENEFIT PENSION**

---

**R/I** SOLE OWNER

**Document Numbers**

**% Int** 100.0000000

8900000000000

**Type** BILLED OWNER

**Acquisition Date** 02/20/1986

**Document Date** 03/01/1988

**Inactive Date** 05/11/2016



# Property Information Management System

San Bernardino County

Office of the Assessor



OWNERSHIP HISTORY REPORT FOR PARCEL 0300-451-24-0000



**Parcel** 0300451240000  
**Parcel Status** ACTIVE  
**Parcel Type** REAL PROPERTY  
**Property ID**  
**Tax Status** ASSESSED BY COUNTY  
**Use Code** VACANT  
**Land Access** PUBLIC PAVED  
**Size** 7.001 TO 14.000 ACRES  
**Land Type** SINGLE FAMILY  
 RESIDENTIAL  
**District** SAN BERNARDINO  
**Resp Group** REAL PROPERTY  
**Resp Unit** RES ZONE(MAX 14  
 UTS)&USE EX HPC/MHM(1-  
 14 UTS,CHURC

**Ownership History**

**Owner Name: MACKNET, CATHY A**

<b>R/I</b> JOINT TENANCY	<b>Document Numbers</b>
<b>% Int</b> 33.3333000	20200256182
<b>Type</b> OTHER OWNER	20210073621
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 02/16/2021	
<b>Inactive Date</b> NONE	

**Owner Name: MACKNET, KENNETH D II**

<b>R/I</b> JOINT TENANCY	<b>Document Numbers</b>
<b>% Int</b> 33.3333000	20200256182
<b>Type</b> BILLED OWNER	20210073621
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 02/16/2021	
<b>Inactive Date</b> NONE	



**Owner Name: MACKNET, MARK R**

---

	<u>Document Numbers</u>
<b>R/I</b> JOINT TENANCY	
<b>% Int</b> 33.3333000	20200256182
<b>Type</b> JOINT MAIL OWNER	20210073621
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 02/16/2021	
<b>Inactive Date</b> NONE	

**Owner Name: MACKNET, ELAINE**

---

	<u>Document Numbers</u>
<b>R/I</b> SOLE OWNER	
<b>% Int</b> 50.0000000	20210066183
<b>Type</b> BILLED OWNER	
<b>Acquisition Date</b> 04/02/2018	
<b>Document Date</b> 02/10/2021	
<b>Inactive Date</b> 07/26/2020	

**Owner Name: MACKNET, ELAINE**

---

	<u>Document Numbers</u>
<b>R/I</b> SPOUSAL	
<b>% Int</b> 50.0000000	20160185617
<b>Type</b> JOINT MAIL OWNER	
<b>Acquisition Date</b> 05/12/2016	
<b>Document Date</b> 05/12/2016	
<b>Inactive Date</b> 07/26/2020	

**Owner Name: MACKNET, KENNETH D**

---

	<u>Document Numbers</u>
<b>R/I</b> SPOUSAL	
<b>% Int</b> 50.0000000	20160185617
<b>Type</b> BILLED OWNER	
<b>Acquisition Date</b> 05/12/2016	
<b>Document Date</b> 05/12/2016	
<b>Inactive Date</b> 04/01/2018	



**Owner Name: MACKNET, K D DEFINED BENEFIT PENSION**

---

	<b>Document Numbers</b>
<b>R/I</b> SOLE OWNER	
<b>% Int</b> 100.0000000	20150311466
<b>Type</b> BILLED OWNER	20150311470
<b>Acquisition Date</b> 02/20/1986	
<b>Document Date</b> 07/22/2015	
<b>Inactive Date</b> 05/11/2016	

# Property Information Management System

San Bernardino County

Office of the Assessor



OWNERSHIP HISTORY REPORT FOR PARCEL 0300-451-25-0000



**Parcel** 0300451250000  
**Parcel Status** ACTIVE  
**Parcel Type** REAL PROPERTY  
**Property ID**  
**Tax Status** ASSESSED BY COUNTY  
**Use Code** VACANT  
**Land Access** PUBLIC PAVED  
**Size** 7.001 TO 14.000 ACRES  
**Land Type** SINGLE FAMILY  
 RESIDENTIAL  
**District** SAN BERNARDINO  
**Resp Group** REAL PROPERTY  
**Resp Unit** RES ZONE(MAX 14  
 UTS)&USE EX HPC/MHM(1-  
 14 UTS,CHURC

**Ownership History**

**Owner Name: MACKNET, ELAINE**

<b>R/I</b> SOLE OWNER	<b>Document Numbers</b>
<b>% Int</b> 50.0000000	<u>20200256181</u>
<b>Type</b> BILLED OWNER	
<b>Acquisition Date</b> 04/02/2018	
<b>Document Date</b> 07/27/2020	
<b>Inactive Date</b> NONE	

**Owner Name: MACKNET, ELAINE**

<b>R/I</b> SPOUSAL	<b>Document Numbers</b>
<b>% Int</b> 50.0000000	<u>20160185618</u>
<b>Type</b> JOINT MAIL OWNER	
<b>Acquisition Date</b> 05/12/2016	
<b>Document Date</b> 05/12/2016	
<b>Inactive Date</b> NONE	



**Owner Name: (DEED ERR) MACKNET, CATHY A**

---

	<b>Document Numbers</b>
<b>R/I</b> JOINT TENANCY	
<b>% Int</b> 33.3333000	20200256182
<b>Type</b> OTHER OWNER	20210073621
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 02/16/2021	
<b>Inactive Date</b> 07/26/2020	

**Owner Name: (DEED ERR) MACKNET, KENNETH D II**

---

	<b>Document Numbers</b>
<b>R/I</b> JOINT TENANCY	
<b>% Int</b> 33.3333000	20200256182
<b>Type</b> BILLED OWNER	20210073621
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 02/16/2021	
<b>Inactive Date</b> 07/26/2020	

**Owner Name: (DEED ERR) MACKNET, MARK R**

---

	<b>Document Numbers</b>
<b>R/I</b> JOINT TENANCY	
<b>% Int</b> 33.3333000	20200256182
<b>Type</b> JOINT MAIL OWNER	20210073621
<b>Acquisition Date</b> 07/27/2020	
<b>Document Date</b> 02/16/2021	
<b>Inactive Date</b> 07/26/2020	

**Owner Name: (ERR) MACKNEYT, ELAINE**

---

	<b>Document Numbers</b>
<b>R/I</b> SOLE OWNER	
<b>% Int</b> 50.0000000	20200256181
<b>Type</b> BILLED OWNER	
<b>Acquisition Date</b> 04/02/2018	
<b>Document Date</b> 07/27/2020	
<b>Inactive Date</b> 04/01/2018	



**Owner Name: MACKNET, KENNETH D**

---

<b>R/I SPOUSAL</b>	<b>Document Numbers</b>
<b>% Int 50.0000000</b>	<u>20160185618</u>
<b>Type BILLED OWNER</b>	
<b>Acquisition Date 05/12/2016</b>	
<b>Document Date 05/12/2016</b>	
<b>Inactive Date 04/01/2018</b>	

**Owner Name: (ERR) MACKNEYT, ELAINE**

---

<b>R/I SPOUSAL</b>	<b>Document Numbers</b>
<b>% Int 50.0000000</b>	<u>20160185618</u>
<b>Type JOINT MAIL OWNER</b>	
<b>Acquisition Date 05/12/2016</b>	
<b>Document Date 05/12/2016</b>	
<b>Inactive Date 05/11/2016</b>	

**Owner Name: MACKNET, K D DEFINED BENEFIT PENSION**

---

<b>R/I SOLE OWNER</b>	<b>Document Numbers</b>
<b>% Int 100.0000000</b>	<u>20150311466</u>
<b>Type BILLED OWNER</b>	20150311470
<b>Acquisition Date 02/20/1986</b>	
<b>Document Date 07/22/2015</b>	
<b>Inactive Date 05/11/2016</b>	



**APPENDIX D**  
**ENVIRONMENTAL DATABASE INFORMATION**

**Macknet Property**

South of Helen Drive

Redlands, San Bernardino County, California 92373

Inquiry Number: 6867268.2s

February 22, 2022

**The EDR Radius Map™ Report with GeoCheck®**



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

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*Thank you for your business.*  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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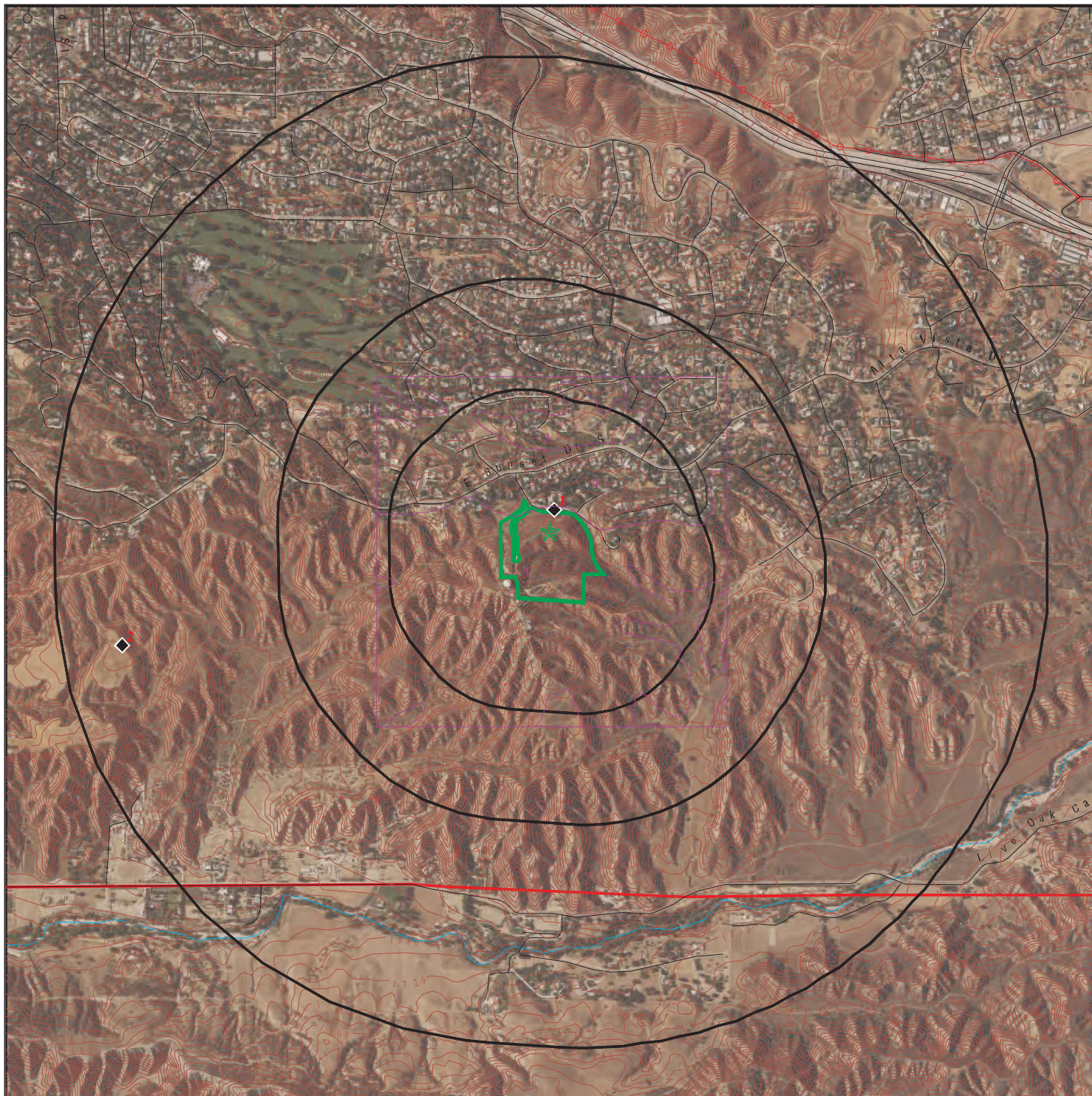
MAPPED SITES SUMMARY

Target Property Address:  
SOUTH OF HELEN DRIVE  
REDLANDS, CA 92373

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
<a href="#">1</a>	AT&T MOBILITY - ES00	31280 B HELEN CT	San Bern. Co. Permit, CERS, HWTS	Lower	27, 0.005, North
<a href="#">2</a>	SO CAL GAS/SAN BERNA	SO. CNR RIALTO BTWN	ENVIROSTOR, VCP	Lower	4560, 0.864, WSW

# OVERVIEW MAP - 6867268.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites



Indian Reservations BIA

County Boundary

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

Areas of Concern










This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Macknet Property  
 ADDRESS: South of Helen Drive  
 Redlands CA 92373  
 LAT/LONG: 34.0157 / 117.136868





CLIENT: Terracon  
 CONTACT: Laura Hedman  
 INQUIRY #: 6867268.2s  
 DATE: February 22, 2022 9:26 am

# DETAIL MAP - 6867268.2S



-  Target Property
-  Sites at elevations higher than or equal to the target property
-  Sites at elevations lower than the target property
-  Manufactured Gas Plants
-  Sensitive Receptors
-  National Priority List Sites
-  Dept. Defense Sites



-  Indian Reservations BIA
-  Special Flood Hazard Area (1%)
-  0.2% Annual Chance Flood Hazard
-  Areas of Concern



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Macknet Property  
 ADDRESS: South of Helen Drive  
 Redlands CA 92373  
 LAT/LONG: 34.0157 / 117.136868

CLIENT: Terracon  
 CONTACT: Laura Hedman  
 INQUIRY #: 6867268.2s  
 DATE: February 22, 2022 9:28 am

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<b>STANDARD ENVIRONMENTAL RECORDS</b>								
<b><i>Lists of Federal NPL (Superfund) sites</i></b>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
<b><i>Lists of Federal Delisted NPL sites</i></b>								
Delisted NPL	1.000		0	0	0	0	NR	0
<b><i>Lists of Federal sites subject to CERCLA removals and CERCLA orders</i></b>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<b><i>Lists of Federal CERCLA sites with NFRAP</i></b>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<b><i>Lists of Federal RCRA facilities undergoing Corrective Action</i></b>								
CORRACTS	1.000		0	0	0	0	NR	0
<b><i>Lists of Federal RCRA TSD facilities</i></b>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<b><i>Lists of Federal RCRA generators</i></b>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
<b><i>Federal institutional controls / engineering controls registries</i></b>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
<b><i>Federal ERNS list</i></b>								
ERNS	TP		NR	NR	NR	NR	NR	0
<b><i>Lists of state- and tribal (Superfund) equivalent sites</i></b>								
RESPONSE	1.000		0	0	0	0	NR	0
<b><i>Lists of state- and tribal hazardous waste facilities</i></b>								
ENVIROSTOR	1.000		0	0	0	1	NR	1
<b><i>Lists of state and tribal landfills and solid waste disposal facilities</i></b>								
SWF/LF	0.500		0	0	0	NR	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<b><i>Lists of state and tribal leaking storage tanks</i></b>								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
<b><i>Lists of state and tribal registered storage tanks</i></b>								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
<b><i>Lists of state and tribal voluntary cleanup sites</i></b>								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
<b><i>Lists of state and tribal brownfield sites</i></b>								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b><u>ADDITIONAL ENVIRONMENTAL RECORDS</u></b>								
<b><i>Local Brownfield lists</i></b>								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b><i>Local Lists of Landfill / Solid Waste Disposal Sites</i></b>								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
<b><i>Local Lists of Hazardous waste / Contaminated Sites</i></b>								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
<b><i>Local Lists of Registered Storage Tanks</i></b>								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0



## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CA FID UST	0.250		0	0	NR	NR	NR	0
<b>Local Land Records</b>								
LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
<b>Records of Emergency Release Reports</b>								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
<b>Other Ascertainable Records</b>								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
San Bern. Co. Permit	0.250		1	0	NR	NR	NR	1
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
UIC GEO	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	TP		NR	NR	NR	NR	NR	0
PROJECT	TP		NR	NR	NR	NR	NR	0
WDR	TP		NR	NR	NR	NR	NR	0
CIWQS	TP		NR	NR	NR	NR	NR	0
CERS	TP		NR	NR	NR	NR	NR	0
NON-CASE INFO	TP		NR	NR	NR	NR	NR	0
OTHER OIL GAS	TP		NR	NR	NR	NR	NR	0
PROD WATER PONDS	TP		NR	NR	NR	NR	NR	0
SAMPLING POINT	TP		NR	NR	NR	NR	NR	0
WELL STIM PROJ	TP		NR	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
MINES MRDS	TP		NR	NR	NR	NR	NR	0

### EDR HIGH RISK HISTORICAL RECORDS

#### ***EDR Exclusive Records***

EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0

### EDR RECOVERED GOVERNMENT ARCHIVES

#### ***Exclusive Recovered Govt. Archives***

RGA LF	TP		NR	NR	NR	NR	NR	0
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## MAP FINDINGS SUMMARY

<u>Database</u>	<u>Search Distance (Miles)</u>	<u>Target Property</u>	<u>&lt; 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>&gt; 1</u>	<u>Total Plotted</u>
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		0	1	0	0	1	0	2

**NOTES:**

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

1  
North  
< 1/8  
0.005 mi.  
27 ft.

**AT&T MOBILITY - ES0022-02 (CM365) REDLANDS WATER T**  
**31280 B HELEN CT**  
**REDLANDS, CA 92373**

**San Bern. Co. Permit**  
**CERS**  
**HWTS**

**S127126892**  
**N/A**

**Relative:**  
**Lower**

San Bern. Co. Permit:

**Actual:**  
**2137 ft.**

Name: AT&T MOBILITY-ES0022-02 (CM365) REDLANDS WATER TANK (USID50979)  
Address: 31280 HELEN CT B  
City,State,Zip: REDLANDS, CA 92373  
Region: SAN BERNARDINO  
Facility ID: FA0010602  
Owner: New Cingular Wireless PCS, LLC dba AT&T Mobility  
Permit Number: PT0040563  
Permit Category: HAZARDOUS MATERIALS 1-3 CHEMICALS SPECIAL  
Facility Status: ACTIVE  
Expiration Date: 04/30/2022

Name: AT&T MOBILITY-ES0022-02 (CM365) REDLANDS WATER TANK (USID50979)  
Address: 31280 HELEN CT B  
City,State,Zip: REDLANDS, CA 92373  
Region: SAN BERNARDINO  
Facility ID: FA0010602  
Owner: New Cingular Wireless PCS, LLC dba AT&T Mobility  
Permit Number: PT0018878  
Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES  
Facility Status: INACTIVE  
Expiration Date: 04/30/2012

CERS:

Name: AT&T MOBILITY - ES0022-02 (CM365) REDLANDS WATER TANK (USID50979)  
Address: 31280 B HELEN CT  
City,State,Zip: REDLANDS, CA 92373  
Site ID: 573070  
CERS ID: 10866640  
CERS Description: Chemical Storage Facilities

Affiliation:

Affiliation Type Desc: Document Preparer  
Entity Name: Peter Burnell, Sigma Consultants, Inc.  
Affiliation Phone: ,

Affiliation Type Desc: CUPA District  
Entity Name: San Bernardino County Fire  
Affiliation Address: 620 South E Street  
Affiliation City: San Bernardino  
Affiliation State: CA  
Affiliation Zip: 92415-0153  
Affiliation Phone: (909) 386-8401,

Affiliation Type Desc: Environmental Contact  
Entity Name: AT&T EH&S Hotline - Option #1  
Affiliation Address: 308 S. Akard St., 17th Floor  
Affiliation City: Dallas  
Affiliation State: TX  
Affiliation Zip: 75202  
Affiliation Phone: ,

Affiliation Type Desc: Facility Mailing Address

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**AT&T MOBILITY - ES0022-02 (CM365) REDLANDS WATER TANK (USID5 (Continued))**

**S127126892**

Entity Name: Mailing Address  
Affiliation Address: 308 S. Akard St., 17th Floor  
Affiliation City: Dallas  
Affiliation State: TX  
Affiliation Zip: 75202  
Affiliation Phone: ,

Affiliation Type Desc: Parent Corporation  
Entity Name: AT&T Mobility  
Affiliation Phone: ,

Affiliation Type Desc: Legal Owner  
Entity Name: New Cingular Wireless PCS, LLC dba AT&T Mobility  
Affiliation Address: 308 S. Akard St., 17th Floor  
Affiliation City: Dallas  
Affiliation State: TX  
Affiliation Country: United States  
Affiliation Zip: 75202  
Affiliation Phone: (214) 464-1712,

Affiliation Type Desc: Identification Signer  
Entity Name: Jeremy McGrue  
Entity Title: National EPCRA Manager  
Affiliation Phone: ,

Affiliation Type Desc: Operator  
Entity Name: AT&T Mobility  
Affiliation Phone: (800) 566-9347,

**HWTS:**

Name: NEW CINGULAR WIRELESS PCS LLC  
Address: 31280 HELEN CT #B  
City,State,Zip: REDLANDS, CA 92373  
EPA ID: CAL000461621  
Create Date: 04/06/2021  
Last Act Date: 04/06/2021  
Mailing Address: 308 S AKARD ST 17TH FLR  
Mailing City,State,Zip: DALLAS, TX 75202  
Owner Name: NEW CINGULAR WIRELESS PCS LLC  
Owner Address: 308 S AKARD ST 17TH FLR  
Owner City,State,Zip: DALLAS, TX 75202  
Contact Name: EH&S WASTE TEAM  
Contact Address: 308 S AKARD ST 17TH FLR  
City,State,Zip: DALLAS, TX 75202

**NAICS:**

EPA ID: CAL000461621  
Create Date: 2021-04-06 11:46:25.760  
NAICS Code: 517911  
NAICS Description: Telecommunications Resellers  
Issued EPA ID Date: 2021-04-06 11:46:25.76000  
Facility Name: NEW CINGULAR WIRELESS PCS LLC  
Facility Address: 31280 HELEN CT #B  
Facility City: REDLANDS  
Facility State: CA  
Facility Zip: 92373

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**2**  
**WSW**  
**1/2-1**  
**0.864 mi.**  
**4560 ft.**

**SO CAL GAS/SAN BERNARDINO 2 (RIALTO)**  
**SO. CNR RIALTO BTWN D & ARROWHEAD**  
**SAN BERNARDINO, CA 92401**

**ENVIROSTOR** **S106568284**  
**VCP** **N/A**

**Relative:**  
**Lower**

ENVIROSTOR:

**Actual:**  
**1932 ft.**

Name: SO CAL GAS/SAN BERNARDINO 2 (RIALTO)  
 Address: SO. CNR RIALTO BTWN D & ARROWHEAD  
 City,State,Zip: SAN BERNARDINO, CA 92401  
 Facility ID: 36490110  
 Status: No Further Action  
 Status Date: 06/30/2000  
 Site Code: 400342  
 Site Type: Voluntary Cleanup  
 Site Type Detailed: Voluntary Cleanup  
 Acres: 6  
 NPL: NO  
 Regulatory Agencies: DTSC  
 Lead Agency: DTSC  
 Program Manager: Safouh Sayed  
 Supervisor: Robert Senga  
 Division Branch: Cleanup Cypress  
 Assembly: 40  
 Senate: 23  
 Special Program: Voluntary Cleanup Program  
 Restricted Use: NO  
 Site Mgmt Req: NONE SPECIFIED  
 Funding: Responsible Party  
 Latitude: 34.01205  
 Longitude: -117.1536  
 APN: NONE SPECIFIED  
 Past Use: MANUFACTURED GAS PLANT  
 Potential COC: TPH-gas  
 Confirmed COC: NONE SPECIFIED  
 Potential Description: SOIL  
 Alias Name: SO CAL GAS - SAN BERNARDINO  
 Alias Type: Alternate Name  
 Alias Name: SO CAL GAS - SAN BERNARDINO/RIALTO  
 Alias Type: Alternate Name  
 Alias Name: SO CAL GAS/SAN BERNARDINO 2 (ARROWHEAD)  
 Alias Type: Alternate Name  
 Alias Name: SOUTHERN CALIFORNIA GAS  
 Alias Type: Alternate Name  
 Alias Name: SOUTHERN CALIFORNIA GAS COMPANY  
 Alias Type: Alternate Name  
 Alias Name: TOWN GAS SITE 2 - SAN BERNARDINO  
 Alias Type: Alternate Name  
 Alias Name: 110033615764  
 Alias Type: EPA (FRS #)  
 Alias Name: 400342  
 Alias Type: Project Code (Site Code)  
 Alias Name: 36490110  
 Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE  
 Completed Document Type: Standard Voluntary Agreement  
 Completed Date: 11/08/1996  
 Comments: A Consent Order was signed by The Gas Co and DTSC to address

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SO CAL GAS/SAN BERNARDINO 2 (RIALTO) (Continued)**

**S106568284**

Supplemental Investigation, and the preparation and the implementation of a Removal Action Workplan for the site

Completed Area Name: PROJECT WIDE  
Completed Document Type: Standard Voluntary Agreement  
Completed Date: 08/20/1993

Completed Area Name: PROJECT WIDE  
Completed Document Type: Remedial Investigation / Feasibility Study  
Completed Date: 05/10/1999  
Comments: The Remedial Investigation/Feasibility Study (RI/FS) consists of soil investigation and groundwater monitoring. The major chemicals of potential concern are carcinogenic polycyclic aromatic hydrocarbons (C-PAHs) in the soil. The objective of this project is to remediate the site by removing contaminated soils.

Completed Area Name: PROJECT WIDE  
Completed Document Type: Removal Action Completion Report  
Completed Date: 06/30/2002  
Comments: The removal of contaminated soil has been completed and a removal action report has been submitted.

Completed Area Name: PROJECT WIDE  
Completed Document Type: Removal Action Workplan  
Completed Date: 06/28/1999  
Comments: The objective of this project is to remediate the site by removing contaminated soils. The selected remedial action consists of removing contaminated soil to a depth of 12 feet bgs. Excavated areas will be backfilled with clean imported soil.

Completed Area Name: PROJECT WIDE  
Completed Document Type: Preliminary Endangerment Assessment Report  
Completed Date: 08/31/1994

Completed Area Name: PROJECT WIDE  
Completed Document Type: Site Characterization Workplan  
Completed Date: 08/08/1997

VCP:

Name: SO CAL GAS/SAN BERNARDINO 2 (RIALTO)  
Address: SO. CNR RIALTO BTWN D & ARROWHEAD  
City,State,Zip: SAN BERNARDINO, CA 92401  
Facility ID: 36490110  
Site Type: Voluntary Cleanup  
Site Type Detail: Voluntary Cleanup  
Site Mgmt. Req.: NONE SPECIFIED  
Acres: 6  
National Priorities List: NO  
Cleanup Oversight Agencies: DTSC  
Lead Agency: DTSC  
Lead Agency Description: \* DTSC  
Project Manager: Safouh Sayed  
Supervisor: Robert Senga  
Division Branch: Cleanup Cypress  
Site Code: 400342  
Assembly: 40

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SO CAL GAS/SAN BERNARDINO 2 (RIALTO) (Continued)**

**S106568284**

Senate: 23  
Special Programs Code: Voluntary Cleanup Program  
Status: No Further Action  
Status Date: 06/30/2000  
Restricted Use: NO  
Funding: Responsible Party  
Lat/Long: 34.01205 / -117.1536  
APN: NONE SPECIFIED  
Past Use: MANUFACTURED GAS PLANT  
Potential COC: 30025  
Confirmed COC: NONE SPECIFIED  
Potential Description: SOIL  
Alias Name: SO CAL GAS - SAN BERNARDINO  
Alias Type: Alternate Name  
Alias Name: SO CAL GAS - SAN BERNARDINO/RIALTO  
Alias Type: Alternate Name  
Alias Name: SO CAL GAS/SAN BERNARDINO 2 (ARROWHEAD)  
Alias Type: Alternate Name  
Alias Name: SOUTHERN CALIFORNIA GAS  
Alias Type: Alternate Name  
Alias Name: SOUTHERN CALIFORNIA GAS COMPANY  
Alias Type: Alternate Name  
Alias Name: TOWN GAS SITE 2 - SAN BERNARDINO  
Alias Type: Alternate Name  
Alias Name: 110033615764  
Alias Type: EPA (FRS #)  
Alias Name: 400342  
Alias Type: Project Code (Site Code)  
Alias Name: 36490110  
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE  
Completed Document Type: Standard Voluntary Agreement  
Completed Date: 11/08/1996  
Comments: A Consent Order was signed by The Gas Co and DTSC to address Supplemental Investigation, and the preparation and the implementation of a Removal Action Workplan for the site

Completed Area Name: PROJECT WIDE  
Completed Document Type: Standard Voluntary Agreement  
Completed Date: 08/20/1993

Completed Area Name: PROJECT WIDE  
Completed Document Type: Remedial Investigation / Feasibility Study  
Completed Date: 05/10/1999  
Comments: The Remedial Investigation/Feasibility Study (RI/FS) consists of soil investigation and groundwater monitoring. The major chemicals of potential concern are carcinogenic polycyclic aromatic hydrocarbons (C-PAHs) in the soil. The objective of this project is to remediate the site by removing contaminated soils.

Completed Area Name: PROJECT WIDE  
Completed Document Type: Removal Action Completion Report  
Completed Date: 06/30/2002  
Comments: The removal of contaminated soil has been completed and a removal action report has been submitted.



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SO CAL GAS/SAN BERNARDINO 2 (RIALTO) (Continued)**

**S106568284**

Completed Area Name: PROJECT WIDE  
Completed Document Type: Removal Action Workplan  
Completed Date: 06/28/1999  
Comments: The objective of this project is to remediate the site by removing contaminated soils. The selected remedial action consists of removing contaminated soil to a depth of 12 feet bgs. Excavated areas will be backfilled with clean imported soil.

Completed Area Name: PROJECT WIDE  
Completed Document Type: Preliminary Endangerment Assessment Report  
Completed Date: 08/31/1994

Completed Area Name: PROJECT WIDE  
Completed Document Type: Site Characterization Workplan  
Completed Date: 08/08/1997

Count: 24 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
CITY OF REDLANDS	1015730681	REDLANDS SMUDGE POT TANKS SITE	100 FEET WEST OF REDLANDS BLVD	92373	SEMS
REDLANDS	S107538054		CHURCH ST (N OF BROCKTON AVE)	92374	CDL
REDLANDS	S126984123	CHURCH STREET LANDFILL	N END OF CHURCH ST., N OF PION	92373	SWF/LF
REDLANDS	S107530470		2.5 MI N OF BRUANT RD ON STATE	92373	CDL
REDLANDS	1003877955	UNIVERSAL RUNDEL	OPAL AVE-300 FT. N OF SAN BERN	92373	SEMS-ARCHIVE
REDLANDS	S107540561		SAN BERNARDINO AVENUE (W OF WA	CDL	
REDLANDS	1003879085	REDLANDS FARMING CO	SAN BERNARDINO AVE E OF TEXAS	92373	SEMS-ARCHIVE
SAN BERNARDINO COUN'	S107538721		HIGHWAY 138 E OF HIGHWAY 2	CDL	
SAN BERNARDINO COUN'	S107538848		HWY 18, 3 MILES NO OF WATERMAN	CDL	
SAN BERNARDINO COUN'	S107538905		IN 9100 BLOCK OF DESOTO, APPRO	CDL	
SAN BERNARDINO COUN'	S107539748		ON BUCKWHEAT ROAD, NORTH OF JU	CDL	
SAN BERNARDINO COUN'	S107538165		CORNER OF HWY 247 & 18 AND 76	CDL	
SAN BERNARDINO COUN'	S107538260		DALE EVANS RD, W OF CORWIN RD	CDL	
SAN BERNARDINO COUN'	S107538579		GLEN HELEN PARKWAY, 1 MIE OF	CDL	
SAN BERNARDINO COUN'	S107539873		ON HIGHWAY 395, 2 MILES NORTH	CDL	
SAN BERNARDINO COUN'	S107539885		ON HWY 138, 1 1/2 MI W OF HWY	CDL	
SAN BERNARDINO COUN'	S107539471		N I-215, SOUTH OF PALM EXIT	CDL	
SAN BERNARDINO COUN'	S107532438		3 1/2 MI E OF BEAR VALLEY & HW	CDL	
SAN BERNARDINO COUN'	1016139697	CIMA ROAD MINE WASTE SITE	1 MIL W OF INTE. 15 OFF CIMA R	SEMS	
SAN BERNARDINO COUN'	S107540201		PALM MEADOWS DR (X-E OF TIPPIC	CDL	
SAN BERNARDINO COUN'	S107540506		ROAD IN09, 3/2 MI E OF HWY 330	CDL	
SAN BERNARDINO COUN'	S107540087		ON STATE HIGHWAY 173, ~2 MILES	CDL	
SAN BERNARDINO COUN'	S107533643		4 MI W OF KOALA RD ON CRIPPON	CDL	
SAN BERNARDINO COUN'	S107526653		10 MI W OF YATES WELL RD OFF R	CDL	

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov. Date	Arvl. Date	Active Date
CA	AQUEOUS FOAM	Former Fire Training Facility Assessments Listing	State Water Resources Control Board	12/01/2019	08/19/2021	10/28/2021
CA	AST	Aboveground Petroleum Storage Tank Facilities	California Environmental Protection Agency	07/06/2016	07/12/2016	09/19/2016
CA	BROWNFIELDS	Considered Brownfields Sites Listing	State Water Resources Control Board	09/20/2021	09/21/2021	12/08/2021
CA	CA BOND EXP. PLAN	Bond Expenditure Plan	Department of Health Services	01/01/1989	07/27/1994	08/02/1994
CA	CA FID UST	Facility Inventory Database	California Environmental Protection Agency	10/31/1994	09/05/1995	09/29/1995
CA	CDL	Clandestine Drug Labs	Department of Toxic Substances Control	12/31/2019	01/20/2021	04/08/2021
CA	CERS	CalEPA Regulated Site Portal Data	California Environmental Protection Agency	10/18/2021	10/19/2021	01/12/2022
CA	CERS HAZ WASTE	CERS HAZ WASTE	CalEPA	10/18/2021	10/19/2021	01/12/2022
CA	CERS TANKS	California Environmental Reporting System (CERS) Tanks	California Environmental Protection Agency	10/18/2021	10/19/2021	01/12/2022
CA	CHMIRS	California Hazardous Material Incident Report System	Office of Emergency Services	09/30/2021	10/19/2021	01/12/2022
CA	CIWQS	California Integrated Water Quality System	State Water Resources Control Board	11/30/2021	11/30/2021	02/16/2022
CA	CORTESE	"Cortese" Hazardous Waste & Substances Sites List	CAL EPA/Office of Emergency Information	09/20/2021	09/21/2021	12/08/2021
CA	CPS-SLIC	Statewide SLIC Cases (GEOTRACKER)	State Water Resources Control Board	09/07/2021	09/07/2021	11/29/2021
CA	CUPA LIVERMORE-PLEASANTON	CUPA Facility Listing	Livermore-Pleasanton Fire Department	05/01/2019	05/14/2019	07/17/2019
CA	DEED	Deed Restriction Listing	DTSC and SWRCB	11/30/2021	11/30/2021	02/16/2022
CA	DRYCLEAN AVAQMD	Antelope Valley Air Quality Management District Drycleaner L	Antelope Valley Air Quality Management Distri	11/29/2021	11/29/2021	02/14/2022
CA	DRYCLEAN SOUTH COAST	South Coast Air Quality Management District Drycleaner Listi	South Coast Air Quality Management District	11/17/2021	11/18/2021	02/07/2022
CA	DRYCLEANERS	Cleaner Facilities	Department of Toxic Substance Control	08/27/2021	09/01/2021	11/19/2021
CA	EMI	Emissions Inventory Data	California Air Resources Board	12/31/2019	06/10/2021	08/27/2021
CA	ENF	Enforcement Action Listing	State Water Resources Control Board	11/10/2021	11/11/2021	02/03/2022
CA	ENVIROSTOR	EnviroStor Database	Department of Toxic Substances Control	10/25/2021	10/26/2021	01/14/2022
CA	Financial Assurance 1	Financial Assurance Information Listing	Department of Toxic Substances Control	10/05/2021	10/06/2021	12/29/2021
CA	Financial Assurance 2	Financial Assurance Information Listing	Department of Toxic Substances Control	11/18/2021	11/19/2021	02/07/2022
CA	HAULERS	Registered Waste Tire Haulers Listing	California Integrated Waste Management Board	09/14/2021	11/11/2021	11/23/2021
CA	HAZNET	Facility and Manifest Data	Integrated Waste Management Board	09/14/2021	11/11/2021	11/23/2021
CA	HIST CAL-SITES	Calsites Database	California Environmental Protection Agency	12/31/2019	04/15/2020	07/02/2020
CA	HIST CORTESE	Hazardous Waste & Substance Site List	Department of Toxic Substance Control	08/08/2005	08/03/2006	08/24/2006
CA	HIST UST	Hazardous Substance Storage Container Database	Department of Toxic Substances Control	04/01/2001	01/22/2009	04/08/2009
CA	HWP	EnviroStor Permitted Facilities Listing	State Water Resources Control Board	10/15/1990	01/25/1991	02/12/1991
CA	HWT	Registered Hazardous Waste Transporter Database	Department of Toxic Substances Control	11/15/2021	11/15/2021	02/03/2022
CA	HWTS	Hazardous Waste Tracking System	Department of Toxic Substances Control	10/04/2021	10/05/2021	12/22/2021
CA	ICE	ICE	Department of Toxic Substances Control	07/13/2021	07/14/2021	10/06/2021
CA	LDS	Land Disposal Sites Listing (GEOTRACKER)	Department of Toxic Substances Control	11/15/2021	11/15/2021	02/03/2022
CA	LIENS	Environmental Liens Listing	State Water Quality Control Board	09/07/2021	09/07/2021	11/29/2021
CA	LUST	Leaking Underground Fuel Tank Report (GEOTRACKER)	Department of Toxic Substances Control	08/25/2021	09/03/2021	11/29/2021
CA	LUST REG 1	Active Toxic Site Investigation	State Water Resources Control Board	09/07/2021	09/07/2021	11/29/2021
CA	LUST REG 2	Fuel Leak List	California Regional Water Quality Control Boa	02/10/2001	02/28/2001	03/29/2001
CA	LUST REG 3	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	09/30/2004	10/20/2004	11/19/2004
CA	LUST REG 4	Underground Storage Tank Leak List	California Regional Water Quality Control Boa	05/19/2003	05/19/2003	06/02/2003
CA	LUST REG 5	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	LUST REG 6L	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	07/01/2008	07/22/2008	07/31/2008
CA	LUST REG 6V	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	09/09/2003	09/10/2003	10/07/2003
CA	LUST REG 7	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	06/07/2005	06/07/2005	06/29/2005
CA	LUST REG 8	Leaking Underground Storage Tanks	California Regional Water Quality Control Boa	02/26/2004	02/26/2004	03/24/2004
CA	LUST REG 9	Leaking Underground Storage Tank Report	California Regional Water Quality Control Boa	02/14/2005	02/15/2005	03/28/2005
CA	MCS	Leaking Underground Storage Tank Report	California Regional Water Quality Control Boa	03/01/2001	04/23/2001	05/21/2001
CA	MILITARY PRIV SITES	Military Cleanup Sites Listing (GEOTRACKER)	State Water Resources Control Board	09/07/2021	09/07/2021	11/29/2021
CA		Military Privatized Sites (GEOTRACKER)	State Water Resources Control Board	09/07/2021	09/07/2021	11/29/2021

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov. Date	Arvl. Date	Active Date
CA	MILITARY UST SITES	Military UST Sites (GEOTRACKER)	State Water Resources Control Board	09/07/2021	09/07/2021	11/29/2021
CA	MINES	Mines Site Location Listing	Department of Conservation	09/07/2021	09/07/2021	11/29/2021
CA	MWMP	Medical Waste Management Program Listing	Department of Public Health	11/18/2021	11/30/2021	02/17/2022
CA	NON-CASE INFO	Non-Case Information Sites (GEOTRACKER)	State Water Resources Control Board	09/07/2021	09/07/2021	11/29/2021
CA	NOTIFY 65	Proposition 65 Records	State Water Resources Control Board	03/12/2021	03/16/2021	06/01/2021
CA	NPDES	NPDES Permits Listing	State Water Resources Control Board	11/09/2021	11/09/2021	01/27/2022
CA	OTHER OIL GAS	Other Oil & Gas Projects Sites (GEOTRACKER)	State Water Resources Control Board	09/07/2021	09/07/2021	11/29/2021
CA	PEST LIC	Pesticide Regulation Licenses Listing	Department of Pesticide Regulation	11/30/2021	11/30/2021	02/17/2022
CA	PFAS	PFAS Contamination Site Location Listing	State Water Resources Control Board	09/07/2021	09/08/2021	12/01/2021
CA	PROC	Certified Processors Database	Department of Conservation	11/29/2021	11/29/2021	02/11/2022
CA	PROD WATER PONDS	Produced Water Ponds Sites (GEOTRACKER)	State Water Resources Control Board	09/07/2021	09/07/2021	11/29/2021
CA	PROJECT	Project Sites (GEOTRACKER)	State Water Resources Control Board	09/07/2021	09/07/2021	11/29/2021
CA	RESPONSE	State Response Sites	Department of Toxic Substances Control	10/25/2021	10/26/2021	01/14/2022
CA	RGA LF	Recovered Government Archive Solid Waste Facilities List	Department of Resources Recycling and Recover		07/01/2013	01/13/2014
CA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	State Water Resources Control Board	09/07/2021	07/01/2013	12/30/2013
CA	SAMPLING POINT	Sampling Point ? Public Sites (GEOTRACKER)	State Water Resources Control Board	11/04/2021	11/05/2021	01/24/2022
CA	SAN FRANCISCO AST	Aboveground Storage Tank Site Listing	San Francisco County Department of Public Hea	10/25/2021	10/26/2021	01/14/2022
CA	SCH	School Property Evaluation Program	Department of Toxic Substances Control	04/03/2003	04/07/2003	04/25/2003
CA	SLIC REG 1	Active Toxic Site Investigations	California Regional Water Quality Control Boa	09/30/2004	10/20/2004	11/19/2004
CA	SLIC REG 2	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board San Fran	05/18/2006	05/18/2006	06/15/2006
CA	SLIC REG 3	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	11/17/2004	11/18/2004	01/04/2005
CA	SLIC REG 4	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Region Water Quality Control Board Los Angele	04/01/2005	04/05/2005	04/21/2005
CA	SLIC REG 5	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board Central	09/07/2004	09/07/2004	10/12/2004
CA	SLIC REG 6L	SLIC Sites	California Regional Water Quality Control Boa	05/24/2005	05/25/2005	06/16/2005
CA	SLIC REG 6V	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board, Victorv	11/24/2004	11/29/2004	01/04/2005
CA	SLIC REG 7	SLIC List	California Regional Quality Control Board, Co	04/03/2008	04/03/2008	04/14/2008
CA	SLIC REG 8	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Region Water Quality Control Board	09/10/2007	09/11/2007	09/28/2007
CA	SLIC REG 9	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	06/06/2012	01/03/2013	02/22/2013
CA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	06/01/1994	07/07/2005	08/11/2005
CA	SWEEPS UST	SWEEPS UST Listing	State Water Resources Control Board	11/08/2021	11/09/2021	01/28/2022
CA	SWF/LF (SWIS)	Solid Waste Information System	Department of Resources Recycling and Recover	09/07/2021	09/08/2021	11/29/2021
CA	SWRCY	Recycler Database	Department of Conservation	07/01/1995	08/30/1995	09/26/1995
CA	TOXIC PITS	Toxic Pits Cleanup Act Sites	State Water Resources Control Board	06/03/2021	06/03/2021	08/25/2021
CA	UIC	UIC Listing	Department of Conservation	09/07/2021	09/07/2021	11/29/2021
CA	UIC GEO	Underground Injection Control Sites (GEOTRACKER)	State Water Resource Control Board	09/07/2021	09/07/2021	11/30/2021
CA	UST	Active UST Facilities	SWRCB	08/18/2021	09/08/2021	12/03/2021
CA	UST CLOSURE	Proposed Closure of Underground Storage Tank (UST) Cases	State Water Resources Control Board	10/25/2021	10/26/2021	01/14/2022
CA	VCP	Voluntary Cleanup Program Properties	Department of Toxic Substances Control	02/11/2021	07/01/2021	09/29/2021
CA	WASTEWATER PITS	Oil Wastewater Pits Listing	RWQCB, Central Valley Region	09/07/2021	09/08/2021	12/01/2021
CA	WDR	Waste Discharge Requirements Listing	State Water Resources Control Board	06/19/2007	06/20/2007	06/29/2007
CA	WDS	Waste Discharge System	State Water Resources Control Board	09/07/2021	09/07/2021	11/29/2021
CA	WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)	State Water Resources Control Board	07/03/2009	07/21/2009	08/03/2009
CA	WIP	Well Investigation Program Case List	Los Angeles Water Quality Control Board	04/01/2000	04/10/2000	05/10/2000
CA	WMUDS/SWAT	Waste Management Unit Database	State Water Resources Control Board	09/30/2017	05/08/2018	07/20/2018
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/14/2021	09/15/2021	12/15/2021
US	ABANDONED MINES	Abandoned Mines	Department of Interior	12/31/2019	09/15/2021	12/14/2021
US	BRS	Biennial Reporting System	EPA/NTIS			

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov. Date	Arvl. Date	Active Date
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2019	12/01/2020	02/09/2021
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	01/12/2017	03/05/2019	11/11/2019
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	09/30/2021	10/13/2021	01/10/2022
US	CORRACTS	Corrective Action Report	EPA	09/13/2021	09/15/2021	10/12/2021
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	05/06/2021	05/21/2021	08/11/2021
US	DOD	Department of Defense Sites	USGS	12/31/2005	11/10/2006	01/11/2007
US	DOT OPS	Incident and Accident Data	Department of Transportation, Office of Pipeli	01/02/2020	01/28/2020	04/17/2020
US	Delisted NPL	National Priority List Deletions	EPA	10/20/2021	11/05/2021	11/29/2021
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	01/01/2022	01/04/2022	01/10/2022
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	09/13/2021	09/21/2021	12/15/2021
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	05/25/2021	06/24/2021	09/20/2021
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	04/02/2018	04/11/2018	11/06/2019
US	FEMA UST	Underground Storage Tank Listing	FEMA	10/14/2021	11/05/2021	02/01/2022
US	FINDS	Facility Index System/Facility Registry System	EPA	05/05/2021	05/18/2021	08/17/2021
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	10/26/2021	11/16/2021	02/08/2022
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	11/15/2021	11/15/2021	02/01/2022
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	07/26/2021	07/27/2021	10/22/2021
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	09/12/2021	09/13/2021	09/28/2021
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Services, Indian	04/01/2014	08/06/2014	01/29/2015
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	04/28/2021	06/11/2021	09/07/2021
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	05/28/2021	06/22/2021	09/20/2021
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	10/12/2021	11/15/2021	02/08/2022
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	10/14/2021	11/15/2021	02/08/2022
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	05/28/2021	06/22/2021	09/20/2021
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	04/06/2021	06/11/2021	09/07/2021
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	10/12/2021	11/15/2021	02/08/2022

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov. Date	Arvl. Date	Active Date
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
US	INDIAN VCP R7	Voluntary Cleanup Priority Listing	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	10/20/2021	11/05/2021	11/29/2021
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	11/29/2010
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	10/20/2021	11/05/2021	11/29/2021
US	LUCIS	Land Use Control Information System	Department of the Navy	11/15/2021	11/16/2021	02/08/2022
US	MINES MRDS	Mineral Resources Data System	USGS	04/06/2018	10/21/2019	10/24/2019
US	MINES VIOLATIONS	MSHA Violation Assessment Data	DOL, Mine Safety & Health Admi	06/30/2021	07/01/2021	09/28/2021
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	07/29/2021	08/24/2021	11/19/2021
US	NPL	National Priority List	EPA	10/20/2021	11/05/2021	11/29/2021
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
US	ODI	Open Dump Inventory	EPA	06/30/1985	08/09/2004	09/17/2004
US	PADS	PCB Activity Database System	Environmental Protection Agency	11/19/2020	01/08/2021	03/22/2021
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	09/13/2019	11/06/2019	02/10/2020
US	PCS	Permit Compliance System	EPA, Office of Water	07/14/2011	08/05/2011	09/29/2011
US	PCS ENF	Enforcement data	EPA	12/31/2014	02/05/2015	03/06/2015
US	PCS INACTIVE	Listing of Inactive PCS Permits	EPA	11/05/2014	01/06/2015	05/06/2015
US	PRP	Potentially Responsible Parties	EPA	10/20/2021	11/05/2021	12/15/2021
US	Proposed NPL	Proposed National Priority List Sites	EPA	10/20/2021	11/05/2021	11/29/2021
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RADINFO	Radiation Information Database	Environmental Protection Agency	07/01/2019	07/01/2019	09/23/2019
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	09/13/2021	09/15/2021	10/12/2021
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	09/13/2021	09/15/2021	10/12/2021
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	09/13/2021	09/15/2021	10/12/2021
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	09/13/2021	09/15/2021	10/12/2021
US	RCRA-VSQG	RCRA - Very Small Quantity Generators (Formerly Conditionall	Environmental Protection Agency	09/13/2021	09/15/2021	10/12/2021
US	RMP	Risk Management Plans	Environmental Protection Agency	10/20/2021	11/05/2021	11/12/2021
US	ROD	Records Of Decision	EPA	10/20/2021	11/05/2021	11/29/2021
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	01/01/2017	02/03/2017	04/07/2017
US	SEMS	Superfund Enterprise Management System	EPA	10/20/2021	11/05/2021	11/29/2021
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	10/20/2021	11/05/2021	11/29/2021
US	SSTS	Section 7 Tracking Systems	EPA	10/18/2021	10/20/2021	01/10/2022
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2018	08/14/2020	11/04/2020
US	TSCA	Toxic Substances Control Act	EPA	12/31/2016	06/17/2020	09/10/2020
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	08/30/2019	11/15/2019	01/28/2020
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	06/10/2021	06/10/2021	08/17/2021
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	11/16/2021	11/18/2021	02/08/2022
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	11/19/2021	11/19/2021	02/14/2022
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	09/13/2021	09/15/2021	09/28/2021
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	11/16/2021	11/18/2021	02/08/2022
US	US INST CONTROLS	Institutional Controls Sites List	Environmental Protection Agency	11/19/2021	11/19/2021	02/14/2022
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	11/02/2021	11/22/2021	02/14/2022
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	05/06/2020	05/27/2020	08/13/2020
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	UXO	Unexploded Ordnance Sites	Department of Defense	12/31/2020	01/11/2022	02/14/2022

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov. Date	Arvl. Date	Active Date
CT	CT MANIFEST	Hazardous Waste Manifest Data	Department of Energy & Environmental Protection	11/11/2021	11/12/2021	02/01/2022
NJ	NJ MANIFEST	Manifest Information	Department of Environmental Protection	12/31/2018	04/10/2019	05/16/2019
NY	NY MANIFEST	Facility and Manifest Data	Department of Environmental Conservation	01/01/2019	10/29/2021	01/19/2022
PA	PA MANIFEST	Manifest Information	Department of Environmental Protection	06/30/2018	07/19/2019	09/10/2019
RI	RI MANIFEST	Manifest Information	Department of Environmental Management	12/31/2020	11/30/2021	02/18/2022
WI	WI MANIFEST	Manifest Information	Department of Natural Resources	05/31/2018	06/19/2019	09/03/2019
US	AHA Hospitals	Sensitive Receptor: AHA Hospitals	American Hospital Association, Inc.			
US	Medical Centers	Sensitive Receptor: Medical Centers	Centers for Medicare & Medicaid Services			
US	Nursing Homes	Sensitive Receptor: Nursing Homes	National Institutes of Health			
US	Public Schools	Sensitive Receptor: Public Schools	National Center for Education Statistics			
US	Private Schools	Sensitive Receptor: Private Schools	National Center for Education Statistics			
CA	Daycare Centers	Sensitive Receptor: Licensed Facilities	Department of Social Services			
US	Flood Zones	100-year and 500-year flood zones	Emergency Management Agency (FEMA)			
US	NWI	National Wetlands Inventory	U.S. Fish and Wildlife Service			
CA	State Wetlands	Wetland Inventory	Department of Fish and Wildlife			
US	Topographic Map	Current USGS 7.5 Minute Topographic Map	U.S. Geological Survey			
US	Oil/Gas Pipelines		Endeavor Business Media			
US	Electric Power Transmission Line Data		Endeavor Business Media			

## STREET AND ADDRESS INFORMATION

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# GEOCHECK<sup>®</sup> - PHYSICAL SETTING SOURCE ADDENDUM

## TARGET PROPERTY ADDRESS

MACKNET PROPERTY  
SOUTH OF HELEN DRIVE  
REDLANDS, CA 92373

## TARGET PROPERTY COORDINATES

Latitude (North): 34.0157 - 34° 0' 56.52"  
Longitude (West): 117.136868 - 117° 8' 12.72"  
Universal Transverse Mercator: Zone 11  
UTM X (Meters): 487362.6  
UTM Y (Meters): 3763710.8  
Elevation: 2221 ft. above sea level

## USGS TOPOGRAPHIC MAP

Target Property Map: 12014994 REDLANDS, CA  
Version Date: 2018

Northeast Map: 12015002 YUCAIPA, CA  
Version Date: 2018

Southeast Map: 12014838 EL CASCO, CA  
Version Date: 2018

Southwest Map: 12015927 SUNNYMEAD, CA  
Version Date: 2018

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.



# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

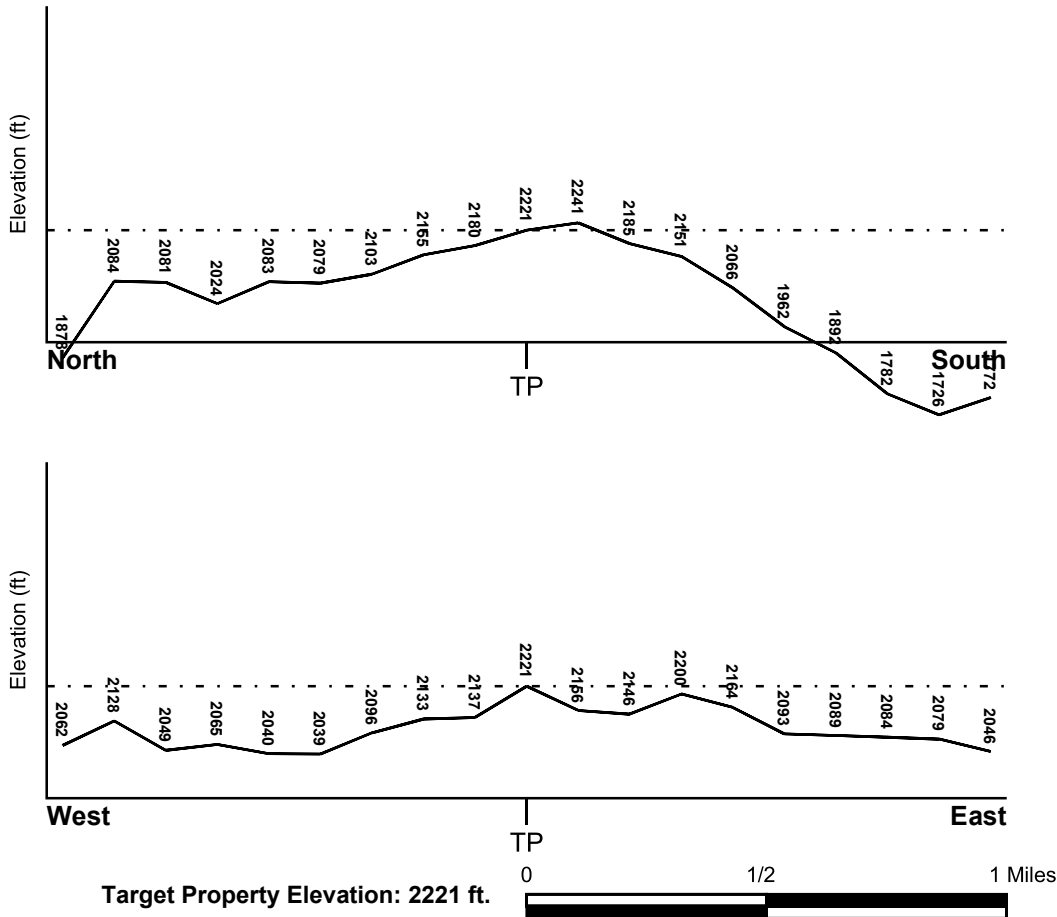
## TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

## TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

## SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

## **FEMA FLOOD ZONE**

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
06071C8719H	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
06071C8740H	FEMA FIRM Flood data

## **NATIONAL WETLAND INVENTORY**

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

## HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

### **Site-Specific Hydrogeological Data\*:**

Search Radius:	1.25 miles
Status:	Not found

## **AQUIFLOW®**

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

## **GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY**

### **GROUNDWATER FLOW VELOCITY INFORMATION**

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

### **GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY**

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

#### **ROCK STRATIGRAPHIC UNIT**

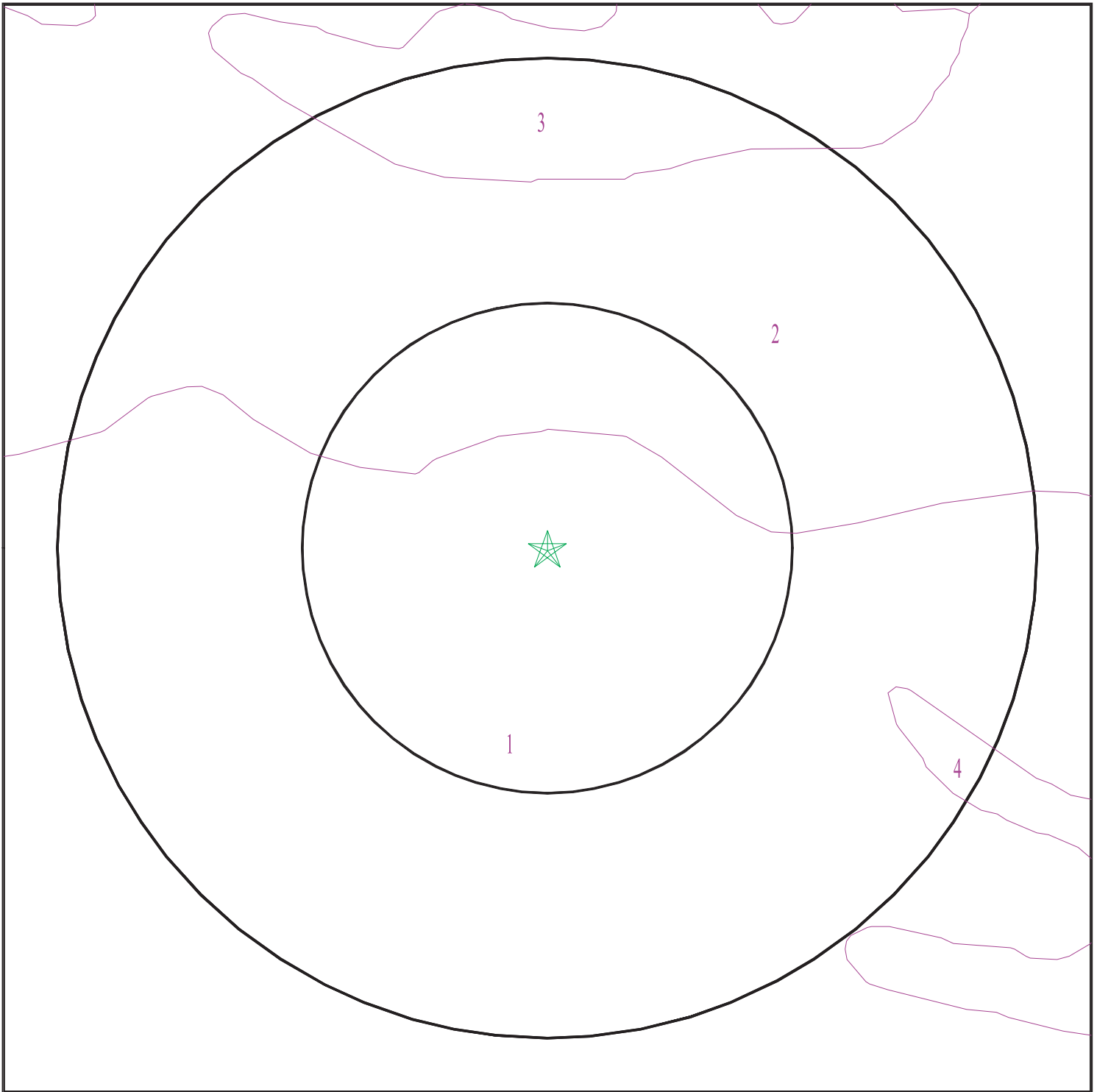
Era: Cenozoic  
System: Quaternary  
Series: Quaternary  
Code: Q (*decoded above as Era, System & Series*)

#### **GEOLOGIC AGE IDENTIFICATION**

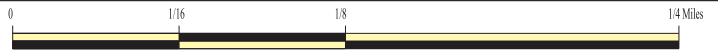
Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

# SSURGO SOIL MAP - 6867268.2s



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water



SITE NAME: Macknet Property  
ADDRESS: South of Helen Drive  
Redlands CA 92373  
LAT/LONG: 34.0157 / 117.136868

CLIENT: Terracon  
CONTACT: Laura Hedman  
INQUIRY #: 6867268.2s  
DATE: February 22, 2022 9:29 am

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

### Soil Map ID: 1

Soil Component Name: Saugus

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 4 Min: 1.4	Max: Min:
2	7 inches	40 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 4 Min: 1.4	Max: Min:
3	40 inches	44 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 4 Min: 1.4	Max: Min:

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**Soil Map ID: 2**

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	22 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6
2	22 inches	31 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6
3	31 inches	53 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6
4	53 inches	59 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**Soil Map ID: 3**

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	22 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6
2	22 inches	31 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6
3	31 inches	53 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6
4	53 inches	59 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**Soil Map ID: 4**

Soil Component Name: Hanford

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6
2	11 inches	59 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6

**LOCAL / REGIONAL WATER AGENCY RECORDS**

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.



# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

## **FEDERAL USGS WELL INFORMATION**

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

## **FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION**

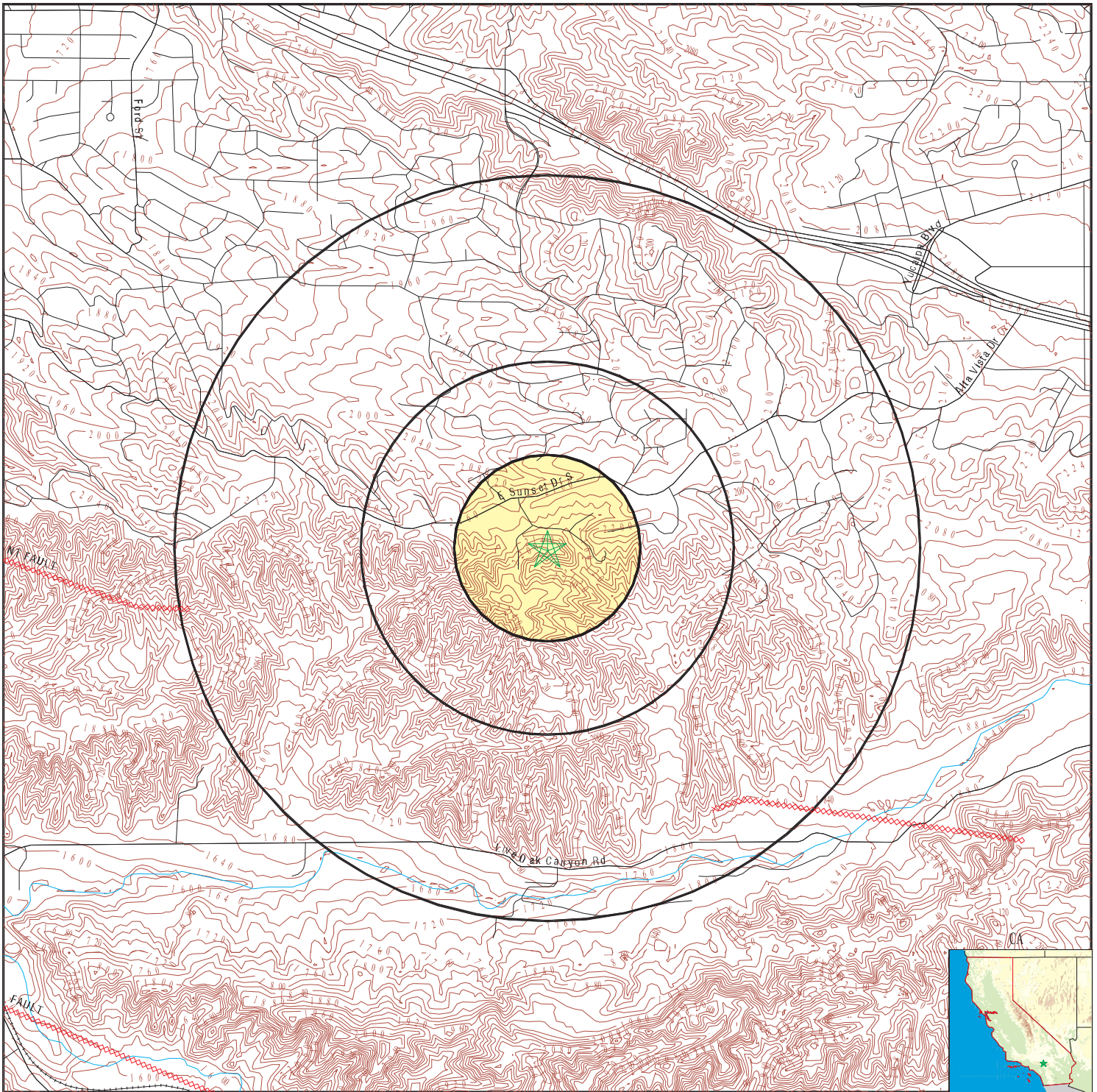
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

## **STATE DATABASE WELL INFORMATION**

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

# PHYSICAL SETTING SOURCE MAP - 6867268.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons



- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells



SITE NAME: Macknet Property  
 ADDRESS: South of Helen Drive  
 Redlands CA 92373  
 LAT/LONG: 34.0157 / 117.136868

CLIENT: Terracon  
 CONTACT: Laura Hedman  
 INQUIRY #: 6867268.2s  
 DATE: February 22, 2022 9:29 am

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

State Database: CA Radon

### Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92373	29	0

Federal EPA Radon Zone for SAN BERNARDINO County: 2

- Note: Zone 1 indoor average level > 4 pCi/L.  
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.  
 : Zone 3 indoor average level < 2 pCi/L.

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### Federal Area Radon Information for SAN BERNARDINO COUNTY, CA

Number of sites tested: 18

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.678 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

## HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory

Source: Department of Fish and Wildlife

Telephone: 916-445-0411

## HYDROGEOLOGIC INFORMATION

AQUIFLOW<sup>R</sup> Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

### FEDERAL WATER WELLS

#### PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

#### PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

#### USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

## OTHER STATE DATABASE INFORMATION

### Groundwater Ambient Monitoring & Assessment Program

State Water Resources Control Board

Telephone: 916-341-5577

The GAMA Program is California's comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Health Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

### Water Well Database

Source: Department of Water Resources

Telephone: 916-651-9648

### California Drinking Water Quality Database

Source: Department of Public Health

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

### California Oil and Gas Well Locations

Source: Dept of Conservation, Geologic Energy Management Division

Telephone: 916-323-1779

Oil and Gas well locations in the state.

### California Earthquake Fault Lines

Source: California Division of Mines and Geology

The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

## RADON

### State Database: CA Radon

Source: Department of Public Health

Telephone: 916-210-8558

Radon Database for California

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

### EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

### OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

### STREET AND ADDRESS INFORMATION

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**APPENDIX E  
CREDENTIALS**

# Resume

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## Laura Hedman

### Staff Geologist

#### PROFESSIONAL EXPERIENCE

Ms. Hedman is a staff geologist in Terracon's Colton, CA office, Environmental Department. Ms. Hedman's professional experience includes Environmental Services, Phase I Environmental Site Assessments (ESAs), Limited Site Investigations (LSIs), soil and groundwater sampling, and groundwater monitoring projects. She has conducted site assessments on office facilities, warehouses, manufacturing facilities, automotive dealerships, restaurants, medical offices, telecommunication towers, vacant, and agricultural land. She prepares environmental site assessment reports; researches city directories and regulatory agency files; and reviews aerial photographs and topographic maps. In addition, she assists the Senior Project Manager in Phase I Environmental Site Assessments.

#### PROJECT EXPERIENCE

##### Office Buildings/Medical Office Building – California

Project Manager and Environmental Site Assessments on office properties, which includes multi-story financial, educational, medical office buildings, and a 95,000-square-foot community hospital.

##### Warehouse Buildings/Logistical Centers – California

Project Manager and Environmental Site Assessment on warehouses and logistical centers, which includes commercial facilities with 1.2 million-square-foot warehousing space.

##### Restaurants/Retail Buildings – California

Project Manager and Environmental Site Assessment on family-style restaurants, and retail lease spaces.

##### Auto Dealership/Automotive Service– California

Project Manager and Environmental Site Assessment on automotive dealerships, automotive maintenance facilities, and automotive collision repair centers.

##### Undeveloped/Vacant/Agricultural – California

Project Manager and Environmental Site Assessments on undeveloped, vacant, and agricultural land; from less than one-acre- to over 200-acre parcel of land.



#### EDUCATION

Bachelor of Science, Geology/Earth Science, University of California, Riverside, 2016

Mount San Jacinto College  
Associate of Science, Geographic Information Systems (GIS), May 2014

#### CERTIFICATIONS

Geologist in Training (Fundamental of Geology), June 2017

#### PROFESSIONAL TRAINING

40-Hour OSHA HAZWOPER

24-Hour AHERA Asbestos Abatement Building Inspector

40-Hour AHERA Asbestos Supervisor Training

#### WORK HISTORY

Terracon, Colton, California  
Staff Geologist  
January 2018 to Present

United States Army, Master Sergeant, Retired;  
Recruiting Battalion Operations  
Senior NonCommissioned Officer/  
Senior Career Counselor  
August 1988 to February 2011



# Carl A. Parten

Office Manager, Senior Principal

## PROFESSIONAL EXPERIENCE

Mr. Parten has 32 years of experience in environmental consulting in multiple regional regulatory districts throughout the United States. His professional experience includes comprehensive site investigations and remediation studies for Industrial and Hazardous Waste sites, municipal solid waste landfill sites and underground storage tank (UST) facilities.

He has successfully managed and obtained regulatory closure of over 30 Voluntary Cleanup Program (VCP) sites and leaking underground storage tank (LUST) facilities, and coordinated UST removal and closure for numerous facilities in multiple states throughout the United States. Mr. Parten continues to serve as a technical lead with Terracon and he possesses extensive experience in the installation of monitor wells, aquifer characterization, sensitive receptor surveys, risk-based assessments, vapor intrusion (VI) evaluations, and soil-gas assessments. Additionally, he has extensive experience in comprehensive soil and groundwater investigations on industrial facilities and municipal solid waste (MSW) landfill facilities, including evaluation of landfill gas/methane impacts. He has prepared and implemented corrective action work plans for remediation of chlorinated hydrocarbons at dry cleaner facilities and petroleum hydrocarbons at LUST facilities, MSW landfill facilities, and managed and implemented groundwater pump and treat, non-aqueous phase liquid (NAPL) recovery, and dual-phase vapor extraction systems for the recovery of petroleum hydrocarbons. Additionally, Mr. Parten developed work plans and implemented the remediation of heavy metals and poly-nuclear aromatic hydrocarbons (PAHs).

## PROJECT EXPERIENCE

**Kaiser Permanente, AV Behavioral Health, Lancaster, California**  
Provided QA/QC for the Phase I ESA for the potential Kaiser Permanente AV Behavioral Health Building that consisted of a 29,245-square-foot (SF) single-story building with a mezzanine, in a multi-tenant commercial/retail shopping center on an approximately 6.12-acre parent tract. Our scope of services included the site



## EDUCATION

Bachelor of Science, Geology, Sul Ross State University, Alpine, Texas, 1994

### Additional Courses:

University of Houston TCEQ Texas Risk Reduction Program: Mod. I, II, and III  
Roadmap to Remediation  
CAPM Refresher Course, Texas A&M University  
TNRCC Hazardous Waste Seminar  
TNRCC PST Risk Assessments Seminar  
TNRCC Pollution Prevention Workshop  
API Risk/Exposure Assessment Contaminant Fate and Transport Modeling in Risk Assessment  
Environmental Hydrology / Soil Science

## REGISTRATIONS

Licensed Professional Geoscientist (P.G.), I.D. # 221, Texas Board of Professional Geoscientists 2003 (current)

Registered Professional Geologist (P.G.), I.D. # 004037; State of Tennessee, May 1996 (current)

TCEQ Corrective Action Project Manager, CAPM #01091 (current)

40 Hour OSHA Hazardous Waste Site & Waste Management Training

## AFFILIATIONS

BDA/Orange County Groundwater Resource Assoc.  
Geological Society of America

reconnaissance and soil and soil vapor sampling. Provided QA/QC review of the report before we sent it to the client.

**Kaiser Permanente, Primary Care Medical Office Building, Wildomar, California**

Project Manager for the Phase I ESA for the potential Kaiser Permanente Primary Care Medical Office Building consisted of an approximately 36-acre tract of generally vacant land. Provided QA/QC review of the report before we sent it to the client.

**Industrial Warehouse Facility – La Palma, California**

Phase I ESA, comprehensive subsurface investigation and delineation of volatile organic compounds (VOCs), petroleum hydrocarbons TPH) in soil, groundwater and vapor to characterize environmental site conditions and development of response actions. Soil remediation, soil vapor extraction of VOCs, and waste characterization/disposal of impacted environmental media at a large warehouse facility. Active monitoring and additional response actions are on-going. Consulting services included preparation of investigation reports, response action work plans, client interaction and litigation support.

**Industrial Warehouse Facility / Demolition / Soil Management – Los Angeles / Union Crossing - California**

Phase I ESA, Limited Site Investigation, soil management plan / remediation of impacted soils, underground storage tank / structures management and support services, investigation and delineation of volatile organic compounds (VOCs), petroleum hydrocarbons TPH) in soil, and waste characterization and disposal of impacted environmental media. Consulting services included preparation of investigation reports, response action work plans, client interaction and construction management support.

**Industrial Facility – Union City, California**

Subsurface investigation and delineation of heavy metals and polynuclear aromatic hydrocarbons (PAHs) in soil to facilitate the development of response actions and waste characterization/disposal of impacted environmental media at a large industrial facility with over sixty years of operations. Consulting services included preparation of investigation reports, response action work plans, and client/regulatory interaction.

**Industrial Facility – Land-use Change/Private School, Los Angeles, CA**

Environmental consulting services including Phase I Environmental Site Assessments (ESA) due diligence support, subsurface investigation activities to evaluate environmental media including soil, groundwater, soil gas and indoor / outdoor air. Services included a land-use change from an industrial facility to a private school. Prepared environmental investigation reports, regulatory interaction, corrective action design and work plan for management of environmental media.

**USARC Facility – Mare Island, California**

Environmental team leader for evaluation of an existing 32-acre military facility, Mare Island in California. The teaming effort included the preparation of a Technical Assessment report on the facility to provide

USAR a decision making and programming tool to establish future restoration and replacement upgrades to the facility. The report included an evaluation of existing conditions of the site and facilities with respect to current mission and identified construction costs required to comply with USAR facility standards, Anti-Terrorism/Force Protection requirements, handicapped accessibility regulations, and current building codes. Conceptual costs for related improvements and environmental mitigation were presented.

### **Major Department Store Commercial Retail Portfolio**

Environmental team lead for evaluating environmental site conditions and due diligence review, including overseeing Phase I Environmental Site Assessments and Phase II Environmental Site Investigations for over fifty retail facilities with automotive maintenance across California. Findings from subsurface investigations were used to support regulatory closure of select facilities to facilitate a real estate transaction across the United States.

### **Automated Fuel Dispensing Facilities – Camp Pendleton, California**

Project scope included environmental and geotechnical investigations at six fueling existing/proposed facilities within Camp Pendleton, California. The project consisted of construction of new buildings, canopies, pavements, retaining walls, slopes, and installation of underground storage tanks (USTs), and other site facilities. Served as the primary client point of contact and environmental technical leader.

### **Mixed-Use High-rise Building, West Hollywood, California**

Conducted comprehensive investigation and assisted the client through enrolling and interacting with the DTSC / VCP regarding chlorinated solvent and heavy metal-impacted soil and groundwater. Provided construction management oversight to manage impacted soils and assisted the client in waste disposition, permitting and regulatory compliance interaction. A total of 52,000 cubic yards of soil was removed from the site and disposed at an off-site facility, prior to the construction of a \$170M high-rise multi-use complex. Terracon's support services allowed for significant savings in construction, on an expedited timeline in concert with the construction schedule.

### **Underground Storage Tank and Soil Remediation – Regional Water Board, Squaw Valley, CA**

Terracon assisted a private developer with the regulatory closure of an underground storage tank (UST) site located in Squaw Valley, California. The abandoned 10,000-gallon UST was responsible for a release of heavy waste oils to the ground surface and banks of a creek. Following disposal of the UST, approximately 70 cubic yards of petroleum-impacted soils were excavated and properly disposed. Interaction with the Regional Water Board and Public Notification resulted in the issuance of case closure.

### **Retail Shopping Center – Former Dry Cleaners Facility – DTSC, Fremont, CA**

Conducted extensive site investigation activities to evaluate the magnitude and extent of chlorinated solvents identified in the vicinity of a former dry cleaners' facility, including an evaluation of groundwater, soil, soil-gas and indoor vapors as a result of a chlorinated solvent plume. Mr. Parten provided direct support and interaction with client, client legal team and DTSC representatives to manage the closure

process, including the preparation of work plans and environmental investigation reports, risk-based human health evaluation, and response actions.

### **Soil Remediation – Riverside County Regulatory Oversight, Telecommunications Site, Perris, CA**

Terracon assessed the magnitude and extent of a surficial release of petroleum hydrocarbons, developed a work plan, approved by overseeing agency, and conducted remediation, removal and legal disposal of 80 cubic yards of non-hazardous soil.

### **Municipal Landfill – VCP Site**

Successfully oversaw and managed the engineering design and construction quality assurance for the closure and restoration of a high-profile MSW landfill in accordance with regulatory standards, subsequent to significant investigation activities. The remedy consisted of removal and consolidation of wastes and construction of LFG recovery trenches to prevent migration of landfill gas. The remedy utilized engineering controls and removal of impacted media. Project management responsibilities included coordination with Local, State and Federal officials, public/neighborhood communications, and interaction with attorneys, and management of project budgets that exceeded \$4.5 million over seven years. Terracon continues to provide post closure care monitoring and O&M for the site.

### **Department of Transportation Contract - TX**

Successfully managed a two-year environmental services contract with the Texas Department of Transportation (TxDOT) and coordinated multiple Terracon offices to provide geographic coverage of environmental consulting service throughout Texas. Mr. Parten was the liaison to TxDOT for the performance of environmental consulting services, and provided senior technical review of environmental investigations, Phase I ESAs, removal of underground storage tanks, remediation of affected media and waste management, asbestos and lead-based paint investigations, and management of financial metrics and budgets in strict conformance with negotiated fees and procedures under a \$2,000,000 contract.

### **City-Operated LUST Facilities**

Provided senior project management of 14 City operated LUST facilities through coordination of investigation, regulatory reporting and response actions in the pursuit of closure. Mr. Parten was responsible for managing all site activities, evaluation of data, reporting, communicating with local and state officials, and management of budget and schedule requirements.

### **Municipal Property**

Provided senior project management and technical review of several properties, including the remediation of metals and PAH-impacted soils, using a combination of excavation and removal and in-place stabilization. Work was performed under the EPA Brownfields Program and the Voluntary Cleanup Program. The \$1.2 million-dollar remediation project was part of a high-profile downtown parks and recreation redevelopment project that successfully established LEED Certified public parks in areas once occupied by commercial and industrial property. Mr. Parten was responsible for managing all site

activities, evaluation of data, reporting, communicating with local and state officials, and management of budget and schedule requirements.

### **Retail Shopping Center – VCP Site**

Conducted extensive site investigation activities to evaluate the magnitude and extent of chlorinated solvents identified in the vicinity of a former dry cleaners' facility. The chlorinated solvent plume was defined to drinking water standards and was delineated to a creek channel nearly 1,200 feet from the source property. Based on site investigation results, assisted the property owner in entering the site into the VCP, and managed and implemented response actions and treatment of affected media utilizing a combination of source-removal/excavation (750 cubic yards) within the building interiors, hydrogen-releasing compound (HRC®) treatment of backfill, and HRC injection into the underlying soil and groundwater across the site. Treatment technology effectively remediated affected soils and significantly reduced contaminant levels within the on-site source areas. Additional response actions were conducted to reduce on-site groundwater contamination levels through HRC injection at over 250 locations. Monitored natural attenuation and groundwater monitoring was performed for a period of approximately four years. Mr. Parten assisted the client in the establishment of a deed restriction (Municipal Setting Designation) that restricted the use of groundwater on the site. Mr. Parten interacted with City and State officials and prepared and submitted multiple reports documenting site activities and managed a project budget totaling \$1,200,000.

### **Additional Project Experience**

Under the direction and senior technical review by Mr. Parten, final site closure has been obtained for over thirty VCP, Innocent Owner/Operator Program, LUST, and Industrial and Hazardous Waste facilities in multiple states across the United States. Additionally, Mr. Parten has coordinated and managed the removal of dozens of underground storage tank (UST) systems and remediation of contaminated soil and groundwater. Mr. Parten has provided expert testimony on multiple projects and is a primary point of contact interacting with environmental attorneys and regulatory agencies.

# Todd G. McFarland, PG, CHG

## DEPARTMENT MANAGER

### PROFESSIONAL EXPERIENCE

Mr. McFarland has over 21 years of experience as a professional geologist and hydrogeologist, in over 200 site characterization and remediation projects throughout California. He is an environmental Department Manager for Terracon's Colton office. Mr. McFarland has been involved with environmental investigations, well design and construction, aquifer testing, Phase I and II ESAs, including agricultural, petroleum, and industrial properties; and remediation design and mitigation for commercial, industrial and LUST/LUFT projects.

Mr. McFarland's expertise includes hydrogeology, Phase I & II Environmental Assessments, Hazardous Waste Site Investigations, LUST/LUFT Site Investigation and Remediation (soil, vapor, and groundwater) Hydrogeology, Contaminant Fate & Transport, Well Design and Construction, Remedial Strategy and Design, California UST Cleanup Fund, Triad Approach Investigation Methods, and high resolution site characterization (HRSC).

### PROJECT EXPERIENCE

**Charis Corporation/US Army, Aquifer and Well Evaluation, Fort Irwin, California**  
Project Geologist for the identification, assessment and testing of domestic and agricultural wells associated with the expansion of Ft. Irwin military base. Responsible for field mapping, staff and logistics coordination, subcontractor management, well pumping, mine shaft mapping and collection of samples for heavy metal analytical testing.

**Bechtel, Mountain View Power Plant Expansion Project, Loma Linda, California**  
Project Geologist support for pump test and analytical testing of new production well within the Bunker Hill Basin. Sampling and testing of water for Title 22, perchlorate and TCE to determine well viability, and ability to discharge surplus water to Santa Ana River.

**Herzog, Rail Line Rehabilitation Project, San Bernardino, California**  
Project Geologist for compliance monitoring, soil sampling and remediation management of soils during rail line rehabilitation. Project work conducted for BNSF under their oversight and safety management guidelines. Managed daily soil screening, mobile laboratory analysis oversight and directed soil excavation and segregation for offsite disposal of hydrocarbon and solvent impacted soils.

**Amtrak, 8th Street Amtrak Yard ROW Investigation, Los Angeles, California**  
Project Geologist for Phase I & II assessments along ROWs within the active rail yard for proposed ROW exchange. Project work included drilling and soil sampling adjacent to active rail lines associated with train maintenance and wash rack. Reporting and recommendations for soil remediation options.



### EDUCATION

Bachelor of Science, Hydrogeology,  
Northern Arizona University, 1998

AA, Art/Architecture, Pasadena City  
College, 1992

### REGISTRATIONS

California Professional Geologist, PG  
#7685

California Certified Hydrogeologist,  
CHG #979

### CERTIFICATIONS

GIS Certification, University of  
California, Riverside, 2017

40-Hour OSHA Hazardous Materials  
Training

8-Hour OSHA Supervisory and  
Confined Space Training

8-Hour LPS/OSHA Refresher  
(current)

CPR/First Aid Certified (current)

LPS 8-Hour Training Certification,  
5/2006

16-Hour Chevron EMC CSOC  
Training, 11/2007

Defensive Driving Course, 6/2006

DOT-Basic HazMat Training, 5/2007

Title 22 California-Hazardous Waste  
Generator Training, 5/2007

Lean Six Sigma Training, 3/2011

Cost Engineering and Cost Loaded  
Scheduling and Training, 4/2011 &  
3/2012

### WORK HISTORY

Terracon Consultants, Inc.,  
Department Manager, 2018-Present

AECOM, Sr. Project Manager/Sr.  
Hydrogeologist, 2013-2018

HFA, Sr. Geologist/Sr. Project  
Manager, 2009-2013, Assoc.  
Geologist/Sr. Geologist/Project  
Manager/Office Manager, 2004-2009

Geo-Cal, Inc., Project Geologist,  
2003 – 2004

CHJ, Inc., Staff Geologist, 1998-2003

**Chevron and ExxonMobil, Service Station and Terminal Facility Management, Southern and Northern California**  
Project/Senior Geologist and Project Manager for portfolio of underground storage tank facilities. Managed schedule, costs and project work for numerous retail service station and bulk tank facilities. Scoped and executed assessment and remedial efforts targeted to model and remove contaminants. Geological logging and drilling oversight for the installation of numerous shallow and deep monitoring wells within unconsolidated and over-consolidated soils. Develop and execute aquifer, soil vapor extraction, and air sparge testing to determine feasibility of remedial options. Prepare conceptual site models to evaluate project data and develop remedial action plans and human health risk assessments. Collaborate with engineers to design, build and execute remedial systems for treatment of petroleum impacted soil and groundwater. Responsible for direct interaction with client and regulators to develop and execute strategies.

**Chevron EMC, MTBE Groundwater Plume Investigation and Remediation, San Juan Capistrano California**  
Senior Geologist and Project Manager for two underground storage tank facilities that allegedly affected the City's water production supply. Scoped and executed assessment and remedial efforts targeted to model and remove benzene and MTBE. Installed and operated in-situ soil and groundwater remedial systems. Geological logging and drilling oversight for the installation of numerous shallow and deep monitoring and remediation wells. Testing and evaluation of City's production wells. Attend and participate in public hearings, plan and participate in planning and design review meetings. Conduct client meetings and provide project details to client's legal team.

**Confidential Client, Crafton-Redlands Perchlorate Plume Investigation, Mentone, California**  
Project Geologist for underground storage tank facility. Geological logging and drilling oversight for the installation of deep monitoring wells within the Crafton-Redlands Plume using rotary casing hammer and sonic drilling rigs. Collection of soil and groundwater samples to evaluation aquifer for petroleum hydrocarbons, including MTBE and perchlorate. Conduct soil vapor extraction pilot testing for in-situ soil remediation of hydrocarbon impacts.

**City of Rialto, Landfill Investigation and Post-Closure Monitoring, Rialto, California.** Project Geologist for landfill closure and post-closure investigations and monitoring. On going monitoring of water quality beneath and surrounding the boundary limits of landfill. Statistical analysis and reporting of water quality data to determine trends and stability post-closure.

**City of Los Angeles, Community Park Development, Lead Removal, California**  
Project Geologist for development of a community park. Planned, coordinated, and conducted assessment and remediation of aerial deposited lead within a residential community. Conducted lead dust monitoring, excavation activities and verification sampling and reporting.

**City of Blythe, Citywide Commingled Plume Investigation, Blythe, California**  
Project Manager for city wide commingled plume assessment and remedial cleanup of 7 commingled plumes (over 30 individual sites) related to petroleum releases to groundwater. Conducted large-scale site assessment, well installation and remedial actions including soil vapor extraction, dual-phase extraction, free-product extraction and soil excavation. Managed complex financial contract and UST Cleanup Fund reimbursement. Responsible for direct interaction with client (City), UST Cleanup Fund and California's Water Board to develop and execute strategies.

**AFCEC, Industrial Waste Line Removal and Vapor Intrusion Risk Assessment, Former Norton Air Force Base, San Bernardino, California**  
Senior hydrogeologist for evaluation of soil and soil vapor sampling. Conducted closure report review, human health risk assessment modeling and evaluation, and closure recommendations. Evaluation and reporting resulted in obtaining closure from DTSC.

**APPENDIX F**  
**DESCRIPTION OF TERMS AND ACRONYMS**



## Description of Selected General Terms and Acronyms

Term/Acronym	Description
ACM	<p>Asbestos Containing Material. Asbestos is a naturally occurring mineral, three varieties of which (chrysotile, amosite, crocidolite) have been commonly used as fireproofing or binding agents in construction materials. Exposure to asbestos, as well as ACM, has been documented to cause lung diseases including asbestosis (scarring of the lung), lung cancer and mesothelioma (a cancer of the lung lining).</p> <p>Regulatory agencies have generally defined ACM as a material containing greater than one (1) percent asbestos, however some states (e.g. California) define ACM as materials having 0.1% asbestos. In order to define a homogenous material as non-ACM, a minimum number of samples must be collected from the material dependent upon its type and quantity. Homogenous materials defined as non-ACM must either have 1) no asbestos identified in all of its samples or 2) an identified asbestos concentration below the appropriate regulatory threshold. Asbestos concentrations are generally determined using polarized light microscopy or transmission electron microscopy. Point counting is an analytical method to statistically quantify the percentage of asbestos in a sample. The asbestos component of ACM may either be friable or non-friable. Friable materials, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure and have a higher potential for a fiber release than non-friable ACM. Non-friable ACM are materials that are firmly bound in a matrix by plastic, cement, etc. and, if handled carefully, will not become friable.</p> <p>Federal and state regulations require that either all suspect building materials be presumed ACM or that an asbestos survey be performed prior to renovation, dismantling, demolition, or other activities that may disturb potential ACM. Notifications are required prior to demolition and/or renovation activities that may impact the condition of ACM in a building. ACM removal may be required if the ACM is likely to be disturbed or damaged during the demolition or renovation. Abatement of friable or potentially friable ACM must be performed by a licensed abatement contractor in accordance with state rules and NESHAP. Additionally, OSHA regulations for work classification, worker training and worker protection will apply.</p>
AHERA	Asbestos Hazard Emergency Response Act
AST	Aboveground Storage Tanks. ASTs are generally described as storage tanks less than 10% of which are below ground (i.e., buried). Tanks located in a basement, but not buried, are also considered ASTs. Whether, and the extent to which, an AST is regulated, is determined on a case-by-case basis and depends upon tank size, its contents and the jurisdiction of its location.
BGS	Below Ground Surface
Brownfields	State and/or tribal listing of Brownfield properties addressed by Cooperative Agreement Recipients or Targeted Brownfields Assessments.
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes. BTEX are VOC components found in gasoline and commonly used as analytical indicators of a petroleum hydrocarbon release.
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (a.k.a. Superfund). CERCLA is the federal act that regulates abandoned or uncontrolled hazardous waste sites. Under this Act, joint and several liability may be imposed on potentially responsible parties for cleanup-related costs.
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System. An EPA compilation of sites having suspected or actual releases of hazardous substances to the environment. CERCLIS also contains information on site inspections, preliminary assessments and remediation of hazardous waste sites. These sites are typically reported to EPA by states and municipalities or by third parties pursuant to CERCLA Section 103.
CESQG	Conditionally Exempt Small Quantity Generators
CFR	Code of Federal Regulations

## Description of Selected General Terms and Acronyms

Term/Acronym	Description
CREC	Controlled Recognized Environmental Condition is defined in ASTM E1527-13 as “a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority) , with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). A condition considered by the environmental professional to be a controlled recognized environmental condition shall be listed in the findings section of the Phase I Environmental Site Assessment report, and as a recognized environmental condition in the conclusions section of the Phase I Environmental Site Assessment report.”
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
ERNS	Emergency Response Notification System. An EPA-maintained federal database which stores information on notifications of oil discharges and hazardous substance releases in quantities greater than the applicable reportable quantity under CERCLA. ERNS is a cooperative data-sharing effort between EPA, DOT, and the National Response Center.
ESA	Environmental Site Assessment
FRP	Fiberglass Reinforced Plastic
Hazardous Substance	As defined under CERCLA, this is (A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title; (C) any hazardous waste having characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (with some exclusions); (D) any toxic pollutant listed under section 1317(a) of Title 33; (E) any hazardous air pollutant listed under section 112 of the Clean Air Act; and (F) any imminently hazardous chemical substance or mixture with respect to which the EPA Administrator has taken action under section 2606 of Title 15. This term does not include petroleum, including crude oil or any fraction thereof which is not otherwise listed as a hazardous substance under subparagraphs (A) through (F) above, and the term include natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).
Hazardous Waste	This is defined as having characteristics identified or listed under section 3001 of the Solid Waste Disposal Act (with some exceptions). RCRA, as amended by the Solid Waste Disposal Act of 1980, defines this term as a “solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.”
HREC	Historical Recognized Environmental Condition is defined in ASTM E1527-13 as “a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a historical recognized environmental condition, the environmental professional must determine whether the past release is a recognized environmental condition at the time of the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a recognized environmental condition at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a recognized environmental condition.”

## Description of Selected General Terms and Acronyms

Term/Acronym	Description
IC/EC	A listing of sites with institutional and/or engineering controls in place. IC include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls. EC include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.
ILP	Innocent Landowner/Operator Program
LQG	Large Quantity Generators
LUST	Leaking Underground Storage Tank. This is a federal term set forth under RCRA for leaking USTs. Some states also utilize this term.
MCL	Maximum Contaminant Level. This Safe Drinking Water concept (and also used by many states as a ground water cleanup criteria) refers to the limit on drinking water contamination that determines whether a supplier can deliver water from a specific source without treatment.
MSDS	Material Safety Data Sheets. Written/printed forms prepared by chemical manufacturers, importers and employers which identify the physical and chemical traits of hazardous chemicals under OSHA's Hazard Communication Standard.
NESHAP	National Emissions Standard for Hazardous Air Pollutants (Federal Clean Air Act). This part of the Clean Air Act regulates emissions of hazardous air pollutants.
NFRAP	Facilities where there is "No Further Remedial Action Planned," as more particularly described under the Records Review section of this report.
NOV	Notice of Violation. A notice of violation or similar citation issued to an entity, company or individual by a state or federal regulatory body indicating a violation of applicable rule or regulations has been identified.
NPDES	National Pollutant Discharge Elimination System (Clean Water Act). The federal permit system for discharges of polluted water.
NPL	The NPL is the EPA's database of uncontrolled or abandoned hazardous waste facilities that have been listed for priority remedial actions under the Superfund Program.
OSHA	Occupational Safety and Health Administration or Occupational Safety and Health Act
PACM	Presumed Asbestos-Containing Material. A material that is suspected of containing or presumed to contain asbestos but which has not been analyzed to confirm the presence or absence of asbestos.
PCB	Polychlorinated Biphenyl. A halogenated organic compound commonly in the form of a viscous liquid or resin, a flowing yellow oil, or a waxy solid. This compound was historically used as dielectric fluid in electrical equipment (such as electrical transformers and capacitors, electrical ballasts, hydraulic and heat transfer fluids), and for numerous heat and fire sensitive applications. PCB was preferred due to its durability, stability (even at high temperatures), good chemical resistance, low volatility, flammability, and conductivity. PCBs, however, do not break down in the environment and are classified by the EPA as a suspected carcinogen. 1978 regulations, under the Toxic Substances Control Act, prohibit manufacturing of PCB-containing equipment; however, some of this equipment may still be in use today.
pCi/L	picoCuries per Liter of Air. Unit of measurement for Radon and similar radioactive materials.
PLM	Polarized Light Microscopy (see ACM section of the report, if included in the scope of services)
PST	Petroleum Storage Tank. An AST or UST that contains a petroleum product.

## Description of Selected General Terms and Acronyms

Term/Acronym	Description
Radon	A radioactive gas resulting from radioactive decay of naturally-occurring radioactive materials in rocks and soils containing uranium, granite, shale, phosphate, and pitchblende. Radon concentrations are measured in picoCuries per Liter of Air. Exposure to elevated levels of radon creates a risk of lung cancer; this risk generally increases as the level of radon and the duration of exposure increases. Outdoors, radon is diluted to such low concentrations that it usually does not present a health concern. However, radon can accumulate in building basements or similar enclosed spaces to levels that can pose a risk to human health. Indoor radon concentrations depend primarily upon the building's construction, design and the concentration of radon in the underlying soil and ground water. The EPA recommended annual average indoor "action level" concentration for residential structures is 4.0 pCi/l.
RCRA	Resource Conservation and Recovery Act. Federal act regulating solid and hazardous wastes from point of generation to time of disposal ("cradle to grave"). 42 U.S.C. 6901 et seq.
RCRA Generators	The RCRA Generators database, maintained by the EPA, lists facilities that generate hazardous waste as part of their normal business practices. Generators are listed as either large (LQG), small (SQG), or conditionally exempt (CESQG). LQG produce at least 1000 kg/month of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste. SQG produce 100-1000 kg/month of non-acutely hazardous waste. CESQG are those that generate less than 100 kg/month of non-acutely hazardous waste.
RCRA CORRACTS/TS Ds	The USEPA maintains a database of RCRA facilities associated with treatment, storage, and disposal (TSD) of hazardous materials which are undergoing "corrective action". A "corrective action" order is issued when there is a release of hazardous waste or constituents into the environment from a RCRA facility.
RCRA Non-CORRACTS/TS	The RCRA Non-CORRACTS/TS Database is a compilation by the USEPA of facilities which report storage, transportation, treatment, or disposal of hazardous waste. Unlike the RCRA CORRACTS/TS database, the RCRA Non-CORRACTS/TS database does not include RCRA facilities where corrective action is required.
RCRA Violators List	RAATS. RCRA Administrative Actions Taken. RAATS information is now contained in the RCRIS database and includes records of administrative enforcement actions against facilities for noncompliance.
RCRIS	Resource Conservation and Recovery Information System, as defined in the Records Review section of this report.
REC	Recognized Environmental Conditions are defined by ASTM E1527-13 as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to any release to the environment; 2) under conditions indicative of a release to the environment. De minimis conditions are not recognized environmental conditions."
SCL	State "CERCLIS" List (see SPL /State Priority List, below).
SPCC	Spill Prevention, Control and Countermeasures. SPCC plans are required under federal law (Clean Water Act and Oil Pollution Act) for any facility storing petroleum in tanks and/or containers of 55-gallons or more that when taken in aggregate exceed 1,320 gallons. SPCC plans are also required for facilities with underground petroleum storage tanks with capacities of over 42,000 gallons. Many states have similar spill prevention programs, which may have additional requirements.
SPL	State Priority List. State list of confirmed sites having contamination in which the state is actively involved in clean up activities or is actively pursuing potentially responsible parties for clean up. Sometimes referred to as a State "CERCLIS" List.
SQG	Small Quantity Generator
SWF/LF	State and/or Tribal database of Solid Waste/Landfill facilities. The database information may include the facility name, class, operation type, area, estimated operational life, and owner.
TPH	Total Petroleum Hydrocarbons
TRI	Toxic Release Inventory. Routine EPA report on releases of toxic chemicals to the environment based upon information submitted by entities subject to reporting under the Emergency Planning and Community Right to Know Act.

## Description of Selected General Terms and Acronyms

Term/Acronym	Description
TSCA	Toxic Substances Control Act. A federal law regulating manufacture, import, processing and distribution of chemical substances not specifically regulated by other federal laws (such as asbestos, PCBs, lead-based paint and radon). 15 U.S.C.2601 et seq.
USACE	United States Army Corps of Engineers
USC	United States Code
USGS	United States Geological Survey
USNRCS	United States Department of Agriculture-Natural Resource Conservation Service
UST	Underground Storage Tank. Most federal and state regulations, as well as ASTM E1527-13, define this as any tank, incl., underground piping connected to the tank, that is or has been used to contain hazardous substances or petroleum products and the volume of which is 10% or more beneath the surface of the ground (i.e., buried).
VCP	State and/or Tribal facilities included as Voluntary Cleanup Program sites.
VOC	Volatile Organic Compound
	<p>Areas that are typically saturated with surface or ground water that creates an environment supportive of wetland vegetation (i.e., swamps, marshes, bogs). The <u>Corps of Engineers Wetlands Delineation Manual</u> (Technical Report Y-87-1) defines wetlands as areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. For an area to be considered a jurisdictional wetland, it must meet the following criteria: more than 50 percent of the dominant plant species must be categorized as Obligate, Facultative Wetland, or Facultative on lists of plant species that occur in wetlands; the soil must be hydric; and, wetland hydrology must be present.</p>
Wetlands	<p>The federal Clean Water Act which regulates “waters of the US,” also regulates wetlands, a program jointly administered by the USACE and the EPA. Waters of the U.S. are defined as: (1) waters used in interstate or foreign commerce, including all waters subject to the ebb and flow of tides; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, etc., which the use, degradation, or destruction could affect interstate/ foreign commerce; (4) all impoundments of waters otherwise defined as waters of the U. S., (5) tributaries of waters identified in 1 through 4 above; (6) the territorial seas; and (7) wetlands adjacent to waters identified in 1 through 6 above. Only the USACE has the authority to make a final wetlands jurisdictional determination.</p>

**NOISE IMPACT ANALYSIS**  
**SUNSET RESERVOIRS PROJECT**  
**CITY OF REDLANDS**

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*Lead Agency:*

**City of Redlands**  
Municipal Utilities & Engineering  
35 Cajon Street  
Redlands, California 92373

*Prepared by:*

**Vista Environmental**  
1021 Didrickson Way  
Laguna Beach, California 92651  
949 510 5355  
Greg Tonkovich, INCE

Project No. 22048

October 4, 2023

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## ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Redlands
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
ONAC	Federal Office of Noise Abatement and Control
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
TTM	Tentative Tract Map
VdB	Vibration velocity level in decibels

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## 1.0 INTRODUCTION

### ***1.1 Purpose of Analysis and Study Objectives***

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed Sunset Reservoirs project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise impacts from the proposed project; and,
- An analysis of long-term operations-related noise impacts from the proposed project.

### ***1.2 Site Location and Study Area***

The project site is located south of Helen Drive in the City of Redlands (City). There is an existing City reservoir tank located on the west side of Helen Court and the proposed reservoir tanks would be located on the east side of Helen Court on parcels APN 0300-451-25 (7.78 acres) and APN 0300-451-14 (2.50 acres) that total 10.28 acres and are currently vacant. The project site is bounded by vacant land and Helen Drive to the north, vacant land to the east, a single-family home to the south, and Helen Court and the existing reservoir tank to the west. The project study area is shown in Figure 1.

### ***Sensitive Receptors in Project Vicinity***

The nearest sensitive receptor to the project site is a single-family home that is located as near as 280 feet south of the area that would be disturbed as part of the proposed project. There are also single-family homes as near as 730 feet northeast and 780 feet north of the area that would be disturbed as part of the proposed project.

### ***1.3 Proposed Project Description***

The City of Redlands Municipal Utilities and Engineering Department proposes the construction of two new above ground 220 foot diameter factory-coated bolt carbon steel tanks that with an approximately 14 million gallon (MG) total capacity from both tanks. To provide uninterrupted water service to its users during the demolition, the City will keep its existing 3 MG reservoir active. It is anticipated that approximately 6.2 acres of the two parcels that total 10.28 acres will be disturbed as part of the proposed project. The proposed site plan is shown in Figure 2.

One driveway will connect the existing water tank and Helen Court. The driveway will be constructed utilizing asphalt/gravel. Two parking spaces will be installed for maintenance purposes. The site will remain unmanned. The existing water tank will continue to function while the new reservoir tanks will be constructed. Maintenance will occur on a monthly and as-needed basis by City employees. Landscaping will be maintained by the City.

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The Project is expected to break ground in 2024 and be completed by 2025. Construction activities will take place between 7:00 a.m. to 6:00 p.m. Monday through Saturday. No construction work will occur on Sundays or holidays per the City’s Community Noise Control Section Chapter 8.06 of the Municipal Code.

#### **1.4 Standard Noise Regulatory Conditions**

The proposed project will be required to comply with the following regulatory conditions from the City of Redlands and State of California.

##### **City of Redlands Municipal Code**

The following lists the City of Redlands Municipal Code regulations that are applicable to the proposed project.

##### Section 8.06.120(G) – Construction Activity

Section 8.06.120(G) of the City’s Municipal Code exempts noise sources associated with new construction, remodeling, rehabilitation or grading of any property from the City’s noise standards provided construction activities that occur do not take place between the hours of 6:00 p.m. and 7:00 a.m. on weekdays and Saturdays, with no activities occurring at any time on Sundays or federal holidays. Additionally, all construction equipment must be equipped with functioning mufflers.

##### Section 8.06.070(A) – Exterior Noise Limits

Section 8.06.070(A) of the City’s Municipal Code limits noise to single-family residential uses to 50 dBA between 10:00 p.m. and 7:00 a.m. and to 60 dBA between 7:00 a.m. and 10:00 p.m..

##### Section 8.06.080(A) –Interior Noise Limits

Section 8.06.080(A) of the City’s Municipal Code limits interior noise levels of single-family residential uses to 45 dBA at all times.

##### **State of California Rules**

The following lists the State of California rules that are applicable to the proposed project.

##### California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

##### California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

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### ***1.5 Summary of Analysis Results***

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

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

Less than significant impact.

**Generation of excessive groundborne vibration or groundborne noise levels?**

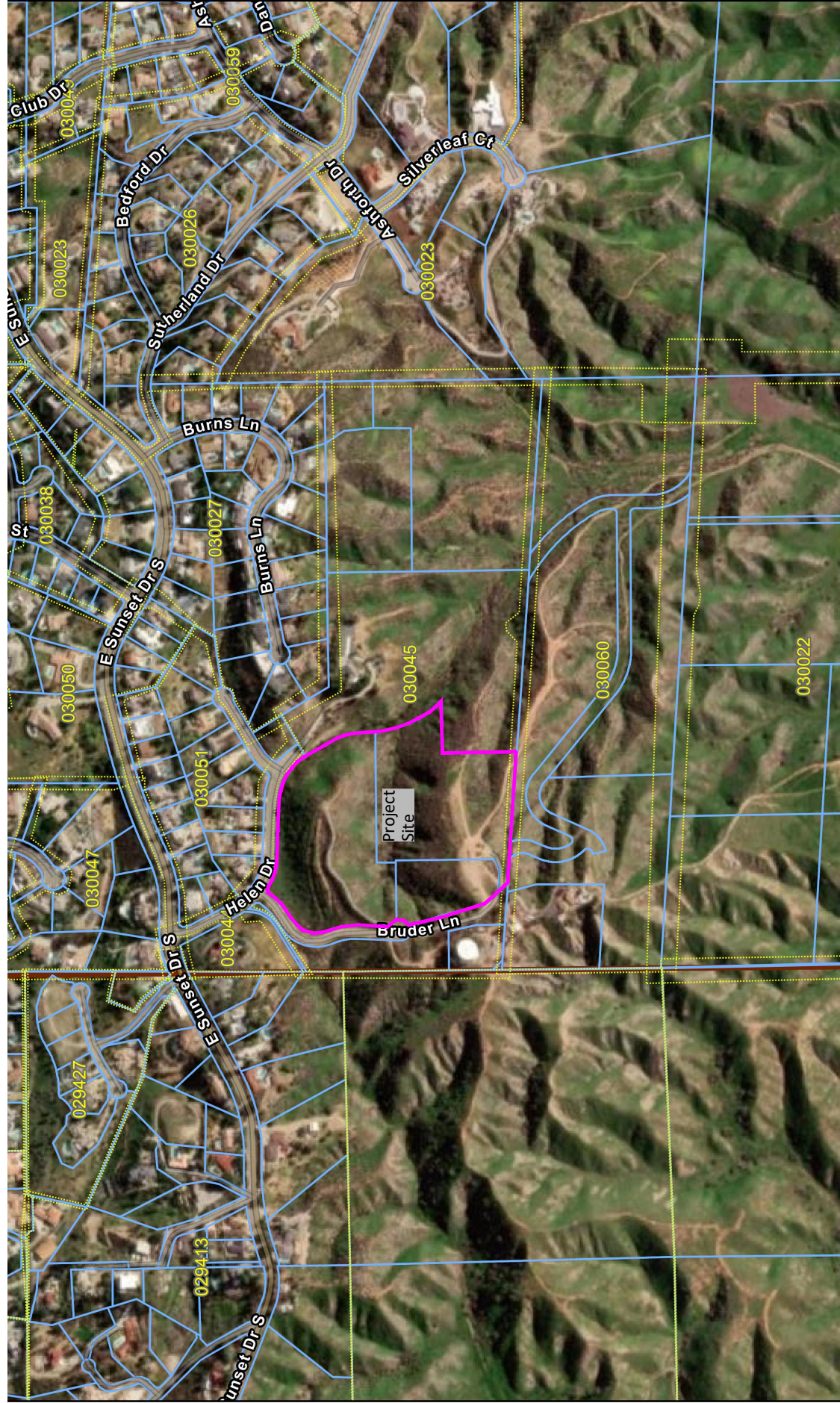
Less than significant impact.

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



No impact.

### ***1.6 Mitigation Measures for the Proposed Project***

This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above, all noise and vibration impacts would be reduced to less than significant levels and no mitigation is required.



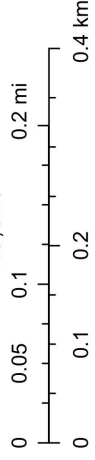
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Parcels 

SOURCE: Public San Bernardino County Parcel Viewer.

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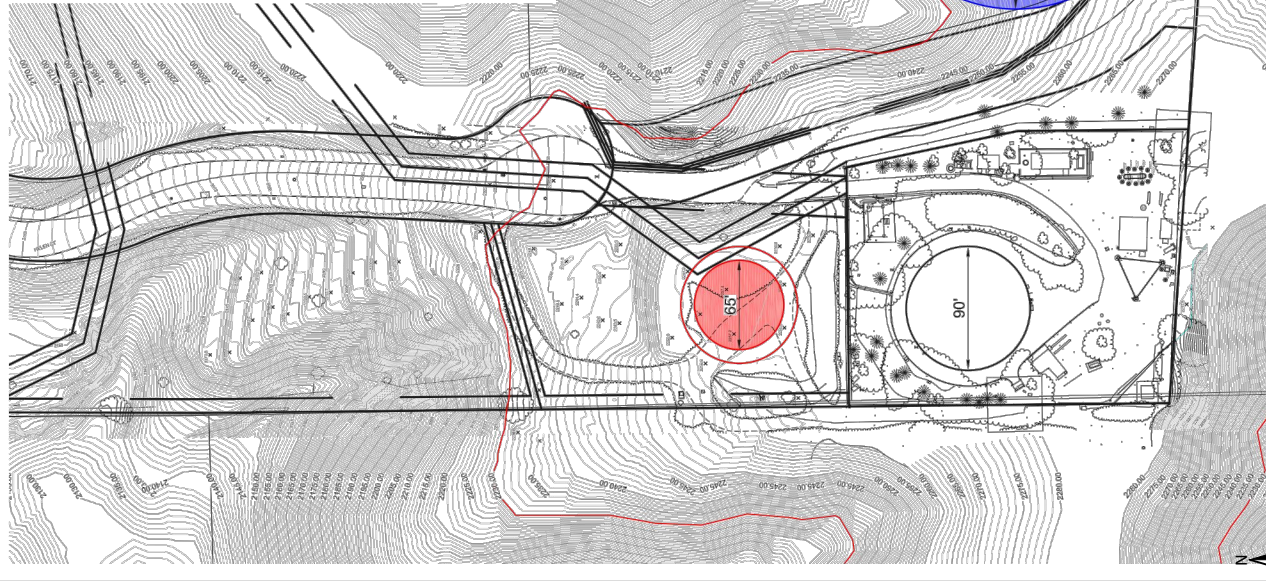
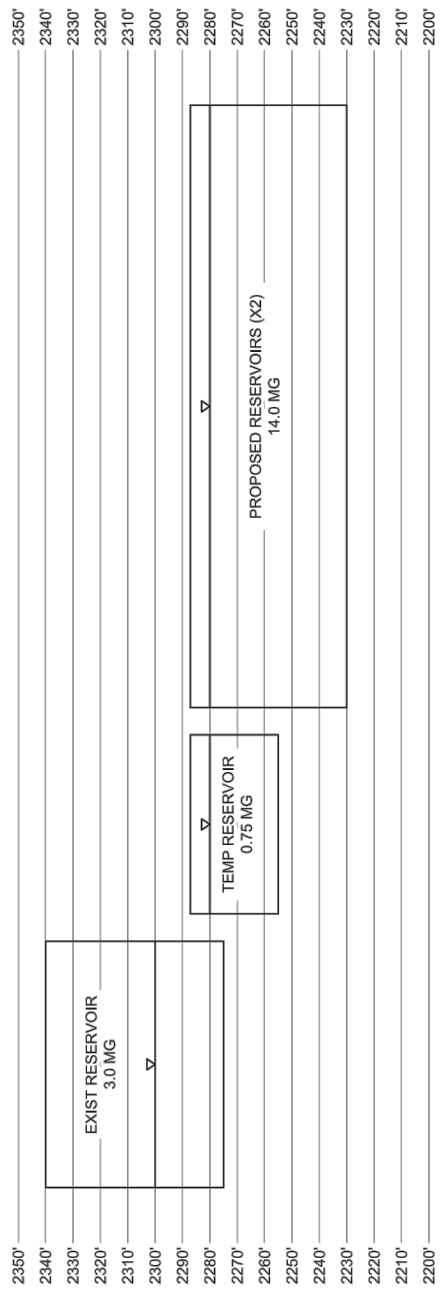


Esri Community Maps Contributors, Loma Linda University, City of Redlands, County of Riverside, County of San Bernardino, California State Parks, ©



Figure 1  
Project Location Map

# SUNSET RESERVOIR PROFILES



SOURCE: City of Redlands.



Figure 2  
Site Plan

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## 2.0 NOISE FUNDAMENTALS

The following discussion on noise fundamentals has been obtained from *Technical Noise Supplement to the Traffic Noise Analysis Protocol (TeNS)*, prepared by Caltrans, September 2013. Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

### 2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour Leq is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason the sound appears louder in the evening and nighttime hours and is weighted accordingly. The City of Redlands relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

### 2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

### 2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise

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reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

## **2.4 Ground Absorption**

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.



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## 3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

### 3.1 Vibration Descriptors

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as ( $L_v$ ) and is based on the rms velocity amplitude. A commonly used abbreviation is “VdB”, which in this text, is when  $L_v$  is based on the reference quantity of 1 micro inch per second.

### 3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

### 3.3 Vibration Propagation

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform median, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground’s surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a “push-pull” fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or “side-to-side and perpendicular to the direction of propagation.”

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

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## 4.0 REGULATORY SETTING

The project site is located in the City of Redlands. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

### 4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the FTA, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual), prepared by the FTA, September 2018, is a guidance document from a government agency that has defined what constitutes a significant noise impact from implementing a project. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings for a detailed construction noise assessment are provided below in Table A.

**Table A – FTA Construction Noise Criteria**

Land Use	Day (dBA Leq <sub>(8-hour)</sub> )	Night (dBA Leq <sub>(8-hour)</sub> )	30-day Average (dBA Ldn)
Residential	80	70	75
Commercial	85	85	80 <sup>(1)</sup>
Industrial	90	90	85 <sup>(1)</sup>

Notes:

<sup>(1)</sup> Use a 24-hour Leq<sub>(24-hour)</sub> instead of Ldn<sub>(30 day)</sub>.

Source: Federal Transit Administration, 2018.

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Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, the City is restricted to regulating noise generated by the transportation system through nuisance abatement ordinances and land use planning.

## **4.2 State Regulations**

### **Noise Standards**

#### California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix,” which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

#### California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

#### Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

### **Vibration Standards**

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

Caltrans issued the *Transportation and Construction Vibration Guidance Manual* in April 2020. The manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are provided for both transient (i.e., mobile equipment) and continuous (i.e., pile driving) sources of vibration. The Guidance Manual provides thresholds for both building damage, where transient vibration sources may start to create damage to buildings at 0.5 inch per second PPV and from human response, where transient vibration sources become distinctly perceptible at 0.24 inch per second PPV.

### 4.3 Local Regulations

The City of Redlands General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

#### City of Redlands General Plan Implementing Policies

**9.0e** Use the criteria specified in GP Table 9.1 (see Table B) to assess the compatibility of proposed land uses with the projected noise environment, and apply the noise standards in GP Table 9.2 (see Table C), which prescribe interior and exterior noise standards in relation to specific land uses. Do not approve projects that would not comply with the standards in GP Table 9.2.

**Table B – City of Redlands Noise and Land Use Compatibility Matrix**

Land Use Categories	Uses	Community Noise Equivalent Level (CNEL)						
		<60	65	70	75	80	>85	
Residential	Single-Family, Duplex, Multiple-Family	A	C	C	C	D	D	D
	Mobile Homes	A	C	C	C	D	D	D
Commercial Regional, District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
Commercial Regional, Village, District, Special	Commercial, Retail, Bank, Restaurant, Movie Theatre	A	A	A	A	B	B	C
Commercial Industrial, Institutional	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
Commercial Recreation Institutional Civic Center	Amphitheatre, Concert Hall, Auditorium, Meeting Hall	B	B	C	C	D	D	D
Commercial Recreation	Children’s Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	A	B	B	B
Commercial General, Special Industrial, Institutional	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
Institutional General	Hospital, Church, Library, Schools, Classroom	A	B	C	C	D	D	
Open Space	Parks	A	A	A	B	C	D	D
	Golf Course, Cemeteries, Nature Centers, Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
Agriculture	Agriculture	A	A	A	A	A	A	A

Interpretation:

Zone A: Clearly Compatible. Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Zone B: Normally Compatible. New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Zone C: Normally Incompatible. New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

Zone D: Clearly Incompatible. New construction or development should generally not be undertaken.

Source: Table 7-10 from City of Redlands General Plan, 2017.

**Table C – City of Redlands Interior and Exterior Noise Standards**

Land Use Categories	Uses	Community Noise Equivalent (CNEL)	
		Interior <sup>(1)</sup>	Exterior <sup>(2)</sup>
Residential	Single-Family, Duplex, Multiple-Family	45 <sup>(3,5)</sup>	60
	Mobile Homes	--	60 <sup>(4)</sup>
Commercial, Institutional, Open Space	Hotel, Motel, Transient Lodging	45	65 <sup>(5)</sup>
	Commercial Retail, Bank, Restaurant	55	--
	Office Building, Research & Development, Professional Offices, City Office Building	50	--
	Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	--
	Gymnasium (Multipurpose)	50	--
	Sports Club	55	--
	Manufacturing, Warehousing, Wholesale, Utilities	60	--
	Movie Theatres	45	--
	Hospital, School's Classroom	45	--
	Parks	--	60

Interpretation:

<sup>1</sup> Indoor environment excluding: bathrooms, toilets, closets, corridors.

<sup>2</sup> Outdoor environment limited to: private yard of single-family as measured at the property line; multi-family private patio or balcony which is served by a means of exit from inside; mobile home park, hospital patio; park picnic area; school playground; hotel and recreational area..

<sup>3</sup> Noise level requirement with closed windows, if they are used to meet natural ventilation requirement.

<sup>4</sup> Exterior noise level should be such that interior noise level will not exceed 45 CNEL.

<sup>5</sup> Except those areas affected by aircraft noise.

See also Policy 9.0s.

Source: Table 9.2 from City of Redlands General Plan, 2017.

**9.0f** Require a noise impact evaluation based on noise measurements at the site for all projects in Noise Referral Zones (B, C, or D) as shown on GP Table 9.1 (see Table B) and on GP Figure 9.1 or as determined from tables in the Appendix, as part of the project review process. Should measurements indicate that unacceptable noise levels will be created or experienced, require mitigation measures based on a detailed technical study prepared by a qualified acoustical engineer (i.e., a Registered Professional Engineer in the State of California with a minimum of three years experience in acoustics).

**9.0i** Require construction of barriers to mitigate sound emissions where necessary or where feasible, and encourage use of walls and berms to protect residential or other noise sensitive land uses that are adjacent to major roads, commercial, or industrial areas.

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**9.0s** Require mitigation to ensure that indoor noise levels for residential living spaces not exceed 45 dB LDN/CNEL due to the combined effect for all exterior noise sources.

*The Uniform Building Code (specifically, the California Administrative Code, Title 24, Part 6, Division T25, Chapter 1, Subchapter 1, Article 4, Sections T25-28) requires that “Interior community noise levels (CNEL/LDN) with windows closed, attributable to exterior sources shall not exceed an annual CNEL or LDN of a 45 dB in any habitable room.” The code requires that this standard be applied to all new hotels, motels, apartment houses and dwellings other than detached single-family dwellings.*

*Policy 9-s sets the maximum acceptable interior noise level at 45 CNEL. The Noise Referral Zones (65 CNEL) delineate areas within which tests to ensure compliance are to be required for new structures*

**9.0u** Require all new residential projects or replacement dwellings to be constructed near existing sources of non transportation noise (including but not limited to commercial facilities or public parks with sports activities) to demonstrate via an acoustical study conducted by a Registered Engineer that the indoor noise levels will be consistent with the limits contained in the Community Noise Ordinance (see Table C).

**9.0v** Consider the following impacts as possibly “significant”:

- An increase in exposure of four or more dB if the resulting noise level would exceed that described as clearly compatible for the affected land use, established in GP Table 9.1 [Table 7-10] and GP Table 9.2 [Table 7-11];
- Any increase of six dB or more, due to the potential for adverse community response.

### **City of Redlands Municipal Code**

The City of Redlands Municipal Code establishes the following applicable standards related to noise.

#### Section 8.06.030 – General Noise Regulations

It shall be unlawful for any person to willfully or negligently make, or cause to be made, any loud, unnecessary or unusual noise which disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to a reasonable person of normal sensitivity in the area. The factors that may be considered in determining whether a violation of this chapter exists include, but are not limited to, the following:

- A. The sound level of the objectionable noise;
- B. The sound level of the ambient noise;
- C. The proximity of the noise to residential living or sleeping facilities;
- D. The nature and zoning of the area within which the noise emanates;
- E. The number of persons affected by the noise;
- F. The time of day or night the noise occurs;
- G. The duration of the noise;
- H. The tonal, informative or musical content of the noise;
- I. Whether the noise is continuous, recurrent, or intermittent;
- J. Whether the noise is produced by a commercial or noncommercial activity;

- 
- K. Whether the nature of the noise is usual or unusual;
  - L. Whether the origin of the noise is natural or unnatural; and
  - M. Whether the noise occurs on a weekday, weekend or a holiday.

Section 8.06.070 – Exterior Noise Limits

A. The noise standards for the categories of land uses identified in Table 1 (see Table D) of this section shall, unless otherwise specifically indicated, apply to all such property within a designated zone.

B. No person shall operate, or cause to be operated, any source of sound at any location within the city or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level when measured on any other property to exceed:

1. The noise standard for that land use specified in Table 1 of this section for a cumulative period of more than thirty (30) minutes in any hour; or
2. The noise standard specified in Table 1 of this section plus five (5) dB for a cumulative period of more than fifteen (15) minutes in any hour; or
3. The noise standard specified in Table 1 of this section plus ten (10) dB for a cumulative period of more than five (5) minutes in any hour; or
4. The noise standard specified in Table 1 of this section plus fifteen (15) dB for a cumulative period of more than one minute in any hour; or
5. The noise standard specified in Table 1 of this section plus twenty (20) dB or the maximum measured ambient level, for any period of time.

C. If the measured ambient level exceeds the allowable noise exposure standard within any of the first four (4) noise limit categories below, the allowable noise exposure standard shall be adjusted in five (5) dB increments in each category as appropriate to encompass or reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

D. The ambient noise shall be measured at the same location along the property line utilized in subsection 8.06.06B of this chapter, with the alleged offending noise source inoperative. If the alleged offending noise source cannot be shut down, the ambient noise shall be estimated by performing a measurement in the same general area of the source but at sufficient distance that the noise from the source is at least ten (10) dB below the ambient in order that only the ambient level be measured. If the difference between the ambient and noise source is five (5) to ten (10) dB, then the level of the ambient itself can be reasonably determined by subtracting a one decibel correction to account for the contribution of the source.

E. In the event the alleged offensive noise contains a steady, audible tone such as a whine, screech, hum, or is a repetitive noise such as a hammering or riveting, or contains music or speech conveying informational content, the standard limits set forth in Table 1 of this section shall be reduced by five (5) dB.

**Table D – City of Redlands Maximum Permissible Sound Levels By Receiving Land Use**

Receiving Land Use Category	Time Period	Noise Level (dBA)
Single-Family Residential Districts	10:00 p.m. – 7:00 a.m.	50
	7:00 a.m. – 10:00 p.m.	60
Multi-Family Residential Districts, Public Space, Institutional	10:00 p.m. – 7:00 a.m.	50
	7:00 a.m. – 10:00 p.m.	60
Commercial	10:00 p.m. – 7:00 a.m.	60
	7:00 a.m. – 10:00 p.m.	65
Industrial	Any time	75

Source: City of Redlands Municipal Code Section 8.06.070.

**Section 8.06.080 – Interior Noise Standards**

A. No person shall operate or cause to be operated any source of sound, or allow the creation of any noise, which causes the noise level when measured inside a neighboring receiving occupied building to exceed the following standards.

1. The noise standard for that land use specified in Table 2 (see Table E) of this section for a cumulative period of more than five (5) minutes in any hour.
2. The noise standard for that land use specified in Table 2 of this section plus five (5) dB for a cumulative period of more than one minute in any hour.
3. The noise standard for that land use specified in Table 2 of this section plus ten (10) dB for the maximum measured ambient noise level for any period of time.

**Table E – City of Redlands Maximum Permissible Interior Sound Levels By Receiving Land Use**

Receiving Land Use Category	Time Period	Noise Level (dBA)
Single-Family Residential Districts	Any time	45
Multi-Family Residential Districts, Institutional, Hotels	Any time	45
Commercial	Any time	50
Industrial	Any time	60

Source: City of Redlands Municipal Code Section 8.06.080.

B. If the measured ambient level exceeds the allowable exterior noise exposure standard in Table 1 (see Table D) of this chapter, the allowable interior noise exposure level shall be adjusted in five (5) dB increments as appropriate too reflect the ambient noise level.

**Section 8.06.090 – Noise Disturbances Prohibited**

The following acts, and the causing or permitting thereof, are declared to be in violation of this chapter:

F. Construction And/Or Demolition: Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of six o'clock (6:00) P.M. and seven o'clock (7:00) A.M., including Saturdays, or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real property line, except for emergency work by public service utilities, the city or another government entity. All mobile



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or stationary internal combustion engine powered equipment or machinery shall be equipped with exhaust and air intake silencers in proper working order, or suitable to meet the standards set forth herein.

G. Vibration: Operating or permitting the operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty feet (150') from the source if on a public space or public right of way.

#### Section 8.06.120 – Exemptions

A. Emergency Exemption: This chapter shall not apply to:

1. The emission of sound for the purpose of alerting persons to the existence of an emergency such as, but not limited to, loudspeakers, horns, sirens, whistles or other similar devices which emit sound, only for the time required to make notification of the emergency condition; or
2. The emission of sound in the performance of emergency work or the temporary provision of essential services such as, but not limited to, utility system repairs or upgrades, infrastructure repairs, structural repairs and other unscheduled, infrequent and nonrecurring activities, required to protect persons and property from physical harm or loss of essential services.

B. Warning Devices: This chapter shall not apply to warning devices necessary for the protection of public safety. Police, fire and ambulance sirens and train horns are exempt from this chapter.

C. Outdoor Activities: This chapter shall not apply to occasional outdoor public gatherings, public dances, shows, and sporting and entertainment events conducted within city parks and city owned facilities, including events conducted at the Redlands Bowl, provided such events are conducted pursuant to a permit or license issued by the city.

D. School Activities: This chapter shall not apply to activities and operations conducted on the grounds of any public or private elementary, intermediate or secondary school or colleges and universities.

E. Hospital: This chapter shall not apply to activities and operations conducted within the grounds of the Redlands Community Hospital provided that said activities and operations are in compliance with the acoustical provisions of the hospital's conditional use permit.

F. Minor Maintenance Of Residential Property: This chapter shall not apply to noise sources associated with the minor maintenance of residential property, provided such activities take place between the hours of seven o'clock (7:00) A.M. to eight o'clock (8:00) P.M. on weekdays, and seven o'clock (7:00) A.M. to eight o'clock (8:00) P.M. on weekends and legal holidays, and provided that such activities generate no more than ninety (90) dBA at or within the real property line of the residential property. Activities covered under this provision include, but are not limited to, maintenance of landscaping and minor repair of residential dwellings or ancillary structures.

G. Construction Activities: This chapter shall not apply to noise sources associated with new construction, remodeling, rehabilitation or grading of any property provided such activities take place between the hours of seven o'clock (7:00) and six o'clock (6:00) P.M. on weekdays, including Saturdays, with no activities taking place at any time on Sundays or federal holidays. All motorized equipment used in such activity shall be equipped with functioning mufflers.

H. Agricultural Operations: This chapter shall not apply to mobile noise sources associated with agricultural operations for use in maintenance, cultivation, planting and harvesting of agricultural areas provided said activities take place between the hours of seven o'clock (7:00) A.M. to eight o'clock (8:00)

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P.M. on weekdays including Saturdays, with no activities taking place at any time on Sundays or federal holidays. All motorized equipment used in such activity shall be equipped with functioning mufflers.

I. Chapter Application: This chapter shall not apply to any activity in which state or federal law has preempted the regulation of such activity.

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## 5.0 EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the proposed project area is generally relatively low compared to the rest of the City. The primary noise sources in the project vicinity consist of vehicles operating on Helen Court and Helen Drive and from mechanical equipment associated with the telecommunications towers next to the existing water tank. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

### **5.1 Noise Measurement Equipment**

The noise measurements were taken using a Larson-Davis Model 831 Type 1 precision sound level meter programmed in “slow” mode to record noise levels in “A” weighted form as well as the frequency spectrum of the noise broken down into 1/3 octaves. The sound level meter and microphone were mounted on a tripod five feet above the ground and were equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200. The accuracy of the calibrator is maintained through a program established through the manufacturer and is traceable to the National Bureau of Standards. The noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (ANSI S1.4-2014 standard).

### **Noise Measurement Locations**

The noise monitoring locations were selected in order to obtain noise levels in the vicinity of the project site. Descriptions of the noise monitoring sites are provided below in Table F and are shown in Figure 3. Appendix A includes a photo index of the study area and noise level measurement locations.

### **Noise Measurement Timing and Climate**

The noise measurements were recorded between 3:25 p.m. and 4:04 p.m. on Monday, August 28, 2023. During the noise measurements, the sky was clear (no clouds), the temperature was 103 degrees Fahrenheit, the humidity was 23 percent, barometric pressure was 27.68 inches of mercury, and the wind was blowing at an average rate of five miles per hour.

### **5.2 Noise Measurement Results**

The results of the noise level measurements are presented in Table F and the noise monitoring data printouts are included in Appendix B.

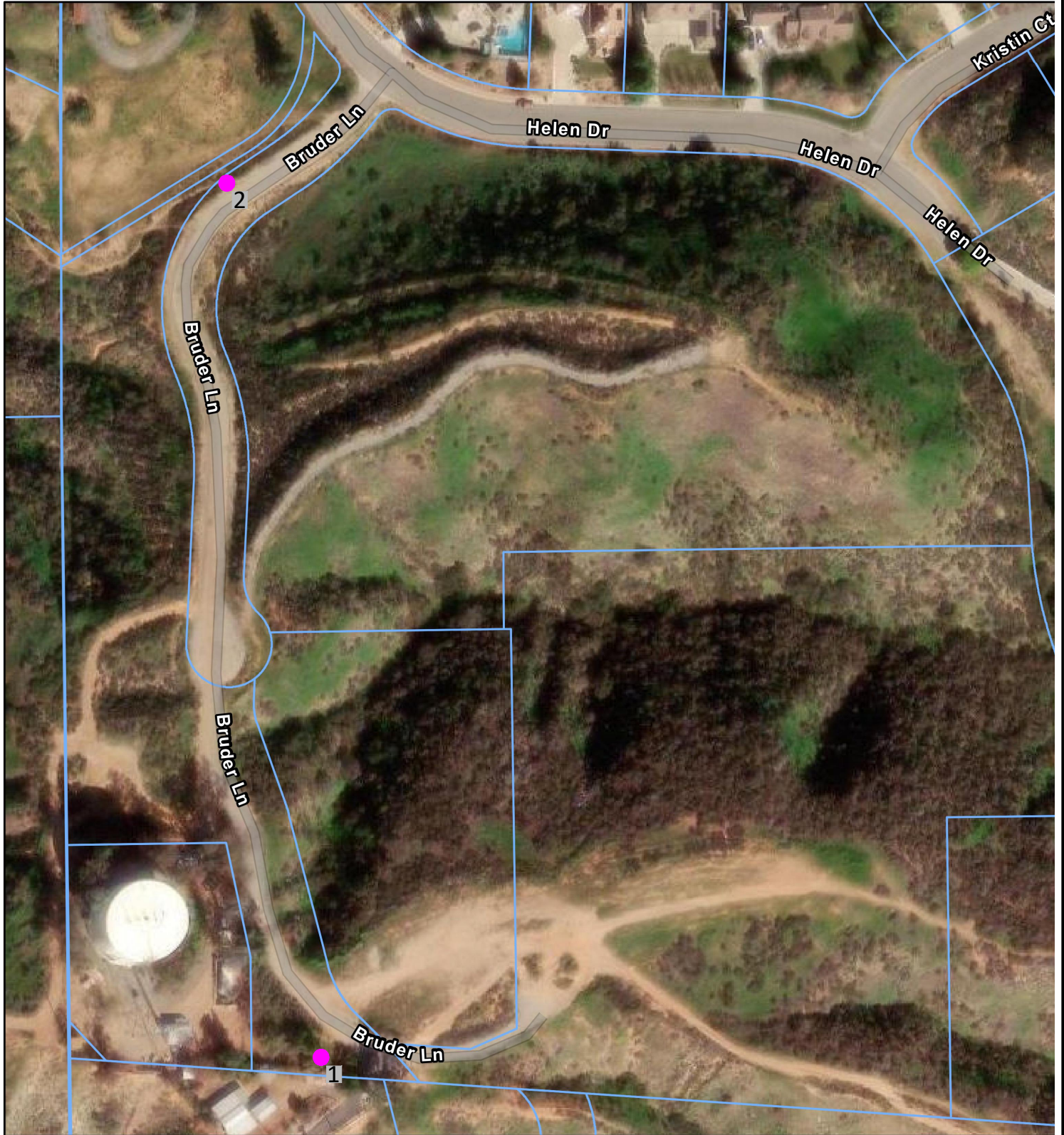
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**Table F – Existing (Ambient) Noise Measurement Results**

Site No.	Description	Primary Noise Source	Start Time of Measurement	Measured Noise Level	
				dBA Leq	dBA Lmax
1	Located southwest of proposed reservoirs, approximately 40 feet southwest of Helen Court centerline and 20 feet north of fence for home at 13202 Bruder Lane	Vehicles on Helen Court and mechanical equipment	3:25 p.m.	46.8	58.8
2	Located north of proposed reservoirs at Teddy's Trailhead, approximately 15 feet north of Helen Court centerline.	Vehicles on Helen Court and Helen Lane	3:49 p.m.	51.3	73.2

Notes: Noise measurements taken with a Larson-Davis Model 831 Type 1 precision sound level meter on Monday, August 28, 2023.



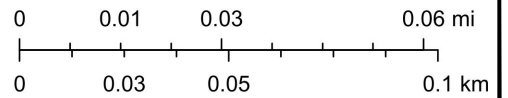
10/4/2023, 10:07:40 AM

Parcels

**LEGEND**

● 2 Noise Monitoring Location

1:2,257



SOURCE: Public San Bernardino County Parcel Viewer.

Figure 3  
Field Noise Monitoring Locations

## 6.0 MODELING PARAMETERS AND ASSUMPTIONS

### 6.1 Construction Noise

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table G below provides a list of the construction equipment anticipated to be used for each phase of construction, which was obtained from the *Air Quality and Greenhouse Gas Emissions Impact Analysis Sunset Reservoirs Project (Air Quality Analysis)*, prepared by Vista Environmental, October 2, 2023.

**Table G – Construction Equipment Noise Emissions and Usage Factors**

Equipment Description	Number of Equipment	Acoustical Use Factor <sup>1</sup> (percent)	Spec 721.560 Lmax at 50 feet <sup>2</sup> (dBA, slow <sup>3</sup> )	Actual Measured Lmax at 50 feet <sup>4</sup> (dBA, slow <sup>3</sup> )
<b>Site Preparation</b>				
Rubber Tired Dozer	3	40	85	83
Tractor, Loader, or Backhoe	4	40	84	N/A
<b>Grading</b>				
Excavators	1	40	85	81
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Tractor, Loader or Backhoe	3	40	84	N/A
<b>Building Construction</b>				
Crane	1	16	85	81
Forklift (Gradall)	3	40	85	83
Generator	1	50	82	81
Tractor, Loader or Backhoe	3	40	84	N/A
Welder	1	40	73	74
<b>Paving</b>				
Paver	2	50	85	77
Paving Equipment	2	50	85	77
Rollers	2	20	85	80
<b>Architectural Coating</b>				
Air Compressor	1	40	80	78

Notes:

<sup>1</sup> Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.

<sup>2</sup> Spec 721.560 is the equipment noise level utilized by the RCNM program.

<sup>3</sup> The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.

<sup>4</sup> Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.

Source: Federal Highway Administration, 2006 and CalEEMod default equipment mix.

Table G also shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby sensitive receptors have been calculated according to the equipment noise levels and usage factors listed in Table G and through use of the RCNM. For each phase of construction, all construction

equipment was analyzed based on being placed in the middle of the project site, per the FTA Manual for a General Assessment, and is based on the rationale that mobile equipment would likely move around the entire project site in a typical workday. As such, the middle of project site would provide the acoustical average noise level created over a typical workday. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two noisiest pieces of equipment as detailed in the FTA Manual. The RCNM model printouts are provided in Appendix C.

## 6.2 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table H gives approximate vibration levels for particular construction activities. The data in Table H provides a reasonable estimate for a wide range of soil conditions.

**Table H – Vibration Source Levels for Construction Equipment**

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L <sub>v</sub> ) at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, September, 2020.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table H and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table G.

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## 7.0 IMPACT ANALYSIS

### ***7.1 CEQA Thresholds of Significance***

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

### ***7.2 Generation of Noise Levels in Excess of Standards***

The proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the City standards.

#### **Construction-Related Noise**

The construction activities for the proposed project are anticipated to include site preparation and grading of approximately 6.2 acres, building construction of the proposed reservoirs, paving of an onsite driveway and parking spaces, and application of architectural coatings. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptor to the project site is a single-family home that is located as near as 280 feet south of the area that would be disturbed as part of the proposed project. There are also single-family homes as near as 730 feet northeast and 780 feet north of the area that would be disturbed as part of the proposed project.

Section 8.06.120(G) of the City's Municipal Code exempts noise sources associated with new construction, remodeling, rehabilitation or grading of any property from the City's noise standards provided construction activities that occur do not take place between the hours of 6:00 p.m. and 7:00 a.m. on weekdays and Saturdays, with no activities occurring at any time on Sundays or federal holidays. However, the City construction noise standards do not provide any limits to the noise levels that may be created from construction activities and even with adherence to the City standards, the resultant construction noise levels may result in a significant substantial temporary noise increase to the nearby residents.

In order to determine if the proposed construction activities would create a significant substantial temporary noise increase, the FTA construction noise criteria thresholds detailed above in Section 4.1 have been utilized, which shows that a significant construction noise impact would occur if construction noise exceeds 80 dBA during the daytime at any of the nearby homes or school classrooms.



Construction noise impacts to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table G – Construction Equipment Noise Emissions and Usage Factors. The results are shown below in Table I and the RCNM printouts are provided in Appendix C.

**Table I – Construction Noise Levels at the Nearby Sensitive Receptors**

Construction Phase	Construction Noise Level (dBA Leq) at:		
	Home to South <sup>1</sup>	Home to Northeast <sup>2</sup>	Home to North <sup>3</sup>
Site Preparation	66	62	62
Grading	65	61	61
Building Construction	66	61	62
Paving	61	57	57
Painting	53	49	49
<b>FTA Construction Noise Threshold</b>	<b>80</b>	<b>80</b>	<b>80</b>
Exceed Thresholds?	No	No	No

Notes:

<sup>1</sup> The home to south is located as near as 530 feet from the center of the area disturbed.

<sup>2</sup> The home to northeast is located as near as 870 feet from the center of the area disturbed.

<sup>3</sup> The home to north is located as near as 840 feet from the center of the area disturbed.

Source: RCNM, Federal Highway Administration, 2006 (see Section 6.1 above for detailed description of modeling assumptions)

Table I shows that greatest construction noise impacts would occur during the site preparation, with noise levels as high as 66 dBA Leq at the nearest home to the south and 62 dBA at the homes to the northeast and north. All calculated construction noise levels shown in Table I are within the FTA daytime construction noise standard of 80 dBA averaged over eight hours. Therefore, through adherence to the limitation of allowable construction times provided in Section 8.06.120(G) of the City’s Municipal Code, construction-related noise levels would not exceed any standards established in the General Plan or Noise Ordinance nor would construction activities create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

### Operational-Related Noise

In general, operation of the new reservoir tanks will be passive as there will be no equipment installed on the reservoir tanks that creates noise. The existing water tank will continue to function while the new reservoir tanks are constructed. Currently, maintenance on the existing water tank occurs on a monthly and as-needed basis by City employees, that includes landscaping. No change would occur between the maintenance activities for the existing water tank and proposed reservoir tanks. As such, operation of the proposed project would not create any additional sources of noise, over which is currently being created, and no operational noise modeling was performed. As such, less than significant noise impacts would occur from operation of the proposed project.

### Level of Significance

Less than significant impact.

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### **7.3 Generation of Excessive Groundborne Vibration**

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

#### **Construction-Related Vibration Impacts**

The construction activities for the proposed project are anticipated to include site preparation and grading of approximately 6.2 acres, building construction of the proposed reservoirs, paving of an onsite driveway and parking spaces, and application of architectural coatings. Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptor to the project site is a single-family home that is located as near as 280 feet south of the area that would be disturbed as part of the proposed project

Section 9.06.090(G) limits vibration activities to vibration levels that are not discernible at or beyond the boundary line of private property or at 150 feet from the vibration source if on a public space or public right of way. Based on these standards, there is potential that groundborne vibration may expose persons to excessive vibration levels. Since the City does not provide any quantitative vibration thresholds for what is considered discernible, the Caltrans vibration thresholds have been utilized in this analysis, which defines the threshold for building damage to structures at 0.5 inch per second PPV and the threshold for distinctly perceptible human annoyance of 0.24 inch per second PPV from transient sources.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table H above a bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest sensitive receptors (280 feet to the south) would be 0.006 inch per second PPV, which would be below both Caltrans exceed both the 0.5 inch per second PPV threshold for damage to structures and the human annoyance threshold of 0.24 inch per second PPV. Impacts would be less than significant.

#### **Operations-Related Vibration Impacts**

The proposed project would consist of the development of two new reservoir tanks. The on-going operation of the proposed project would not include the operation of any equipment that creates vibration and would not include any other known vibration sources. Therefore, a less than significant vibration impact is anticipated from operation of the proposed project.

#### **Level of Significance**

Less than significant impact.

### **7.4 Aircraft Noise**

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is Redlands Municipal Airport that is located approximately 4.8 miles north of the project site. The project site is located outside of the 60 dBA CNEL noise contours of Redlands Municipal Airport. No impacts would occur from aircraft noise.

#### **Level of Significance**

No impact.

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## 8.0 REFERENCES

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

Coffman Associates, *Airport Layout Plan Narrative Report for San Bernardino International Airport*, November 2010.

City of Redlands, *City of Redlands General Plan 2035*, Adopted December 5, 2017.

City of Redlands, *City Code of Redlands, California*, December 17, 2019.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, September 2018.

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide*, January, 2006.

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**APPENDIX A**

Field Noise Measurements Photo Index



Noise Measurement Site 1 - looking north



Noise Measurement Site 1 - looking northeast



Noise Measurement Site 1 - looking east



Noise Measurement Site 1 - looking southeast



Noise Measurement Site 1 - looking south



Noise Measurement Site 1 - looking southwest



Noise Measurement Site 1 - looking west



Noise Measurement Site 1 - looking northwest



Noise Measurement Site 2 - looking north



Noise Measurement Site 2 - looking northeast



Noise Measurement Site 2 - looking east



Noise Measurement Site 2 - looking southeast



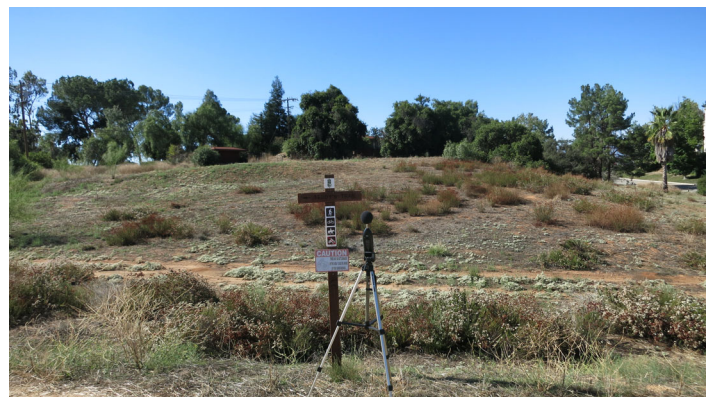
Noise Measurement Site 2 - looking south



Noise Measurement Site 2 - looking southwest



Noise Measurement Site 2 - looking west



Noise Measurement Site 2 - looking northwest

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**APPENDIX B**

Field Noise Measurements Printouts

# Measurement Report

## Report Summary

Meter's File Name	831_Data.003	Computer's File Name	
Meter	831		
Firmware	2.403		
User	GT		
Description	Sunset Reservoirs		
Note	SE of Existing Reservoir, approx 40 ft SW of Helen Ct Centerline and 20 ft north of fence for home at 13202 Bruder Ln		
Start Time	2023-08-28 15:25:46	Duration	0:15:00.0
End Time	2023-08-28 15:40:46	Run Time	0:15:00.0
		Pause Time	0:00:00.0

SLM\_0002509

Location

## Results

### Overall Metrics

LA <sub>eq</sub>	46.8 dB		
LAE	76.3 dB	SEA	--- dB
EA	4.8 μPa²h		
LZ <sub>peak</sub>	96.0 dB	2023-08-28 15:25:46	
LAS <sub>max</sub>	58.8 dB	2023-08-28 15:30:50	
LAS <sub>min</sub>	43.8 dB	2023-08-28 15:32:52	
LA <sub>eq</sub>	46.8 dB		
LC <sub>eq</sub>	59.0 dB	LC <sub>eq</sub> - LA <sub>eq</sub>	12.2 dB
LAI <sub>eq</sub>	49.5 dB	LAI <sub>eq</sub> - LA <sub>eq</sub>	2.7 dB

### Exceedances

	Count	Duration
LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LZ <sub>peak</sub> > 135.0 dB	0	0:00:00.0
LZ <sub>peak</sub> > 137.0 dB	0	0:00:00.0
LZ <sub>peak</sub> > 140.0 dB	0	0:00:00.0

### Community Noise

LDN	LDay	LNight	
46.8 dB	46.8 dB	0.0 dB	
LDEN	LDay	LEve	LNight
46.8 dB	46.8 dB	--- dB	--- dB

### Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L <sub>eq</sub>	46.8 dB		59.0 dB		64.0 dB	
LS <sub>(max)</sub>	58.8 dB	2023-08-28 15:30:50	71.5 dB	2023-08-28 15:31:50	87.6 dB	2023-08-28 15:25:47
LF <sub>(max)</sub>	61.9 dB	2023-08-28 15:30:50	73.8 dB	2023-08-28 15:31:50	92.2 dB	2023-08-28 15:25:47
LI <sub>(max)</sub>	68.0 dB	2023-08-28 15:25:46	76.2 dB	2023-08-28 15:30:26	93.7 dB	2023-08-28 15:25:47
LS <sub>(min)</sub>	43.8 dB	2023-08-28 15:32:52	53.4 dB	2023-08-28 15:37:53	54.9 dB	2023-08-28 15:37:53
LF <sub>(min)</sub>	43.2 dB	2023-08-28 15:38:53	52.3 dB	2023-08-28 15:36:35	53.6 dB	2023-08-28 15:28:53
LI <sub>(min)</sub>	43.7 dB	2023-08-28 15:32:52	53.7 dB	2023-08-28 15:37:53	55.4 dB	2023-08-28 15:39:09
L <sub>Peak(max)</sub>	80.9 dB	2023-08-28 15:26:02	86.3 dB	2023-08-28 15:30:26	96.0 dB	2023-08-28 15:25:46

### Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

### Statistics

LAS 5.0	51.4 dB
LAS 10.0	48.1 dB
LAS 33.3	45.7 dB
LAS 50.0	45.3 dB
LAS 66.6	45.0 dB
LAS 90.0	44.4 dB



# Measurement Report

## Report Summary

Meter's File Name	831_Data.004	Computer's File Name	SLM_0002509_831_Data_004.06.lbin
Meter	831		
Firmware	2.403		
User	GT		Location
Description	Sunset Reservoirs		
Note	North of Existing Reservoir, at Teddy's Trail Trailhead, approx 15 ft north of Helen Ct CL		
Start Time	2023-08-28 15:49:20	Duration	0:15:00.0
End Time	2023-08-28 16:04:20	Run Time	0:15:00.0
		Pause Time	0:00:00.0

## Results

### Overall Metrics

LA <sub>eq</sub>	51.3 dB		
LAE	80.8 dB	SEA	--- dB
EA	13.4 µPa²h		
LZ <sub>peak</sub>	98.5 dB	2023-08-28 15:49:20	
LAS <sub>max</sub>	73.2 dB	2023-08-28 15:51:26	
LAS <sub>min</sub>	29.6 dB	2023-08-28 15:57:31	
LA <sub>eq</sub>	51.3 dB		
LC <sub>eq</sub>	63.3 dB	LC <sub>eq</sub> - LA <sub>eq</sub>	12.0 dB
LAI <sub>eq</sub>	55.3 dB	LAI <sub>eq</sub> - LA <sub>eq</sub>	4.1 dB

### Exceedances

	Count	Duration
LAS > 65.0 dB	2	0:00:11.3
LAS > 85.0 dB	0	0:00:00.0
LZ <sub>peak</sub> > 135.0 dB	0	0:00:00.0
LZ <sub>peak</sub> > 137.0 dB	0	0:00:00.0
LZ <sub>peak</sub> > 140.0 dB	0	0:00:00.0

### Community Noise

LDN	LDay	LNight	
51.3 dB	51.3 dB	0.0 dB	
LDEN	LDay	LEve	LNight
51.3 dB	51.3 dB	--- dB	--- dB

### Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L <sub>eq</sub>	51.3 dB		63.3 dB		69.4 dB	
LS <sub>(max)</sub>	73.2 dB	2023-08-28 15:51:26	83.7 dB	2023-08-28 15:51:26	89.3 dB	2023-08-28 15:49:20
LF <sub>(max)</sub>	76.7 dB	2023-08-28 15:51:25	86.3 dB	2023-08-28 15:51:25	93.6 dB	2023-08-28 15:49:20
LI <sub>(max)</sub>	77.8 dB	2023-08-28 15:51:25	87.9 dB	2023-08-28 15:51:25	96.4 dB	2023-08-28 15:49:20
LS <sub>(min)</sub>	29.6 dB	2023-08-28 15:57:31	45.1 dB	2023-08-28 15:58:21	49.6 dB	2023-08-28 16:04:18
LF <sub>(min)</sub>	29.1 dB	2023-08-28 15:57:39	42.6 dB	2023-08-28 15:58:25	46.7 dB	2023-08-28 16:04:06
LI <sub>(min)</sub>	29.6 dB	2023-08-28 15:57:40	45.8 dB	2023-08-28 15:57:38	50.9 dB	2023-08-28 16:02:41
L <sub>Peak(max)</sub>	92.6 dB	2023-08-28 16:02:09	96.1 dB	2023-08-28 15:51:25	98.5 dB	2023-08-28 15:49:20

### Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

### Statistics

LAS 5.0	53.5 dB
LAS 10.0	48.0 dB
LAS 33.3	37.0 dB
LAS 50.0	35.4 dB
LAS 66.6	33.3 dB
LAS 90.0	30.8 dB

---

**APPENDIX C**

RCNM Model Construction Noise Calculations

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Site Preparation

### ---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to South	Residential	46.8	46.8	46.8

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	530	0
Dozer	No	40		81.7	530	0
Dozer	No	40		81.7	530	0
Backhoe	No	40		77.6	530	0
Front End Loader	No	40		79.1	530	0
Tractor	No	40	84		530	0
Tractor	No	40	84		530	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Dozer	61.2	57.2	N/A	N/A	N/A	N/A
Dozer	61.2	57.2	N/A	N/A	N/A	N/A
Dozer	61.2	57.2	N/A	N/A	N/A	N/A
Backhoe	57.1	53.1	N/A	N/A	N/A	N/A
Front End Loader	58.6	54.6	N/A	N/A	N/A	N/A
Tractor	63.5	59.5	N/A	N/A	N/A	N/A
Tractor	63.5	59.5	N/A	N/A	N/A	N/A
<b>Total</b>	<b>64</b>	<b>66</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Site Preparation

### ---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to Northeast	Residential	51.3	51.3	51.3

Description	Impact Device	Usage(%)	Equipment	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)			
Dozer	No	40		81.7	870	0
Dozer	No	40		81.7	870	0
Dozer	No	40		81.7	870	0
Backhoe	No	40		77.6	870	0
Front End Loader	No	40		79.1	870	0
Tractor	No	40	84		870	0
Tractor	No	40	84		870	0

Equipment	Calculated (dBA)		Results				
	*Lmax	Leq	Day		Noise Limits (dBA)		
			Lmax	Leq	Evening		
Dozer	56.9	52.9	N/A	N/A	N/A	N/A	N/A
Dozer	56.9	52.9	N/A	N/A	N/A	N/A	N/A
Dozer	56.9	52.9	N/A	N/A	N/A	N/A	N/A
Backhoe	52.7	48.8	N/A	N/A	N/A	N/A	N/A
Front End Loader	54.3	50.3	N/A	N/A	N/A	N/A	N/A
Tractor	59.2	55.2	N/A	N/A	N/A	N/A	N/A
Tractor	59.2	55.2	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>59</b>	<b>62</b>	N/A	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Site Preparation

### ---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to North	Residential	51.3	51.3	51.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	840	0
Dozer	No	40		81.7	840	0
Dozer	No	40		81.7	840	0
Backhoe	No	40		77.6	840	0
Front End Loader	No	40		79.1	840	0
Tractor	No	40	84		840	0
Tractor	No	40	84		840	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Dozer	57.2	53.2	N/A	N/A	N/A	N/A
Dozer	57.2	53.2	N/A	N/A	N/A	N/A
Dozer	57.2	53.2	N/A	N/A	N/A	N/A
Backhoe	53.1	49.1	N/A	N/A	N/A	N/A
Front End Loader	54.6	50.6	N/A	N/A	N/A	N/A
Tractor	59.5	55.5	N/A	N/A	N/A	N/A
Tractor	59.5	55.5	N/A	N/A	N/A	N/A
<b>Total</b>	<b>60</b>	<b>62</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Grading

**---- Receptor #1 ----**

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to South	Residential	46.8	46.8	46.8

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40	85	80.7	530	0
Grader	No	40	85		530	0
Dozer	No	40		81.7	530	0
Backhoe	No	40		77.6	530	0
Front End Loader	No	40		79.1	530	0
Tractor	No	40	84		530	0

**Results**

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Excavator	60.2	56.2	N/A	N/A	N/A	N/A
Grader	64.5	60.5	N/A	N/A	N/A	N/A
Dozer	61.2	57.2	N/A	N/A	N/A	N/A
Backhoe	57.1	53.1	N/A	N/A	N/A	N/A
Front End Loader	58.6	54.6	N/A	N/A	N/A	N/A
Tractor	63.5	59.5	N/A	N/A	N/A	N/A
<b>Total</b>	<b>65</b>	<b>65</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Grading

**---- Receptor #2 ----**

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to Northeast	Residential	51.3	51.3	51.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40	85	80.7	870	0
Grader	No	40			870	0
Dozer	No	40		81.7	870	0
Backhoe	No	40		77.6	870	0
Front End Loader	No	40		79.1	870	0
Tractor	No	40	84		870	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Excavator	55.9	51.9	N/A	N/A	N/A	N/A
Grader	60.2	56.2	N/A	N/A	N/A	N/A
Dozer	56.9	52.9	N/A	N/A	N/A	N/A
Backhoe	52.7	48.8	N/A	N/A	N/A	N/A
Front End Loader	54.3	50.3	N/A	N/A	N/A	N/A
Tractor	59.2	55.2	N/A	N/A	N/A	N/A
<b>Total</b>	<b>60</b>	<b>61</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM), Version 1.1**

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Grading

**---- Receptor #3 ----**

Description	Land Use	Baselines (dBA)			Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
		Daytime	Evening	Night				
Home to North	Residential	51.3	51.3	51.3				
Description	Impact Device	Usage(%)						
Excavator	No	40		80.7	840	0		
Grader	No	40	85		840	0		
Dozer	No	40		81.7	840	0		
Backhoe	No	40		77.6	840	0		
Front End Loader	No	40		79.1	840	0		
Tractor	No	40	84		840	0		

Equipment	Calculated (dBA)		Results		Noise Limits (dBA)		Leq
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq	
Excavator	56.2	52.2	N/A	N/A	N/A	N/A	N/A
Grader	60.5	56.5	N/A	N/A	N/A	N/A	N/A
Dozer	57.2	53.2	N/A	N/A	N/A	N/A	N/A
Backhoe	53.1	49.1	N/A	N/A	N/A	N/A	N/A
Front End Loader	54.6	50.6	N/A	N/A	N/A	N/A	N/A
Tractor	59.5	55.5	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>61</b>	<b>61</b>	N/A	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.



## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Building Construction

### ---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to South	Residential	46.8	46.8	46.8

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	530	0
Gradall	No	40		83.4	530	0
Gradall	No	40		83.4	530	0
Gradall	No	40		83.4	530	0
Generator	No	50		80.6	530	0
Backhoe	No	40		77.6	530	0
Front End Loader	No	40		79.1	530	0
Welder / Torch	No	40		74	530	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day Lmax	Day Leq	Evening Lmax	Evening Leq
Crane	60	52.1	N/A	N/A	N/A	N/A
Gradall	62.9	58.9	N/A	N/A	N/A	N/A
Gradall	62.9	58.9	N/A	N/A	N/A	N/A
Gradall	62.9	58.9	N/A	N/A	N/A	N/A
Generator	60.1	57.1	N/A	N/A	N/A	N/A
Backhoe	57.1	53.1	N/A	N/A	N/A	N/A
Front End Loader	58.6	54.6	N/A	N/A	N/A	N/A
Welder / Torch	53.5	49.5	N/A	N/A	N/A	N/A
<b>Total</b>	<b>63</b>	<b>66</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Building Construction

### ---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to Northeast	Residential	51.3	51.3	51.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	870	0
Gradall	No	40		83.4	870	0
Gradall	No	40		83.4	870	0
Gradall	No	40		83.4	870	0
Generator	No	50		80.6	870	0
Backhoe	No	40		77.6	870	0
Front End Loader	No	40		79.1	870	0
Welder / Torch	No	40		74	870	0

### Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Crane	55.7	47.8	N/A	N/A	N/A	N/A
Gradall	58.6	54.6	N/A	N/A	N/A	N/A
Gradall	58.6	54.6	N/A	N/A	N/A	N/A
Gradall	58.6	54.6	N/A	N/A	N/A	N/A
Generator	55.8	52.8	N/A	N/A	N/A	N/A
Backhoe	52.7	48.8	N/A	N/A	N/A	N/A
Front End Loader	54.3	50.3	N/A	N/A	N/A	N/A
Welder / Torch	49.2	45.2	N/A	N/A	N/A	N/A
<b>Total</b>	<b>59</b>	<b>61</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Building Construction

### ---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to North	Residential	51.3	51.3	51.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	840	0
Gradall	No	40		83.4	840	0
Gradall	No	40		83.4	840	0
Gradall	No	40		83.4	840	0
Generator	No	50		80.6	840	0
Backhoe	No	40		77.6	840	0
Front End Loader	No	40		79.1	840	0
Welder / Torch	No	40		74	840	0

Equipment	Calculated (dBA)		Results				
	*Lmax	Leq	Day Lmax	Leq	Noise Limits (dBA)		
					Evening		
					Lmax	Leq	
Crane	56.0	48.1	N/A	N/A	N/A	N/A	N/A
Gradall	58.9	54.9	N/A	N/A	N/A	N/A	N/A
Gradall	58.9	54.9	N/A	N/A	N/A	N/A	N/A
Gradall	58.9	54.9	N/A	N/A	N/A	N/A	N/A
Generator	56.1	53.1	N/A	N/A	N/A	N/A	N/A
Backhoe	53.1	49.1	N/A	N/A	N/A	N/A	N/A
Front End Loader	54.6	50.6	N/A	N/A	N/A	N/A	N/A
Welder / Torch	49.5	45.5	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>59</b>	<b>62</b>	N/A	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to South	Residential	46.8	46.8	46.8

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50	77.2	77.2	530	0
Paver	No	50	77.2	77.2	530	0
Paver	No	50	77.2	77.2	530	0
Paver	No	50	77.2	77.2	530	0
Roller	No	20	80	80	530	0
Roller	No	20	80	80	530	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Noise Limits (dBA) Evening	
Paver	56.7	53.7	N/A	N/A	N/A	N/A
Paver	56.7	53.7	N/A	N/A	N/A	N/A
Paver	56.7	53.7	N/A	N/A	N/A	N/A
Paver	56.7	53.7	N/A	N/A	N/A	N/A
Roller	59.5	52.5	N/A	N/A	N/A	N/A
Roller	59.5	52.5	N/A	N/A	N/A	N/A
<b>Total</b>	<b>60</b>	<b>61</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Paving

**---- Receptor #2 ----**

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to Northeast	Residential	51.3	51.3	51.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50	77.2	77.2	870	0
Paver	No	50	77.2	77.2	870	0
Paver	No	50	77.2	77.2	870	0
Paver	No	50	77.2	77.2	870	0
Roller	No	20	80	80	870	0
Roller	No	20	80	80	870	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Paver	52.4	49.4	N/A	N/A	N/A	N/A
Paver	52.4	49.4	N/A	N/A	N/A	N/A
Paver	52.4	49.4	N/A	N/A	N/A	N/A
Paver	52.4	49.4	N/A	N/A	N/A	N/A
Roller	55.2	48.2	N/A	N/A	N/A	N/A
Roller	55.2	48.2	N/A	N/A	N/A	N/A
<b>Total</b>	<b>55</b>	<b>57</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Paving

**---- Receptor #3 ----**

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to North	Residential	51.3	51.3	51.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50	77.2	77.2	840	0
Paver	No	50	77.2	77.2	840	0
Paver	No	50	77.2	77.2	840	0
Paver	No	50	77.2	77.2	840	0
Roller	No	20	80	80	840	0
Roller	No	20	80	80	840	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Noise Limits (dBA) Evening	
Paver	52.7	49.7	N/A	N/A	N/A	N/A
Paver	52.7	49.7	N/A	N/A	N/A	N/A
Paver	52.7	49.7	N/A	N/A	N/A	N/A
Paver	52.7	49.7	N/A	N/A	N/A	N/A
Roller	55.5	48.5	N/A	N/A	N/A	N/A
Roller	55.5	48.5	N/A	N/A	N/A	N/A
<b>Total</b>	<b>56</b>	<b>57</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Painting

**---- Receptor #1 ----**

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to South	Residential	46.8	46.8	46.8

Description	Impact Device	Usage(%)	Equipment Spec	Actual Lmax	Receptor Distance	Estimated Shielding
			(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	530	0

Equipment	Calculated (dBA)	Results					
		Day		Noise Limits (dBA)			
		*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Compressor (air)		57.2	53.2	N/A	N/A	N/A	N/A
<b>Total</b>		<b>57</b>	<b>53</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**---- Receptor #2 ----**

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to Northeast	Residential	51.3	51.3	51.3

Description	Impact Device	Usage(%)	Equipment Spec	Actual Lmax	Receptor Distance	Estimated Shielding
			(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	870	0

Equipment	Calculated (dBA)	Results					
		Day		Noise Limits (dBA)			
		*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Compressor (air)		52.9	48.9	N/A	N/A	N/A	N/A
<b>Total</b>		<b>53</b>	<b>49</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 10/3/2023  
 Case Description: Sunset Reservoirs - Painting

**---- Receptor #3 ----**

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Home to North	Residential	51.3	51.3	51.3

Description	Impact Device	Usage(%)	Equipment	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)			
Compressor (air)	No	40		77.7	840	0

Equipment	Calculated (dBA)	Results					
		Day			Evening		
		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	53.2	49.2	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>53</b>	<b>49</b>	N/A	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.