INITIAL STUDY
FOR THE
CITY OF BIG BEAR LAKE
CASTLE ROCK TRAILHEAD
PARKING LOT PROJECT

Prepared for:

City of Big Bear Lake
P.O. Box 10000
39707 Big Bear Boulevard
Big Bear Lake, California 92315

Prepared by:

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January 2024

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LIST OF ABBREVIATIONS AND ACROYNMS

AAM	American Association of Museums
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ACM	Asbestos-containing materials
ADA	American Disability Act
APE	Area of Potential Effect
APN	Assessor Parcel Number
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
bgs	below ground surface
BLM	Bureau of Land Management
BMPs	Best Management Practices
BRA	Biological Resources Assessment
BVES	Bear Valley Electric Service
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalOSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CBC	California Building Code
CCAR	Climate Action Registry
CDFW	California Department of Fish & Wildlife
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
CUP	Conditional Use Permit
CWA	Clean Water Act
CWP	Countywide Plan
dB	decibel
dBA	A-weighted decibel
DOI	Department of Interiors
DTSC	Department of Toxic and Substance Control
DWP	Department of Water and Power
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FGC	Fish & Game Code
FIRM	Flood Insurance Rate Map
GCC	Global Climate Change
GHG	Greenhouse Gas
GSAs	Groundwater Sustainability Agencies
GSPs	Groundwater Sustainability Plans
HCP	Habitat Conservation Plan

HAS	Hydrologic Sub-Area
HUD	U.S. Housing & Urban Development
IN	Institutional
IS/MND	Initial Study / Mitigated Negative Declaration
LRA	Local Responsibility Area
LSTs	Localized Significance Thresholds
LUST	Leaking Underground Storage Tank
MARTA	Mountain Area Regional Transit Authority
MBTA	Migratory Bird Treaty Act
MCLs	maximum contaminant levels
MM	Mitigation Measure
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
OS	Open Space
PA	Production/Attraction
PEIR	Program Environmental Impact Report
PF	Public Facility
PRMMP	paleontological resources monitoring and mitigation plan
RL	Rural Living
RWQCB	Regional Water Quality Control Board
SBCTA	San Bernardino County Transportation Authority
SBTAM	San Bernardino Transportation Authority Model
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SMBMI	San Manuel Band of Mission Indians
SPOW	spotted owl
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Program
SWRCB	State Water Resources Control Board
TAZ	Traffic Analysis Zone
TCP	Timberland Conversion Permit
TGA	Trip Generation Assessment
THP	Timber Harvest Plan
TCR	Tribal Cultural Resource
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish & Wildlife Services
UWMP	Urban Water Management Plan
VdB	velocity in decibels
VHFHSZ	Very High Fire Hazard Severity Zone

VMT	Vehicle Miles Traveled
WOTUS	Waters of the United States
WTP	Wastewater Treatment Plant
WQMP	Water Quality Management Plan

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ENVIRONMENTAL CHECKLIST FORM

INTRODUCTION

1. Project Title: Castle Rock Trailhead Parking Lot Project

2. Lead Agency Name: City of Big Bear Lake
   Address: P.O. Box 10000 (39707 Big Bear Boulevard)
   Big Bear Lake, CA 92315

3. Contact Person: Nathan Castillo, Principal Planner
   Phone Number: 909-866-5831, ext. 128
   E-Mail Address: ncastillo@CityBigBearLake.com

4. Project Location: The proposed Castle Rock Trail Parking Lot will be located on the south side of State Highway (SH) -18 adjacent to Talbot Road which is located just east of Fisher Cove and west of Boulder Bay on Big Bear Lake's southern shore. The Regional Location of the project site is shown on Figure 1. The Site Location on the USGS Big Bear Lake 7.5 Minute Series Topographic Map is shown on Figure 2. The site is located in the very southwestern corner of Section 24, Township 2 North, Range 1 West, San Bernardino Base Meridian. Figure 3 contains a recent aerial photo of the project site (unscaled). The Longitude and Latitude of the site is (approx.) 34°14'17.27" N and 116°57'36.44" W. Figure 4 show the two current engineered site plans for the facility adjacent to SH-18 and Talbot Drive (southwest corner of the intersection).

5. Project Sponsor's Name and Address: City of Big Bear Lake
   P.O. Box 10000 (39707 Big Bear Boulevard)
   Big Bear Lake, CA 92315

6. General Plan Designation: Single Family Residential-4 (SFR-4)

7. Zoning Classification: Single Family Residential (R-1)

8. Project Description:

Project Description

The proposed project consists of constructing an approximately 0.26-acre parking lot, restroom facility, and a connection to the existing Castle Rock Trail. The parking lot would accommodate 30 parking spaces, two of which would be ADA Standard. The proposed trail connection would be approximately 350 feet long, and would connect the existing Castle Rock Trail (WUSFS Trail 1W03) to the westernmost end of the proposed parking lot. Sewer, water and electrical services would connect to existing utility lines in the adjacent roadways.

The basic component of the proposed project is the installation of a paved parking lot that will encompass approximately 12,600 square feet (sf) of impervious surface on Assessor Parcel Number (APN): 0306-011-02. The parking lot will be installed and owned by the City of Big Bear Lake which will utilize a grant from the Federal Highway Administration (FHWA), Central Federal

Lands Highway Division (CFLHD), to partially fund the new parking facility construction. Once constructed and placed into operation, the City will oversee operation and maintenance of the parking facility. In addition to the parking area itself, a number of on-site and off-site features will also be installed to support the trailhead parking facility. These support features include:

- Clearing the site. Up to 40 trees of varying ages, diameter and height may need to be harvested, mostly western ponderosa pines. The other vegetation will also have to be removed from the site prior to grading.
- Grading the site (approximately 1/3 of an acre) to create a pad for the parking lot. Approximately 8,600 cubic yards (CY) of material will be cut and up to 800 CY filled, with very little material being removed or imported to the site. As part of creating a level parking pad, it is possible that blasting may be required to remove bedrock outcrops at the site. The goal is to keep the slopes of the parking lot at less than 5%. Retaining walls and maintained slopes will be installed at the site.
- The Castle Rock Trailhead is located about 350 feet southwest of the parking facility. A new trail will need to be extended from the parking facility to the existing Castle Rock Trail. A proposed alignment for the connecting trail is shown on Figure 5 and it will be installed concurrent with the parking facility. The trail will be closely coordinated the United States Forest Service (USFS), San Bernardino National Forest, and follow standard trail design for the Forest.
- Once the site is graded, a number of underground facilities will be installed: drainage facilities, with the objective of managing the increased runoff onsite; water and wastewater connections to the site (a restroom is planned, but is not part of the federally funded project); to support night safety lights, which will be minimized to only meet safety standards; onsite bio-retention basins (one in the northeast corner of the property of approximately 695 sf and one in the southeast corner of the property of approximately 192 sf); and two energy dissipators where flows can be released to the drainage system on Big Bear Lake Boulevard.
- The site will be paved to provide the parking area. The design calls for 30 total parking spaces with two of these spaces committed to DA parking. The site should be accessible to the bike trail on Big Bear Lake Boulevard and Valley Mass Transit should be able to drop of passengers at the site.
- Curbs and gutters will be installed at the site and a chain length fence will be constructed around the project site. Trash collection bins will be installed and serviced by the City.
- No known utilities will need to be relocated.

The end product will be a sustainable trailhead parking facility that should require minimal maintenance over the long term.

Construction Scenario

The City envisions construction occurring when spring begins in April2024. As noted above, the site will be cleared and grubbed and then equipment will be brought to the site to carry out site grading. During this period the deteriorated pavement in the adjacent Talbot Drive will be removed and new pavement will be installed. The existing driveway onto the property will be graded to match the adjacent new paved roadway. Once the grading is completed and support facilities have been installed, the site will be paved. The walking paths will also be installed. The goal is to complete construction on the project site in2024. Since this is a small site, this appears to be a realistic goal.

9. Surrounding land uses and setting: (Briefly describe the project's surroundings)

   North: Big Bear Lake Boulevard and residences to the north
   East: Existing residence and residentially developed property
   South: Undeveloped land with forest ground cover, San Bernardino National Forest
   West: Undeveloped land with forest ground cover, San Bernardino National Forest

10. Other agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

    Based on the various technical studies prepared for this project, other agency approvals will be a construction erosion control plan and a long-term Water Quality Management Plan (WQMP). Both these documents will be reviewed and enforced by the City of Big Bear Lake. The County also participates in overseeing the implementation of the WQMP. It is also possible that a blasting permit will have to be obtained from the County. Finally, due to the proximity of the site to State Highway (SH) 18 right-of-way, the City may require a Caltrans encroachment permit during construction

11. Have California Native American tribes traditionally and cultural affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

    Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

    The San Manuel Ban of Mission Indians (Yuhaaviatam) requested consultation and accepted mitigation measures TCR-1 through TCR-3. The consultation was officially closed with the acceptance of the measures.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation, the following finding is made:

☐	The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
☒	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.
☐	The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
☐	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.
☐	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.

Tom Dodson & Associates — Prepared by

January 9, 2023 — Date

Nathan Castillo, Principal Planner
Lead Agency (signature)

December 28, 2023 — Date

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 in the parentheses following each question. 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 there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

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," as described in (5) below, 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) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) 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 significance.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
I. AESTHETICS: Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) 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 or other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

SUBSTANTIATION

a. *Less Than Significant Impact* – A scenic vista can generally be defined as a viewpoint from a public vantage point that provides expansive views of a highly-valued landscape for the benefit of the general public. Common examples include undeveloped hillsides, ridgelines, and open space areas that provide a unifying visual backdrop to a developed area. Scenic resources are those landscape patterns and features that are visually or aesthetically pleasing and that contribute affirmatively to the definition of a distinct community or region such as trees, rock outcroppings, and historic buildings. As shown on the aerial photos on Figures 1 and 3, the project area has no medium- or long-distance scenic vistas because of the density of the forest adjacent to Big Bear Boulevard/State Highway (SH) 18 at the site location. The views from this roadway consist of a modest density natural forest landscape with occasional views to residences near the roadway or to bedrock outcrops. The project site will have many trees removed (estimated to be up to 40 trees) to create the public parking lot which from the roadway will resemble a minor break (less than 1/3 acre) in the forest, similar to a residence that has been constructed within the forest. None of the features of the proposed project site contain or would impair views of any scenic vistas.

b. *Less Than Significant Impact* – The proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. The project site is located adjacent to Big Bear Boulevard/SH 18, which is considered by the State and the County to function as a scenic highway. The environment surrounding the project site consists of a Western pine forest/woodland. Impacts to this vegetation type would be considered less than significant since tree removal will be limited and only minor loss of bedrock will occur at the site at ground level. No structures exist onsite. This vegetation type is common throughout the San Bernardino Mountains and other mountain ranges in the region. The County has utilized the following as criteria for designating scenic resources:

Features meeting the following criteria shall be considered for designation as scenic resources: A roadway, vista point, or area that provides a vista of undisturbed natural areas; includes a unique or unusual feature that comprises an important or dominant portion of the viewshed (the area within the field of view of the observer); and offers a distant vista that provides relief from less attractive views of nearby features (such as views of mountain backdrops from urban areas). (San Bernardino General Plan EIR, February 2007)

The proposed project site does meet one of the above criteria that would define the area as containing a scenic resource, i.e., an unusual feature that comprises an important or dominant portion of the viewshed. Within the adjacent natural forest, a number of trees will be removed as part of the proposed project, though only those located internally within the site boundaries; most of the trees along the roadway are anticipated to remain in place. The number of trees that would be removed in order to develop the site as proposed is anticipated to be no more than 40. As such, the removal of this number trees in order to develop the project site with a trailhead parking area is not judged to constitute substantially damaging scenic resources in the context of the adjacent forest. Therefore, given the scenic resources that exist on site, development of the proposed parking area would have a less than significant potential to substantially damage scenic resources, including, but not limited to, trees, and rock outcroppings within a state scenic highway corridor.

c. *Less Than Significant Impact* – The proposed project would be installed in an area defined as a natural forest with mixed residences located within the surrounding area. The proposed project occurs in a low-density suburban portion of the City of Big Bear Lake. The proposed project is currently zoned low density residential and or functions as part of the San Bernardino National Forest. The proposed project would comply with the applicable City development standards governing parking lots. As discussed under issues I(a) and I(b), above, the proposed project would not disrupt or otherwise significantly impact regionally significant vistas or other natural features. The proposed project would install a trailhead parking area that would serve the community, thus blending with the surrounding environment. Given the discussion above, and under issues I(a) and I(b), the proposed project would have a less than significant potential to conflict with applicable zoning or other regulations governing scenic quality.

d. *Less Than Significant Impact* – Implementation of the proposed project has a potential to create new sources of light during the construction and operational phases of the project. The City Development Code requires new projects to adhere to the provisions of the Glare and Outdoor Lighting design requirements. After extensive internal review, the City has determined that it will not provide security lighting across the parking lot after dark and will close the trailhead parking area at the end of each day. The intent is to close the parking area each day at dusk. Small/low elevation security lighting will be available at the entrance to the parking area and a shielded light will be located outside of the public restroom and internally. Otherwise, the City will not allow construction to occur after dark and will not install lights that can cause glare or visibility offsite. Thus, potential light and glare impacts associated with the proposed project will be reduced to a less than significant level.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
II. AGRICULTURE AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including 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:				
a) Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☒	☐	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☒	☐	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☒	☐	☐

SUBSTANTIATION

a. *No Impact* – The proposed project will occur within an area consisting of native Western pine habitat, and does not contain any agricultural uses. Neither the project footprint nor the surrounding area are designated for agricultural use; no agricultural activities exist in the project area; and there is no potential for impact to any agricultural uses or values as a result of project implementation. According to the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, no prime farmland, unique farmland, or farmland of state importance exists within the vicinity of the proposed project (Figure II-1). No adverse impact to any agricultural resources would occur from implementing the proposed project. No mitigation is required.

b. *No Impact* – There are no agricultural uses currently within the boundaries of the project site or adjacent to the project site. The project site is zoned low density residential in the City of Big Bear

Lake. Therefore, no potential exists for a conflict between the proposed project and agricultural zoning or Williamson Act contracts within the project area. No mitigation is required.

c. *Less Than Significant With Mitigation Incorporated* – The proposed project is located on a site containing native trees. Additionally, trees are found in abundance in the project area. No designated timberland resources delineated by the City would be disturbed as a result of project implementation because the City has not designated this site for such uses, and the site has not historically been harvested for timberland production. However, while the City has not designated the site for timberland resources, CAL FIRE designates sites containing trees/timberland resources as being "timberland use." CAL FIRE stipulates that when a project will convert timberland to a use other than growing timber, a Timberland Conversion Permit (TCP) is required [PRC 4621(a)]. Also, when projects are converting timberland to another use, the operations are considered commercial timber operations even if the logs are not being sold [PRC 4527(a)(1) and (2)]. As such, in addition to the TCP, a Timber Harvesting Plan (THP) is required for the removal of the timber [PRC 4581]. Compliance with the above requirements is considered adequate to minimize impacts to timber resources and from conversion of timberland to a different use, in this case a trailhead parking area. As such, the following mitigation measure shall be implemented to ensure that the project complies with these CAL FIRE requirements:

A
FR-1 Prior to groundbreaking activities, the City shall prepare and submit a Timberland Conversion Permit (TCP) pursuant to PRC 4621(a) and a Timber Harvesting Plan (THP) pursuant to PRC 4581 to CAL FIRE utilizing the services of a Registered Professional Forester approved by CAL FIRE.

Given the above, with implementation of MM **AFR-1**, the proposed project will meet CAL FIRE requirements pertaining to timberland conversion, and would therefore have a less than significant potential to conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).

d. *Less Than Significant With Mitigation Incorporated* – Please refer to the discussion under issue II(c), above. The proposed project is located on a site containing trees of varying sizes consistent with that which defines the Mountain Region of the County. No designated timberland resources delineated by the City would be disturbed as a result of project implementation because the City has not designated this site for such uses. The project site is zoned for low density residential use by the City. While the proposed project includes site clearing activities that would remove existing trees within the site to develop the proposed trailhead parking facility, compliance with MM **AFR-1**, above, will ensure that the proposed project complies with CAL FIRE requirements pertaining to timberland resources and removal of trees. As such, with implementation of MM **AFR-1**, above, while the project would require a TCP and THP to remove trees on site, no significant loss in forest land from the proposed project (0.26-acre will be converted to parking uses) is anticipated to occur. Impacts under this issue are considered less than significant.

e. *Less Than Significant With Mitigation Incorporated* – The proposed project would develop a trailhead parking area on approximately 0.26-acre. The project site and surrounding area are designated low density residential use and do not support agricultural or forest uses that have been designated by the City; however, as stated above, while the City has not designated the site for timberland resources, CAL FIRE designates sites containing trees/timberland resources as being "timberland use." Compliance with the CAL FIRE requirements for preparation of a TCP and a THP, as required by MM **AFR-1**, is considered adequate to minimize impacts from conversion of timberland to a different use. Given the above, with implementation of MM **AFR-1**, the proposed project will meet CAL FIRE requirements pertaining to timberland conversion, and would therefore have a less than significant potential to involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use such that a significant impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) 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?	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

SUBSTANTIATION: The following information utilized in this section was obtained from the technical study "Air Quality and GHG Impact Analyses, Castle Rock Parking Lot Project, Big Bear (San Bernardino County), California" prepared by Giroux & Associates dated December 8, 2021, and provided as Appendix 1 to this document.

Background

Climate
The project area is in the San Bernardino Mountains. The area is characterized by an alpine climate, with substantial winter precipitation in the form of winter snow because of its high elevation. Snowfall, as measured at lake level, averages 61.8 inches each year (although upwards of 100 inches can accumulate on the forested ridges bordering the lake, above 8,000 feet). Snow has fallen in every month except July and August. There are normally 16.5 days each year with measurable snow (0.1 inch or more).

On average, the Bear Valley area receives approximately 24 inches of precipitation per year, with a sharp transition between the western edge of the Valley at the dam and the eastern edge at Baldwin Lake. Historical precipitation consists of both rainfall and snowfall. Within the Big Bear watershed, the precipitation varies with location. At the dam, Big Bear Lake receives about 36 inches of precipitation per year, and about 14 inches at the east end of the Valley.

Daily minimum temperatures in the summer are from 60°F to 70°F. Temperatures in the winter average approximately 35°F to 40°F. According to the National Weather Service, the warmest month at Big Bear is July, when the average high is 80.7°F and the average low is 47.1°F. The coolest month is January, with an average high of 47.1°F and an average low of 20.7°F.

Air Quality Standards
Existing air quality is measured at established Southern California Air Quality Management District (SCAQMD) air quality monitoring stations. Monitored air quality is evaluated and in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table III-1. Because the State of California had established Ambient Air Quality Standards (AAQS) several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion

meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table III-1. Sources and health effects of various pollutants are shown in Table III-2.

Table III-1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Average Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		–		
Fine Particulate Matter (PM2.5)[9]	24 Hour	–	–	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15.0 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	–	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	–	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (NO2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	–	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	–	Ultraviolet Flourescense; Spectrophotometry (Paraosaniline Method)
	3 Hour	–		–	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[11]	–	
Lead 8[12,13]	30-Day Average	1.5 µg/m^3	Atomic Absorption	–	–	–
	Calendar Quarter	–		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Avg	–		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No Federal Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: California Air Resources Board 5/4/16

Footnotes:

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter – PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year, with a 24-hour average concentration above 150 $\mu g/m^3$, is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7 Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.

8 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9 On December 14, 2012, the national PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primarily and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primarily and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10 To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11 On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12 The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13 The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 j.tg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14 In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Table III-2
HEALTH EFFECTS OF MAJOR CRITERIA POLLUTANTS

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Fine Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002

Baseline Air Quality

Existing and probable future levels of air quality in the project area can be best inferred from ambient air quality measurements conducted by the SCAQMD. The data resource in closest proximity to the project site is the Big Bear City Monitoring Station. However, this station only monitors small particulates (PM-2.5). The closest available data for ozone and large particulates (PM-10) is the Crestline Monitoring Station. Data for carbon monoxide and nitrogen oxide were obtained from the San Bernardino 4th Street Monitoring Station. Summary data compiled from these resources is provided in Table III-3. Findings are summarized below:

Photochemical smog (ozone) levels frequently exceed standards at Crestline. The 8-hour state ozone standard has been exceeded an average of 30 percent of all days in the past four years near the project

site while the 1-hour state standard has been violated an average of 17 percent of all days. While ozone levels are still high, they are much lower than 10 to 20 years ago.

Measurements of carbon monoxide have shown very low baseline levels in comparison to the most stringent one- and eight-hour standards.

Respirable dust (PM-10) levels very rarely exceed the state or federal standard PM-10 standard. There have only been four violations in the last four years of measurement days for state PM-10 and no violations of the federal standard. PM-2.5 on any measurement day.

A substantial fraction of PM-10 is comprised of small diameter particulates capable of being inhaled into deep lung tissue (PM-2.5). However, PM-2.5 readings rarely exceed the federal 24-hour PM-2.5 ambient standard and there have had no violations within the previous four years.

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

Table III-3
AIR QUALITY MONITORING SUMMARY (2017-2020)
(Number of Days Standards Were Exceeded, and Maximum Levels During Such Violations)
(Entries shown as ratios = samples exceeding standard/samples taken)

Pollutant/Standard	**2017**	**2018**	**2019**	**2020**
Ozone				
1-Hour > 0.09 ppm (S)	76	57	53	69
8-Hour > 0.07 ppm (S)	110	113	99	118
8- Hour > 0.075 ppm (F)	90	91	79	97
Max. 1-Hour Conc. (ppm)	0.146	0.142	0.129	0.159
Max. 8-Hour Conc. (ppm)	0.121	0.125	0.112	0.139
Carbon Monoxide				
8- Hour > 9. ppm (S,F)	0	0	0	0
Max 8-hour Conc. (ppm)	1.7	2.0	1.2	1.4
Nitrogen Dioxide				
1-Hour > 0.18 ppm (S)	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.063	0.055	0.056	0.054
Respirable Particulates (PM-10)				
24-hour > 50 $\mu g/m^3$ (S)	2/55	1/59	0/54	1/40
24-hour > 150 $\mu g/m^3$ (F)	0/55	0/59	0/54	0/40
Max. 24-Hr. Conc. ($\mu g/m^3$)	56.	78.	38.	51.
Fine Particulates (PM-2.5)				
24-Hour > 35 $\mu g/m^3$ (F)	0/49	0/54	0/46	0/58
Max. 24-Hr. Conc. ($\mu g/m^3$)	23.5	17.3	31.0	24.3

Source: South Coast Air Quality Management District;
Crestline Monitoring Station for Ozone and PM-10.
San Bernardino 4th Street Monitoring Station for CO and NO_2.
Big Bear City Monitoring Station for PM-2.5.
data: WWW.ARB.CA.GOV/ADAM/

Air Quality Planning

The U.S. EPA is responsible for setting and enforcing the NAAQS for O3, CO, NOx, SO2, PM10, PM2.5, and lead. The U.S. EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The U.S. EPA also establishes emission standards for vehicles sold in states other than California.

Automobiles sold in California must meet the stricter emission requirements of the California Air Resources Board (CARB).

The Federal Clean Air Act (CAA) was first enacted in 1955, and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance. The CAA also mandates that states submit and implement State Implementation Plans (SIPs) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date was to "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 required control technologies that did not exist yet, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone. The extreme designation was to allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on "black-box" measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from "severe-17" to "extreme." This reclassification set a later attainment deadline (2024), but also required the air basin to adopt even more stringent emissions controls.

Table III-4
SOUTH COAST AIR BASIN EMISSIONS FORECASTS (EMISSIONS IN TONS/DAY)

Pollutant	2015[a]	2020[a]	2025[a]	2030[a]
NOx	357	289	266	257
VOC	400	393	393	391
PM-10	161	165	170	172
PM-2.5	67	68	70	71

[a] 2015 Base Year.
Source: California Air Resources Board, 2013 Almanac of Air Quality

AQMPs are required to be updated every three years. The 2012 AQMP was adopted in early 2013. An updated AQMP was required for completion in 2016. The 2016 AQMP was adopted by the SCAQMD Board in March, 2017, and has been submitted the California Air Resources Board for forwarding to the EPA. The 2016 AQMP acknowledges that motor vehicle emissions have been effectively controlled and that reductions in NOx, the continuing ozone problem pollutant, may need to come from major stationary sources (power plants, refineries, landfill flares, etc.). The current attainment deadlines for all federal non-attainment pollutants are now as follows:

8-hour ozone (70 ppb)	2032
Annual PM-2.5 (12 $\mu g/m^3$)	2025
8-hour ozone (75 ppb)	2024 (former standard)
1-hour ozone (120 ppb)	2023 (rescinded standard)
24-hour PM-2.5 (35 $\mu g/m^3$)	2019

The key challenge is that NOx emission levels, as a critical ozone precursor pollutant, are forecast to continue to exceed the levels that would allow the above deadlines to be met. Unless additional stringent NOx control measures are adopted and implemented, ozone attainment goals may not be met.

The proposed project does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing parking lot projects. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined. The purpose of the trailhead parking lot is to shift existing, unsafe parking on SH 18 off of the roadway shoulder and into a safe parking lot adjacent to the trailhead. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed recreational use is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

Standards of Significance

Appendix G of the California CEQA Guidelines offers the following four tests of air quality impact significance. A project would have a potentially significant impact if it:

a. Conflicts with or obstructs implementation of the applicable air quality plan.
b. Results in a cumulatively considerable net increase of any criteria pollutants for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
c. Exposes sensitive receptors to substantial pollutant concentrations.
d. Results in other emissions (such as those leading to odors) adversely affecting a substantial number of people

Primary Pollutants
Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Secondary Pollutants
Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent

of chemical transformation processes. Projects with daily emissions that exceed any emission thresholds in Table III-5are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table III-5
DAILY EMISSIONS THRESHOLDS

Pollutant	Construction	Operations
ROG	75	55
NOx	100	55
CO	550	550
PM-10	150	150
PM-2.5	55	55
Sox	150	150
Lead	3	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

Impact Analysis

a. *Less Than Significant Impact* – Projects such as the proposed Castle Rock Trailhead Parking Lot Project do not directly relate to the AQMP in that there are no specific air quality programs or regulations governing general development. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined. The purpose of the Castle Rock Trailhead parking lot is to shift existing, unsafe parking on SH 18 off of the roadway shoulder and into a safe parking lot adjacent to the trailhead. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis. The project will be consistent with the City's General Plan and Zoning Code within which the project is located. The proposed project is forecast to be consistent with regional planning forecasts maintained by the Southern California Association of Governments (SCAG) regional plans. Air quality impact significance for the proposed project has been analyzed on a project-specific basis. As the analysis of project-related emissions provided below indicates, the proposed project will not cause or be exposed to significant new air pollution if implemented, and is, therefore, consistent with the applicable air quality plan.

b. *Less Than Significant With Mitigation Incorporated* – Air pollution emissions associated with the proposed project would occur over both a short and long-term time period. Short-term emissions include fugitive dust from construction activities (i.e., site prep, demolition, grading, and exhaust emission) at the project site. Long-term emissions generated by future operation of the proposed project primarily include energy consumption and trips generated by the hikers.

Construction Emissions
CalEEMod was developed by the SCAQMD to provide a model by which to calculate both construction emissions and operational emissions from a variety of land use projects. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions.

The project proposes construction of 30 parking spaces with a future restroom and minimal lighting. The project is anticipated to require cut of 8,600 CY and fill of 800 CY. Construction was modeled in CalEEMod2020.4.0 using the following construction equipment and schedule shown in Table III-6.

Table III-6
CONSTRUCTION ACTIVITY EQUIPMENT FLEET

Phase Name and Duration	Equipment
Grading (5 days) Cut 8,600 Fill 800 CY	1 Grader
	1 Dozer
	1 Loader/Backhoe
Paving (20 days)	1 Paver
	4 Cement Mixers
	1 Loader/Backhoe
	1 Roller
Restroom Construction (10 days)	1 Crane
	2 Forklifts
	2 Loader/Backhoes

Utilizing this indicated equipment fleet and durations shown in Table III-6, the following worst-case daily construction emissions are calculated by CalEEMod and are listed in Table III-7.

Table III-7
CONSTRUCTION ACTIVITY EMISSIONS
MAXIMUM DAILY EMISSIONS (pounds/day)

Maximal Construction Emissions	ROG	NOx	CO	SO_2	PM-10	PM-2.5
2023	1.2	25.6	10.6	0.1	8.4	3.8
SCAQMD Thresholds	75	100	550	150	150	55

SCAQMD CEQA thresholds are met without the need for added mitigation.

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. Health risk analyses are typically assessed over a 9-, 30-, or 0-year timeframe and not over a relatively brief construction period due to the lack of health risk associated with such a brief exposure.

SCAQMD Rules 402 and 403 (prohibition of nuisances, watering of inactive and perimeter areas, track out requirements, etc.), are applicable to the project and were applied in CalEEMod to minimize fugitive dust emissions. With this measure, peak daily construction activity emissions are estimated be below SCAQMD CEQA thresholds without the need for added mitigation. Nevertheless, emissions minimization through enhanced dust control measures is recommended for use because of the non-attainment status of the air basin. As such, the following measures shall be implemented to minimize air quality emissions impacts:

AQ-1 ***<u>Fugitive Dust Control</u>. The following measures shall be incorporated into Project plans and specifications for implementation:***

- ***Apply soil stabilizers or moisten inactive areas.***
- ***Water exposed surfaces to avoid visible dust leaving the construction site (at least 2-3 times/day).***
- ***Cover all stock piles with tarps at the end of each day and as needed during the construction day.***
- ***Provide water spray during loading and unloading of earthen materials.***

- ***Require the contractor to minimize in-out traffic from construction zone to the extent feasible, and enforce a speed limit of 15 MPH on site to avoid dust migration from the site.***
- ***Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard.***
- ***Sweep streets daily if visible soil material is carried out from the construction site.***

Similarly, ozone precursor emissions (ROG and NOx) are calculated to be below SCAQMD CEQA thresholds. However, because of the regional non-attainment for photochemical smog, the use of reasonably available control measures for diesel exhaust is recommended. Combustion emissions control options include:

AQ-2 ***Exhaust Emissions Control. The following measures shall be incorporated into Project plans and specifications for implementation:***

- ***Utilize off-road construction equipment that has met or exceeded the maker's recommendations for vehicle/equipment maintenance schedule.***
- ***Contactors shall utilize Tier 4 or better heavy equipment.***
- ***Enforce 5-minute idling limits for both on-road trucks and off-road equipment.***

With the above mitigation measures, any impacts attributable to construction emissions from this project are considered less than significant. No further mitigation is required.

Operational Emissions
The new parking structure is not forecast to require energy, other than minimal lighting. Since the project is being designed to relocate existing unsafe hiker parking, the proposed project is not forecast to generate additional traffic. Therefore, future operational emissions are not forecast to increase in any substantial manner.

c. *Less Than Significant Impact* – The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are applicable for a sensitive receptor where it is possible that an individual could remain for 24 hours such as a residence, hospital or convalescent facility.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LST screening tables are available for 25, 50, 100, 200- and 500-meter source-receptor distances. For this project, there are adjacent residential uses adjacent to the site such that the most conservative 25-meter distance was modeled.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant screening level concentration data is currently published for 1, 2- and 5-acre sites for varying distances. According

to guidelines provided by SCAQMD, based on grading equipment, the most stringent data for a 1-acre site was used.

The following thresholds and emissions in Table III-8 are therefore determined (pounds per day):

Table III-8
LST AND PROJECT EMISSIONS (pounds/day)

1 acre/25 meters East San Bernardino Mtns	CO	NOx	PM-10	PM-2.5
LST Threshold	775	118	4	3
Max On-Site Emissions				
Unmitigated	7	12**	6	3
Mitigated*	7	12	3	2

*watering 2 times per day during grading
Only on-site emissions and does not include truck haul emissions during grading activities

LSTs were compared to the maximum daily construction activities. As seen in Table III-8, with active dust suppression, emissions meet the LST for construction thresholds. LST impacts are less-than-significant.

d. *Less Than Significant Impact* – Heavy-duty equipment in the proposed project area during construction will emit odors; however, the construction activity would cease to occur after a short period of time. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the project would include disposal of refuse. All project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations, thereby precluding substantial generation of odors due to temporary holding of refuse on-site. Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances. No other sources of objectionable odors or other emissions have been identified for the proposed project. As such, the proposed project would have a less than significant potential to result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

NEPA Conformity

Because this project will be partially funded by federal monies, this analysis must meet certain federal requirements, including a determination of conformity with federal air emission requirements. This information follows.

Thresholds of Significance

The U.S. Environmental Protection Agency published "Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule," in the November 30, 1995, Federal Register (40 CFR Parts 6, 51, and 93). The 40 CFR Part 1 51.850(a) states that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity which does not conform to an applicable state implementation plan (SIP). It is the responsibility of the Federal agency to determine whether a federal action conforms to the applicable implementation plan, before the action is taken. If the proposed project includes any federal funding, or if the project requires any federal permits, federal participation is not allowed unless a conformity determination has been made.

Conformity analysis under EPA guidelines can be undertaken to demonstrate that the combined emissions from direct and indirect (transportation, etc.) project-related emissions have been accurately incorporated into the applicable SIP. A simpler test, as outlined in 40CFR Part 93.153, is to demonstrate that these emissions are less than the *de minimis* thresholds which depend upon the seriousness of the current level of non-attainment for federal clean air standards.

The SCAB is designated as a "extreme" non-attainment area for the federal 8-hour ozone standard. The basin is a "serious" non-attainment area for PM-2.5, and a maintenance area for PM-10. Sulfur Dioxide and Carbon Monoxide are maintenance areas. Based upon these designations, the following emissions levels are presumed evidence of SIP conformity:

VOC/ROG	-	10 tons/year
NOx	-	10 tons/year
PM-2.5	-	70 tons/year
PM-10	-	100 tons/year
CO	-	100 tons/year
SO_2	-	100 tons/year
Lead	-	25 tons/year

If the project-related emissions from construction and operations are less than the specified "*de minimis*" levels, the project is considered to be in conformance with the applicable SIP.

NEPA Analysis

Annual emissions were run with the same assumptions as used for daily emissions. The calculated maximum annual emissions were then compared to the EPA *de minimis* emission thresholds that would allow for a federal conformity finding with Section 176c of the Clean Air Act.

Table III-9
TOTAL ANNUAL CONSTRUCTION EMISSIONS (tons/year)

Activity	ROG	NOx	CO	SO_2	PM-10	PM-2.5
Construction 2022	0.02	0.19	0.17	<0.1	0.03	0.02
NEPA Threshold	10	10	100	100	100	70

As shown in Table III-9, and summarized below, maximum annual emissions are much less than their associated *de minimis* thresholds. A formal SIP consistency analysis is not required.

Pollutant	**Threshold**	**Project Emissions**
VOC/ROG	10 tons/year	0.02 tons/year
NOx	10 tons/year	0.21 tons/year
PM-2.5	70 tons/year	0.02 tons/year
PM-10	100 tons/year	0.03 tons/year
CO	100 tons/year	0.18 tons/year
SO_2	100 tons/year	<0.1 tons/year

Operational Impacts

There are very minimal operational emissions associated with the proposed parking lot for the reasons outlined above. The proposed project will accommodate existing traffic that is presently parking unsafely along SH 18 to access the Castle Rock Trail. It is not anticipated that having access to a trailhead parking lot will alter the future traffic seeking to access the trailhead.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

SUBSTANTIATION: The following information utilized in this section was obtained from the technical study "City of Big Bear Lake Castle Rock Trail Parking Lot Project. Biological Resources Assessment and Jurisdictional Delineation Report" prepared by Jacobs dated August 2022, and provided as Appendix 2 to this document.

a. *Less Than Significant With Mitigation Incorporated* – A BRA survey was conducted by Jacobs in September of 2021 to identify potential habitat for special status plant and wildlife species within the Project Area. No special status species, including any state and/or federally listed threatened or endangered species, were observed within the Project Area during the reconnaissance-level assessment survey, which included 100% visual coverage of the Project site. Due to the environmental conditions on site and adjacent disturbances, Bald Eagle and Spotted Owl are not likely to occur in the Project Area and the Project is not likely to adversely affect these species. However, the Project Area and adjacent land to the south and west consist of open space comprised of Jeffrey pine forest and woodland habitat that is suitable to support several sensitive species including the state listed as threatened southern rubber boa and the California SSC San Bernardino flying squirrel. The Project Area does not contain any sensitive habitats, including any USFWS designated Critical Habitat for federally listed species, and the Project will not result in any loss or adverse modification of Critical Habitat. Based on the potential for the site to support the boa and flying squirrel, the following mitigation measures shall be implemented:

BIO-1 ***A pre-construction southern rubber boa survey is recommended that would consist of 100 % visual coverage of the entire Project Area, including an approximately 100-foot buffer area around the 0.26-acre Project site. The survey should be conducted during the appropriate time of year (i.e., spring/early summer), when air temperatures reach between 60° and 70° F (15° to 21° C), and would consist of a systematic ground search that would focus on moveable surface materials such as rocks, logs, duff, and man-made debris that may provide shelter for southern rubber boa.***

BIO-2 ***If focused presence/absence surveys are negative for southern rubber boa presence, it is recommended that rubber boa exclusion fence (e.g., silt fence) be installed around the perimeter of the proposed Project footprint, prior to commencement of any Project-related ground disturbing activities. All construction activities should be restricted to within the fenced disturbance limits to avoid potential harm to rubber boa that may be present in adjacent habitat.***

BIO-3 ***A qualified biologist who is familiar with southern rubber boa and their habits should be on site during all ground disturbing activities to monitor the clearing/removal of any surface objects that could potentially provide rubber boa refugia or hibernacula (i.e., rotting logs/stumps, duff layer). The biological monitor should visually inspect under any surface cover objects prior to their removal to ensure no rubber boa are harmed or killed.***

BIO-4 ***If southern rubber boa is found during pre-construction presence/absence surveys or during construction activities, all Project activities shall be halted, CDFW shall be contacted, and a CESA Incidental Take Permit shall be obtained from CDFW prior to reinitiating Project activities.***

BIO-5 ***To ensure the Project does not adversely affect San Bernardino flying squirrel, it is recommended that a pre-construction survey be conducted to identify potentially suitable cavity nesting sites and foraging habitat, prior to the removal of any trees or downed woody debris.***

BIO-6 ***If suitable San Bernardino flying squirrel cavity nesting sites are detected within the Project site, then coordination with the CDFW would be necessary to determine appropriate minimization and mitigation measures to offset Project related impacts to this species.***

With implementation of these measures potentially significant impacts to the species of concern can be reduced to a less than significant impact.

b. *No Impact* – Based on the site survey, the project site does not contain riparian habitat or any other sensitive natural community/habitat. Therefore, the proposed project has no potential to adversely impact such habitat. No mitigation is required.

c. *No Impact* – Based on the site survey, the project site does not contain wetlands, including protected wetlands. Therefore, the proposed project has no potential to adversely impact such habitat. No mitigation is required.

d. *Less Than Significant With Mitigation Incorporated* – The project site is small and is not identified as a wildlife movement corridor. However, the project site may support nesting birds during nesting season and the following mitigation measures shall be implemented to reduce potential impacts to nests functioning as bird nurseries.

BIO-7 ***To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist should conduct pre construction nesting bird surveys prior to Project related disturbance to suitable nesting areas to identify any active nests. The nesting bird surveys should consist of a minimum of five (5) consecutive survey days and should include an additional three (3) consecutive nights of survey for SPOW and other nocturnal species. Nocturnal spotted owl surveys should be conducted between the hours of 9:00 pm. and midnight, during appropriate weather conditions (e.g., no rain or winds), and should include a spot calling survey component that would utilize California spotted owl call playback at predetermined fixed calling points.***

BIO-8 ***If no active nests are found, no further action would be required. If an active nest is found, the biologist should set appropriate no work buffers around the nest which would be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity, and duration of disturbance. The nest(s) and buffer zones should be field checked weekly by a qualified biological monitor. The approved no work buffer zone should be clearly marked in the field, within which no disturbance activity should commence until the qualified biologist has determined the young birds have successfully fledged and the nest is inactive.***

With implementation of these measures potentially significant impacts to the species of concern can be reduced to a less than significant impact.

e. *Less Than Significant With Mitigation Incorporated* – The project site is small, but it does contain many trees that will need to be removed to create the parking lot. As noted in the Agricultural/Timber section (Section b)) while the City has not designated the site for timberland resources, CAL FIRE designates sites containing trees/timberland resources as being "timberland use." CAL FIRE stipulates that when a project will convert timberland to a use other than growing timber, a Timberland Conversion Permit (TCP) is required [PRC 4621(a)]. Also, when projects are converting timberland to another use, the operations are considered commercial timber operations even if the logs are not being sold [PRC 4527(a)(1) and (2)]. As such, in addition to the TCP, a Timber Harvesting Plan (THP) is required for the removal of the timber [PRC 4581]. Compliance with the above requirements is considered adequate to minimize impacts to timber resources and from conversion of timberland to a different use, in this case a trailhead parking area. As such, mitigation measure **AFR-1** shall be implemented ensure that the project complies with these CAL FIRE requirements.

f. *No Impact* – Based on the BRA for the proposed project, there are no conservation plans that affect the project site. Therefore, the proposed project has no potential to adversely impact such plans. No mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

SUBSTANTIATION: The following information utilized in this section was obtained from the technical study "Phase I Historical/Archaeological Resources Survey Castle Rock Trail Parking Lot Project." This document was prepared by CRM TECH and is dated September 22, 2022 (revised January 1, 2023). Due to confidentiality requirements, this document can only be accessed by qualified individuals upon request to the City of Big Bear Lake.

The following summary of findings was provided in the cultural resources report:

Between September 2021 and September 2022, at the request of Tom Dodson & Associates, CRM TECH performed a cultural resources study on the Area of Potential Effects (APE) for the proposed Castle Rock Trail Parking Lot Project in and near the City of Big Bear Lake, San Bernardino County, California. The project calls for the construction of a new parking lot for the Castle Rock Trail (1W03) and the new trail segment to connect it to the existing trail. The APE consists of approximately 5.2 acres of undeveloped forest land located to the southwest of the intersection of Big Bear Boulevard (State Route 18) and Talbot Drive, in the southwest quarter of Section 23 and the northwest quarter of Section 26, T2N R1W, San Bernardino Baseline and Meridian.

The study is a part of the environmental review process for the project, as required by the lead agency, namely the City of Big Bear Lake, pursuant to the California Environmental Quality Act (CEQA). Because the parking lot construction will be funded partially by a grant from the Central Federal Lands Highway Division (CFL) of the Federal Highway Administration, the project constitutes a federal "undertaking" that requires compliance with Section 106 of the National Historic Preservation Act (NHPA). Additionally, the proposed new trail segment lies within the boundaries of the San Bernardino National Forest, and thus the Section 106 process for the undertaking is also overseen by the United States Forest Service (USFS).

The purpose of the study is to provide the City of Big Bear Lake, the CFL, and the USFS with the necessary information and analysis to determine whether the undertaking would have an effect on any "historic properties," as defined by 36 CFR 800.16(l), or "historical resources" as defined by Calif. PRC §5020.1(j), that may exist in or near the APE. In order to accomplish this objective, CRM TECH initiated a cultural resources records search and a Native American Sacred Lands File search, pursued historical and geoarchaeological background research, and carried out a systematic field survey of the entire APE.

As a result of these research procedures, two previous undocumented cultural resources of historical origin, representing a survey marker from 1921 and a wine bottle from the 1930s-1950s, were found on USFS land within the APE and were recorded under the temporary designations of Site 3773-1H and Isolate 3773-2H, respectively, pending assignment of official identification numbers once the California Historical Resources Information System resumed normal operation. Neither of these resources, however, appears eligible for listing in the National Register of Historic Places or the California Register of Historical

Resources. Therefore, they do not meet the statutory definition of “historic properties” or “historical resources” under Section 106 and CEQA provisions.

No cultural resources were encountered within the portion of the APE designated for the parking lot, and no other features or artifacts of prehistoric or historical origin were found throughout the APE. Meanwhile, the subsurface sediments of the APE appear to be relatively low in sensitivity for potentially significant archaeological remains. Based on these findings, and pursuant to 36 CFR 800.4(d)(1) and Calif. PRC §21084.1, CRM TECH recommends to the City of Big Bear Lake, the CFL, and the USFS a conclusion that no “historic properties” or “historical resources” will be affected by the proposed undertaking.

No further cultural resources investigation is recommended for the undertaking unless project plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are discovered during earth-moving operations associated with the undertaking, all work in the immediate area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the find.

Impact Analysis

a&b. *Less Than Significant With Mitigation Incorporated* – CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired."

Per the above discussion and definition, no archaeological sites or isolates were recorded within the project boundaries; thus, none of them requires further consideration during this study. In light of this information and pursuant to PRC §21084.1, the following conclusions have been reached for the project:

- No historical resources or archaeological resources within or adjacent to the project area have any potential to be disturbed as they are not within the proposed area in which the facilities will be constructed and developed, and thus, the project as it is currently proposed will not cause a substantial adverse change to any known historical resources.
- No further cultural resources investigation is necessary for the proposed project unless construction plans undergo such changes as to include areas not covered by this study.

However, since earth moving activities are required, the following mitigation measure will ensure that impacts to any buried cultural materials that may be discovered during earth moving activities is less than significant:

CUL-1 Should any cultural resources, including human remains, be encountered during construction of these facilities, earthmoving or grading activities in the immediate area of the finds shall be halted and an onsite inspection shall be performed immediately by a qualified archaeologist. Responsibility for making this determination shall be with the City's onsite inspector. The archaeological professional shall assess the find, determine its significance, and make recommendations for appropriate mitigation measures within the guidelines of the California Environmental Quality Act.

With the above mitigation incorporation, the potential for impacts to cultural resources will be reduced to a less than significant level. No additional mitigation is required.

c. *Less Than Significant Impact* – As noted in the discussion above, no available information suggests that human remains may occur within the Area of Potential Effect (APE) and the potential for such an occurrence is considered very low. Human remains discovered during the project will need to be treated in accordance with the provisions of HSC §7050.5 and PRC §5097.98, which is mandatory.

State law (Section 7050.5 of the Health and Safety Code) as well as local laws requires that the Police Department, County Sheriff and Coroner's Office receive notification if human remains are encountered. Compliance with these laws is considered adequate mitigation for potential impacts, and as such the potential for impact to discovery and treatment of human remains would be less than significant level. No mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
VI. ENERGY: Would the project:				
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operations?	☐	☒	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☒	☐	☐

SUBSTANTIATION

a&b. *Less Than Significant With Mitigation Incorporated* – During construction, the proposed project will utilize construction equipment that is CARB approved, minimizing emissions generated and electricity required to the extent feasible (as outlined under Section III, Air Quality, above). As stated in Section III, Air Quality, the construction of the proposed Castle Rock Trailhead Parking Lot Project would require mitigation measures to minimize emissions impacts from construction equipment use (refer to MM **AIR-2**). These mitigation measures also apply to energy resources as they require equipment not in use for 5 minutes to be turned off, and for electrical construction equipment to be used where available. These measures would prevent a significant impact during construction due to wasteful, inefficient, or unnecessary consumption of energy resources, and would also conform to the CARB regulations regarding energy efficiency.

The proposed project consists of a trailhead parking lot to accommodate hikers that currently park on the shoulder of SH 18. Energy consumption encompasses many different activities. For example, construction can include the following activities: delivery of equipment and material to a site from some location (note it also requires energy to manufacture the equipment and material, such as harvesting, cutting and delivering wood from its source); employee trips to work, possibly offsite for lunch (or a visit by a catering truck), travel home, and occasionally leaving a site for an appointment or checking another job; use of equipment onsite (electric or fuel); and sometimes demolition and disposal of construction waste. To minimize energy costs of construction debris management, mitigation has been established to require diversion of all material capable of being recycled. Energy consumption by equipment will be reduced by requiring shutdowns when equipment is not in use after five minutes and ensuring equipment is being operated within proper operating parameters (tune-ups) to minimize emissions and fuel consumption. These requirements are consistent with State and regional rules and regulations. Under the construction scenario outlined above, the proposed project will not result in wasteful, inefficient, or unnecessary energy consumption during construction.

The proposed project site is supplied power by Bear Valley Electric Service (BVES) (a division of Golden State Water Company) through the power distribution system located adjacent to the parking lot site. BVES will be able to supply sufficient electricity, as the proposed use will use minimal electricity for limited security lighting only. The project site will not require natural gas to operate. Compliance with regulatory requirements for operational energy use and construction energy use would not be wasteful or unnecessary use of energy. Under both the operational and construction

scenarios for the proposed project, with implementation of MM **AQ-2**, the proposed project will not result in wasteful, inefficient, or unnecessary energy consumption that could result in a significant adverse impact to energy issues based on compliance with the State laws, regulations, and guidelines.

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

SUBSTANTIATION

a. i. Ground Rupture

Less Than Significant Impact – The project site is located within the City of Big Bear Lake within the Mountain Region of the County of San Bernardino to the south of Big Bear Lake. California as a whole is a seismically active state, though the proposed project site is not located on a fault or within a fault zone. According to the recently updated Fault Activity Map of California prepared for the County's updated General Plan (Figure VII-1), the proposed project is not located within a delineated

Alquist-Priolo fault zone or other active fault zone. The project site is located in close proximity to several fault zones, as delineated on Figure VII-2, which depicts the Fault Activity Map of California prepared by the California Geologic Survey; however, the proposed project is located outside of the boundaries of the delineated fault zones, and as such is not anticipated to be within a site that would experience ground rupture as a result of seismic activity. Furthermore, based on the project site's location outside of a delineated fault zone and being underlain by bedrock outcrops, the risk for ground rupture at the site location is low; therefore, it is not likely that future visitors of the Castle Rock Trailhead Parking Lot Project will be subject to seismic hazards from rupture of a known earthquake fault. Therefore, any impacts under this issue are considered less than significant; no mitigation is required.

ii. Strong Seismic Ground Shaking

Less Than Significant Impact – As stated in the discussion above, several faults run through the area in the vicinity proposed project, and as with much of southern California, the proposed trailhead parking lot will be subject to strong seismic ground shaking impacts should any major earthquakes occur in the future on these fault lines. Due to the proximity of the active faults located in the vicinity of the project site, the project site and area can be exposed to significant ground shaking during major earthquakes on nearby regional faults. However, in this instance the parking lot does not represent much of a hazard to humans once in operation. This is because it will not support human occupancy; will not support substantial human presence/use; and will not contain facilities that would incur substantial damage from seismic groundshaking. The single structure onsite will be a public restroom that will be required to comply with all applicable seismic design standards contained in 2019 California Building Code (CBC), including Section 1613 Earthquake Loads. Compliance with the CBC will ensure that structural integrity of this single structure will be maintained in the event of an earthquake. Therefore, impacts associated with strong ground shaking will be less than significant without mitigation.

iii. Seismic-Related Ground Failure Including Liquefaction

Less Than Significant Impact – According to the San Bernardino Countywide Plan Liquefaction and Landslides map provided as Figure VII-3, the project site consists of land that has been not identified as being subject to liquefaction susceptibility. The project site contains shallow soil and bedrock outcrops that will not support a high potential for liquefaction. Therefore, given that the proposed project does not include any habitable structures, and that no indoor structures would be developed to host visitors parking at the site, it is anticipated that the proposed project will have a less than significant potential to be susceptible to seismic-related ground failure, including liquefaction.

iv. Landslides

Less Than Significant Impact – According to the City of Big Bear Lake Environmental Hazards Element, Landslide Map, Exhibit EH-2, the project site consists of land that has a general susceptibility to land slide hazards. The proposed project would be graded and compacted to enable development of the Castle Rock Trailhead Parking Lot Project, and with no proposed habitable structures, no potential events have been identified that would result in adverse effects from landslides or that would cause landslides that could expose people or structures to such an event as a result of project implementation. Therefore, no significant impacts under this issue are anticipated, and no mitigation is required.

b. *Less Than Significant With Mitigation Incorporated* – The potential for soil erosion or loss of topsoil is anticipated to be marginally possible at the site during ground disturbance associated with construction. The project site is currently vacant with a number of trees and shrubs. City grading standards, best management practices and the Storm Water Pollution Prevention Plan (SWPPP) and Water Quality Management Plan (WQMP) are required to control the potential significant erosion hazards which could degrade downstream water quality. The topography of the site slopes gently from south to north from the adjacent State Highway corridor. During project construction when soils are exposed, temporary soil erosion may occur, which could be exacerbated by rainfall or snow melt. Project grading would be managed through the preparation and implementation of a SWPPP or erosion control plan, and will be required to implement best management practices to achieve

concurrent water quality controls after construction is completed and the parking activities are in operation. The following mitigation measures or equivalent best management practices (BMPs) shall be implemented to address these issues:

GEO-1 ***Stored backfill material shall be covered with water resistant material during periods of heavy precipitation to reduce the potential for rainfall erosion of stored backfill material. Where covering is not possible, measures such as the use of straw bales or sand bags shall be used to capture and hold eroded material on the project site for future cleanup such that erosion does not occur.***

GEO-2 ***All exposed, disturbed soil (trenches, stored backfill, etc.) shall be sprayed with water or soil binders twice a day, or more frequently if fugitive dust is observed migrating from the site within which the project is being constructed.***

With implementation of the above mitigation measures, implementation of the SWPPP or erosion control plan and associated BMPs, any impacts under this issue are considered less than significant.

c. *Less Than Significant Impact* – The project site is underlain by shallow soils and granitic bedrock. The proposed development will include grading, removal of trees and possible removal of bedrock outcrops. Due to the presence of bedrock near the surface onsite, there is no potential for subsidence at the site. Also, without any habitable structures on the site, the potential that any unstable soil or geology could have a significant adverse impact does not exist.

d. *No Impact* – The proposed project is located on a ridge with coarse residual soils that evolved from granitic bedrock, which does outcrop within the project site. The soils are not expansive and since no habitable structures will be constructed onsite, there is no potential to create a substantial direct or indirect risk to human life or property.

e. *No Impact* – The proposed project will install a restroom that will connect to the City's wastewater collection system. Therefore, no adverse impact can occur at the site due to any soil constraints associated with installation of septic tanks or alternative wastewater disposal systems. No impacts are anticipated. No mitigation is required.

f. *No Impact* – The San Bernardino Countywide Plan indicates that the proposed project area is located in a low sensitivity area for paleontological resources because it is located on igneous bedrock. Previously unknown and unrecorded paleontological resources have a very low potential to be exposed during ground disturbing activities. No mitigation is required at this site.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
VIII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

SUBSTANTIATION: The following information utilized in this section was obtained from the technical study "Air Quality and GHG Impact Analyses, Castle Rock Parking Lot Project, Big Bear (San Bernardino County), California" prepared by Giroux & Associates dated December 8, 2021, and provided as Appendix 1 to this document.

Background

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been developed. GHG sources are categorized into direct sources (i.e., company owned) and indirect sources (i.e., not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

Thresholds of Significance

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,
- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative, or based on performance standards. State CEQA Guidelines allow the lead agency to "select the model or methodology it considers most appropriate." The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO_2 equivalent/year. In September 2010, the SCAQMD CEQA Significance Thresholds GHG Working Group released revisions which recommended a threshold of 3,000 MT CO_2e for all land use projects. This 3,000 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold of significance, project related GHG emissions in excess of the guideline level are presumed to trigger a requirement for enhanced GHG reduction at the project level.

a&b. *Less Than Significant Impact* – During project construction, the CalEEMod2020.4.0 computer model predicts that the construction activities will generate the annual CO_2e emissions identified in Table VIII-1.

Table VIII-1
CONSTRUCTION EMISSIONS (Metric Tons CO_2e)

	CO_2e
Year 2023	44.1
Amortized	**1.5**

CalEEMod Output provided in appendix

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level is also provided. GHG impacts from construction are considered to be individually less-than-significant.

There are minimal operational emissions associated with operation of a small 30-space parking lot where the users are already part of the existing environment. In March 2014, the San Bernardino Associated Governments and Participating San Bernardino County Cities Partnership (Partnership) created a final draft of the San Bernardino County Regional Greenhouse Gas Reduction Plan (Reduction Plan) for each of the 25 jurisdictional Partner Cities in the County. The plan was recently updated in March of 2021. The Reduction Plan was created in accordance with AB 32, which established a greenhouse gas limit for the state of California. The Reduction Plan seeks to create an inventory of GHG gases and develop jurisdiction specific GHG reduction measures and baseline information that could be used by the Partnership Cities of San Bernardino County, including the County itself.

Projects that demonstrate consistency with the strategies, actions, and emission reduction targets contained in the Reduction Plan would have a less than significant impact on climate change. The project will generate little GHG emissions as shown in Table VIII-1. The only reduction measures applicable to this project are presented below. Therefore, consistency with the Reduction Plan would result in a less than significant impact with respect to GHG emissions.

- Exceed the waste diversion goal recommended by Assembly Bill 939 and CalGreen.

- Continue to specify and install water conserving plumbing fixtures and fittings in public facilities such as parks, community centers and government buildings in accordance with Title 24 of the California Code of Regulations.

The proposed project will meet both of these requirements without any mitigation being required. Therefore, impacts are less than significant.

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

SUBSTANTIATION

a. *Less Than Significant With Mitigation Incorporated* – Aside from the possible need to conduct blasting to support creation of the parking lot (discussed below), the proposed project does not include activities that would need/require the routine transport, use, or disposal of hazardous materials. Therefore, the project has no potential to create a hazard to the public related to this activity.

If possible, the City seeks to avoid any blasting to complete grading of the project site in order to construct the parking lot. However, to preserve this site grading option if alternatives are not available, the following text discusses the potential impacts from a modern blasting operation

Blasting Hazards

Due to the nature of the soils and bedrock on the Project site, the potential exists for the need to conduct blasting activities during earthmoving activities required to support grading. Impacts associated with blasting activities on air quality and noise are analyzed below. Specifically, the anticipated air emissions associated with blasting and drilling activities is summarized below, and it is determined that any impacts would be considered less than significant. The noise and vibration potential that would arise from blasting

activities at the site are also summarized below. Mitigation was required to reduce potential impacts to adjacent residences to a less than significant level.

The process of blasting requires the use of materials and methods that require special training and permitting. Areas that may require blasting have been preliminarily identified on site; however, specific areas will be refined and identified at the grading plan check stage. Materials would be classified to have the potential to create a significant hazard to the public or the environment through the use of hazardous materials. In order to mitigate any impacts from the use of these hazardous materials, mitigation will be required. Mitigation measure **HAZ-1** has been included, which details the contents of a blasting report, which will be required to be prepared, submitted and approved by the City, at the time of grading plan check submittal. With the incorporation of mitigation, any blasting-related impacts will be reduced to a less than significant level.

Blasting Air Emissions

Blasting activities are typically not considered a chronic or continuous emissions source because of their temporary nature. The Project grading may require drilling and blasting, as well as loading and hauling. Except for the on-road hauling, the CalEEMod model does not adequately analyze rock removal operations. A manual calculation of emissions associated with these activities was performed using the *EPA's Compilation of Air Pollutant Emission Factors* (AP-42, 5th Ed.). The AP-42 factors for PM-10 for drilling and blasting are as follows:

Drilling – 0.00008 lb/ton of rock x 100 tons/hour = 0.008 lb/hour
Blasting – 0.0005 x $Area^{1.5}$ x 0.052 = 0.822 lb/blast (assume area = 100 square feet)

For eight hours of drilling and two blasts per day, daily PM-10 emissions during the rock removal operations phase would total 1.70 pounds per day. The addition of 1.70 pounds of PM-10 to the values in Table III-7, *Construction Activity Emissions Maximum Daily Emissions (pounds/day)* will not substantially worsen the finding of a less than significant impact.

Blasting Noise Impacts

Hard rock deposits on the site may require construction blasting to create suitable pads for parking spaces. The intent of blasting is to create material that can be relocated while minimizing any adverse impacts from the blast itself. Blasting procedures and safety precautions are regulated by the mining industry agencies and by occupational safety and health agencies. Blasting activity thresholds of significance and impacts are most often focused on protection of property and safety of people. There are typically no such standards for the annoyance factor of blasting noise at levels that do not have any potential for physical harm.

Blasting standards are expressed in terms of overpressure from the air blast wave and peak particle velocity for the subsurface vibration wave. The City's ambient noise standard is 65 dB Leq by day and 45 dB Leq at night. Blasting occurs over milli-seconds with rumbling echoes for a few seconds more. Construction noise is also exempt from any numerical performance standards if it meets the time/distance criteria of the City.

Despite the absence of any suitable significance threshold, some frame of reference is perhaps appropriate. Blasting noise was measured at a rock production plant in Azusa in 2008. The measured single event maximum was 66 dB (Lmax) at 2,000 feet from the blast site. Assuming that a geometrical spreading loss of 6 dB per distance doubling is appropriate, the following noise maxima and comparative examples would characterize blasting noise:

Distance from Blast	*Lmax (dB)*	*Typical Example*
2000 feet	66	Dishwasher @ 10 feet
1000 feet	72	Vacuum Cleaner at 10 feet
500 feet	78	Freight Train @ 50 feet
250 feet	84	Electric Mixer @ 3 feet
125 feet	90	Food Blender @ 3 feet

Off-site existing homes are located in close enough proximity to any areas where blasting might be needed as to create a potentially highly disturbing noise event. If blasting is needed, restriction to the hours of 8 a.m. to 4 p.m. is deemed appropriate to minimize public disturbance or interfere with quiet residential evening and nighttime activity. This has been included as a mitigation measure in this Subchapter. With the incorporation of this mitigation measure blasting impacts can be reduced to a less than significant level.

Vibration measurements were conducted for a variety of blasting events at the Azusa Quarry noted above. The measured peak particle velocity (PPV) at 2,200 feet to the blast site was 0.009 inches per second average and 0.015 inches per second observed maximum. The threshold for damage to stucco or masonry is 0.2 inches per second. The propagation equation for peak particle velocity at distance D (in feet) is:

$$PPV=PPV(ref) \times (25/D)^{**}1.5$$

Application of the equation to rock production quarry blasting yields the following PPV:

Distance to Blast	*PPV (inch/sec)*
50 feet	4.4
100 feet	1.6
250 feet	0.4
400 feet	0.2
500 feet	0.1
1,000 feet	<0.05

Even for a rock quarry, the cosmetic (surficial) damage threshold extends only 400 feet. If blasting is conducted closer than 400 feet from a residence, the blasting contractor uses a formula called “scaled distance” to reduce the charge weight and reduce the underground vibration. With the likely distance separation between any likely blasting location and the existing homes, blasting activity impacts can be controlled to a less than significant level. However, the potential still exists that there may be impacts from blasting activities. A mitigation measure, provided in this Subchapter, will ensure that any impacts can be reduced to a less than significant level.

HAZ-1 ***Prior to issuance of a grading permit, a blasting report, shall be submitted to the City as part of the grading plan check review. Said blasting report shall contain, at a minimum, the following information:***

- ***Explosive handling***
- ***Chemical exposure***
- ***Compliance with 2010 California Fire Code Chapter 33 and the California Code of Regulations, Title 19, Subchapter 4, Article 6***

The following shall be required:

- ***The use and handling of explosives is restricted to permittees, their employees and authorized representatives, who shall be at least 21 years of age; however, persons between the ages of 18 and 21 years may be permitted to use and handle such explosives if they are under the direct personal supervision of an experienced competent permittee, employee or authorized representative over the age of 21 years.***

- ***Smoking shall not be permitted while explosives are being used or handled, and no one within 50 feet of explosives shall possess matches, lighters, open light or other fire or flame. Exception: The lighting of safety fuse in conjunction with approved blasting operations.***
- ***No person shall use or handle explosives while under the influence of intoxicating liquors, or narcotics.***
- ***Authorized containers or Class II magazines shall be used for taking detonators and other explosives from storage magazines to the blasting area.***
- ***When blasting is done in congested areas or in close proximity to a structure, railway, or highway, or any other installation that may be damaged, the blast shall be covered before firing with a mat constructed so that it is capable of preventing fragments from being thrown. Appropriate provisions (water) shall be available in brush areas to extinguish a fire that may occur as a result of blasting operations.***
- ***Persons authorized to prepare explosive charges or conduct blasting operations shall use every reasonable precaution, including but not limited to warning signals, flags, barricades, guards or woven mats to ensure the safety of the general public.***
- ***Blasting operations, except by special written permission of the City, shall be conducted during daylight hours. Local residents shall be notified prior to blasting operations (minimum one day notification).***
- ***Blasting shall be controlled to prevent the blasted material from going off the project site and vibrations from blasting shall not exceed vibration levels that could cause building damage at the nearest residential structure.***
- ***Whenever blasting is being conducted in the vicinity of gas, electric, water, fire alarm, telephone, telegraph or steam facilities, and flammable liquid and any similar lines, the blaster shall notify the appropriate representatives of such facilities, at least 24 hours in advance of blasting, specifying the location and intended time of such blasting. In an emergency, this time limit may be waived by the City.***
- ***Due precautions shall be taken to prevent accidental discharge of electric blasting caps from current induced by radar, radio transmitters, lightning, adjacent power lines, sand or dust storms, or other sources of extraneous electricity. These precautions shall include:***
    1. ***The suspension of all blasting operations and removal of persons from the blasting area during the approach and progress of an electric storm, or sand or dust storm.***
    2. ***The posting of signs warning against the use of mobile radio transmitters on all access roads between 1,000 feet and 3,000 feet of the blasting operations. The sign shall be in contrasting 8-inch letters on a white background and shall read "BLASTING AREA – NO RADIO TRANSMITTING". Signs shall be displayed only at time of blasting.***
    3. ***No electric blasting shall be done under overhead electric lines, or at such distance where it is possible for the blasting line to be blown in contact with any electric line unless the power in the energized line is shut-off or unless shot blow deflectors, hold downs, mats, logs, or other material are placed over the charge to confine the blast.***
    4. ***When blasting near overhead electric lines, and when placing the lead and leg wires near these lines, the lead and leg wires shall not be placed parallel to the power line, and they shall be securely anchored.***
    5. ***Before a blast is initiated, the person in charge shall make certain that surplus explosive materials are in a safe place, that persons and vehicles are at a safe distance or under sufficient cover, and that a loud***

warning signal has been sounded. It shall also be ascertained that all entrances to the place or places where charges are to be fired are properly guarded.

6. ***Tools used for the opening of containers of explosive materials shall be made of non-sparking materials.***
7. ***Empty boxes and paper, plastic of fiber packing material which has previously contained explosive materials shall not be reused, and shall be disposed of in an appropriate manner.***
8. ***Explosive materials shall not be abandoned.***
9. ***Temporary storage for use in connection with approved blasting operations shall comply with NFPA 495.***

With implementation of the preceding mitigation measure, blasting can be safely carried out at the project site significant without harm to the environment, built-environment and human safety.

b. *Less Than Significant With Mitigation Incorporated* – The proposed project may 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 during construction. The proposed project will construct a new trailhead parking lot that will require some use of heavy equipment. During construction there is a potential for accidental release of petroleum products in sufficient quantity to pose a significant hazard to people and the environment. The following mitigation measure will be incorporated into the Storm Water Pollution Prevent Plan (SWPPP) or erosion control plan prepared for the project and implementation of this measure can reduce this potential hazard to a less than significant level.

HAZ-2 ***All accidental spills or discharge of hazardous material during construction activities shall be reported to the Certified Unified Program Agency and shall be remediated in compliance with applicable federal, State, and local regulations regarding cleanup and disposal of the contaminant released. The contaminated waste shall be collected and disposed of at a licensed disposal or treatment facility. This measure shall be incorporated into the Stormwater Pollution Prevention Plan (SWPPP) or erosion control plan prepared for the Trailhead Parking Lot. Prior to accepting the site as remediated, the area contaminated shall be tested to verify that any residual concentrations meet the standard for future residential or public use of the site.***

During operation, no storage or use of hazardous materials is anticipated, other than the fuel in vehicle using the parking lot. With compliance with mandatory regulations, and preparation and implementation of MM **HAZ-2**, identified above, hazardous material impacts related to construction activities would be less than significant.

c. *Less Than Significant Impact* – The project site is not located within one-quarter mile of any public schools. The project is adjacent to forested open land, residences and SH-18. The proposed project is not anticipated to emit hazardous emissions as discussed under issues IX(a&b), above, as it is a project that would develop a trailhead parking lot with no potential for use of substantial amounts of hazardous materials and no handling of acutely hazardous materials. Based on this information, implementation of the project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Impacts under this issue are considered less than significant. No mitigation is required.

d. *No Impact* – The project site has not been previously developed and remains relatively undisturbed. The proposed development will include mass grading the parking lot site to provide level surfaces upon which to develop the proposed trailhead parking spaces. The project will not be located on a site that is included on a list of hazardous materials sites that are currently under remediation. According to the California State Water Board's GeoTracker website (consistent with Government Code Section 65962.5), which provides information regarding Leaking Underground Storage Tanks

(LUST) and Department of Toxic Substance Control (DTSC) cleanup sites, there are no open LUST, DTSC, or other clean-up sites within 2,500 feet of the project site (Figure IX-1). Therefore, there is no potential for the project to be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, thereby creating a significant hazard to the public or the environment. Project construction and operation of the site as a trailhead parking lot will have no potential to create a significant hazard to the population or to the environment from its implementation under this issue. No mitigation is required.

e. *Less Than Significant Impact* – The project site is located five miles west of the Big Bear Airport (Airport). According to the Big Bear City Airport Comprehensive Land Use Plan[1], the project is located totally outside of the any overlay hazard area associated with the Airport. Given that the proposed project is located outside of any Airport influence area, and that the proposed project does not contain habitable structures, the potential for the project to result in a safety hazard for people residing or working in the project area is negligible. Therefore, construction and operation of the project at this location would result in a less than significant potential safety hazard for people residing or working in the project area as a result of proximity to a public airport or private airstrip. No mitigation is required.

f. *Less Than Significant With Mitigation Incorporated* – The proposed project has a limited potential to interfere with an adopted emergency response plan or emergency evacuation plan. There is an emergency evacuation route located adjacent to the project, as State Highway 18/Big Bear Boulevard and State Highway 38 have been delineated as such on the San Bernardino County Mountain Area Emergency Route: Area 2 map provided as Figure IX-2. The actual purpose of proposed project is to remove parked vehicles on the shoulder of SH-18 and reduce potential traffic hazards. The proposed project will be constructed entirely within the boundaries of the project site, with minimal improvements to the site frontage and entrances to the site SH-18. The project would involve ingress and egress of traffic onto SH-18 from the proposed access driveways that will provide entry to the site. As such, the proposed project will not experience substantial conflicts with surrounding traffic. However, because the proposed project will be required to construct an internal driveway and access lanes in the project parking lot, and minimal improvements that may affect the flow of traffic along SH-18, a limited potential to interfere with an emergency response or evacuation plan will occur during construction. Mitigation to address traffic disruption and emergency access issues are included in the Transportation Section (XVII). Therefore, with the implementation of MMs **TRAN-1** and **TRAN-2** identified in the Transportation Section of this document, there is a less than significant potential for the development of the project to physically interfere with any adopted emergency response plans, or evacuation plans.

g. *Less Than Significant Impact* – The proposed project would not expose people or vehicles to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. The proposed project area is an area susceptible to wildland fires, and is located within a delineated within a Very High Fire Hazard Severity Zone (VHFHSZ) in a Local Responsibility Area (LRA); the majority of the area surrounding Big Bear Lake and Baldwin Lake are located within a VHFHSZ, as shown on Figure IX-3, the Countywide Plan Policy Map of Fire Hazard Severity Zones. The project is also located within the County Fire Safety Overlay. The proposed project is required to, and will incorporate the most current fire protection designs, including an adequate water supply for fire flow and fighting purposes. Regardless of the benefits from developing the trailhead parking lot, the proposed development on the project site will expose future visitors at the parking lot to a potential for damage during a major wildland fire. However, the potential for loss of life is considered to be low for the following reasons: there are emergency routes that lead away from the project area—State Highway 18 (west and north)—and, the project would not include any habitable structure, thus minimizing wildfire risk at the site. Given the type of project proposed—a trailhead parking lot—exposure to wildfire would have a limited potential to substantially damage human or man-made equipment (vehicles) as they could be removed from the area prior to or during a wildfire. As a result, and due to the availability of and

[1] http://www.sbcounty.gov/Uploads/lus/Airports/BigBear.pdf

access to emergency routes, the potential for loss of life and structures is considered to be a less than significant impact without mitigation.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
X. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☒	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
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 onsite or offsite?	☐	☐	☒	☐
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?	☐	☐	☒	☐
(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,	☐	☒	☐	☐
(iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

SUBSTANTIATION

a. *Less Than Significant With Mitigation Incorporated* – The proposed project is located within the planning area of the Santa Ana Regional Water Quality Control Board (RWQCB). The project site contains features similar to much of the Big Bear area including the western pine plant community. The project would be supplied with water by the City of Big Bear Lake, Department of Water and Power (DWP). Water is supplied to customers by pumping groundwater from local aquifers to meet customer demand. A sewer connection will also be required as the project will provide restroom services at the trailhead parking lot.

For a developed area, the only three sources of potential violation of water quality standards or waste discharge requirements are from generation of municipal wastewater, stormwater runoff, and potential discharges of pollutants, such as accidental spills. The project will generate municipal

wastewater. A small restroom facility will be connected to the adjacent City sewer system and wastewater will be treated at the Big Bear Area Regional Wastewater Agency's Regional Wastewater Treatment Plant located at the southern edge of Baldwin Lake. The wastewater from this facility complies with current regulations and Waste Discharge Requirements pertaining to wastewater treatment and disposal.

The County, and each City, implements National Pollutant Discharge Elimination System (NPDES) requirements for surface discharge for all qualified projects. The project site is less than one-acre in size, therefore, it is not required to obtain coverage under the General Construction NPDES permit. Regardless, an erosion control plan with specific best management practices (BMPs) will be implemented during construction. See mitigation below. To address stormwater runoff and accidental spills within this environment both during construction and during future operations, this new project must ensure that site development implements the equivalent of a Storm Water Pollution Prevention Plan (SWPPP) to control potential sources of water pollution that could violate any standards or discharge requirements during construction. Also, a Water Quality Management Plan (WQMP) must be prepared and implemented to ensure that project-related surface runoff meets discharge requirements over the long term. The project design includes onsite stormwater capture and treatment facilities. The erosion control plan would specify the BMPs that the project would be required to implement during construction activities to ensure that all potential pollutants of concern, primarily sediment, are controlled, minimized, and/or otherwise appropriately treated prior to being discharged from the subject property as stormwater runoff. Compliance with the terms and conditions of the NPDES and the erosion control plan is mandatory and is judged adequate mitigation by the regulatory agencies for potential impacts to stormwater during construction activities. Implementation of the following mitigation measure will also contribute to reducing potential impacts to stormwater runoff to a less than significant level.

HYD-1 ***The District shall require that the construction contractor prepare and implement a SWPPP or an erosion control plan (Plan) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater runoff and with the intent of keeping all products of erosion from moving offsite into receiving waters. The Plan shall include a Spill Prevention and Cleanup Plan that identifies the methods of containing, cleanup, transport and proper disposal of hazardous chemicals or materials released during construction activities that are compatible with applicable laws and regulations. BMPs to be implemented in the Plan may include but not be limited to:***

- ***The use of silt fences;***
- ***The use of temporary stormwater desilting or retention basins;***
- ***The use of water bars to reduce the velocity of stormwater runoff;***
- ***The use of wheel washers on construction equipment leaving the site;***
- ***The washing of silt from public roads at the access point to the site to prevent the tracking of silt and other pollutants from the site onto public roads;***
- ***The storage of excavated material shall be kept to the minimum necessary to efficiently perform the construction activities required. Excavated or stockpiled material shall not be stored in water courses or other areas subject to the flow of surface water; and***
- ***Where feasible, stockpiled material shall be covered with waterproof material during rain events to control erosion of soil from the stockpiles.***

With implementation of the mandatory stormwater management plans and their BMPs, as well as MMs **HAZ-1** and **HYD-1** above, the development of the proposed project will not cause a violation of any water quality standards or waste discharge requirements.

b. *Less Than Significant Impact* – The project does not propose the installation of any water wells that would directly extract groundwater and the change in semi-pervious surfaces to impervious surfaces

will be minimal because the parking lot site itself is small (about 1/3 of an acre) and will include landscaped areas and surface water treatment chambers. The project is located within Bear Valley, which lies in the northeastern portion of the Santa Ana River Watershed, and the underlying groundwater basin is the Bear Valley groundwater basin. According to the Big Bear Lake Department of Water and Power (BBLDWP) 2020 Urban Water Management Plan (UWMP), the total demand for water was 2,332 acre-feet per year (AFY) in 2020[2]. BBLDWP anticipates that the total demand for water within its service area will grow to 2,283 AFY by 2045 AFY. The proposed project would require use of water to support site landscaping and to support drinking fountains and toilets within the project site, as well as to serve the fire hydrants developed on-site for fire flow in instances where such flow is needed. As such, the City estimates that the proposed project would require nominal water (less than 1 AFY) to operate, as the proposed parking lot will be developed with minimal landscaping and water demand. BBLDWP receives about 3,100 AFY of groundwater from the Bear Valley groundwater basin as a base supply within its service area. Therefore, though the proposed project might require water supply from BBLDWP, the increase of an anticipated 1 AFY is well within the planned demand for water for in 2025 (2,147) and in 2040 (2,283 AFY), given the surplus of supply (anticipated at 3,100 AFY for every year between 2025 and 2045). The anticipated demand of water supply within BBLDWP's retail service area will be greater than the demand for water in the future, which indicates that BBLDWP has available capacity to serve the proposed project. Thus, based on the availability of water within the area—the maximum perennial yield for the Bear Valley groundwater basin has been estimated at 4,800 AFY, with approximately 3,100 AFY of that volume being available to the BBLDWP—the development of the Castle Rock Trailhead Parking Lot within the approximately 1/3-acre site is not forecast to cause a significant demand for new groundwater supplies. The potential impact under this proposed project is considered less than significant; no mitigation measures are required.

c. *i. Less Than Significant Impact* – The project location is a relatively undisturbed site that is bounded on the north by SH-18. The proposed project is not anticipated to significantly change the volume of flows downstream of the project site based on implementing the WQMP provide in Appendix 3, and would not be anticipated to change the amount of surface water in any water body in an amount that could initiate a new cycle of erosion or sedimentation downstream of the project site. This is based on the project WQMP design that captures most of the new surface runoff within the parking lot into onsite water treatment chambers. The proposed project will be developed to be relatively flat in support of the trailhead parking spaces. The proposed improvements include parking spaces, landscaping, restroom, and support facilities. The proposed project will include drainage structures to convey the future onsite runoff to natural flowlines, or to flow dissipation structures. Regardless, given that the proposed development would include drainage improvements to accommodate the facilities proposed as part of the project, on-site flows within the new development will be collected and conveyed in a controlled manner such that incremental runoff will be collected and allowed to infiltrate on site. This system will be designed to capture the incremental increase in the 100-year flow runoff from the project site or otherwise detain the incremental runoff on-site and existing runoff volumes will be discharged in conformance with City requirements. The downstream drainage system will not be substantially altered and given the control of future surface runoff from the project site, the potential for downstream erosion or sedimentation will be controlled to a less than significant impact level.

c. *ii. Less Than Significant Impact* – The proposed project will alter the existing drainage pattern on-site but will maintain the existing offsite downstream drainage system through control of future discharges from the site (site area is 1/3 acre). The onsite drainage system will capture any incremental increase in runoff from the project site associated with project development. On-site flows within the new development will be collected and conveyed in a controlled manner such that runoff will be collected and allowed to infiltrate on-site through the provision of subsurface storm drains and new proposed stormwater chambers. The development of these drainage improvements would conform to County and City water quality management requirements and would prevent flooding onsite or offsite from occurring. Furthermore, the proposed project is required to prepare

[2] https://www.bbldwp.com/ArchiveCenter/ViewFile/Item/249

and implement a WQMP Appendix 3), which identifies specific measures to manage long-term runoff and stormwater on-site. Thus, the implementation of onsite drainage improvements and compliance with the measures developed in the site WQMP, stormwater runoff will not substantially increase the rate or volume of runoff in a manner that would result in substantial flooding on- or off-site. Impacts under this issue are considered less than significant with no mitigation required.

c. *iii. Less Than Significant With Mitigation Incorporated* – The proposed project will alter the site such that stormwater runoff within the site may be increased, but will maintain the existing off-site downstream drainage system through control of future discharges from the site to be equivalent to the current conditions. This would prevent the project from exceeding the capacity of existing or planned stormwater drainage systems and from providing substantial additional sources of polluted runoff. The development of the project site will collect and convey on-site flows in a controlled manner such that excess runoff will be collected and allowed to infiltrate on-site through the provision of subsurface storm drains and new proposed stormwater runoff chambers. The development of these drainage improvements would be designed to prevent excess runoff from leaving the project site or otherwise pretreat the runoff before leaving the site to meet City requirements. Varying amounts of urban pollutants, such as motor oil, antifreeze, gasoline, pesticides, detergents, trash, animal wastes, and fertilizers, could be introduced into downstream stormwater within the watershed. However, the proposed project is not anticipated to generate discharges that would require pollution controls beyond those already incorporated into the project design as a standard operating procedure to meet water quality management requirements from the RWQCB. As such, the project is not anticipated to result in a significant adverse impact to water quality or flows downstream of the project with implementation of mitigation outlined below.

Although BMPs are mandatory for the project to comply with established non-point source pollutant discharge requirements, the following mitigation measure is designed to establish a performance standard to ensure that the degree of water quality control is adequate to ensure the project does not contribute significantly to downstream water quality degradation.

HYD-2 The District will select best management practices and reduce future non-point source pollution in surface water runoff discharges from the site to the maximum extent practicable, both during construction and following development. The identified BMPs shall be installed in accordance with schedules contained in the Erosion Control Plan (Plan) and Water Quality Management Plan (WQMP).

Compliance will also be ensured through fulfilling the requirements of Plan and WQMP monitored by the City/RWQCB, and through the implementation of mitigation measure **HAZ-1**, which will ensure that discharge of polluted material does not occur or is remediated in the event of an accidental spill. The Plan must incorporate the BMPs that meet the performance standard established in **HYD-1** and **HYD-2** for both construction and operation stages of the project. Thus, the implementation of on-site drainage improvements and applicable requirements will ensure that that drainage and stormwater will not create or contribute runoff that would exceed the capacity of existing or planned offsite stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts under this issue are considered less than significant with mitigation required.

c. *iv. Less Than Significant Impact* – The project site occupies a ridge on the slopes of the San Bernardino Mountains and the lack of any stream channel onsite indicates the site is not subject to substantial offsite stormwater runoff. As shown on the Federal Emergency Management Agency (FEMA) Federal Insurance Rate Map (FIRM) #06071C7315H provided as Figure X-1, the project site is located within Zone D, which represents areas of undetermined flood hazard. Furthermore, according to the Countywide Plan Policy Map showing Flood Hazards (Figure X-2), the proposed project is not located within a flood hazard zone. As such, development of this site is not anticipated to redirect or impede flood flow at the project site, particularly given that surface flows will be conveyed and captured by subsurface storm drains and new proposed stormwater chambers to prevent increased runoff from leaving the project site or otherwise pretreat the runoff before leaving

the site to meet City requirements, which would prevent flooding onsite or offsite from occurring. Therefore, impacts under this issue are considered less than significant and no mitigation is required.

d. *Less Than Significant Impact* – As stated under issue X(c[iv]), the proposed project is located in an area with no known flood hazard, as mapped by the County and by FEMA. Furthermore, the proposed project is mapped outside of the dam inundation area delineated by the San Bernardino Countywide Plan (Figure X-3). The proposed project is located on a ridge above Big Bear Lake, about 2.9 miles to the east/southeast from the Lake, and is located about 1/4 mile to the south of Big Bear Lake. The proposed project is also located at an elevation that is about 200 feet higher than Big Bear Lake. Big Bear Lake is formed by a dam. As such, dam inundation would occur west of the dam flowing down in elevation to the Santa Ana River watershed several thousand feet below the elevation of the project site. The proposed project is not located within the seiche zone for the Lake, and is removed from the ocean by both elevation (6,700 feet above AMSL) and a distance of 60 miles. Therefore, given that the proposed project is not located within a flood hazard, tsunami, or seiche zone, there is a less than significant potential for release of pollutants due to project inundation. No mitigation is required.

e. *Less Than Significant Impact* – The proposed project is located within the Bear Valley Groundwater Basin, which has been designated very low priority by the Sustainable Groundwater Management Act (SGMA). The SGMA empowers local agencies to form Groundwater Sustainability Agencies (GSAs) to manage basins and requires GSAs to adopt Groundwater Sustainability Plans (GSPs) for crucial groundwater basins in California.[3] The SGMA "requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over-drafted basins, that will be 2040. For the remaining high and medium priority basins, 2042 is the deadline."[4] Given that the project is located within a basin that is considered very low priority, no conflict or obstruction of a water quality control plan or sustainable groundwater management plan is anticipated. As such, the project would not conflict with a sustainable groundwater management plan. Water consumption and effects in the basin indicates that the proposed project's water demand is considered to be minimal. By controlling water quality during construction and operations through implementation of both short-term and long-term (WQMP) best management practices at the site, no potential for conflict or obstruction of the Regional Board's water quality control plan has been identified.

[3] https://www.bbarwa.org/bear-valley-basin-groundwater-sustainability-agency/
[4] https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XI. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☒	☐
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?	☐	☐	☒	☐

SUBSTANTIATION

a. *Less Than Significant Impact* – Refer to the aerial photos provided as Figures 1 and 3, which depict the project's regional and site-specific location. The project site would be installed within a site zoned for residential use, and the land use designation is Residential. The proposed project is designed to solve an existing safety problem of recreational hikers parking on the shoulder of SH-18 in order to access the Castle Rock trail, which is accessible from the highway. The purpose of the parking lot is to provide trailhead parking spaces to reduce hazards and the proposed project would occur within a site located within the City of Big Bear Lake. The proposed parking lot site is about 1/3 acre in size and would not physically divide any established community. Therefore, no significant impacts under this issue are anticipated and no mitigation is necessary.

b. *Less Than Significant Impact* – The City, and Bear Valley as a whole, provide a recreational destination for residents of southern California. The installation of a parking lot will reduce an existing safety hazard and continue to provide access to a local hiking trail (Castle Rock). By supporting this recreational use in the project area, the proposed project will not conflict with any City planning documents, policies or regulations that might protect environmental resources. The proposed project can be implemented without significant effects on the circulation system (it is beneficial); all necessary infrastructure exists at or can be extended to the site to support the parking lot functions; it will not generate significant air emissions or GHG emissions, particularly once in operation; it will meet noise requirements; it can meet all Safety Element requirements; and it implements the Health and Wellness Element objectives and goals. Therefore, the implementation of this project at this site will be consistent with surrounding land uses, and an adjacent hiking trail resource at the site.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XII. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

SUBSTANTIATION:

a. *No Impact* – The proposed project is located at a site that is adjacent to SH-18. The San Bernardino County Countywide Plan Program Environmental Impact Report (PEIR) map depicting Mineral Resource Zones indicates that the proposed project is not located within an area containing delineated mineral resources (Figure XII-1). Therefore, the development of the site is not anticipated to 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 impacts are anticipated and no mitigation is required.

b. *No Impact* – As stated above, the proposed project site does not contain any known mineral resources delineated by the County in its Countywide Plan (Figure XII-1), and is currently vacant containing pine forest habitat and other native vegetation. As such, the development of the proposed project site would not result in the loss of any available locally important resource recovery site delineated on a local general plan, specific plan, or other land use plan, as no such delineations of this site are known. No impacts under this issue are anticipated and no mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XIII. NOISE: Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of a project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
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?	☐	☐	☐	☒

SUBSTANTIATION

Background

The proposed project is the construction of a trailhead parking lot and once completed, the parking lot will provide off-road parking for hikers that currently park on the road shoulder of SH-18 to access the Castle Rock hiking trail. The proposed project will eliminate an existing roadway safety hazard due to parking along a state highway (on the road shoulder) where no protected parking currently exists. The size of the parking lot is approximately 1/3 acre. The existence of bedrock near the ground surface will complicate grading the site, but due to its small size, it is anticipated that the parking lot can be constructed over a three-month period of time. Subsequent to completion of the parking lot, the hikers arriving in vehicles will simply shift the short-term parking from the roadway shoulder to the trailhead parking lot. It is not anticipated that the number of hikers seeking to park near the Castle Rock trailhead will increase in the future as a result of installing a parking facility.

The existing background noise at the site would be minimal to moderate, based on traffic along this section of SH-18. Traffic noise in this area will vary based on the number of recreation visitors to Big Bear. Because community receptors are more sensitive to unwanted noise intrusion during more sensitive evening and nighttime hours, state law requires that an artificial dBA (A-weighted decibel) increment be added to quiet time noise levels. The State of California has established guidelines for acceptable community noise levels that are based on the Community Noise Equivalent Level (CNEL) rating scale (a 24-hour integrated noise measurement scale). The guidelines rank noise land use compatibility in terms of "normally acceptable," "conditionally acceptable," and "clearly unacceptable" noise levels for various land use types. The State Guidelines, Land Use Compatibility for Community Noise Exposure, single-family homes are "normally acceptable" in exterior noise environments up to 60 dB CNEL and "conditionally acceptable" up to 70 dB CNEL based on this scale. Multiple family residential uses are "normally acceptable" up to 65 dB CNEL and "conditionally acceptable" up to 70 CNEL. The nearest sensitive receptors are individual single-family residences that are located east of the proposed project site.

a. *Less Than Significant With Mitigation Incorporated –*

Short Term Construction Noise

Short-term construction noise impacts associated with the proposed project will occur during grading and paving of the project site. The earth-moving sources are the noisiest type of equipment typically ranging from 82 to 85 dB at 50 feet from the source. Regarding the possibility of blasting noise, this issue is addressed in the Hazards Section of the Initial Study, Section VIII. Temporary construction

noise is exempt from the City Noise Performance Standards between 7:00 a.m. and 6:00 p.m., except Sundays and Federal holidays. The proposed project would be constructed within the confines of these hours, and therefore would be in compliance with the City's Noise Performance Standards, and therefore construction of the project would result in less than significant noise impact. However, to minimize the noise generated on the site to the extent feasible, the following mitigation measures shall be implemented:

NOI-1 All construction vehicles and fixed or mobile equipment shall be equipped with operating and maintained noise control devices.

NOI-2 All employees that will be exposed to noise levels greater than 75 dB over an 8-hour period shall be provided adequate hearing protection devices to ensure no hearing damage will result from construction activities.

NOI-3 No construction activities shall occur during the hours of 6 PM through 7 AM, Monday through Saturday; at no time shall construction activities occur on Sundays or holidays, unless a declared emergency exists.

NOI-4 Equipment not in use for five minutes shall be shut off.

NOI-5 Equipment shall be maintained and operated such that loads are secured from rattling or banging.

NOI-6 Construction employees shall be trained in the proper operation and use of equipment consistent with these mitigation measures, including no unnecessary revving of equipment.

b. *Less Than Significant Impact* – Vibration is the periodic oscillation of a medium or object. The rumbling sound caused by vibration of room surfaces is called structure borne noises. Sources of groundborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous or transient. Vibration is often described in units of velocity (inches per second), and discussed in decibel (VdB) units in order to compress the range of numbers required to describe vibration. Vibration impacts related to human development are generally associated with activities such as train operations, construction, and heavy truck movements.

The background vibration-velocity level in residential areas (from ongoing activities in a residential area such as cars driving by, etc.) is generally 50 VdB, while the groundborne vibration directly adjacent to an industrial facility requiring movement of heavy machinery might be greater. Groundborne vibration is normally perceptible to humans at approximately 65 VdB, while 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible. Construction activity can result in varying degrees of groundborne vibration, but is generally associated with pile driving and rock blasting. Other construction equipment—such as air compressors, light trucks, hydraulic loaders, etc.—generates little or no ground vibration. The City Development Code offers minimal guidance on Vibration.

Vibration related to construction activities will be less than significant because the project will limit construction to essentially daylight hours. If blasting is required, mitigation measure **HAZ-1 will ensure v**ibration will be controlled to an acceptable level at the nearest residence. Operational vibration is anticipated to be less than significant given that there are no large pieces of heavy machinery that would operate at or near the property line. Any vibration generated within the site is not anticipated to substantially exceed the perceptible threshold. Therefore, any impacts under this issue are considered less than significant. No other mitigation is required.

c. *No Impact* – There nearest public airport is the Big Bear City Airport, which is located approximately five miles to the east of the project site. According to the Big Bear City Airport Comprehensive Land Use Plan[5], the project is not located within a safety zone requiring an avigation easement as this project is not located beneath the flight path for the airport. Additionally, the proposed project is located outside of the delineated noise contours for the Airport, as shown on Figure XIII-1. Given that the proposed project is located outside of the 65 CNEL dBA airport noise contour, the project area has a less than significant potential to expose people residing or working in the project area to excessive noise levels as a result of the site's proximity to the airport. No mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XIV. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

SUBSTANTIATION

a&b. *No Impact* – The proposed project is a trailhead parking lot that will be used by day-use recreational hikers. The project site is vacant and there will be no loss of housing or displacement of existing residences. Because the project does not contain any habitable structures, it has no potential to induce substantial population growth within the City. No adverse population or housing impacts will occur and no mitigation is required.

[5] http://www.sbcounty.gov/Uploads/lus/Airports/BigBear.pdf

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XV. PUBLIC SERVICES: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?	☐	☐	☒	☐
b) Police protection?	☐	☐	☒	☐
c) Schools?	☐	☐	☐	☒
d) Parks?	☐	☐	☐	☒
e) Other public facilities?	☐	☐	☒	☐

SUBSTANTIATION

The proposed project is the construction of a trailhead parking lot and once completed, the parking lot will provide off-road parking for day hikers that currently park on the road shoulder of SH-18 to access the Castle Rock hiking trail. The proposed project will eliminate an existing roadway safety hazard due to parking along a state highway on the road shoulder where no protected parking area currently exists. The size of the parking lot is approximately 1/3 acre. Subsequent to completion of the parking lot, the hikers arriving in vehicles will simply shift the short-term parking from the roadway shoulder to the trailhead parking lot. It is not anticipated that the number of hikers seeking to park near the Castle Rock trailhead will increase in the future.

a,b&e. *Less Than Significant Impact* – The proposed project has a minimal potential to created demand for fire and police protection services. The existing access to the Castle Rock trail results in hikers parking vehicles on the SH-18 road shoulder. This creates safety hazards that can require emergency services. The new trailhead parking lot is intended to reduce this potential safety hazard and should, therefore, result in less overall demand for these two services. Regarding other public facilities, the parking lot is a City facility that will be installed under this proposed project. The impact analysis indicates that its construction and operation will not result in new significant adverse impacts to the environment. Therefore, the potential impacts to these public services are considered a less than significant impact on the environment.

c&d. *No Impact* – The proposed project will not increase the population of school-age children if it is implemented, and although the proposed project supports recreation uses in the Bear Valley, he parking lot will not function as a park. No adverse impact to schools or parks is forecast to occur if the project is implemented.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVI. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

SUBSTANTIATION

The proposed project is the construction of a trailhead parking lot and once completed, the parking lot will provide off-road parking for hikers that currently park on the road shoulder of SH-18 to access the Castle Rock hiking trail. The proposed project will eliminate an existing roadway safety hazard due to parking along a state highway where no protected parking currently exists. The size of the parking lot is approximately 1/3 acre.

a. *Less Than Significant Impact* – Although the proposed project supports recreation use in the Bear Valley (hiking), the proposed site is a parking lot and will not function as a park. Given the history of on-road parking by hikers to access the Castle Rock trail, it is not anticipated that the parking lot will attract additional hikers, but it is intended to relocate their vehicles off of the adjacent highway shoulder. No evidence indicates that this facility will accelerate or caused significant deterioration of the trail, which is the recreational "facility" that will be supported by the proposed trailhead parking facility.

b. *No Impact* – As indicated in the preceding text, the proposed project does not contain recreational facilities. Also, no evidence indicates that this facility will accelerate or caused significant deterioration of the Castle Rock hiking trail, which is the recreational "facility" that will be supported by the proposed trailhead parking facility. No new adverse impacts on the trail itself are forecast to occur as a result of this parking facility.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVII. TRANSPORTATION: Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous inter-sections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
d) Result in inadequate emergency access?	☐	☒	☐	☐

SUBSTANTIATION: To understand the existing demand for parking to access the Castle Rock Trail south of State Route 18, Transtech Engineers, Inc. compiled the "Big Bear Lake Castle Rock Parking Occupancy Study" July 2022. This study is provided as Appendix 4 of this document and the findings are summarized below.

Study Background

A parking occupancy study was prepared by Transtech Engineers, Inc. to understand parking conditions along the State Route (SR) -18 and Talbot Drive during a typical weekday, a Saturday and on a Holiday weekend in order to quantify the number of visitors parking on the nearby streets to use the Castle Rock Trail. As part of the traffic review the following items were included: Identification of all potential parking spaces that visitors are using to access the Castle Rock Trail, the estimated number of cars that can park in each turnout or parking zone, an hourly parking count and an estimation of the parking turnover or how long visitors park to hike and then leave the area. Figure XVII-1 illustrates the parking zones that were included in the parking count in the vicinity of the Castle Rock Trail trailhead on the south side of SR 18.

The referenced report was prepared for the City of Big Bear Lake to look at ways to enhance safety for pedestrians who park and walk along the SR-18 where there is narrow shoulder width, curvy road conditions and a posted speed of 40 mph to access the popular trail of Castle Rock Trail. The City is proposing to construct a parking lot located on the SW corner of Talbot Drive and the SR-18. The purpose of the new parking lot is to enhance pedestrian safety by reducing or eliminating parking along Highway 18 so that visitors are not forced to walk along narrow shoulders on Highway 18 to access the Castle Rock Trail and to minimize traffic hazards from parking vehicles on the shoulder adjacent to traffic lanes. If a new parking lot is built there is the potential for the City to work with the USFS to move the entrance to the Castle Rock Trail from the highway to the parking lot. The existing Castle Rock signage located on the SR-18 would be removed and a new entry point to the trail would be created at the south end of the parking lot.

The parking study was conducted on three separate days during typical conditions and on a holiday weekend. The study area was divided into 7 different parking zones along the SR-18 as well as on Talbot Drive as shown in Figure XVII-1. A detailed discussion of the parking zones is provided in Appendix 4. The first count was taken on May 21st on what is considered a typical Saturday, then on May 25th on a typical Wednesday, and on May 28th a Saturday during Memorial Weekend. For all parking zones located on the north side of SR-18, pedestrians have to cross the highway at some point to enter the trial. It was observed that pedestrians at times would use the narrow shoulders as a walkway to get to the trail.

The parking available on Talbot Drive (Zones 6 and 7) is excluded from Table XVII-1: Summary of Parking Conditions, for the reason of being nearly unused by travelers to Castle Rock Trail. Based on the count

data on average most cars were parked for 2-3 hours, but on Saturday May 28th Memorial Day weekend during the busiest times of 11am to 2pm, some vehicles stayed 3-4 hours.

Table XVII-1
SUMMARY OF PARKING CONDITIONS ZONES 1 THRU 5

Time	Saturday May 21st			Wednesday May 25th			Saturday May 28th Memorial Weekend		
	Total Parked	Estimated Total Spaces*(1)	% of Spaces Taken	Total Parked	Estimated Total Spaces*	% of Spaces Taken	Total Parked	Estimated Total Spaces*	% of Spaces Taken
9am	8	43	19%	5	43	12%	8	43	19%
10am	19	43	44%	11	43	26%	31	43	72%
11am	37	43	86%	10	43	23%	45	43	105%
12pm	44	43	102%	11	43	26%	52	43	121%
1pm	34	43	79%	7	43	16%	50	43	116%
2pm	26	43	60%	4	43	9%	43	43	100%
3pm	22	43	51%	7	43	16%	39	43	91%
4pm	17	43	40%	6	43	14%	29	43	67%

*(1) *Excluding Talbot Drive*

Source: Transtech Engineers, Inc., Parking Occupancy Study, July 2022

The busiest parking times for all three days were between 11am and 2pm. At the busiest times visitors would park at points farther away and walk along Big Bear Boulevard (SR-18) to get to Castle Rock Trail or in some cases they parked at places not designated for street parking. On May 28th it was observed that some visitors even parked as far as Boulder Bay Park and walked to Castle Rock Trail. As shown in Table XVII-1 it was estimated that 43 vehicles could park in Zones 1 to 5. On Memorial Day weekend cars exceeded available capacity by parking along narrow shoulders on the SR-18 where normally cars would not park. Visitors also parked farther away from the trail head along SR-18 (west of Zone 1). This was confirmed by seeing pedestrians walking from the trail head past Zone 1 on the shoulder.

On a regular Wednesday the greatest number of vehicles parked along Highway 18 was 11 vehicles with cars parking in actual turnouts. On a regular Saturday May 21st at 12 noon cars parked exceeded Zone 1-5 capacity at 44 vehicles. On Saturday of Memorial Weekend demand at 12 noon was 52+ vehicles with cars parking outside the study zones. The parking demand versus the available parking spaces along the highway are shown in Table XVII-1 below.

a. *Less Than Significant Impact* – The proposed project is the construction of a trailhead parking lot and once completed, the parking lot will provide off-road parking for hikers that currently park on the road shoulder of SR-18 to access the Castle Rock hiking trail. The proposed project will reduce an existing roadway safety hazard due to parking along a state highway where no protected parking currently exists and pedestrians use the highway road shoulder to walk to the Castle Rock trailhead. Refer to the summary of the parking study provided in Appendix 4. The size of the parking lot is approximately 1/3-acre, with 25-30 parking spaces. From a traffic standpoint, it is not anticipated that this passive parking facility will induce additional trips to hike the Castle Rock trail, the purpose is to provide an off-road parking area to minimize existing hazards on adjacent SR-18. Thus, implementation of the

proposed project will not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. The proposed project should enhance safety and flow of traffic on SR-18 in the vicinity of the Castle Rock Trail. Impact under this issue will be less than significant and no mitigation is required.

b. *No Impact* – As described above, the proposed project is designed to provide safe parking and pedestrian access for hikers that seek to hike the Castle Rock trail on USFS property. It is not envisioned that this project will result in greater demand for this hiking this trail. Thus, the proposed project is not forecast to increase VMT through creation of more demand to hike this trail. It will, however, accommodate the existing hikers that would travel to this location regardless of availability of the parking facility, as evidenced by the findings presented above. No impact to VMT is expected to result from implementing this proposed project.

c. *Less Than Significant With Mitigation Incorporated* – The proposed project will occur almost entirely within the parking lot site boundaries, though it will also involve some improvements along SR-18 in order to develop the proposed driveways and connect to some infrastructure. Large trucks delivering equipment or removing small quantities of excavated dirt or debris can enter the site without major conflicts with the flow of traffic on the roadway used to access the site. Primary access to the site will be provided along existing roadway (Talbott Drive and new driveways on Talbott, as shown on Figure 4. The proposed new driveways will be designed such that the project would not increase hazards due to a geometric design feature or incompatible uses. Additionally, the proposed project would be required to comply with all applicable fire code and ordinance requirements for construction and access to the parking lot site. Emergency response and evacuation procedures would be coordinated with the City and Caltrans, as well as the local police and fire departments. Because the proposed project will require development of new driveways to provide access to the proposed parking lot, the project will require implementation of a traffic management plan, which will ensure adequate circulation within the area, during both construction and operation. As such, to mitigate the potential impacts to traffic flow during construction, the following mitigation measure shall be implemented:

TRAN-1 ***The City shall require its contractors prepare a construction traffic control plan. Elements of the plan should include, but are not necessarily limited to, the following:***

- ***Develop circulation and detour plans, if necessary, to minimize impacts to local street and State Highway circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.***
- ***To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours.***
- ***Install traffic control devices as specified in Caltrans' Manual of Traffic Controls for Construction and Maintenance Work Zones where needed to maintain safe driving conditions. Use flaggers and/or signage to safely direct traffic through construction work zones.***
- ***For roadways requiring lane closures that would result in a single open lane, maintain alternate one-way traffic flow and utilize flagger-controls.***
- ***Coordinate with owners or administrators of sensitive land uses such as police and fire stations, hospitals, and schools. Provide advance notification to the facility owners or operators of the timing, location, and duration of construction activities.***

TRAN-2 ***The City shall require that all disturbances to public roadways be repaired in a manner that complies with the Standard Specifications for Public Works Construction (green book) or other applicable City of Big Bear Lake and Caltrans standard design requirements.***

Upon implementation of a construction traffic management plan, any potential increase in hazards due to design features or incompatible use will be considered less than significant in the short term. In the long term, no impacts to any hazards or incompatible uses in existing or planned roadways are anticipated. Operation of the proposed project would be similar to access to residences on the south side of Talbot Drive. The design of the project would not create any hazards to surrounding roadways. Thus, any impacts are considered less than significant with implementation of mitigation.

d. *Less Than Significant With Mitigation Incorporated* – The proposed project consists of activities that will take place at the intersection of SR-18 and Talbott Drive within the City of Big Bear Lake. Vehicles travelling to and from the project parking lot would be from State Route 18 to access the site. Primary access to the site will be provided by the new proposed driveways on Talbott Drive. Access to the site is adequate for emergency vehicles traveling SR-18 from the east, the core or the City. There is an emergency evacuation route located adjacent to the site, as State Route 18/Big Bear Boulevard and State Route 38 have been delineated as such on the San Bernardino County Mountain Area Emergency Route: Area 2 map provided as Figure IX-2. With implementation of MMs **TRAN-1** and **TRAN-2**, adequate emergency access along Talbott Drive will be maintained. Site access would mainly serve to enable drop off of vehicles for hikers and collection at the end of a hike. Handicapped site access will also be provided. Thus, because of the lack of adverse impact on local circulation is less than significant on emergency access with mitigation, significant impacts are avoided. No further mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVIII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial change in the significance of tribal cultural resources, 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 the California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in sub-division (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.	☐	☐	☒	☐

SUBSTANTIATION

The City conferred with the San Manuel Ban of Mission Indians (Yuhaaviatam) and received a request for the following mitigation measures, TCR-1 through TCR-3. These measures shall be implemented by the City during ground disturbing activities (any disturbance below the existing ground surface within the project area) in conjunction with implementing the proposed project.

TCR-1 ***Archaeological Monitoring and Testing***

At least one archaeologist with at least 3 years of regional experience in archaeology and a Tribal monitor representing the YSMN shall conduct subsurface archaeological testing on the project site via the employ of a number of subsurface investigative methods, including shovel test probes, remote sensing, and/or deep testing via controlled units or trenching of appropriate landscapes, with a sample size of at least 25% of the area of concern dug and dry-sifted through 1/8-inch mesh screens, prior to any ground-disturbing activity. A Testing Plan shall be created by the archaeologist and submitted to the YSMN and the City of Big Bear Lake (City) for review at least 10 business days prior to implementation, so as to provide time to review/modify the Plan, if needed. The Plan shall outline the protocol of presence/absence testing and contain a Treatment Plan detailing that 1) no collection of artifacts or excavation of features shall occur during testing, and 2) all discovered resources shall be properly recorded and reburied in situ.

If the results of testing, as approved by YSMN, are positive, then YSMN and the City shall, in good faith, consult concerning appropriate treatment of the finding(s), guidance for which is outlined in TCR-2.

If the results of testing, as approved by YSMN, are negative, then YSMN will conclude consultation unless any discoveries are made during project implementation. Any and all discoveries made during project implementation shall be subject to the Treatment Plan outlined within the Testing Plan developed as described above and the guidelines contained in TCR-2.

If resources are identified during testing as described above, an archaeological monitor and a Tribal monitor from YSMN with at least 3 years of regional experience in archaeology shall be present for all ground-disturbing activities that occur within the proposed project area (which includes, but is not limited to, tree/shrub removal and planting, clearing/grubbing, grading, excavation, trenching, compaction, fence/gate removal and installation, drainage and irrigation removal and installation, hardscape installation [benches, signage, boulders, walls, seat walls, fountains, etc.], and archaeological work). A sufficient number of monitors shall be present each work day to ensure that simultaneously occurring ground disturbing activities receive thorough levels of monitoring coverage. A Monitoring and Treatment Plan that is reflective of the project mitigation ("Cultural Resources" and "Tribal Cultural Resources") shall be completed by the archaeologist and submitted to the City for dissemination to the YSMN. Once all parties review and approve the plan, it shall be adopted by the City – the plan must be adopted prior to permitting for the project. Any and all findings will be subject to the protocol detailed within the Monitoring and Treatment Plan.

TCR-2 ***Treatment of Cultural Resources***

If a pre-contact cultural resource is discovered during archaeological presence/absence testing, the discovery shall be properly recorded and then reburied in situ. A research design shall be developed by the archaeologist that shall include a plan to evaluate the resource for significance under CEQA criteria. Representatives from the YSMN Cultural Resources Department, the archaeologist, and City shall confer regarding the research design, as well as any testing efforts needed to delineate the resource boundary. Following the completion of evaluation efforts, all parties shall confer regarding the archaeological significance of the resource, its potential as a Tribal Cultural Resource (TCR), avoidance (or other appropriate treatment) of the discovered resource, and the potential need for construction monitoring during project implementation. Should any significant resource and/or TCR not be a candidate for avoidance or preservation in place, and the removal of the resource(s) is necessary to mitigate impacts, the research design shall include a comprehensive discussion of sampling strategies, resource processing, analysis, and reporting protocols/obligations. Removal of any cultural resource(s) shall be conducted with the presence of a Tribal monitor representing the Tribe, unless otherwise decided by YSMN. All plans for analysis shall be reviewed and approved by the City and YSMN prior to implementation, and all removed material shall be temporarily curated on-site. It is the preference of YSMN that removed cultural material be reburied as close to the original find location as possible. However, should reburial within/near the original find location during project implementation not be feasible, then a reburial location for future reburial shall be decided upon by YSMN and the City, and all finds shall be reburied within this location. Additionally, in this case, reburial shall not occur until all ground-disturbing activities associated with the project have been completed, all monitoring has ceased, all cataloguing and basic recordation of cultural resources have been completed, and a final monitoring report has been issued to the City, CHRIS, and YSMN. All reburials are subject to a reburial agreement that shall be developed between the landowner and YSMN outlining the determined reburial process/location, and shall include measures and provisions to protect the reburial area from any future impacts (vis a vis project plans, conservation/preservation easements, etc.).

Should it occur that avoidance, preservation in place, and on-site reburial are not an option for treatment, the landowner shall relinquish all ownership and rights to this material and confer with YSMN to identify an American Association of Museums (AAM)-accredited facility within the County that can accession the materials into their permanent collections and provide for the proper care of these objects in accordance with the 1993 CA Curation Guidelines. A curation agreement with an appropriate qualified repository shall be developed between the landowner and museum that legally and physically transfers the collections and associated records to the facility. This agreement shall

stipulate the payment of fees necessary for permanent curation of the collections and associated records and the obligation of the City to pay for those fees.

All draft records/reports containing the significance and treatment findings and data recovery results shall be prepared by the archaeologist and submitted to the City and YSMN for their review and comment. After approval from all parties, the final reports and site/isolate records are to be submitted to the local CHRIS Information Center, the City, and YSMN.

TCR-3 ***Inadvertent Discoveries of Human Remains/Funerary Objects***

In the event that any human remains are discovered within the project area, ground disturbing activities shall be suspended 100 feet around the resource(s) and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. The on-site lead/foreman shall then immediately who shall notify YSMN and the City. The City shall then immediately contact the County Coroner regarding the discovery. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c). The NAHC-identified Most Likely Descendant (MLD), shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and funerary objects shall be treated and disposed of with appropriate dignity. The MLD, and City shall discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes. The MLD shall complete its inspection and make recommendations within forty-eight (48) hours of the site visit, as required by California Public Resources Code § 5097.98.

Reburial of human remains and/or funerary objects (those artifacts associated with any human remains or funerary rites) shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The MLD in consultation with the landowner, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains and funerary objects. All parties are aware that the MLD may wish to rebury the human remains and associated funerary objects on or near the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The City should accommodate on-site reburial in a location mutually agreed upon by the Parties.

It is understood by all Parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and the City, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XIX. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) 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 relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

SUBSTANTIATION

a. *Less Than Significant Impact* – The proposed project is the construction of a trailhead parking lot and once completed, the parking lot will provide off-road parking for hikers that currently park on the road shoulder of SR-18 and walk to the Castle Rock trailhead to access the Castle Rock hiking trail. The proposed project will eliminate an existing roadway/pedestrian safety hazard due to parking along a state highway where no protected parking currently exists. The size of the parking lot is approximately 1/3-acre, 25-30 parking spaces.

   All of the required utilities are located in adjacent streets. The project site is a parking lot that is anticipated to require minimal utility support. At this time the City does not anticipate keeping the parking lot open at night. Minimal security lighting will be required; limited water supply is needed to meet drinking water and wastewater disposal requirements for a limited number of hikers; no natural gas will be needed for the site; and excess stormwater will be retained on the site. With only 25-30 parking sites, minimal demand for infrastructure services is envisioned for the trailhead parking lot. No new relocations or expansions of infrastructure will be required to support the proposed project.

b. *Less Than Significant Impact* – Please refer to Section X.b) for a discussion of available water supply for the City. Adequate water is available to meet the estimated demand of one-acre-foot for the proposed project annually. No significant adverse impact is forecast and no mitigation, other than use of standard low consumption water hardware at the site is required.

c. *Less Than Significant Impact* – The City delivers wastewater to the Big Bear Area Regional Wastewater Agency facility at the south end of Baldwin Lake. The regional wastewater treatment plant (WWTP) has a capacity of approximately four million gallons per day (gpd) and currently receives about two mgd of average wastewater flow per day. With limited parking space, the proposed trailhead parking facility may generate one to two hundred gallons of wastewater per day. This small increment of wastewater has no potential to result in excess treatment capacity demand at the regional WWTP.

d. *Less Than Significant Impact* – The trailhead parking lot will have trash receptacles and solid waste will be collected and handled by the local City's solid waste collection service. Based on limited parking, it is assumed that the parking lot will generate no more than five cubic yards per week. Collected waste will be source segregated as is all trash in the City and disposed of at the Landers landfill operated by San Bernardino County. The proposed project will be integrated into the City's local waste management system (waste disposal infrastructure) and has no identifiable potential to impair the City's ability to attain solid waste reduction goals. No mitigation is required.

e. *Less Than Significant Impact* – The proposed project does not involve any unusual or difficult solid waste generation activities that have a potential to conflict with federal, state and local management and reduction statutes. The facility solid waste disposal will be integrated into the City existing waste management program and will comply with solid waste management and reduction statutes and regulations. Potential impacts under this issue are considered less than significant with no mitigation.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XX. WILDFIRE: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

SUBSTANTIATION

a. *Less Than Significant With Mitigation Incorporated* – Please refer to the evaluation of emergency response in the Traffic Section, Section XVII.). As indicated in that discussion, the proposed project will be constructed within the confines of the project site, but certain construction activities could result in limited interference with emergency evacuation along SR-18. Since activities within the SR-18 right-of-way are controllable, implementation of mitigation measure **TRAN-1** can ensure that significant conflicts with an evacuation plan or route will not rise to a level of a significant impact. No additional mitigation is required.

b. *Less Than Significant Impact* – The proposed project does not provide habitable space for humans. Additionally, constructing the trailhead parking lot will result in thinning the trees on the parking lot site to provide for shallow sloped parking spaces. This has the consequence of reducing the fuel load on the project site. Thus, the proposed project is not forecast to exacerbate wildfire risks at this location. Regardless, the proposed project area is an area susceptible to wildland fires, and is located within an area delineated as a Very High Fire Hazard Severity Zone (VHFHSZ) in a State Responsibility Area (SRA); the majority of the area surrounding Big Bear Lake and Baldwin Lake is located within a VHFHSZ, as shown on Figure IX-3, the Countywide Plan Policy Map of Fire Hazard Severity Zones. Overall, due to type of proposed use, the site preparation, the lack of habitable units and new access to fire hydrants, the proposed project's potential to exacerbate wildfire risk is considered a less than significant impact.

c. *Less Than Significant Impact* – The proposed project will connect to water, wastewater, and electricity infrastructure adjacent to the project site. These connections will require minimal extensions to the site and have a very low potential to exacerbate fire risk at the project site. Further, due to proximity to this infrastructure, there should be minimal temporary and ongoing wildfire impacts to the environment at the project site. Impacts under this category are forecast to be less than significant.

d. *Less Than Significant Impact* – The proposed project is a trailhead parking lot with a minimal potential to expose humans to significant risks post fire and the site will not be inhabited, but will instead be temporarily occupied during daytime hikes on the adjacent Castle Rock Trail. At the present time only one structure is proposed to be constructed, a small public restroom. Due to the project site's location on a ridge, the potential exposure of the site to hazards such as flooding or post-fire instability onsite is low. However, a fire uphill of the site could result in potential damage due to a future landslide, but due to the lack of human occupancy and mobility of the site users, the potential impact under this issue is considered less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XXI. MANDATORY FINDINGS OF SIGNIFICANCE:				
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?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

SUBSTANTIATION

The analysis in this Initial Study and the findings reached indicate that the proposed project can be implemented without causing any new project specific or cumulatively considerable unavoidable significant adverse environmental impacts. Mitigation is required to control specific potential environmental impacts of the proposed project to a less than significant impact level. The following findings are based on the detailed analysis of the Initial Study of all environmental topics and the implementation of the mitigation measures identified in the previous text and summarized in this section.

a. *Less Than Significant With Mitigation Incorporated* – The project has no potential to cause a significant impact to any biological or cultural resources. The project has been identified as having a potential to degrade the quality of the natural environment, substantially reduce 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, or reduce the number or restrict the range of a rare or endangered plant or animal. The project requires contingency biology mitigation measures to prevent significant impacts from occurring as a result of implementation of the project. Based on the data contained in the Cultural Resources Report, the potential for impacting cultural resources is low. The Cultural Resources Report determined that no cultural resources of importance were found at the project site based upon field review and a review of the records search performed for the project site and project area, so it is not anticipated that any resources could be affected by the project because no cultural resources exist. However, because it is not known what could be unearthed upon any excavation activities, contingency mitigation measures are provided to ensure that, in the unlikely event that any resources are found, they are protected from any potential impacts, and to ensure that any potential resources are treated in accordance with guidance from a qualified archaeologist. Please see biological and cultural sections of this Initial Study, as well as the technical studies that have been prepared to substantiate these findings.

b. *Less Than Significant With Mitigation Incorporated* – The project has nine (9) potential impacts that are individually limited, but may be cumulatively considerable. The issues of Air Quality, Biological Resources, Cultural Resources, Energy, Geology and Soils, Hazards and Hazardous Materials,

Hydrology and Water Quality, Noise, and Transportation require the implementation of mitigation measures to reduce impacts to a less than significant level and ensure that cumulative effects are not cumulatively considerable. The project is not considered growth-inducing, as defined by *State CEQA Guidelines*, as it would develop a parking lot to accommodate the existing and continued use of the Castle Rock Trail. These nine issues require the implementation of mitigation measures to reduce impacts to a less than significant level and ensure that cumulative effects are not cumulatively considerable. All other environmental issues were found to have no significant impacts without implementation of mitigation. The potential cumulative environmental effects of implementing the proposed project have been determined to be less than considerable and thus, would have a less than significant cumulative impact.

c. *Less Than Significant With Mitigation Incorporated* – The project will achieve long-term community goals by providing a parking lot that will reduce future use of SR-18 for dangerous parking and pedestrian use of SR-1, which has no separation between vehicle traffic and pedestrian activities along the roadway. The short-term impacts associated with the project, which are mainly construction-related impacts, are less than significant with mitigation, and the proposed project is compatible with long-term environmental protection. The issues of Air Quality, Geology and Soils, Hazards and Hazardous Materials, Noise, and Traffic require the implementation of mitigation measures to reduce human impacts to a less than significant level. All other environmental issues were found to have no significant impacts on humans without implementation of mitigation. The potential for direct human effects from implementing the proposed project have been determined to be less than significant.

Conclusion

This document evaluated all CEQA issues contained in the latest Initial Study Checklist form (2022). The evaluation determined that either no impact or less than significant impacts would be associated with the issues of Aesthetics, Agriculture and Forestry Resources, Greenhouse Gas emissions, Land Use, Mineral Resources, Population/Housing, Public Services, Recreation, Utilities and Service Systems, and Wildfire. The issues of Air Quality, Biological Resources, Cultural Resources, Energy, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Transportation, and Tribal Cultural Resources, require the implementation of mitigation measures to reduce impacts to a less than significant level. The required mitigation has been proposed in this Initial Study to reduce impacts for these issues to a less than significant impact.

Based on the findings in this Initial Study, the City of Big Bear Lake proposes to adopt a Mitigated Negative Declaration (MND) for the Castle Rock Trail Parking Lot Project. A Notice of Availability/Notice of Intent to Adopt a Mitigated Negative Declaration (NOA/NOI) will be issued for this project by the City. The Initial Study and NOA/NOI will be circulated for 30 days of public comment because this project involves the State as either a responsible or trustee agency. At the end of the 30-day review period, a final MND package will be prepared and it will be reviewed by the City for possible adoption at a future City decision-maker hearing, the date for which has not yet been determined. If you or your agency comments on the MND/NOA/NOI for this project, you will be notified about the meeting date in accordance with the requirements in Section 21092.5 of CEQA.

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; *Sundstrom v. County of Mendocino*,(1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors*, (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; San *Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

Revised 2019
Authority: Public Resources Code sections 21083 and 21083.09
Reference: Public Resources Code sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3/ 21084.2 and 21084.3

SUMMARY OF MITIGATION MEASURES

Agriculture and Forestry Resources

AFR-1 Prior to groundbreaking activities, the City shall prepare and submit a Timberland Conversion Permit (TCP) pursuant to PRC 4621(a) and a Timber Harvesting Plan (THP) pursuant to PRC 4581 to CAL FIRE utilizing the services of a Registered Professional Forester approved by CAL FIRE.

Air Quality

AQ-1 Fugitive Dust Control. The following measures shall be incorporated into Project plans and specifications for implementation:

- Apply soil stabilizers or moisten inactive areas.
- Water exposed surfaces to avoid visible dust leaving the construction site (at least 2-3 times/day).
- Cover all stock piles with tarps at the end of each day and as needed during the construction day.
- Provide water spray during loading and unloading of earthen materials.
- Require the contractor to minimize in-out traffic from construction zone to the extent feasible, and enforce a speed limit of 15 MPH on site to avoid dust migration from the site.
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard.
- Sweep streets daily if visible soil material is carried out from the construction site.

AQ-2 Exhaust Emissions Control. The following measures shall be incorporated into Project plans and specifications for implementation:

- Utilize off-road construction equipment that has met or exceeded the maker's recommendations for vehicle/equipment maintenance schedule.
- Contactors shall utilize Tier 4 or better heavy equipment.
- Enforce 5-minute idling limits for both on-road trucks and off-road equipment.

Biological Resources

BIO-1 A pre-construction southern rubber boa survey is recommended that would consist of 100 % visual coverage of the entire Project Area, including an approximately 100-foot buffer area around the 0.26-acre Project site. The survey should be conducted during the appropriate time of year (i.e., spring/early summer), when air temperatures reach between 60° and 70°F (15° to 21°C), and would consist of a systematic ground search that would focus on moveable surface materials such as rocks, logs, duff, and man-made debris that may provide shelter for southern rubber boa.

BIO-2 If focused presence/absence surveys are negative for southern rubber boa presence, it is recommended that rubber boa exclusion fence (e.g., silt fence) be installed around the perimeter of the proposed Project footprint, prior to commencement of any Project-related ground disturbing activities. All construction activities should be restricted to within the fenced disturbance limits to avoid potential harm to rubber boa that may be present in adjacent habitat.

BIO-3 A qualified biologist who is familiar with southern rubber boa and their habits should be on site during all ground disturbing activities to monitor the clearing/removal of any surface objects that could potentially provide rubber boa refugia or hibernacula (i.e., rotting logs/stumps, duff layer). The biological monitor should visually inspect under any surface cover objects prior to their removal to ensure no rubber boa are harmed or killed.

BIO-4 If southern rubber boa is found during pre-construction presence/absence surveys or during construction activities, all Project activities shall be halted, CDFW shall be contacted, and a CESA Incidental Take Permit shall be obtained from CDFW prior to reinitiating Project activities.

BIO-5 To ensure the Project does not adversely affect San Bernardino flying squirrel, it is recommended that a pre-construction survey be conducted to identify potentially suitable cavity nesting sites and foraging habitat, prior to the removal of any trees or downed woody debris.

BIO-6 If suitable San Bernardino flying squirrel cavity nesting sites are detected within the Project site, then coordination with the CDFW would be necessary to determine appropriate minimization and mitigation measures to offset Project related impacts to this species.

BIO-7 To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist should conduct pre construction nesting bird surveys prior to Project related disturbance to suitable nesting areas to identify any active nests. The nesting bird surveys should consist of a minimum of five (5) consecutive survey days and should include an additional three (3) consecutive nights of survey for SPOW and other nocturnal species. Nocturnal spotted owl surveys should be conducted between the hours of 9:00 pm. and midnight, during appropriate weather conditions (e.g., no rain or winds), and should include a spot calling survey component that would utilize California spotted owl call playback at predetermined fixed calling points.

BIO-8 If no active nests are found, no further action would be required. If an active nest is found, the biologist should set appropriate no work buffers around the nest which would be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity, and duration of disturbance. The nest(s) and buffer zones should be field checked weekly by a qualified biological monitor. The approved no work buffer zone should be clearly marked in the field, within which no disturbance activity should commence until the qualified biologist has determined the young birds have successfully fledged and the nest is inactive.

Cultural Resources

CUL-1 Should any cultural resources, including human remains, be encountered during construction of these facilities, earthmoving or grading activities in the immediate area of the finds shall be halted and an onsite inspection shall be performed immediately by a qualified archaeologist. Responsibility for making this determination shall be with the City's onsite inspector. The archaeological professional shall assess the find, determine its significance, and make recommendations for appropriate mitigation measures within the guidelines of the California Environmental Quality Act.

Geology and Soils

GEO-1 Stored backfill material shall be covered with water resistant material during periods of heavy precipitation to reduce the potential for rainfall erosion of stored backfill material. Where covering is not possible, measures such as the use of straw bales or sand bags shall be used to capture and hold eroded material on the project site for future cleanup such that erosion does not occur.

GEO-2 All exposed, disturbed soil (trenches, stored backfill, etc.) shall be sprayed with water or soil binders twice a day, or more frequently if fugitive dust is observed migrating from the site within which the project is being constructed.

Hazards and Hazardous Materials

HAZ-1 Prior to issuance of a grading permit, a blasting report, shall be submitted to the City as part of the grading plan check review. Said blasting report shall contain, at a minimum, the following information:

- Explosive handling
- Chemical exposure
- Compliance with 2010 California Fire Code Chapter 33 and the California Code of Regulations, Title 19, Subchapter 4, Article 6

The following shall be required:

- The use and handling of explosives is restricted to permittees, their employees and authorized representatives, who shall be at least 21 years of age; however, persons between the ages of 18 and 21 years may be permitted to use and handle such explosives if they are under the direct personal supervision of an experienced competent permittee, employee or authorized representative over the age of 21 years.
- Smoking shall not be permitted while explosives are being used or handled, and no one within 50 feet of explosives shall possess matches, lighters, open light or other fire or flame. Exception: The lighting of safety fuse in conjunction with approved blasting operations.
- No person shall use or handle explosives while under the influence of intoxicating liquors, or narcotics.
- Authorized containers or Class II magazines shall be used for taking detonators and other explosives from storage magazines to the blasting area.
- When blasting is done in congested areas or in close proximity to a structure, railway, or highway, or any other installation that may be damaged, the blast shall be covered before firing with a mat constructed so that it is capable of preventing fragments from being thrown. Appropriate provisions (water) shall be available in brush areas to extinguish a fire that may occur as a result of blasting operations.
- Persons authorized to prepare explosive charges or conduct blasting operations shall use every reasonable precaution, including but not limited to warning signals, flags, barricades, guards or woven mats to ensure the safety of the general public.
- Blasting operations, except by special written permission of the City, shall be conducted during daylight hours. Local residents shall be notified prior to blasting operations (minimum one day notification).
- Blasting shall be controlled to prevent the blasted material from going off the project site and vibrations from blasting shall not exceed vibration levels that could cause building damage at the nearest residential structure.
- Whenever blasting is being conducted in the vicinity of gas, electric, water, fire alarm, telephone, telegraph or steam facilities, and flammable liquid and any similar lines, the blaster shall notify the appropriate representatives of such facilities, at least 24 hours in advance of blasting, specifying the location and intended time of such blasting. In an emergency, this time limit may be waived by the City.
- Due precautions shall be taken to prevent accidental discharge of electric blasting caps from current induced by radar, radio transmitters, lightning, adjacent power lines, sand or dust storms, or other sources of extraneous electricity. These precautions shall include:
  1. The suspension of all blasting operations and removal of persons from the blasting area during the approach and progress of an electric storm, or sand or dust storm.
  2. The posting of signs warning against the use of mobile radio transmitters on all access roads between 1,000 feet and 3,000 feet of the blasting operations. The sign shall be in contrasting 8-inch letters on a white background and shall read “BLASTING AREA – NO RADIO TRANSMITTING”. Signs shall be displayed only at time of blasting.
  3. No electric blasting shall be done under overhead electric lines, or at such distance where it is possible for the blasting line to be blown in contact with any electric line unless the power in the energized line is shut-off or unless shot blow deflectors, hold downs, mats, logs, or other material are placed over the charge to confine the blast.

4. When blasting near overhead electric lines, and when placing the lead and leg wires near these lines, the lead and leg wires shall not be placed parallel to the power line, and they shall be securely anchored.
5. Before a blast is initiated, the person in charge shall make certain that surplus explosive materials are in a safe place, that persons and vehicles are at a safe distance or under sufficient cover, and that a loud warning signal has been sounded. It shall also be ascertained that all entrances to the place or places where charges are to be fired are properly guarded.
6. Tools used for the opening of containers of explosive materials shall be made of non-sparking materials.
7. Empty boxes and paper, plastic of fiber packing material which has previously contained explosive materials shall not be reused, and shall be disposed of in an appropriate manner.
8. Explosive materials shall not be abandoned.
9. Temporary storage for use in connection with approved blasting operations shall comply with NFPA 495.

HAZ-2 All accidental spills or discharge of hazardous material during construction activities shall be reported to the Certified Unified Program Agency and shall be remediated in compliance with applicable federal, State, and local regulations regarding cleanup and disposal of the contaminant released. The contaminated waste shall be collected and disposed of at a licensed disposal or treatment facility. This measure shall be incorporated into the Stormwater Pollution Prevention Plan (SWPPP) or erosion control plan prepared for the Trailhead Parking Lot. Prior to accepting the site as remediated, the area contaminated shall be tested to verify that any residual concentrations meet the standard for future residential or public use of the site.

Hydrology & Water Quality

HYD-1 The District shall require that the construction contractor prepare and implement a SWPPP or an erosion control plan (Plan) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater runoff and with the intent of keeping all products of erosion from moving offsite into receiving waters. The Plan shall include a Spill Prevention and Cleanup Plan that identifies the methods of containing, cleanup, transport and proper disposal of hazardous chemicals or materials released during construction activities that are compatible with applicable laws and regulations. BMPs to be implemented in the Plan may include but not be limited to:

- The use of silt fences;
- The use of temporary stormwater desilting or retention basins;
- The use of water bars to reduce the velocity of stormwater runoff;
- The use of wheel washers on construction equipment leaving the site;
- The washing of silt from public roads at the access point to the site to prevent the tracking of silt and other pollutants from the site onto public roads;
- The storage of excavated material shall be kept to the minimum necessary to efficiently perform the construction activities required. Excavated or stockpiled material shall not be stored in water courses or other areas subject to the flow of surface water; and
- Where feasible, stockpiled material shall be covered with waterproof material during rain events to control erosion of soil from the stockpiles.

HYD-2 The District will select best management practices and reduce future non-point source pollution in surface water runoff discharges from the site to the maximum extent practicable, both during construction and following development. The identified BMPs shall be installed in accordance with schedules contained in the Erosion Control Plan (Plan) and Water Quality Management Plan (WQMP).

Noise

NOI-1 All construction vehicles and fixed or mobile equipment shall be equipped with operating and maintained noise control devices.

NOI-2 All employees that will be exposed to noise levels greater than 75 dB over an 8-hour period shall be provided adequate hearing protection devices to ensure no hearing damage will result from construction activities.

NOI-3 No construction activities shall occur during the hours of 6 PM through 7 AM, Monday through Saturday; at no time shall construction activities occur on Sundays or holidays, unless a declared emergency exists.

NOI-4 Equipment not in use for five minutes shall be shut off.

NOI-5 Equipment shall be maintained and operated such that loads are secured from rattling or banging.

NOI-6 Construction employees shall be trained in the proper operation and use of equipment consistent with these mitigation measures, including no unnecessary revving of equipment.

Transportation

TRAN-1 The City shall require its contractors prepare a construction traffic control plan. Elements of the plan should include, but are not necessarily limited to, the following:

- Develop circulation and detour plans, if necessary, to minimize impacts to local street and State Highway circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.
- To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours.
- Install traffic control devices as specified in Caltrans' Manual of Traffic Controls for Construction and Maintenance Work Zones where needed to maintain safe driving conditions. Use flaggers and/or signage to safely direct traffic through construction work zones.
- For roadways requiring lane closures that would result in a single open lane, maintain alternate one-way traffic flow and utilize flagger-controls.
- Coordinate with owners or administrators of sensitive land uses such as police and fire stations, hospitals, and schools. Provide advance notification to the facility owners or operators of the timing, location, and duration of construction activities.

TRAN-2 The City shall require that all disturbances to public roadways be repaired in a manner that complies with the Standard Specifications for Public Works Construction (green book) or other applicable City of Big Bear Lake and Caltrans standard design requirements.

Tribal Cultural Resources

TCR-1 Archaeological Monitoring and Testing
At least one archaeologist with at least 3 years of regional experience in archaeology and a Tribal monitor representing the YSMN shall conduct subsurface archaeological testing on the project site via the employ of a number of subsurface investigative methods, including shovel test probes, remote sensing, and/or deep testing via controlled units or trenching of appropriate landscapes, with a sample size of at least 25% of the area of concern dug and dry-sifted through 1/8-inch mesh screens, prior to any ground-disturbing activity. A Testing Plan shall be created by the archaeologist and submitted to the YSMN and the City of Big Bear Lake (City) for review at least 10 business days prior to implementation, so as to provide time to

review/modify the Plan, if needed. The Plan shall outline the protocol of presence/absence testing and contain a Treatment Plan detailing that 1) no collection of artifacts or excavation of features shall occur during testing, and 2) all discovered resources shall be properly recorded and reburied in situ.

If the results of testing, as approved by YSMN, are positive, then YSMN and the City shall, in good faith, consult concerning appropriate treatment of the finding(s), guidance for which is outlined in TCR-2.

If the results of testing, as approved by YSMN, are negative, then YSMN will conclude consultation unless any discoveries are made during project implementation. Any and all discoveries made during project implementation shall be subject to the Treatment Plan outlined within the Testing Plan developed as described above and the guidelines contained in TCR-2.

If resources are identified during testing as described above, an archaeological monitor and a Tribal monitor from YSMN with at least 3 years of regional experience in archaeology shall be present for all ground-disturbing activities that occur within the proposed project area (which includes, but is not limited to, tree/shrub removal and planting, clearing/grubbing, grading, excavation, trenching, compaction, fence/gate removal and installation, drainage and irrigation removal and installation, hardscape installation [benches, signage, boulders, walls, seat walls, fountains, etc.], and archaeological work). A sufficient number of monitors shall be present each work day to ensure that simultaneously occurring ground disturbing activities receive thorough levels of monitoring coverage. A Monitoring and Treatment Plan that is reflective of the project mitigation ("Cultural Resources" and "Tribal Cultural Resources") shall be completed by the archaeologist and submitted to the City for dissemination to the YSMN. Once all parties review and approve the plan, it shall be adopted by the City – the plan must be adopted prior to permitting for the project. Any and all findings will be subject to the protocol detailed within the Monitoring and Treatment Plan.

TCR-2 Treatment of Cultural Resources

If a pre-contact cultural resource is discovered during archaeological presence/absence testing, the discovery shall be properly recorded and then reburied in situ. A research design shall be developed by the archaeologist that shall include a plan to evaluate the resource for significance under CEQA criteria. Representatives from the YSMN Cultural Resources Department, the archaeologist, and City shall confer regarding the research design, as well as any testing efforts needed to delineate the resource boundary. Following the completion of evaluation efforts, all parties shall confer regarding the archaeological significance of the resource, its potential as a Tribal Cultural Resource (TCR), avoidance (or other appropriate treatment) of the discovered resource, and the potential need for construction monitoring during project implementation. Should any significant resource and/or TCR not be a candidate for avoidance or preservation in place, and the removal of the resource(s) is necessary to mitigate impacts, the research design shall include a comprehensive discussion of sampling strategies, resource processing, analysis, and reporting protocols/obligations. Removal of any cultural resource(s) shall be conducted with the presence of a Tribal monitor representing the Tribe, unless otherwise decided by YSMN. All plans for analysis shall be reviewed and approved by the City and YSMN prior to implementation, and all removed material shall be temporarily curated on-site. It is the preference of YSMN that removed cultural material be reburied as close to the original find location as possible. However, should reburial within/near the original find location during project implementation not be feasible, then a reburial location for future reburial shall be decided upon by YSMN and the City, and all finds shall be reburied within this location. Additionally, in this case, reburial shall not occur until all ground-disturbing activities associated with the project have been completed, all monitoring has ceased, all cataloguing and basic recordation of cultural resources have been completed, and a final monitoring report has been issued to the City, CHRIS, and YSMN. All reburials are subject to a reburial agreement that shall be developed between the landowner and YSMN outlining the determined reburial process/location, and shall include measures and provisions to protect the reburial

area from any future impacts (vis a vis project plans, conservation/preservation easements, etc.).

Should it occur that avoidance, preservation in place, and on-site reburial are not an option for treatment, the landowner shall relinquish all ownership and rights to this material and confer with YSMN to identify an American Association of Museums (AAM)-accredited facility within the County that can accession the materials into their permanent collections and provide for the proper care of these objects in accordance with the 1993 CA Curation Guidelines. A curation agreement with an appropriate qualified repository shall be developed between the landowner and museum that legally and physically transfers the collections and associated records to the facility. This agreement shall stipulate the payment of fees necessary for permanent curation of the collections and associated records and the obligation of the City to pay for those fees.

All draft records/reports containing the significance and treatment findings and data recovery results shall be prepared by the archaeologist and submitted to the City and YSMN for their review and comment. After approval from all parties, the final reports and site/isolate records are to be submitted to the local CHRIS Information Center, the City, and YSMN.

TCR-3 Inadvertent Discoveries of Human Remains/Funerary Objects

In the event that any human remains are discovered within the project area, ground disturbing activities shall be suspended 100 feet around the resource(s) and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. The on-site lead/foreman shall then immediately who shall notify YSMN and the City. The City shall then immediately contact the County Coroner regarding the discovery. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c). The NAHC-identified Most Likely Descendant (MLD), shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and funerary objects shall be treated and disposed of with appropriate dignity. The MLD, and City shall discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes. The MLD shall complete its inspection and make recommendations within forty-eight (48) hours of the site visit, as required by California Public Resources Code § 5097.98.

Reburial of human remains and/or funerary objects (those artifacts associated with any human remains or funerary rites) shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The MLD in consultation with the landowner, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains and funerary objects. All parties are aware that the MLD may wish to rebury the human remains and associated funerary objects on or near the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The City should accommodate on-site reburial in a location mutually agreed upon by the Parties.

It is understood by all Parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and the City, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).

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CRM TECH, "Phase I Historical/Archaeological Resources Survey Castle Rock Trail Parking Lot Project." This document was prepared by CRM TECH and is dated September 22, 2022 (revised January 1, 2023) *(CONFIDENTIAL)*

Giroux & Associates, "Air Quality and GHG Impact Analyses, Castle Rock Parking Lot Project, Big Bear, San Bernardino, California" dated December 8, 2021

Jacobs, "Biological Resources Assessment and Jurisdictional Delineation Report for City of Big Bear Lake, Castle Rock Trail Parking Lot Project" dated August 2022

San Bernardino General Plan EIR, February 2007

Transtech, "Draft Big Bear Castle Rock Parking Occupancy Study" dated July 19, 2022

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https://www.bbarwa.org/bear-valley-basin-groundwater-sustainability-agency/
https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management
http://www.sbcounty.gov/Uploads/lus/Airports/BigBear.pdf

FIGURES

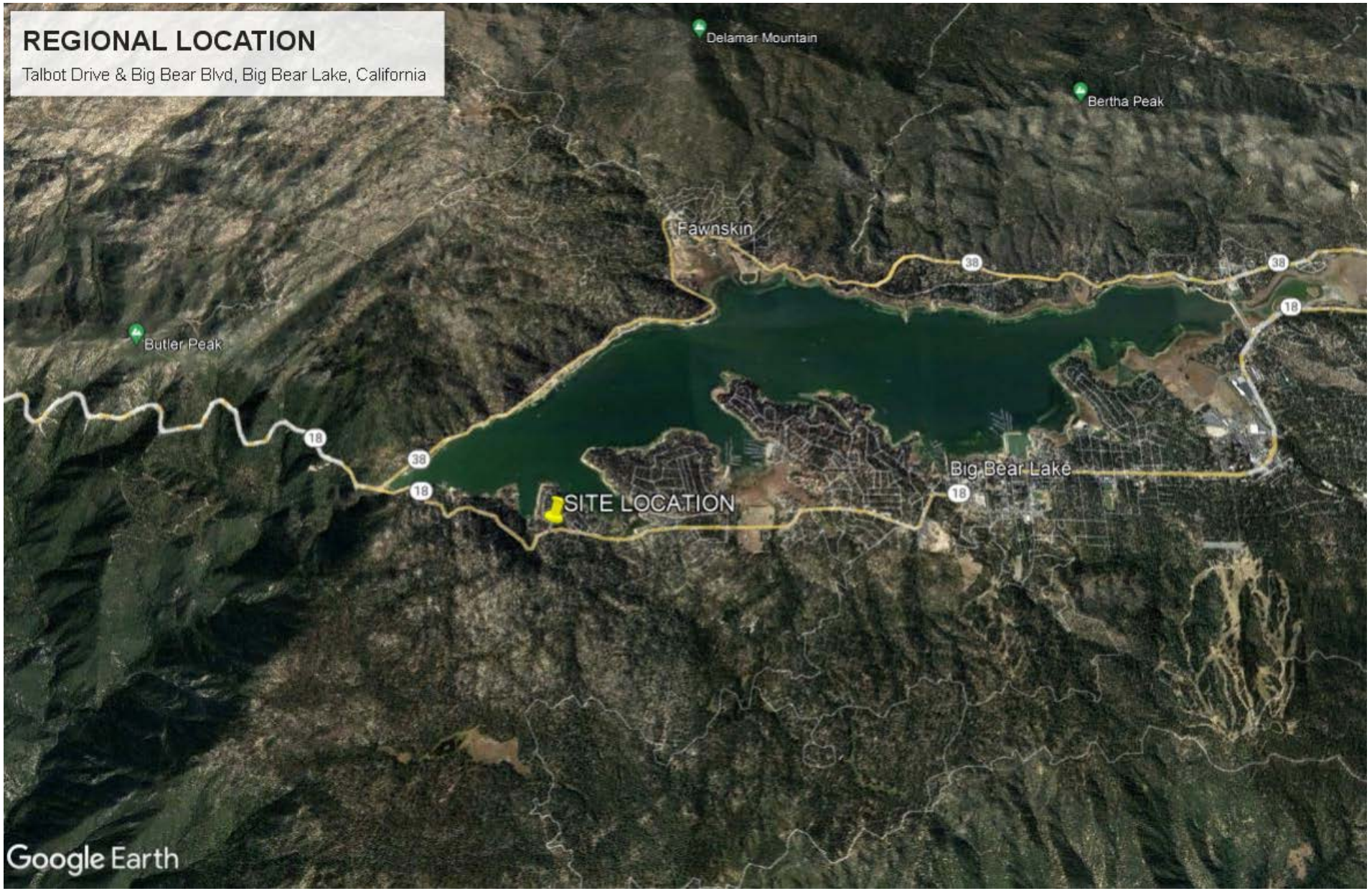

FIGURE 1

Tom Dodson & Associates
Environmental Consultants

Regional Location Map

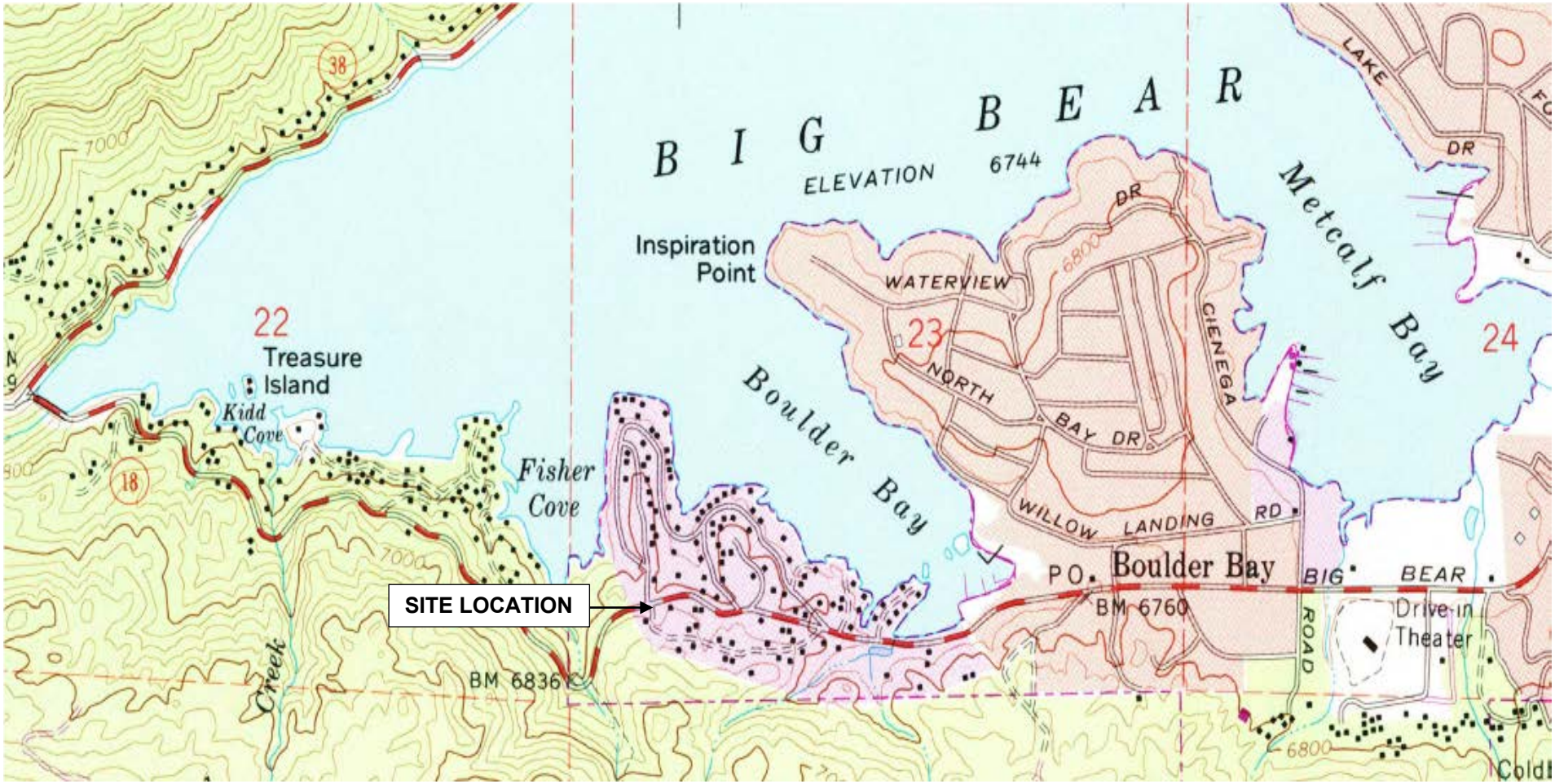

FIGURE 2

Tom Dodson & Associates
Environmental Consultants

Site Location Map

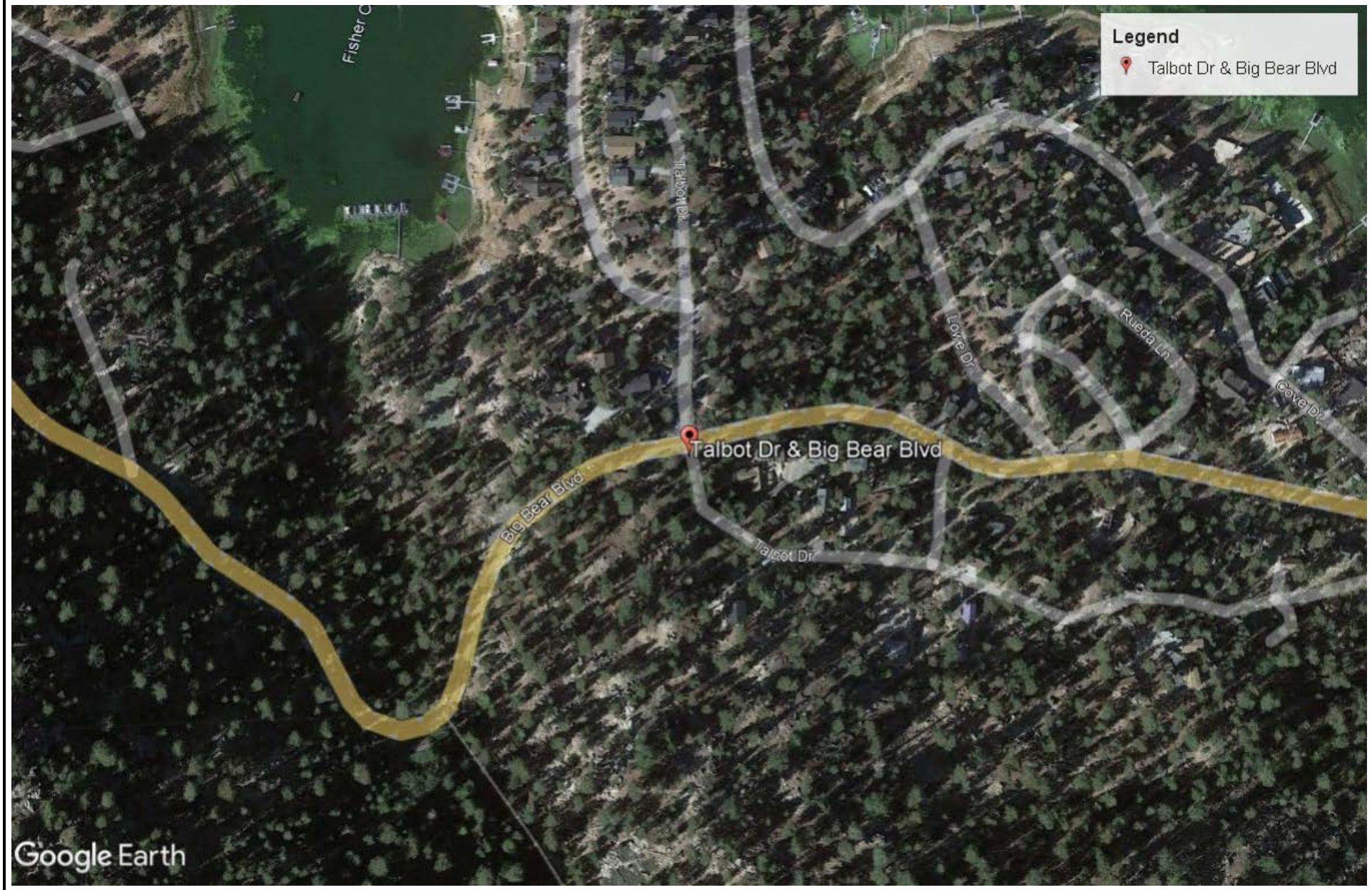

FIGURE 3

Tom Dodson & Associates
Environmental Consultants

Aerial Photo of Project Site (unscaled)

FIGURE 5

Tom Dodson & Associates
Environmental Consultants

Proposed Alignment for the Connecting Trail

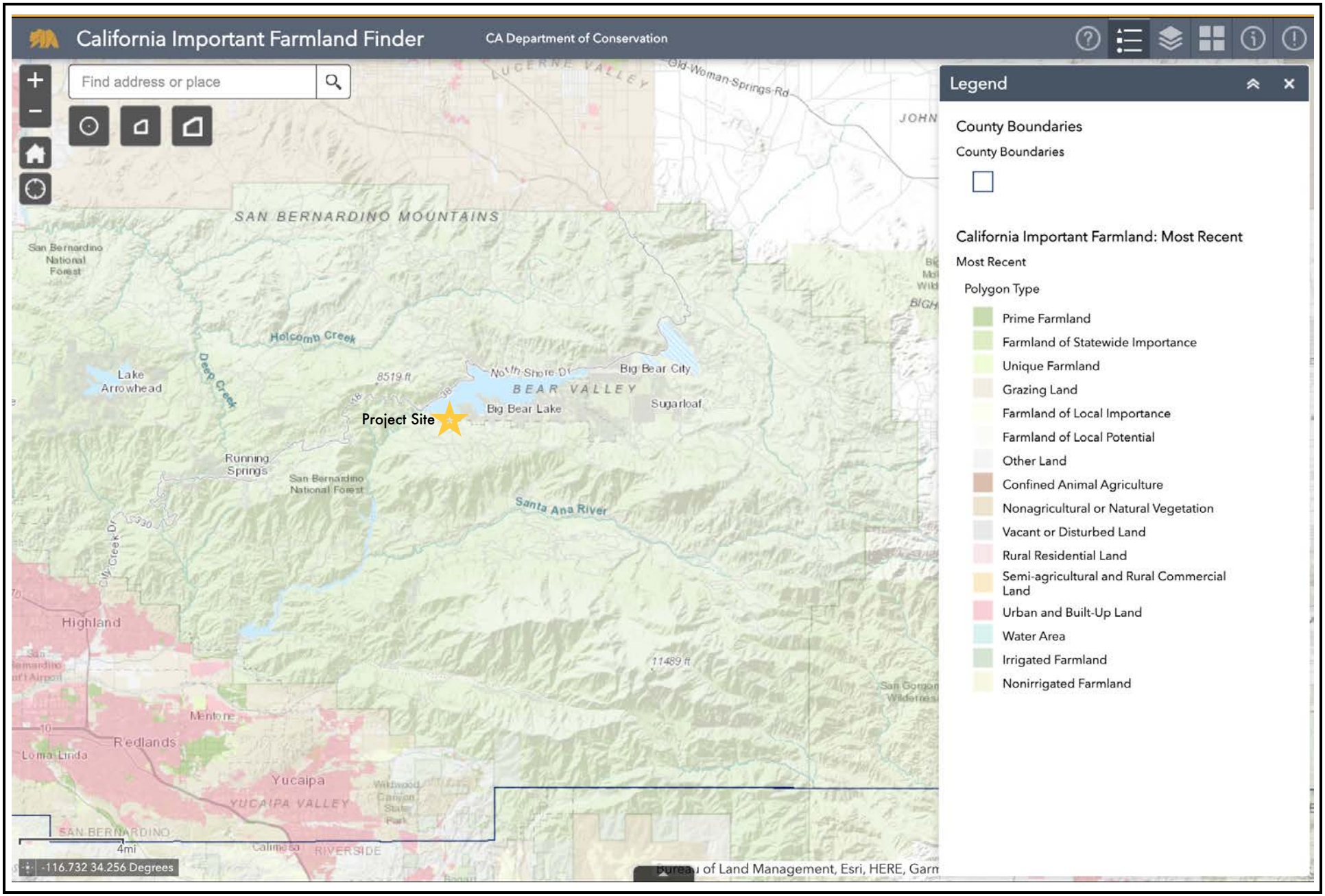

FIGURE II-1

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Environmental Consultants

Farmland Map

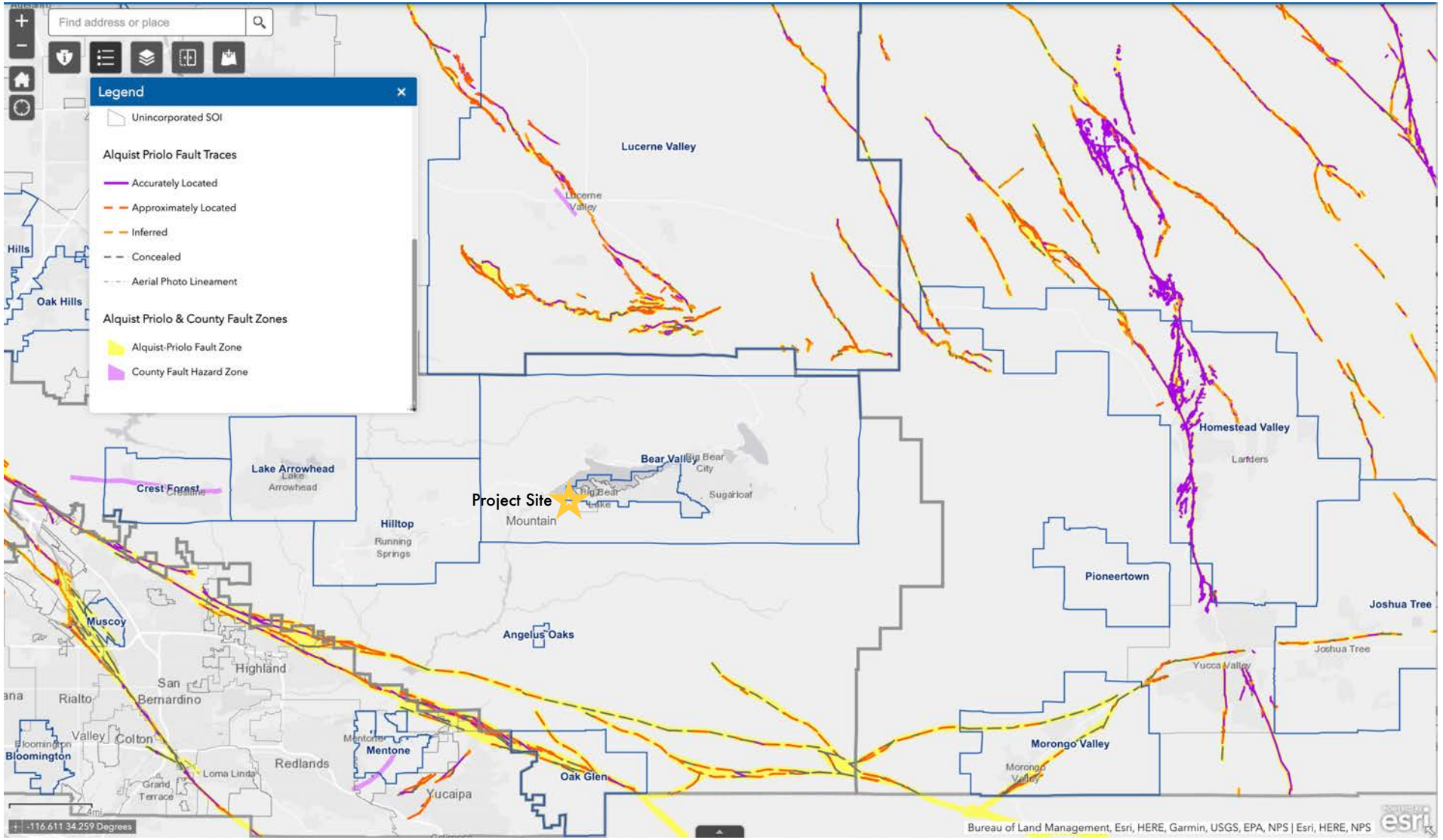

FIGURE VII-1

Tom Dodson & Associates
Environmental Consultants

Alquist-Priolo Study Zones / Fault Activity

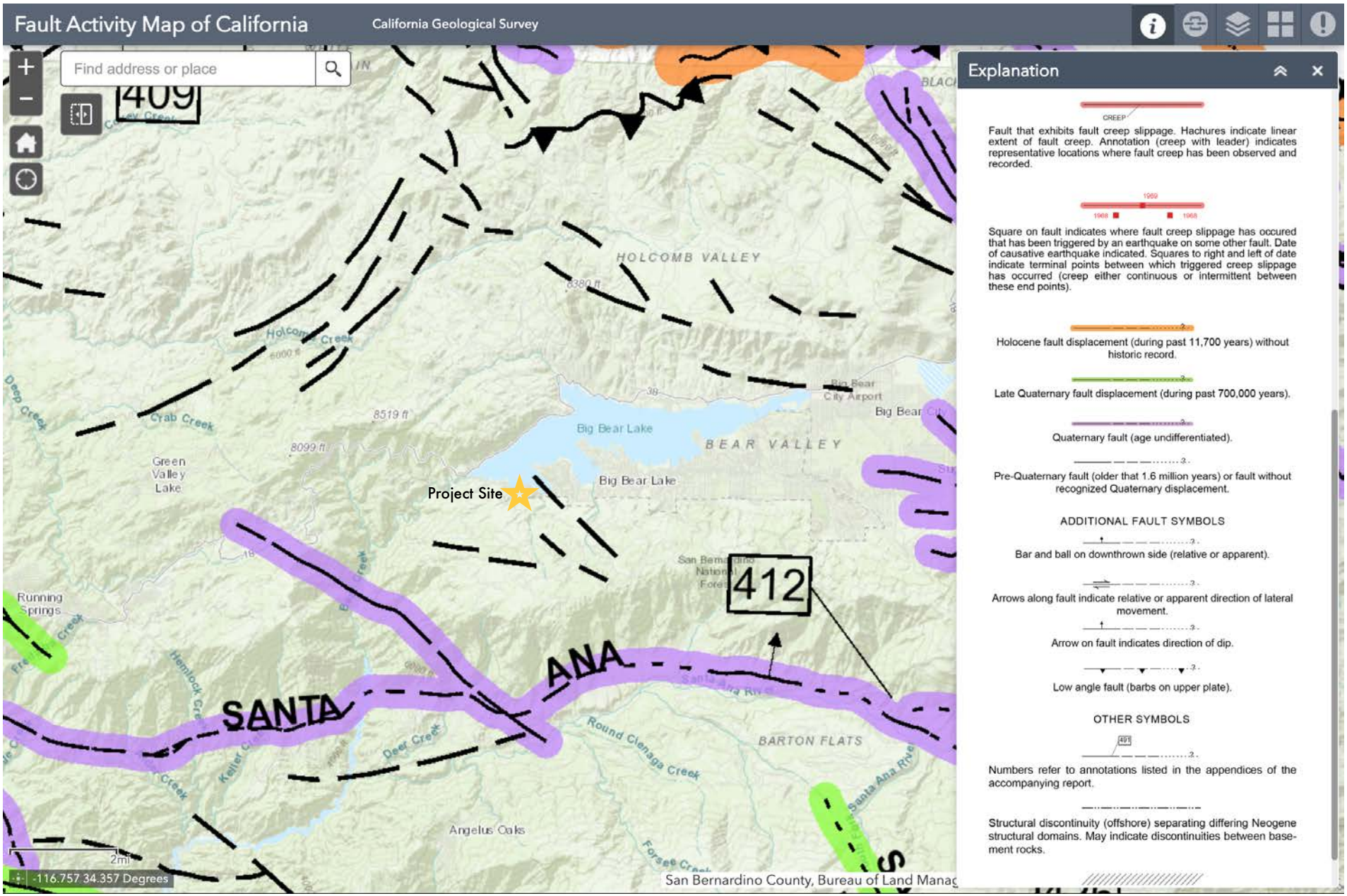

FIGURE VII-2

Tom Dodson & Associates
Environmental Consultants

USGS Fault Activity Map of California

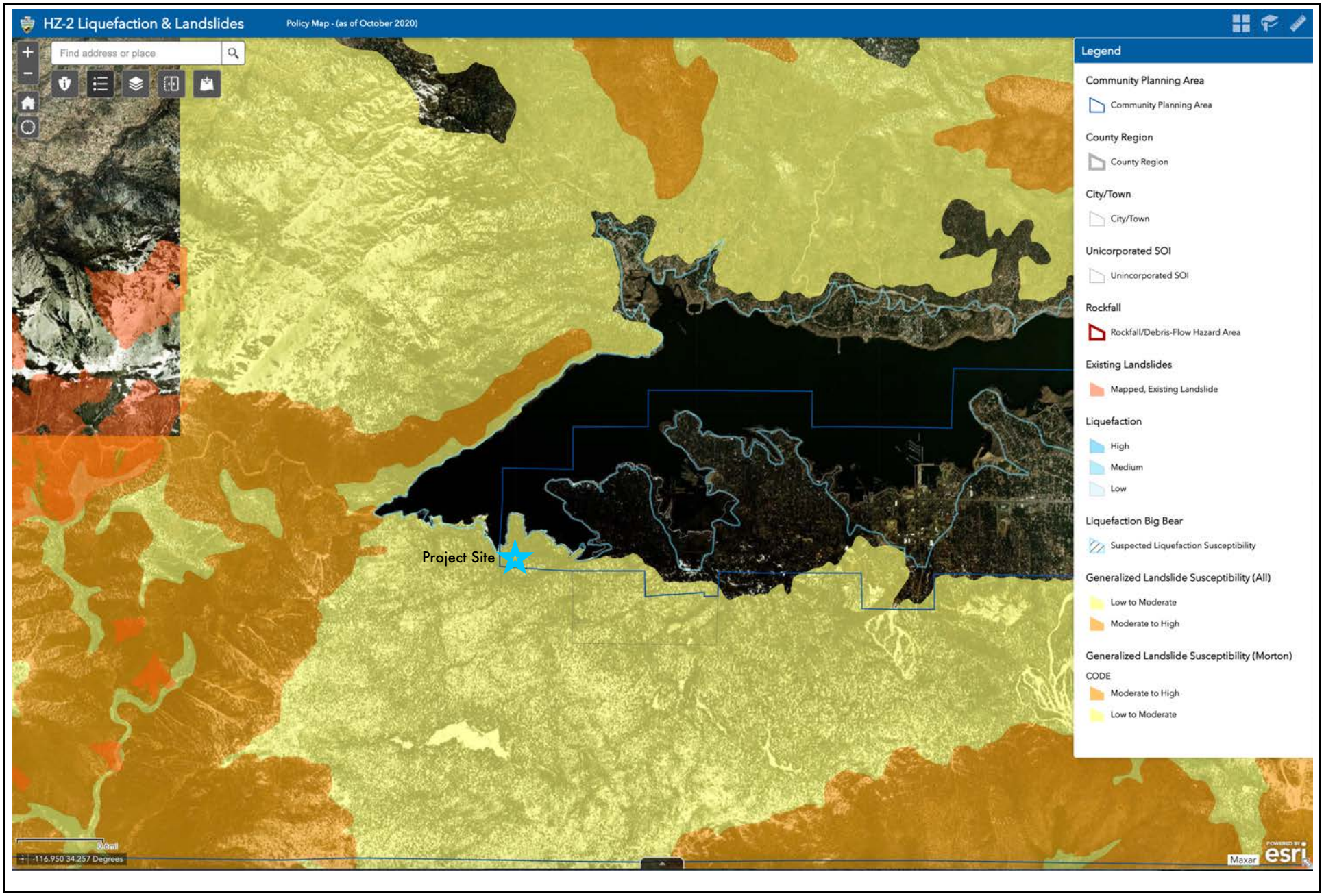

FIGURE VII-3

Tom Dodson & Associates
Environmental Consultants

Liquefaction & Landslides

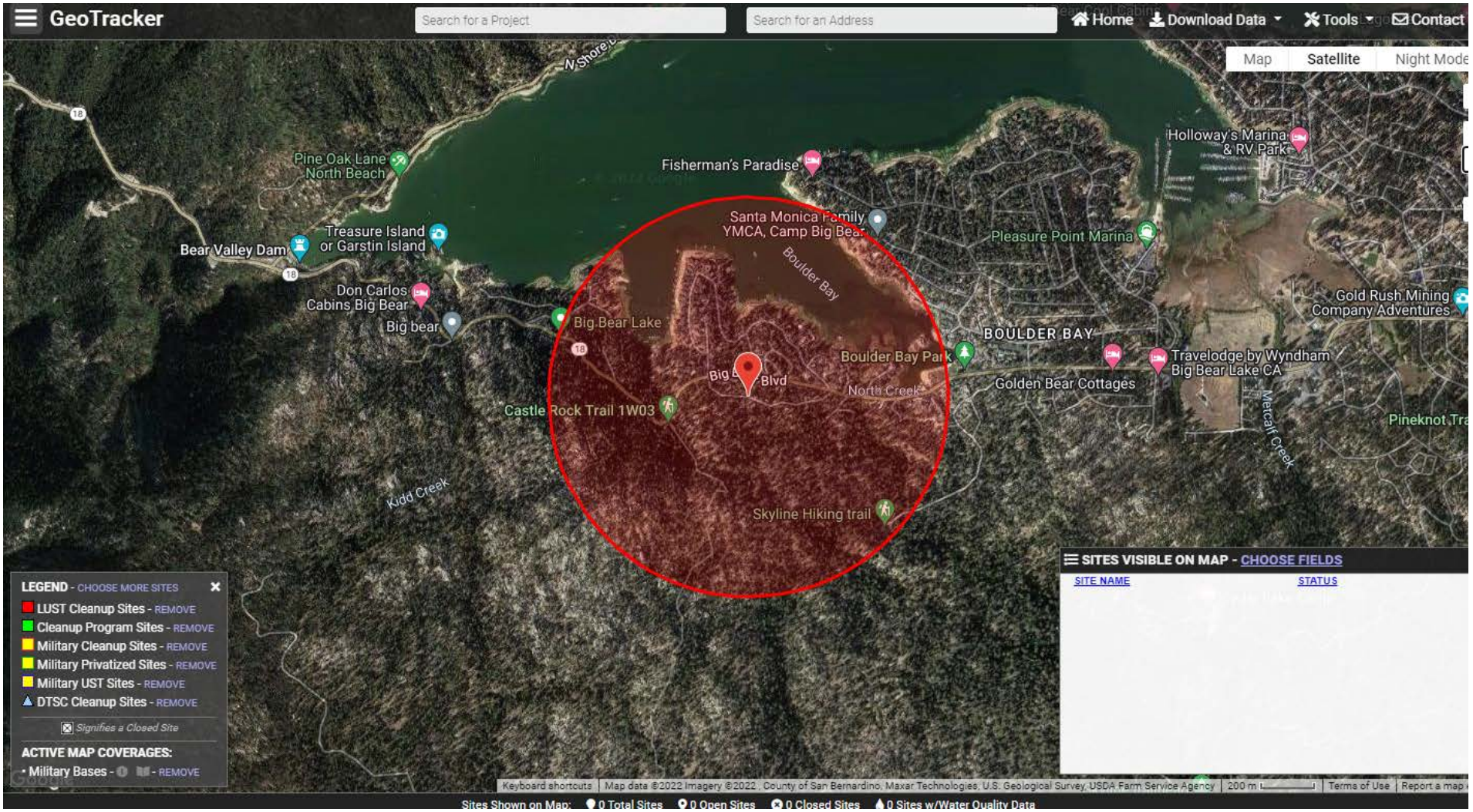

FIGURE IX-1

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GeoTracker

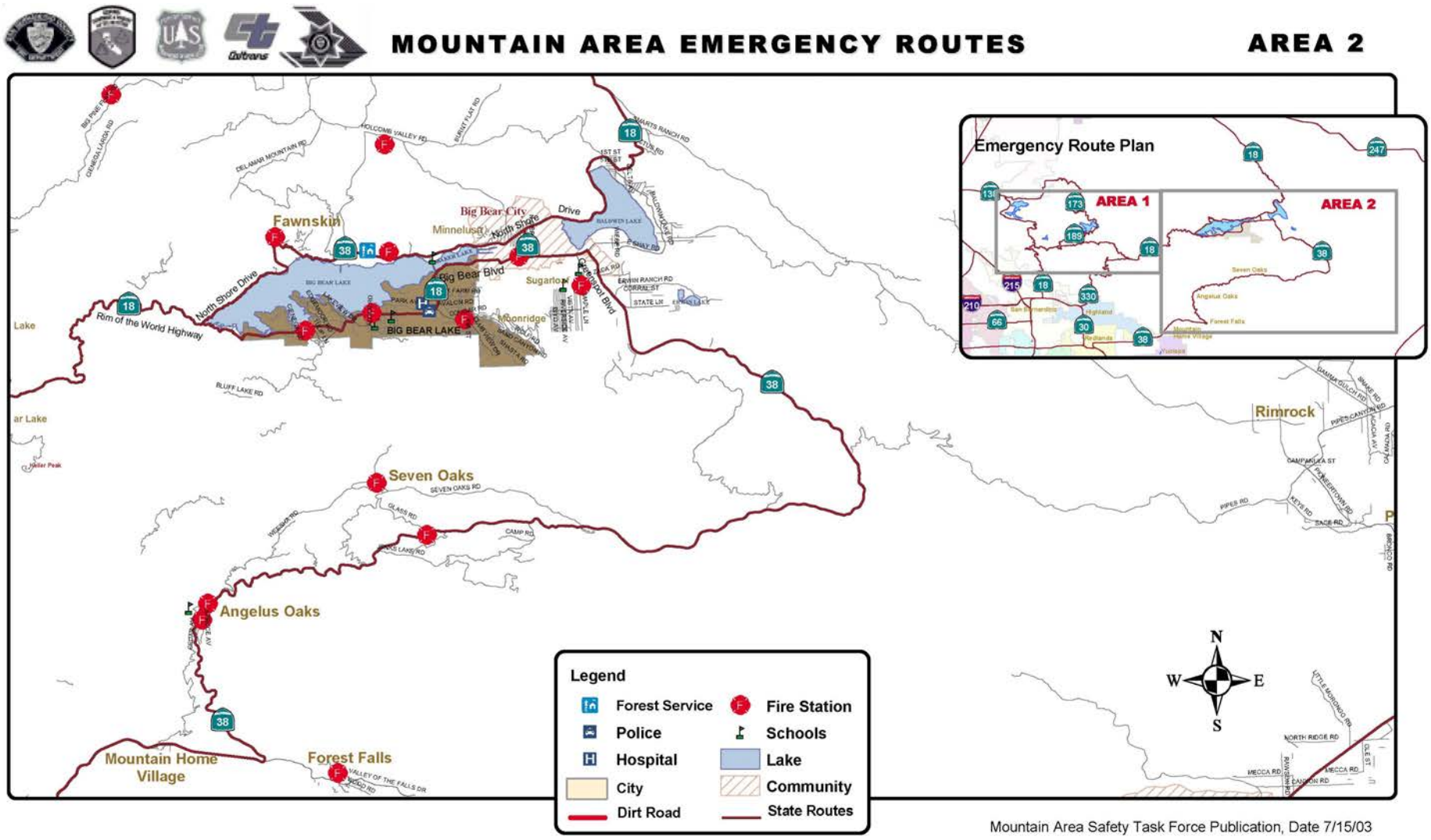

FIGURE IX-2

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Environmental Consultants

Mountain Area Emergency Routes – Area 2

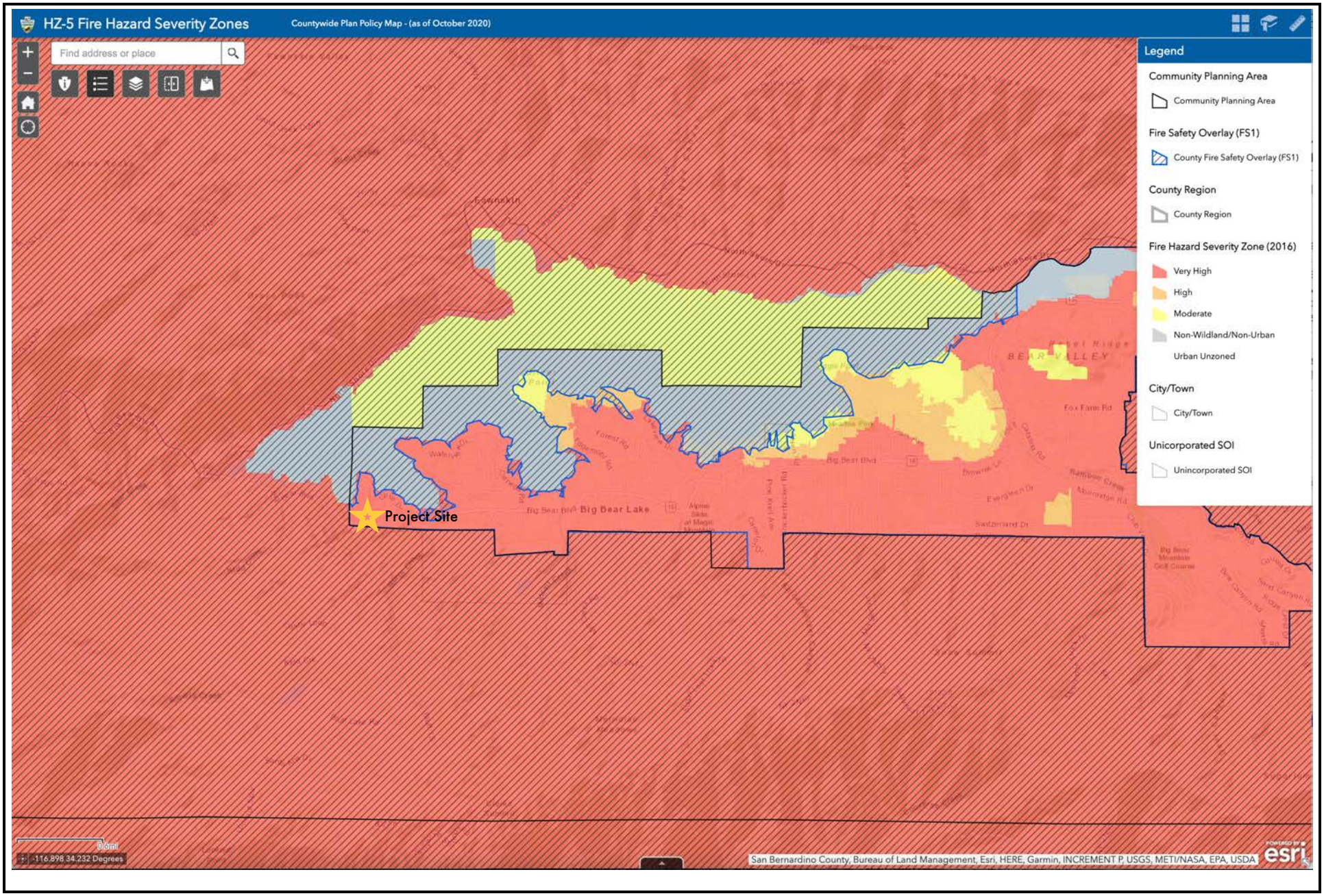

FIGURE IX-3

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Fire Hazard Severity Zones

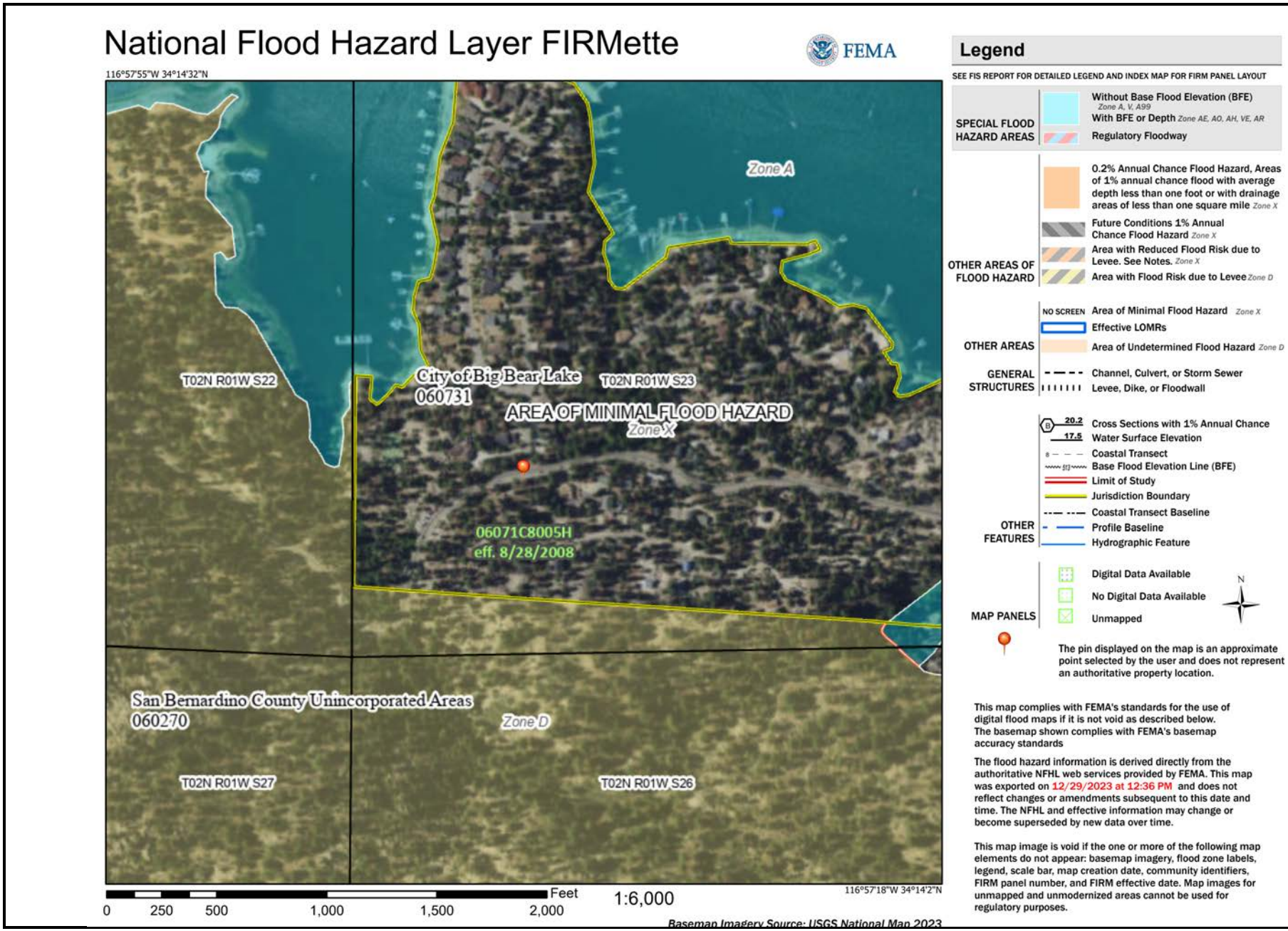

FIGURE X-1

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Environmental Consultants

FEMA Map

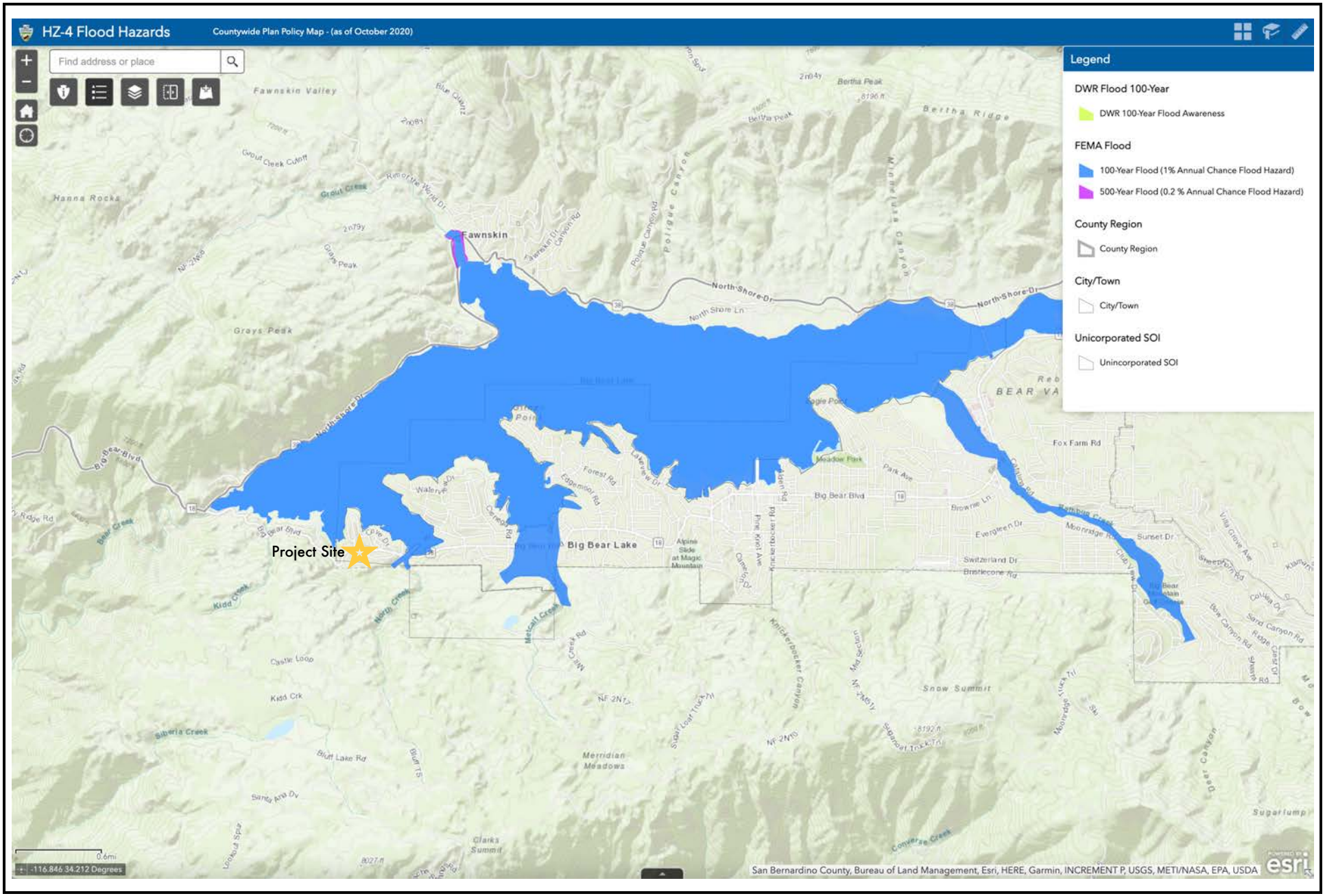

FIGURE X-2

Tom Dodson & Associates
Environmental Consultants

Flood Hazards Map

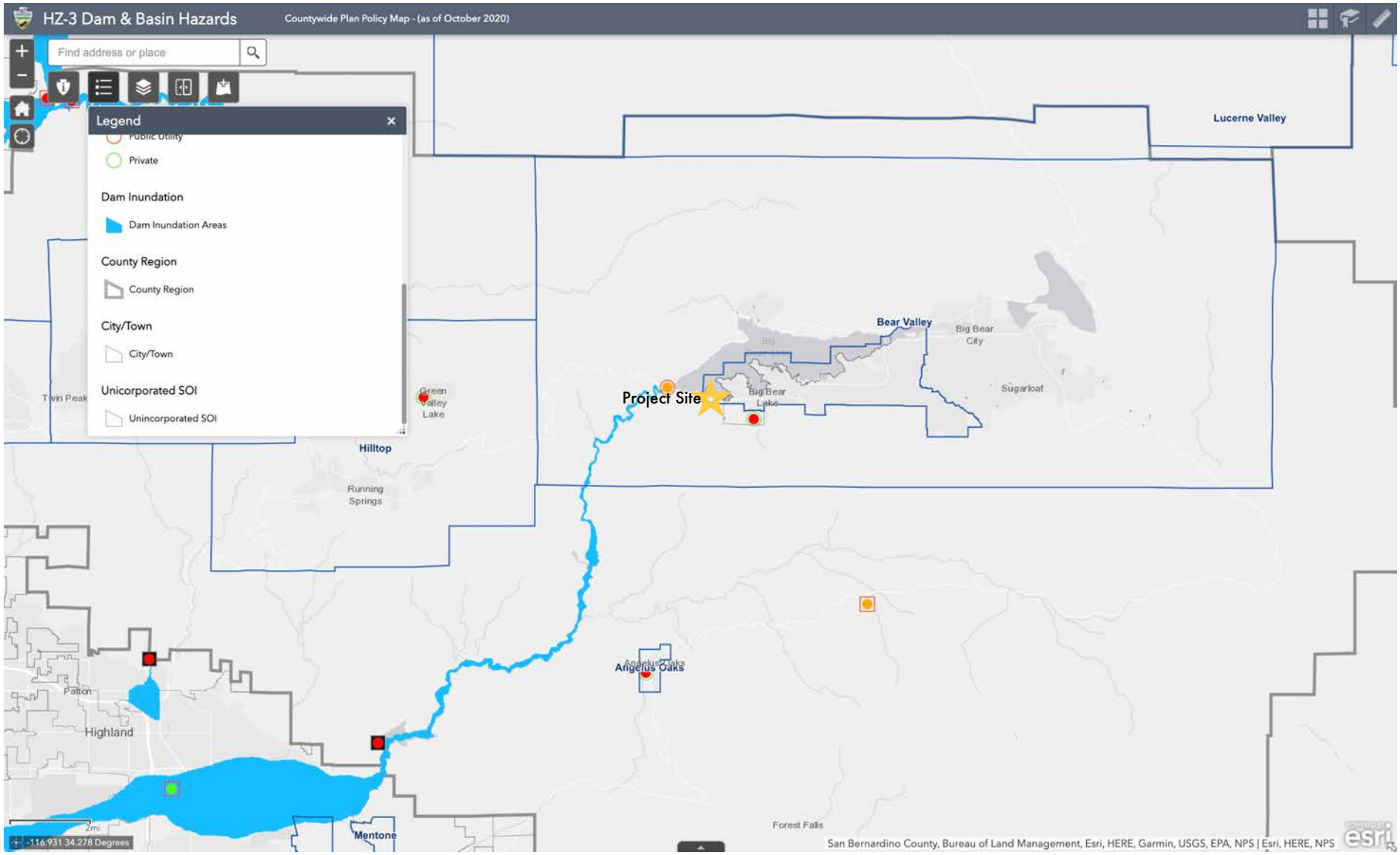

FIGURE X-3

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Dam & Basin Hazards

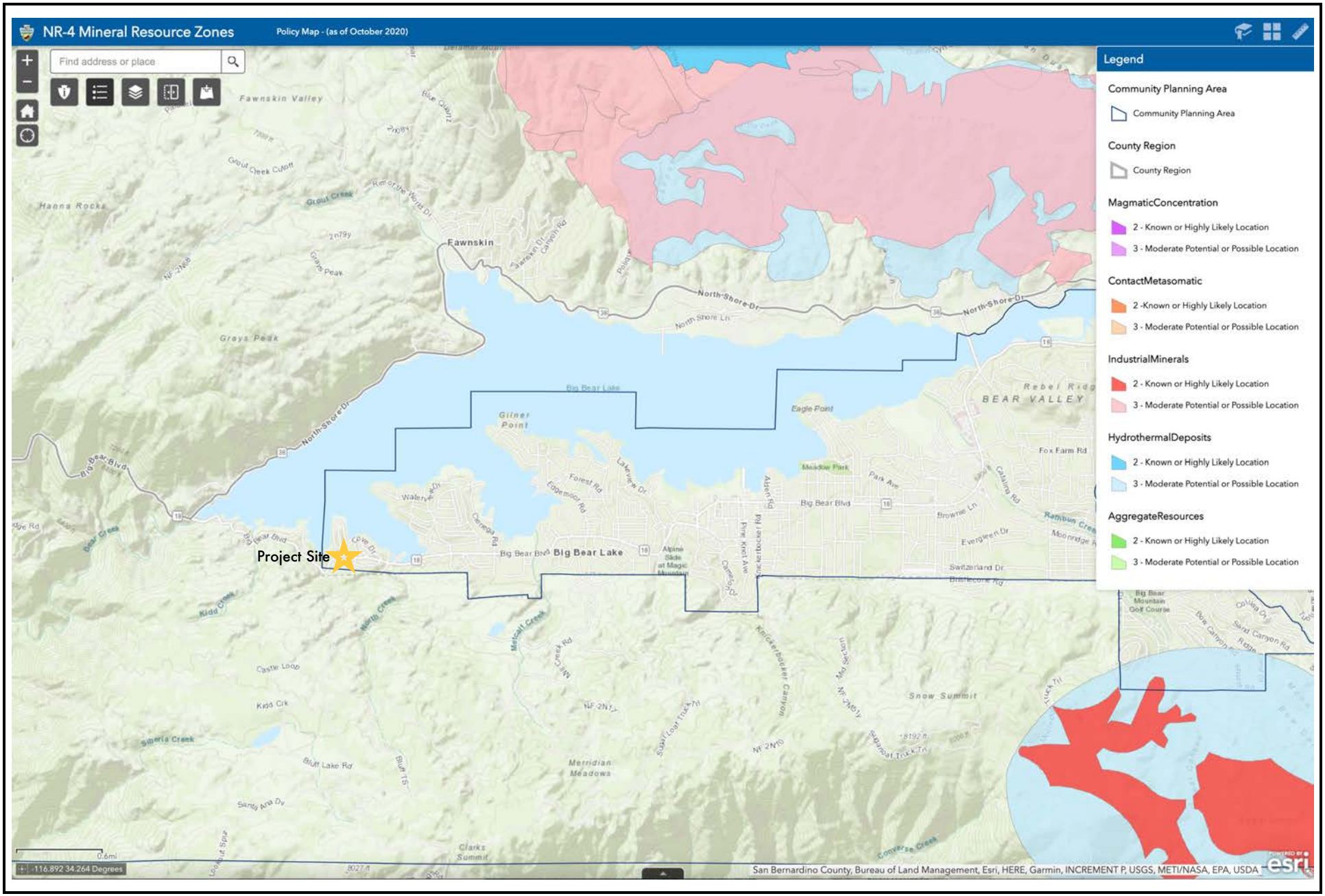

FIGURE XII-1

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Mineral Resource Zones

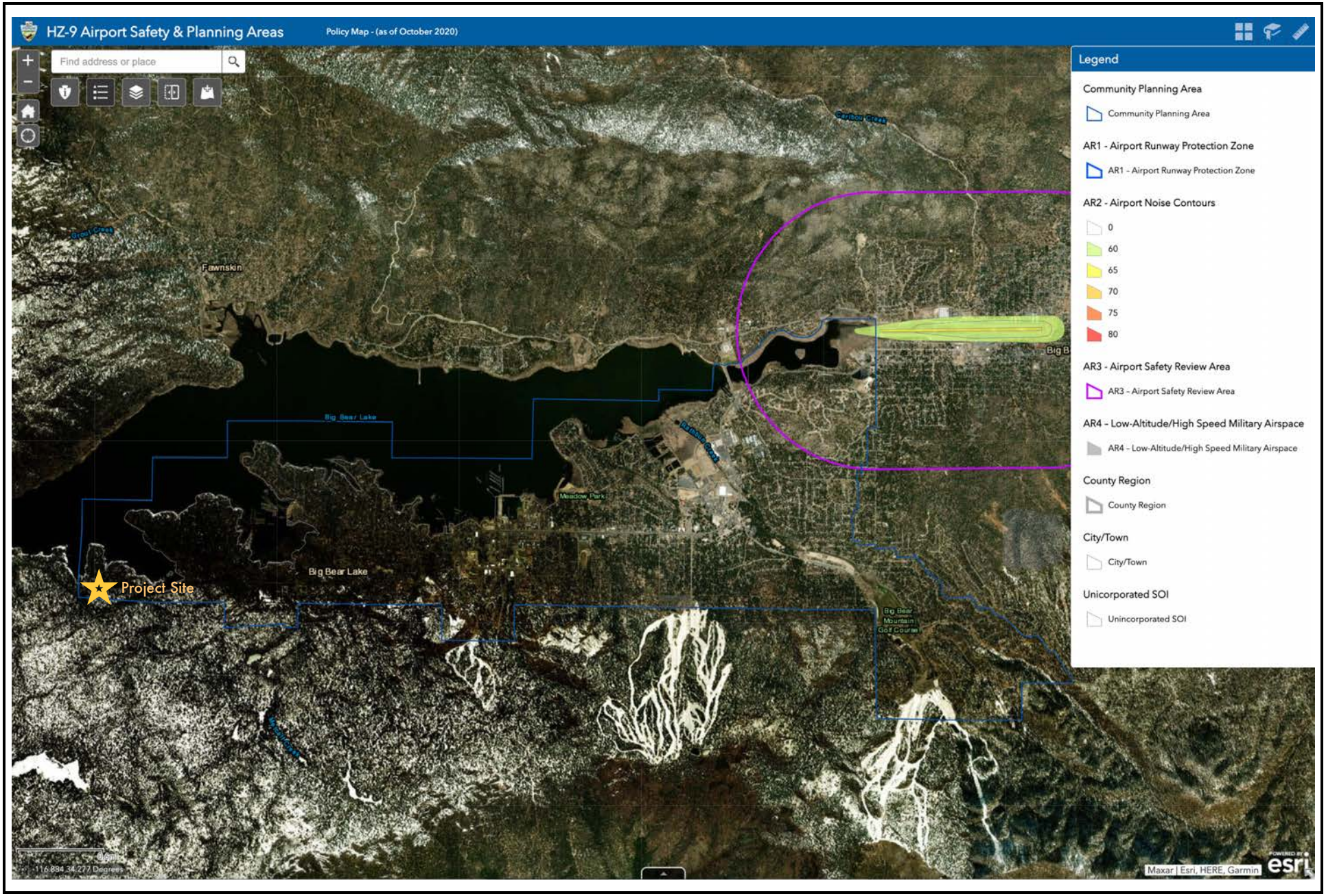

FIGURE XIII-1

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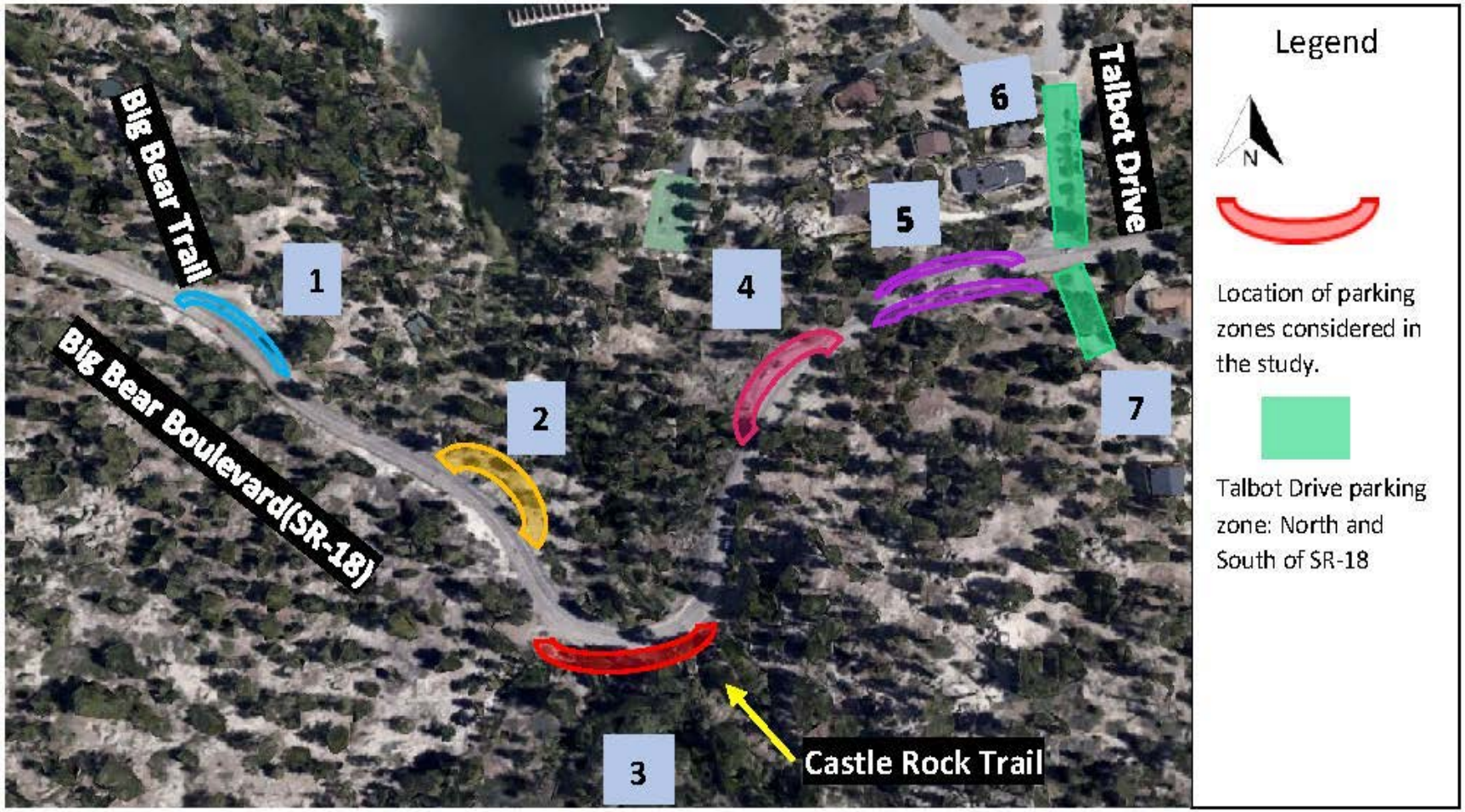
Airport Safety and Planning Areas



SOURCE: Transtech Engineers, Inc., Parking Occupancy Study, July 19, 2022

FIGURE XVII-1

Tom Dodson & Associates
Environmental Consultants

Locations of Parking Areas by Zone

APPENDIX 1
AIR QUALITY / GHG ANALYSES

AIR QUALITY and GHG IMPACT ANALYSES

BBL-192
CASTLEROCK PARKING LOT
PROJECT

BIG BEAR (SAN BERNARDINO), CALIFORNIA

Prepared by:

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Prepared for:

Tom Dodson & Associates
Attn: Kaitlyn Dodson
PO Box 2307
San Bernardino, CA 92406-2307

Date:

December 8, 2021

Project No.: P21-030 AQ

ATMOSPHERIC SETTING

The project area is in the San Bernardino Mountains. The area is characterized by an alpine climate, with substantial winter precipitation in the form of winter snow because of its high elevation. Snowfall, as measured at lake level, averages 61.8 inches each year (although upwards of 100 inches can accumulate on the forested ridges bordering the lake, above 8,000 feet). Snow has fallen in every month except July and August. There are normally 16.5 days each year with measurable snow (0.1 inch or more).

On average, the Bear Valley area receives approximately 24 inches of precipitation per year, with a sharp transition between the western edge of the Valley at the dam and the eastern edge at Baldwin Lake. Historical precipitation consists of both rainfall and snowfall, Within the Big Bear watershed, the precipitation varies with location. The west end of the lake, at the Big Bear dam, receives 14 inches per year.

Daily temperatures in the summer are from 60°F to 70°F. Temperatures in the winter average approximately 35 °F to 40 °F. According to the National Weather Service, the warmest month at Big Bear is July, when the average high is 80.7 °F and the average low is 47.1 °F. The coolest month is January, with an average high of 47.1 °F and an average low of 20.7 °F. There is an average of 1.2 days each year with highs of 90 °F or higher. The highest temperature recorded at Big Bear was 94 °F last recorded on July 15, 1998. The record lowest temperature was -25 °F on January 29, 1979.

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the proposed project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule, which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to “non-attainment” for the 8-hour ozone standard.

Table 1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

Table 1 (continued)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Table 2
Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Respirable Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted in 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the exposure period for the federal 8-hour standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide ($NO_{2)}$ that is more stringent than the corresponding federal standard and strengthened the state one-hour NO_2 standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted. In December, 2012, the federal annual standard for PM-2.5 was reduced from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ which matches the California AAQS. The severity of the basin's non-attainment status for PM-2.5 may be increased by this action and thus require accelerated planning for future PM-2.5 attainment.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA had proposed a further strengthening of the 8-hour standard. A new 8-hour ozone standard was adopted in 2015 after extensive analysis and public input. The adopted national 8-hour ozone standard is 0.07 ppm which matches the current California standard. It will require three years of ambient data collection, then 2 years of non-attainment findings and planning protocol adoption, then several years of plan development and approval. Final air quality plans for the new standard are likely to be adopted around 2022. Ultimate attainment of the new standard in ozone problem areas such as Southern California might be after 2025.

In 2010 a new federal one-hour primary standard for nitrogen dioxide (NO_2) was adopted. This standard is more stringent than the existing state standard. Based upon air quality monitoring data in the South Coast Air Basin, the California Air Resources Board has requested the EPA to designate the basin as being in attainment for this standard. The federal standard for sulfur dioxide (SO_2) was also recently revised. However, with minimal combustion of coal and mandatory use of low sulfur fuels in California, SO_2 is typically not a problem pollutant.

BASELINE AIR QUALITY

Existing and probable future levels of air quality in the project area can be best inferred from ambient air quality measurements conducted by the SCAQMD. The data resource in closest proximity to the project site is the Big Bear City Monitoring Station. However, this station only monitors small particulates (PM-2.5). The closest available data for ozone and large particulates (PM-10) is the Crestline Monitoring Station. Data for carbon monoxide and nitrogen oxide were obtained from the San Bernardino 4th Street Monitoring Station. Summary data compiled from these resources is provided in Table 3. Findings are summarized below:

Photochemical smog (ozone) levels frequently exceed standards at Crestline. The 8-hour state ozone standard has been exceeded an average of 30 percent of all days in the past four years near the project site while the 1-hour state standard has been violated an average of 17 percent of all days. While ozone levels are still high, they are much lower than 10 to 20 years ago.

Measurements of carbon monoxide have shown very low baseline levels in comparison to the most stringent one- and eight-hour standards.

Respirable dust (PM-10) levels very rarely exceed the state or federal standard PM-10 standard. There have only been four violations in the last four years of measurement days for state PM-10 and no violations of the federal standard. PM-2.5 on any measurement day.

A substantial fraction of PM-10 is comprised of small diameter particulates capable of being inhaled into deep lung tissue (PM-2.5). However, PM-2.5 readings rarely exceed the federal 24-hour PM-2.5 ambient standard and there have had no violations within the previous four years.

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

Table 3
Air Quality Monitoring Summary (2017-2020)
(Number of Days Standards Were Exceeded, and
Maximum Levels During Such Violations)
(Entries shown as ratios = samples exceeding standard/samples taken)

Pollutant/Standard	**2017**	**2018**	**2019**	**2020**
Ozone				
1-Hour > 0.09 ppm (S)	76	57	53	69
8-Hour > 0.07 ppm (S)	110	113	99	118
8- Hour > 0.075 ppm (F)	90	91	79	97
Max. 1-Hour Conc. (ppm)	0.146	0.142	0.129	0.159
Max. 8-Hour Conc. (ppm)	0.121	0.125	0.112	0.139
Carbon Monoxide				
8- Hour > 9. ppm (S,F)	0	0	0	0
Max 8-hour Conc. (ppm)	1.7	2.0	1.2	1.4
Nitrogen Dioxide				
1-Hour > 0.18 ppm (S)	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.063	0.055	0.056	0.054
Respirable Particulates (PM-10)				
24-hour > 50 $\mu g/m^3$ (S)	2/55	1/59	0/54	1/40
24-hour > 150 $\mu g/m^3$ (F)	0/55	0/59	0/54	0/40
Max. 24-Hr. Conc. ($\mu g/m^3$)	56.	78.	38.	51.
Fine Particulates (PM-2.5)				
24-Hour > 35 $\mu g/m^3$ (F)	0/49	0/54	0/46	0/58
Max. 24-Hr. Conc. ($\mu g/m^3$)	23.5	17.3	31.0	24.3

Source: South Coast Air Quality Management District;
Crestline Monitoring Station for Ozone and PM-10.
San Bernardino 4th Street Monitoring Station for CO and NO_2.
Big Bear City Monitoring Station for PM-2.5.

data: WWW.ARB.CA.GOV/ADAM/

AIR QUALITY PLANNING

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NOx) and for carbon monoxide (CO) and for particulate matter are shown in Table 4. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date was to "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because Projected attainment by 2021 required control technologies that did not exist yet, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone. The extreme designation was to allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on "black-box" measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from "severe-17" to "extreme." This reclassification set a later attainment deadline (2024), but also required the air basin to adopt even more stringent emissions controls.

Table 4
South Coast Air Basin Emissions Forecasts (Emissions in tons/day)

Pollutant	2015[a]	2025[b]	2030[b]
NOx	357	266	257
VOC	400	393	391
PM-10	161	170	172
PM-2.5	67	70	71

[a]2015 Base Year.
[b]With current emissions reduction programs and adopted growth forecasts.
Source: California Air Resources Board, 2013 Almanac of Air Quality

In other air quality attainment plan reviews, EPA had disapproved part of the SCAB PM-2.5 attainment plan included in the AQMP. EPA stated that the current attainment plan relied on PM-2.5 control regulations that had not yet been approved or implemented. It was expected that a number of rules that were pending approval would remove the identified deficiencies. If these issues were not resolved within the next several years, federal funding sanctions for transportation Projects could result. The 2012 AQMP included in the current California State Implementation Plan (SIP) was expected to remedy identified PM-2.5 planning deficiencies.

The federal Clean Air Act requires that non-attainment air basins have EPA approved attainment plans in place. This requirement includes the federal one-hour ozone standard even though that standard was revoked almost ten years ago. There was no approved attainment plan for the one-hour federal standard at the time of revocation. Through a legal quirk, the SCAQMD is now required to develop an AQMP for the long since revoked one-hour federal ozone standard. Because the current SIP for the basin contains a number of control measures for the 8-hour ozone standard that are equally effective for one-hour levels, the 2012 AQMP was believed to satisfy hourly attainment planning requirements.

AQMPs are required to be updated every three years. The 2012 AQMP was adopted in early 2013. An updated AQMP was required for completion in 2016. The 2016 AQMP was adopted by the SCAQMD Board in March 2017 and has been submitted the California Air Resources Board for forwarding to the EPA. The 2016 AQMP acknowledges that motor vehicle emissions have been effectively controlled and that reductions in NOx, the continuing ozone problem pollutant, may need to come from major stationary sources (power plants, refineries, landfill flares, etc.) The current attainment deadlines for all federal non-attainment pollutants are now as follows:

8-hour ozone (70 ppb)	2032
Annual PM-2.5 (12 $\mu g/m^3$)	2025
8-hour ozone (75 ppb)	2024 (old standard)
1-hour ozone (120 ppb)	2023 (rescinded standard)

24-hour PM-2.5 (35 μg/m^3) 2019

The key challenge is that NOx emission levels, as a critical ozone precursor pollutant, are forecast to continue to exceed the levels that would allow the above deadlines to be met. Unless additional stringent NOx control measures are adopted and implemented, ozone attainment goals may not be met.

The proposed project does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing parking lot projects. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed recreational use is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they "substantially" contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following four tests of air quality impact significance. A Project would have a potentially significant impact if it:

a) Conflicts with or obstructs implementation of the applicable air quality plan.

b) Results in a cumulatively considerable net increase of any criteria pollutants for which the Project region is non-attainment under an applicable federal or state ambient air quality standard.
c) Exposes sensitive receptors to substantial pollutant concentrations.

d) Creates objectionable odors affecting a substantial number of people.

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based upon a specified number of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that

exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table 5
Daily Emissions Thresholds

Pollutant	Construction	Operations
ROG	75	55
NOx	100	55
CO	550	550
PM-10	150	150
PM-2.5	55	55
SOx	150	150
Lead	3	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

CONSTRUCTION ACTIVITY IMPACTS

CalEEMod was developed by the SCAQMD to provide a model by which to calculate both construction emissions and operational emissions from a variety of land use projects. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions.

The project proposes construction of 28 parking spaces with a future restroom and minimal lighting. The project is anticipated to require cut of 5,000 CY and fill of 400 CY. Construction was modeled in CalEEMod2020.4.0 using the following construction equipment and schedule shown in Table 6.

Table 6
Construction Activity Equipment Fleet

Phase Name and Duration	Equipment
Grading (5 days) Cut 5,000 Fill 400 CY	1 Grader
	1 Dozer
	1 Loader/Backhoe
Paving (20 days)	1 Paver
	4 Cement Mixers
	1 Loader/Backhoe
	1 Roller
Restroom Construction (10 days)	1 Crane
	2 Forklifts
	2 Loader/Backhoes

Utilizing this indicated equipment fleet and durations shown in Table 6 the following worst-case daily construction emissions are calculated by CalEEMod and are listed in Table 7.

Table 7
Construction Activity Emissions
Maximum Daily Emissions (pounds/day)

Maximal Construction Emissions	ROG	NOx	CO	SO_2	PM-10	PM-2.5
2022	1.7	32.1	11.0	0.1	8.4	3.8
SCAQMD Thresholds	75	100	550	150	150	55

SCAQMD CEQA thresholds are met without the need for added mitigation.

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a relatively brief construction period due to the lack of health risk associated with such a brief exposure.

LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are applicable for a sensitive receptor where it is possible that an individual could remain for 24 hours such as a residence, hospital or convalescent facility.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LST screening tables are available for 25, 50, 100, 200- and 500-meter source-receptor distances. For this project, there are adjacent residential uses adjacent to the site such that the most conservative 25 meter distance was modeled.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant screening level concentration data is currently published for 1, 2- and 5-acre sites for varying distances.

According to guidelines provided by SCAQMD, based on grading equipment, the most stringent data for a 1-acre site was used.

The following thresholds and emissions in Table 8 are therefore determined (pounds per day):

Table 8
LST and Project Emissions (pounds/day)

1 acre/25 meters East San Bernardino Mtns	CO	NOx	PM-10	PM-2.5
LST Threshold	775	118	4	3
Max On-Site Emissions				
Unmitigated	7	12	6	3
Mitigated*	7	12	3	2

*watering 2 times per day during grading
Only on-site emissions and does not include truck haul emissions during grading activities

LSTs were compared to the maximum daily construction activities. As seen in Table 8, with active dust suppression, emissions meet the LST for construction thresholds. LST impacts are less-than-significant.

NEPA CONFORMITY

Thresholds of Significance

The U.S. Environmental Protection Agency published "Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule," in the November 30, 1995, Federal Register (40 CFR Parts 6, 51, and 93). The 40 CFR Part 1 51.850(a) states that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity which does not conform to an applicable state implementation plan (SIP). It is the responsibility of the Federal agency to determine whether a federal action conforms to the applicable implementation plan, before the action is taken. If the proposed project includes any federal funding, or if the project requires any federal permits, federal participation is not allowed unless a conformity determination has been made.

Conformity analysis under EPA guidelines can be undertaken to demonstrate that the combined emissions from direct and indirect (transportation, etc.) project-related emissions have been accurately incorporated into the applicable SIP. A simpler test, as outlined in 40CFR Part 93.153, is to demonstrate that these emissions are less than the *de minimis* thresholds which depend upon the seriousness of the current level of non-attainment for federal clean air standards.

The SCAB is designated as a "extreme" non-attainment area for the federal 8-hour ozone standard. The basin is a "serious" non-attainment area for PM-2.5, and a maintenance area for PM-10. Sulfur Dioxide and Carbon Monoxide are maintenance areas. Based upon these designations, the following emissions levels are presumed evidence of SIP conformity:

VOC/ROG	-	10 tons/year
NOx	-	10 tons/year
PM-2.5	-	70 tons/year
PM-10	-	100 tons/year
CO	-	100 tons/year
SO_2	-	100 tons/year
Lead	-	25 tons/year

If the project-related emissions from construction and operations are less than the specified "*de minimis*" levels, the project is considered to be in conformance with the applicable SIP.

NEPA Analysis

Annual emissions were run with the same assumptions as used for daily emissions. The calculated maximum annual emissions were then compared to the EPA *de minimis* emission thresholds that would allow for a federal conformity finding with Section 176c of the Clean Air Act.

Table 9
Total Annual Construction Emissions
(tons/year)

Activity	ROG	NOx	CO	SO_2	PM-10	PM-2.5
Construction 2022	0.02	0.21	0.18	<0.1	0.03	0.02
NEPA Threshold	10	10	100	100	100	70

As shown in Table 9, and summarized below, maximum annual emissions are much less than their associated *de minimis* thresholds. A formal SIP consistency analysis is not required.

Pollutant	Threshold	Project Emissions
VOC/ROG	10 tons/year	0.02 tons/year
NOx	10 tons/year	0.21 tons/year
PM-2.5	70 tons/year	0.02 tons/year
PM-10	100 tons/year	0.03 tons/year
CO	100 tons/year	0.18 tons/year
SO_2	100 tons/year	<0.1 tons/year

OPERATIONAL IMPACTS

There are very minimal operational emissions associated with the proposed parking lot.

CONSTRUCTION EMISSIONS MINIMIZATION

Construction activities are not anticipated to cause dust emissions to exceed SCAQMD CEQA thresholds with active dust suppression. Recommended measures include:

Fugitive Dust Control

- Apply soil stabilizers or moisten inactive areas.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 2-3 times/day).
- Cover all stock piles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site

Similarly, ozone precursor emissions (ROG and NOx) are calculated to be below SCAQMD CEQA thresholds. However, because of the regional non-attainment for photochemical smog, the use of reasonably available control measures for diesel exhaust is recommended. Combustion emissions control options include:

Exhaust Emissions Control

- Utilize well-tuned off-road construction equipment.
- Establish a preference for contractors using Tier 3 or better rated heavy equipment.
- Enforce 5-minute idling limits for both on-road trucks and off-road equipment.

GREENHOUSE GAS EMISSIONS

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been

developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

THRESHOLDS OF SIGNIFICANCE

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,

- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative, or based on performance standards. CEQA guidelines allow the lead agency to "select the model or methodology it considers most appropriate." The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO_2 equivalent/year. In September 2010, the SCAQMD CEQA Significance Thresholds GHG Working Group released revisions which recommended a threshold of 3,000 MT CO_2e for all land use projects. This 3,000 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold of significance, project related GHG emissions in excess of the guideline level are presumed to trigger a requirement for enhanced GHG reduction at the project level.

PROJECT RELATED GHG EMISSIONS GENERATION

Construction Activity GHG Emissions

During project construction, the CalEEMod2020.4.0 computer model predicts that the construction activities will generate the annual CO_2e emissions identified in Table 10.

Table 10
Construction Emissions (Metric Tons CO_2e)

	CO_2e
Year 2022	45.3
Amortized	**2.3**

CalEEMod Output provided in appendix

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level is also provided. GHG impacts from construction are considered to be individually less-than-significant.

Project Operational GHG Emissions

There are minimal operational emissions associated with operation of a small 28-space parking lot.

CONSISTENCY WITH GHG PLANS, PROGRAMS AND POLICIES

In March 2014, the San Bernardino Associated Governments and Participating San Bernardino County Cities Partnership (Partnership) created a final draft of the San Bernardino County Regional Greenhouse Gas Reduction Plan (Reduction Plan) for each of the 25 jurisdictional Partner Cities in the County. The plan was recently updated in March of 2021. The Reduction Plan was created in accordance with AB 32, which established a greenhouse gas limit for the state of California. The Reduction Plan seeks to create an inventory of GHG gases and develop jurisdiction specific GHG reduction measures and baseline information that could be used by the Partnership Cities of San Bernardino County, including the County itself.

Projects that demonstrate consistency with the strategies, actions, and emission reduction targets contained in the Reduction Plan would have a less than significant impact on climate change. The project will generate little GHG emissions as shown in Table 11. The only reduction measures applicable to this project are presented below. Therefore, consistency with the Reduction Plan would result in a less than significant impact with respect to GHG emissions.

- Exceed the waste diversion goal recommended by Assembly Bill 939 and CalGreen.

- Continue to specify and install water conserving plumbing fixtures and fittings in public facilities such as parks, community centers and government buildings in accordance with Title 24 of the California Code of Regulations.

CALEEMOD2020.4.0 COMPUTER MODEL OUTPUT

- **DAILY EMISISONS**
- **ANNUAL EMISSIONS**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Castlerock Parking Lot

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	28.00	Space	0.25	11,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Grading: 5 days, Pave: 20 days, Restroom: 20 days

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	10.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	PhaseEndDate	7/20/2022	5/27/2022
tblConstructionPhase	PhaseEndDate	3/2/2022	3/7/2022
tblConstructionPhase	PhaseEndDate	7/27/2022	4/11/2022
tblConstructionPhase	PhaseStartDate	3/3/2022	5/1/2022

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	PhaseStartDate	7/21/2022	3/15/2022
tblGrading	AcresOfGrading	3.75	1.50

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.1105	12.0239	7.7167	0.0149	4.9241	0.5178	5.4420	2.5407	0.4764	3.0171	0.0000	1,446.5114	1,446.5114	0.4436	7.2200e-003	1,458.1813
Maximum	**1.1105**	**12.0239**	**7.7167**	**0.0149**	**4.9241**	**0.5178**	**5.4420**	**2.5407**	**0.4764**	**3.0171**	**0.0000**	**1,446.5114**	**1,446.5114**	**0.4436**	**7.2200e-003**	**1,458.1813**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.1105	12.0239	7.7167	0.0149	4.9241	0.5178	5.4420	2.5407	0.4764	3.0171	0.0000	1,446.5114	1,446.5114	0.4436	7.2200e-003	1,458.1813
Maximum	**1.1105**	**12.0239**	**7.7167**	**0.0149**	**4.9241**	**0.5178**	**5.4420**	**2.5407**	**0.4764**	**3.0171**	**0.0000**	**1,446.5114**	**1,446.5114**	**0.4436**	**7.2200e-003**	**1,458.1813**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.0900e-003	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0900e-003**	**3.0000e-005**	**2.8600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.1300e-003**	**6.1300e-003**	**2.0000e-005**	**0.0000**	**6.5300e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.0900e-003	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0900e-003**	**3.0000e-005**	**2.8600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.1300e-003**	**6.1300e-003**	**2.0000e-005**	**0.0000**	**6.5300e-003**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/1/2022	3/7/2022	5	5	
2	Restroom Construction	Building Construction	5/1/2022	5/27/2022	5	10	
3	Paving	Paving	3/15/2022	4/11/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.25

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Restroom Construction	Cranes	1	4.00	231	0.29
Restroom Construction	Forklifts	2	6.00	89	0.20
Grading	Graders	1	6.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Restroom Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Restroom Construction	5	5.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.8347	0.0000	4.8347	2.5170	0.0000	2.5170			0.0000			0.0000
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759		1,364.8198	1,364.8198	0.4414		1,375.8551
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**4.8347**	**0.5173**	**5.3520**	**2.5170**	**0.4759**	**2.9929**		**1,364.8198**	**1,364.8198**	**0.4414**		**1,375.8551**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0273	0.0193	0.3031	8.1000e-004	0.0894	5.4000e-004	0.0900	0.0237	4.9000e-004	0.0242		81.6916	81.6916	2.1400e-003	1.9500e-003	82.3262
Total	**0.0273**	**0.0193**	**0.3031**	**8.1000e-004**	**0.0894**	**5.4000e-004**	**0.0900**	**0.0237**	**4.9000e-004**	**0.0242**		**81.6916**	**81.6916**	**2.1400e-003**	**1.9500e-003**	**82.3262**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.8347	0.0000	4.8347	2.5170	0.0000	2.5170			0.0000			0.0000
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759	0.0000	1,364.8198	1,364.8198	0.4414		1,375.8551
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**4.8347**	**0.5173**	**5.3520**	**2.5170**	**0.4759**	**2.9929**	**0.0000**	**1,364.8198**	**1,364.8198**	**0.4414**		**1,375.8551**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0273	0.0193	0.3031	8.1000e-004	0.0894	5.4000e-004	0.0900	0.0237	4.9000e-004	0.0242		81.6916	81.6916	2.1400e-003	1.9500e-003	82.3262
Total	**0.0273**	**0.0193**	**0.3031**	**8.1000e-004**	**0.0894**	**5.4000e-004**	**0.0900**	**0.0237**	**4.9000e-004**	**0.0242**		**81.6916**	**81.6916**	**2.1400e-003**	**1.9500e-003**	**82.3262**

3.3 Restroom Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6863	7.0258	7.1527	0.0114		0.3719	0.3719		0.3422	0.3422		1,103.9393	1,103.9393	0.3570		1,112.8652
Total	**0.6863**	**7.0258**	**7.1527**	**0.0114**		**0.3719**	**0.3719**		**0.3422**	**0.3422**		**1,103.9393**	**1,103.9393**	**0.3570**		**1,112.8652**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Restroom Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6500e-003	0.0944	0.0316	3.8000e-004	0.0128	9.6000e-004	0.0138	3.6900e-003	9.2000e-004	4.6100e-003		41.3094	41.3094	1.5200e-003	6.0000e-003	43.1351
Worker	0.0171	0.0120	0.1894	5.1000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.1000e-004	0.0151		51.0572	51.0572	1.3400e-003	1.2200e-003	51.4539
Total	**0.0207**	**0.1064**	**0.2210**	**8.9000e-004**	**0.0687**	**1.2900e-003**	**0.0700**	**0.0185**	**1.2300e-003**	**0.0197**		**92.3666**	**92.3666**	**2.8600e-003**	**7.2200e-003**	**94.5890**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6863	7.0258	7.1527	0.0114		0.3719	0.3719		0.3422	0.3422	0.0000	1,103.9393	1,103.9393	0.3570		1,112.8652
Total	**0.6863**	**7.0258**	**7.1527**	**0.0114**		**0.3719**	**0.3719**		**0.3422**	**0.3422**	**0.0000**	**1,103.9393**	**1,103.9393**	**0.3570**		**1,112.8652**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Restroom Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6500e-003	0.0944	0.0316	3.8000e-004	0.0128	9.6000e-004	0.0138	3.6900e-003	9.2000e-004	4.6100e-003		41.3094	41.3094	1.5200e-003	6.0000e-003	43.1351
Worker	0.0171	0.0120	0.1894	5.1000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.1000e-004	0.0151		51.0572	51.0572	1.3400e-003	1.2200e-003	51.4539
Total	**0.0207**	**0.1064**	**0.2210**	**8.9000e-004**	**0.0687**	**1.2900e-003**	**0.0700**	**0.0185**	**1.2300e-003**	**0.0197**		**92.3666**	**92.3666**	**2.8600e-003**	**7.2200e-003**	**94.5890**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6469	5.9174	7.0348	0.0113		0.2961	0.2961		0.2758	0.2758		1,035.8246	1,035.8246	0.3017		1,043.3677
Paving	0.0328					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6797**	**5.9174**	**7.0348**	**0.0113**		**0.2961**	**0.2961**		**0.2758**	**0.2758**		**1,035.8246**	**1,035.8246**	**0.3017**		**1,043.3677**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0614	0.0434	0.6820	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		183.8060	183.8060	4.8100e-003	4.3900e-003	185.2340
Total	**0.0614**	**0.0434**	**0.6820**	**1.8200e-003**	**0.2012**	**1.2000e-003**	**0.2024**	**0.0534**	**1.1100e-003**	**0.0545**		**183.8060**	**183.8060**	**4.8100e-003**	**4.3900e-003**	**185.2340**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6469	5.9174	7.0348	0.0113		0.2961	0.2961		0.2758	0.2758	0.0000	1,035.8246	1,035.8246	0.3017		1,043.3677
Paving	0.0328					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6797**	**5.9174**	**7.0348**	**0.0113**		**0.2961**	**0.2961**		**0.2758**	**0.2758**	**0.0000**	**1,035.8246**	**1,035.8246**	**0.3017**		**1,043.3677**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0614	0.0434	0.6820	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		183.8060	183.8060	4.8100e-003	4.3900e-003	185.2340
Total	**0.0614**	**0.0434**	**0.6820**	**1.8200e-003**	**0.2012**	**1.2000e-003**	**0.2024**	**0.0534**	**1.1100e-003**	**0.0545**		**183.8060**	**183.8060**	**4.8100e-003**	**4.3900e-003**	**185.2340**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.544368	0.059978	0.184244	0.130791	0.023854	0.006227	0.012011	0.008603	0.000829	0.000521	0.023988	0.000741	0.003845

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.0900e-003	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003
Unmitigated	5.0900e-003	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	8.5000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.9700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.7000e-004	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003
Total	**5.0900e-003**	**3.0000e-005**	**2.8600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.1300e-003**	**6.1300e-003**	**2.0000e-005**		**6.5300e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	8.5000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.9700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.7000e-004	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003
Total	**5.0900e-003**	**3.0000e-005**	**2.8600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.1300e-003**	**6.1300e-003**	**2.0000e-005**		**6.5300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Castlerock Parking Lot

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	28.00	Space	0.25	11,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Grading: 5 days, Pave: 20 days, Restroom: 20 days

Grading - 400 CY fill, 5,000 CY cut

Construction Off-road Equipment Mitigation -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	10.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	5.00	20.00
tblGrading	MaterialExported	0.00	5,000.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblGrading	MaterialImported	0.00	400.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.6569	32.1177	11.0158	0.0911	7.7091	0.6780	8.3872	3.2098	0.6297	3.8395	0.0000	9,841.3611	9,841.3611	0.9404	1.3360	10,263.0060
Maximum	**1.6569**	**32.1177**	**11.0158**	**0.0911**	**7.7091**	**0.6780**	**8.3872**	**3.2098**	**0.6297**	**3.8395**	**0.0000**	**9,841.3611**	**9,841.3611**	**0.9404**	**1.3360**	**10,263.0060**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.6569	32.1177	11.0158	0.0911	4.7204	0.6780	5.3984	1.7869	0.6297	2.4166	0.0000	9,841.3611	9,841.3611	0.9404	1.3360	10,263.0060
Maximum	**1.6569**	**32.1177**	**11.0158**	**0.0911**	**4.7204**	**0.6780**	**5.3984**	**1.7869**	**0.6297**	**2.4166**	**0.0000**	**9,841.3611**	**9,841.3611**	**0.9404**	**1.3360**	**10,263.0060**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	38.77	0.00	35.63	44.33	0.00	37.06	0.00	0.00	0.00	0.00	0.00	0.00

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.0900e-003	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0900e-003**	**3.0000e-005**	**2.8600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.1300e-003**	**6.1300e-003**	**2.0000e-005**	**0.0000**	**6.5300e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.0900e-003	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0900e-003**	**3.0000e-005**	**2.8600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.1300e-003**	**6.1300e-003**	**2.0000e-005**	**0.0000**	**6.5300e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/1/2022	3/7/2022	5	5	
2	Paving	Paving	3/15/2022	4/11/2022	5	20	
3	Restroom Construction	Building Construction	5/1/2022	5/27/2022	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.75

Acres of Paving: 0.25

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Restroom Construction	Cranes	1	4.00	231	0.29
Restroom Construction	Forklifts	2	6.00	89	0.20
Restroom Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	3	8.00	0.00	625.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Restroom Construction	5	5.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.4341	0.0000	5.4341	2.5871	0.0000	2.5871			0.0000			0.0000
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759		1,364.8198	1,364.8198	0.4414		1,375.8551
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**5.4341**	**0.5173**	**5.9514**	**2.5871**	**0.4759**	**3.0630**		**1,364.8198**	**1,364.8198**	**0.4414**		**1,375.8551**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5465	20.0938	4.7767	0.0762	2.1856	0.1602	2.3458	0.5990	0.1533	0.7523		8,394.8497	8,394.8497	0.4969	1.3341	8,804.8247
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0273	0.0193	0.3031	8.1000e-004	0.0894	5.4000e-004	0.0900	0.0237	4.9000e-004	0.0242		81.6916	81.6916	2.1400e-003	1.9500e-003	82.3262
Total	**0.5737**	**20.1131**	**5.0798**	**0.0771**	**2.2750**	**0.1608**	**2.4358**	**0.6227**	**0.1538**	**0.7765**		**8,476.5413**	**8,476.5413**	**0.4990**	**1.3360**	**8,887.1509**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4453	0.0000	2.4453	1.1642	0.0000	1.1642			0.0000			0.0000
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759	0.0000	1,364.8198	1,364.8198	0.4414		1,375.8551
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**2.4453**	**0.5173**	**2.9626**	**1.1642**	**0.4759**	**1.6401**	**0.0000**	**1,364.8198**	**1,364.8198**	**0.4414**		**1,375.8551**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5465	20.0938	4.7767	0.0762	2.1856	0.1602	2.3458	0.5990	0.1533	0.7523		8,394.8497	8,394.8497	0.4969	1.3341	8,804.8247
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0273	0.0193	0.3031	8.1000e-004	0.0894	5.4000e-004	0.0900	0.0237	4.9000e-004	0.0242		81.6916	81.6916	2.1400e-003	1.9500e-003	82.3262
Total	**0.5737**	**20.1131**	**5.0798**	**0.0771**	**2.2750**	**0.1608**	**2.4358**	**0.6227**	**0.1538**	**0.7765**		**8,476.5413**	**8,476.5413**	**0.4990**	**1.3360**	**8,887.1509**

3.3 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6469	5.9174	7.0348	0.0113		0.2961	0.2961		0.2758	0.2758		1,035.8246	1,035.8246	0.3017		1,043.3677
Paving	0.0328					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6797**	**5.9174**	**7.0348**	**0.0113**		**0.2961**	**0.2961**		**0.2758**	**0.2758**		**1,035.8246**	**1,035.8246**	**0.3017**		**1,043.3677**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0614	0.0434	0.6820	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		183.8060	183.8060	4.8100e-003	4.3900e-003	185.2340
Total	**0.0614**	**0.0434**	**0.6820**	**1.8200e-003**	**0.2012**	**1.2000e-003**	**0.2024**	**0.0534**	**1.1100e-003**	**0.0545**		**183.8060**	**183.8060**	**4.8100e-003**	**4.3900e-003**	**185.2340**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6469	5.9174	7.0348	0.0113		0.2961	0.2961		0.2758	0.2758	0.0000	1,035.8246	1,035.8246	0.3017		1,043.3677
Paving	0.0328					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6797**	**5.9174**	**7.0348**	**0.0113**		**0.2961**	**0.2961**		**0.2758**	**0.2758**	**0.0000**	**1,035.8246**	**1,035.8246**	**0.3017**		**1,043.3677**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0614	0.0434	0.6820	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		183.8060	183.8060	4.8100e-003	4.3900e-003	185.2340
Total	**0.0614**	**0.0434**	**0.6820**	**1.8200e-003**	**0.2012**	**1.2000e-003**	**0.2024**	**0.0534**	**1.1100e-003**	**0.0545**		**183.8060**	**183.8060**	**4.8100e-003**	**4.3900e-003**	**185.2340**

3.4 Restroom Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6863	7.0258	7.1527	0.0114		0.3719	0.3719		0.3422	0.3422		1,103.9393	1,103.9393	0.3570		1,112.8652
Total	**0.6863**	**7.0258**	**7.1527**	**0.0114**		**0.3719**	**0.3719**		**0.3422**	**0.3422**		**1,103.9393**	**1,103.9393**	**0.3570**		**1,112.8652**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Restroom Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6500e-003	0.0944	0.0316	3.8000e-004	0.0128	9.6000e-004	0.0138	3.6900e-003	9.2000e-004	4.6100e-003		41.3094	41.3094	1.5200e-003	6.0000e-003	43.1351
Worker	0.0171	0.0120	0.1894	5.1000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.1000e-004	0.0151		51.0572	51.0572	1.3400e-003	1.2200e-003	51.4539
Total	**0.0207**	**0.1064**	**0.2210**	**8.9000e-004**	**0.0687**	**1.2900e-003**	**0.0700**	**0.0185**	**1.2300e-003**	**0.0197**		**92.3666**	**92.3666**	**2.8600e-003**	**7.2200e-003**	**94.5890**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6863	7.0258	7.1527	0.0114		0.3719	0.3719		0.3422	0.3422	0.0000	1,103.9393	1,103.9393	0.3570		1,112.8652
Total	**0.6863**	**7.0258**	**7.1527**	**0.0114**		**0.3719**	**0.3719**		**0.3422**	**0.3422**	**0.0000**	**1,103.9393**	**1,103.9393**	**0.3570**		**1,112.8652**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Restroom Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6500e-003	0.0944	0.0316	3.8000e-004	0.0128	9.6000e-004	0.0138	3.6900e-003	9.2000e-004	4.6100e-003		41.3094	41.3094	1.5200e-003	6.0000e-003	43.1351
Worker	0.0171	0.0120	0.1894	5.1000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.1000e-004	0.0151		51.0572	51.0572	1.3400e-003	1.2200e-003	51.4539
Total	**0.0207**	**0.1064**	**0.2210**	**8.9000e-004**	**0.0687**	**1.2900e-003**	**0.0700**	**0.0185**	**1.2300e-003**	**0.0197**		**92.3666**	**92.3666**	**2.8600e-003**	**7.2200e-003**	**94.5890**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.544368	0.059978	0.184244	0.130791	0.023854	0.006227	0.012011	0.008603	0.000829	0.000521	0.023988	0.000741	0.003845

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.0900e-003	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003
Unmitigated	5.0900e-003	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	8.5000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.9700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.7000e-004	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003
Total	**5.0900e-003**	**3.0000e-005**	**2.8600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.1300e-003**	**6.1300e-003**	**2.0000e-005**		**6.5300e-003**

Castlerock Parking Lot - South Coast Air Basin, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	8.5000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.9700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.7000e-004	3.0000e-005	2.8600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.1300e-003	6.1300e-003	2.0000e-005		6.5300e-003
Total	**5.0900e-003**	**3.0000e-005**	**2.8600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.1300e-003**	**6.1300e-003**	**2.0000e-005**		**6.5300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Castlerock Parking Lot - South Coast Air Basin, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Castlerock Parking Lot

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	28.00	Space	0.25	11,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Grading: 5 days, Pave: 20 days, Restroom: 20 days

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	10.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	PhaseEndDate	7/20/2022	5/27/2022
tblConstructionPhase	PhaseEndDate	3/2/2022	3/7/2022
tblConstructionPhase	PhaseEndDate	7/27/2022	4/11/2022
tblConstructionPhase	PhaseStartDate	3/3/2022	5/1/2022

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	PhaseStartDate	7/21/2022	3/15/2022
tblGrading	AcresOfGrading	3.75	1.50

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0172	0.1611	0.1659	2.9000e-004	0.0150	8.0000e-003	0.0230	7.0600e-003	7.3900e-003	0.0145	0.0000	25.0994	25.0994	7.0500e-003	1.1000e-004	25.3097
Maximum	**0.0172**	**0.1611**	**0.1659**	**2.9000e-004**	**0.0150**	**8.0000e-003**	**0.0230**	**7.0600e-003**	**7.3900e-003**	**0.0145**	**0.0000**	**25.0994**	**25.0994**	**7.0500e-003**	**1.1000e-004**	**25.3097**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0172	0.1611	0.1659	2.9000e-004	0.0150	8.0000e-003	0.0230	7.0600e-003	7.3900e-003	0.0145	0.0000	25.0993	25.0993	7.0500e-003	1.1000e-004	25.3097
Maximum	**0.0172**	**0.1611**	**0.1659**	**2.9000e-004**	**0.0150**	**8.0000e-003**	**0.0230**	**7.0600e-003**	**7.3900e-003**	**0.0145**	**0.0000**	**25.0993**	**25.0993**	**7.0500e-003**	**1.1000e-004**	**25.3097**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**2-14-2022**	**5-13-2022**	0.1363	0.1363
2	**5-14-2022**	**8-13-2022**	0.0392	0.0392
		Highest	0.1363	0.1363

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.1000e-004	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.6952	0.6952	6.0000e-005	1.0000e-005	0.6988
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.6959**	**0.6959**	**6.0000e-005**	**1.0000e-005**	**0.6995**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.1000e-004	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.6952	0.6952	6.0000e-005	1.0000e-005	0.6988
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.6959**	**0.6959**	**6.0000e-005**	**1.0000e-005**	**0.6995**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/1/2022	3/7/2022	5	5	
2	Restroom Construction	Building Construction	5/1/2022	5/27/2022	5	10	
3	Paving	Paving	3/15/2022	4/11/2022	5	20	

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.25

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Restroom Construction	Cranes	1	4.00	231	0.29
Restroom Construction	Forklifts	2	6.00	89	0.20
Grading	Graders	1	6.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Restroom Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Restroom Construction	5	5.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0121	0.0000	0.0121	6.2900e-003	0.0000	6.2900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7100e-003	0.0300	0.0148	4.0000e-005		1.2900e-003	1.2900e-003		1.1900e-003	1.1900e-003	0.0000	3.0954	3.0954	1.0000e-003	0.0000	3.1204
Total	**2.7100e-003**	**0.0300**	**0.0148**	**4.0000e-005**	**0.0121**	**1.2900e-003**	**0.0134**	**6.2900e-003**	**1.1900e-003**	**7.4800e-003**	**0.0000**	**3.0954**	**3.0954**	**1.0000e-003**	**0.0000**	**3.1204**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	7.1000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1774	0.1774	0.0000	0.0000	0.1790
Total	**7.0000e-005**	**5.0000e-005**	**7.1000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1774**	**0.1774**	**0.0000**	**0.0000**	**0.1790**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0121	0.0000	0.0121	6.2900e-003	0.0000	6.2900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7100e-003	0.0300	0.0148	4.0000e-005		1.2900e-003	1.2900e-003		1.1900e-003	1.1900e-003	0.0000	3.0954	3.0954	1.0000e-003	0.0000	3.1204
Total	**2.7100e-003**	**0.0300**	**0.0148**	**4.0000e-005**	**0.0121**	**1.2900e-003**	**0.0134**	**6.2900e-003**	**1.1900e-003**	**7.4800e-003**	**0.0000**	**3.0954**	**3.0954**	**1.0000e-003**	**0.0000**	**3.1204**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	7.1000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1774	0.1774	0.0000	0.0000	0.1790
Total	**7.0000e-005**	**5.0000e-005**	**7.1000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1774**	**0.1774**	**0.0000**	**0.0000**	**0.1790**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Restroom Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8600e-003	0.0703	0.0715	1.1000e-004		3.7200e-003	3.7200e-003		3.4200e-003	3.4200e-003	0.0000	10.0148	10.0148	3.2400e-003	0.0000	10.0957
Total	**6.8600e-003**	**0.0703**	**0.0715**	**1.1000e-004**		**3.7200e-003**	**3.7200e-003**		**3.4200e-003**	**3.4200e-003**	**0.0000**	**10.0148**	**10.0148**	**3.2400e-003**	**0.0000**	**10.0957**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	9.9000e-004	3.2000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.3748	0.3748	1.0000e-005	5.0000e-005	0.3914
Worker	1.7000e-004	1.4000e-004	1.7700e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4435	0.4435	1.0000e-005	1.0000e-005	0.4474
Total	**2.1000e-004**	**1.1300e-003**	**2.0900e-003**	**0.0000**	**6.8000e-004**	**1.0000e-005**	**6.9000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.8183**	**0.8183**	**2.0000e-005**	**6.0000e-005**	**0.8388**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Restroom Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8600e-003	0.0703	0.0715	1.1000e-004		3.7200e-003	3.7200e-003		3.4200e-003	3.4200e-003	0.0000	10.0148	10.0148	3.2400e-003	0.0000	10.0957
Total	**6.8600e-003**	**0.0703**	**0.0715**	**1.1000e-004**		**3.7200e-003**	**3.7200e-003**		**3.4200e-003**	**3.4200e-003**	**0.0000**	**10.0148**	**10.0148**	**3.2400e-003**	**0.0000**	**10.0957**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	9.9000e-004	3.2000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.3748	0.3748	1.0000e-005	5.0000e-005	0.3914
Worker	1.7000e-004	1.4000e-004	1.7700e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4435	0.4435	1.0000e-005	1.0000e-005	0.4474
Total	**2.1000e-004**	**1.1300e-003**	**2.0900e-003**	**0.0000**	**6.8000e-004**	**1.0000e-005**	**6.9000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.8183**	**0.8183**	**2.0000e-005**	**6.0000e-005**	**0.8388**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4700e-003	0.0592	0.0704	1.1000e-004		2.9600e-003	2.9600e-003		2.7600e-003	2.7600e-003	0.0000	9.3968	9.3968	2.7400e-003	0.0000	9.4653
Paving	3.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8000e-003**	**0.0592**	**0.0704**	**1.1000e-004**		**2.9600e-003**	**2.9600e-003**		**2.7600e-003**	**2.7600e-003**	**0.0000**	**9.3968**	**9.3968**	**2.7400e-003**	**0.0000**	**9.4653**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.9000e-004	6.3700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.5967	1.5967	4.0000e-005	4.0000e-005	1.6106
Total	**6.0000e-004**	**4.9000e-004**	**6.3700e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.5967**	**1.5967**	**4.0000e-005**	**4.0000e-005**	**1.6106**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4700e-003	0.0592	0.0704	1.1000e-004		2.9600e-003	2.9600e-003		2.7600e-003	2.7600e-003	0.0000	9.3968	9.3968	2.7400e-003	0.0000	9.4653
Paving	3.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8000e-003**	**0.0592**	**0.0704**	**1.1000e-004**		**2.9600e-003**	**2.9600e-003**		**2.7600e-003**	**2.7600e-003**	**0.0000**	**9.3968**	**9.3968**	**2.7400e-003**	**0.0000**	**9.4653**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.9000e-004	6.3700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.5967	1.5967	4.0000e-005	4.0000e-005	1.6106
Total	**6.0000e-004**	**4.9000e-004**	**6.3700e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.5967**	**1.5967**	**4.0000e-005**	**4.0000e-005**	**1.6106**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.544368	0.059978	0.184244	0.130791	0.023854	0.006227	0.012011	0.008603	0.000829	0.000521	0.023988	0.000741	0.003845

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.6952	0.6952	6.0000e-005	1.0000e-005	0.6988
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.6952	0.6952	6.0000e-005	1.0000e-005	0.6988
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

Mitigated

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	3920	0.6952	6.0000e-005	1.0000e-005	0.6988
Total		**0.6952**	**6.0000e-005**	**1.0000e-005**	**0.6988**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	3920	0.6952	6.0000e-005	1.0000e-005	0.6988
Total		**0.6952**	**6.0000e-005**	**1.0000e-005**	**0.6988**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.1000e-004	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004
Unmitigated	9.1000e-004	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004
Total	**9.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.9000e-004**	**6.9000e-004**	**0.0000**	**0.0000**	**7.4000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004
Total	**9.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.9000e-004**	**6.9000e-004**	**0.0000**	**0.0000**	**7.4000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Castlerock Parking Lot

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	28.00	Space	0.25	11,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Grading: 5 days, Pave: 20 days, Restroom: 20 days

Grading - 400 CY fill, 5,000 CY cut

Construction Off-road Equipment Mitigation -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	10.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	5.00	20.00
tblGrading	MaterialExported	0.00	5,000.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblGrading	MaterialImported	0.00	400.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0186	0.2140	0.1779	4.8000e-004	0.0218	8.4000e-003	0.0302	8.7100e-003	7.7800e-003	0.0165	0.0000	44.1408	44.1408	8.1800e-003	3.1400e-003	45.2811
Maximum	**0.0186**	**0.2140**	**0.1779**	**4.8000e-004**	**0.0218**	**8.4000e-003**	**0.0302**	**8.7100e-003**	**7.7800e-003**	**0.0165**	**0.0000**	**44.1408**	**44.1408**	**8.1800e-003**	**3.1400e-003**	**45.2811**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0186	0.2140	0.1779	4.8000e-004	0.0144	8.4000e-003	0.0228	5.1500e-003	7.7800e-003	0.0129	0.0000	44.1408	44.1408	8.1800e-003	3.1400e-003	45.2811
Maximum	**0.0186**	**0.2140**	**0.1779**	**4.8000e-004**	**0.0144**	**8.4000e-003**	**0.0228**	**5.1500e-003**	**7.7800e-003**	**0.0129**	**0.0000**	**44.1408**	**44.1408**	**8.1800e-003**	**3.1400e-003**	**45.2811**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**34.22**	**0.00**	**24.71**	**40.87**	**0.00**	**21.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**2-14-2022**	**5-13-2022**	0.1900	0.1900
2	**5-14-2022**	**8-13-2022**	0.0392	0.0392
		Highest	0.1900	0.1900

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.1000e-004	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.6952	0.6952	6.0000e-005	1.0000e-005	0.6988
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.6959**	**0.6959**	**6.0000e-005**	**1.0000e-005**	**0.6995**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.1000e-004	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.6952	0.6952	6.0000e-005	1.0000e-005	0.6988
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.6959**	**0.6959**	**6.0000e-005**	**1.0000e-005**	**0.6995**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	3/1/2022	3/7/2022	5	5	
2	Paving	Paving	3/15/2022	4/11/2022	5	20	
3	Restroom Construction	Building Construction	5/1/2022	5/27/2022	5	10	

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.75

Acres of Paving: 0.25

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Restroom Construction	Cranes	1	4.00	231	0.29
Restroom Construction	Forklifts	2	6.00	89	0.20
Restroom Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	3	8.00	0.00	625.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Restroom Construction	5	5.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0136	0.0000	0.0136	6.4700e-003	0.0000	6.4700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7100e-003	0.0300	0.0148	4.0000e-005		1.2900e-003	1.2900e-003		1.1900e-003	1.1900e-003	0.0000	3.0954	3.0954	1.0000e-003	0.0000	3.1204
Total	**2.7100e-003**	**0.0300**	**0.0148**	**4.0000e-005**	**0.0136**	**1.2900e-003**	**0.0149**	**6.4700e-003**	**1.1900e-003**	**7.6600e-003**	**0.0000**	**3.0954**	**3.0954**	**1.0000e-003**	**0.0000**	**3.1204**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3500e-003	0.0529	0.0120	1.9000e-004	5.3800e-003	4.0000e-004	5.7800e-003	1.4800e-003	3.8000e-004	1.8600e-003	0.0000	19.0414	19.0414	1.1300e-003	3.0300e-003	19.9714
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	7.1000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1774	0.1774	0.0000	0.0000	0.1790
Total	**1.4200e-003**	**0.0530**	**0.0127**	**1.9000e-004**	**5.6000e-003**	**4.0000e-004**	**6.0000e-003**	**1.5400e-003**	**3.8000e-004**	**1.9200e-003**	**0.0000**	**19.2188**	**19.2188**	**1.1300e-003**	**3.0300e-003**	**20.1503**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.1100e-003	0.0000	6.1100e-003	2.9100e-003	0.0000	2.9100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7100e-003	0.0300	0.0148	4.0000e-005		1.2900e-003	1.2900e-003		1.1900e-003	1.1900e-003	0.0000	3.0954	3.0954	1.0000e-003	0.0000	3.1204
Total	**2.7100e-003**	**0.0300**	**0.0148**	**4.0000e-005**	**6.1100e-003**	**1.2900e-003**	**7.4000e-003**	**2.9100e-003**	**1.1900e-003**	**4.1000e-003**	**0.0000**	**3.0954**	**3.0954**	**1.0000e-003**	**0.0000**	**3.1204**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3500e-003	0.0529	0.0120	1.9000e-004	5.3800e-003	4.0000e-004	5.7800e-003	1.4800e-003	3.8000e-004	1.8600e-003	0.0000	19.0414	19.0414	1.1300e-003	3.0300e-003	19.9714
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	7.1000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1774	0.1774	0.0000	0.0000	0.1790
Total	**1.4200e-003**	**0.0530**	**0.0127**	**1.9000e-004**	**5.6000e-003**	**4.0000e-004**	**6.0000e-003**	**1.5400e-003**	**3.8000e-004**	**1.9200e-003**	**0.0000**	**19.2188**	**19.2188**	**1.1300e-003**	**3.0300e-003**	**20.1503**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4700e-003	0.0592	0.0704	1.1000e-004		2.9600e-003	2.9600e-003		2.7600e-003	2.7600e-003	0.0000	9.3968	9.3968	2.7400e-003	0.0000	9.4653
Paving	3.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8000e-003**	**0.0592**	**0.0704**	**1.1000e-004**		**2.9600e-003**	**2.9600e-003**		**2.7600e-003**	**2.7600e-003**	**0.0000**	**9.3968**	**9.3968**	**2.7400e-003**	**0.0000**	**9.4653**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.9000e-004	6.3700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.5967	1.5967	4.0000e-005	4.0000e-005	1.6106
Total	**6.0000e-004**	**4.9000e-004**	**6.3700e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.5967**	**1.5967**	**4.0000e-005**	**4.0000e-005**	**1.6106**

Castlerock Parking Lot - South Coast Air Basin, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4700e-003	0.0592	0.0704	1.1000e-004		2.9600e-003	2.9600e-003		2.7600e-003	2.7600e-003	0.0000	9.3968	9.3968	2.7400e-003	0.0000	9.4653
Paving	3.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8000e-003**	**0.0592**	**0.0704**	**1.1000e-004**		**2.9600e-003**	**2.9600e-003**		**2.7600e-003**	**2.7600e-003**	**0.0000**	**9.3968**	**9.3968**	**2.7400e-003**	**0.0000**	**9.4653**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.9000e-004	6.3700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.5967	1.5967	4.0000e-005	4.0000e-005	1.6106
Total	**6.0000e-004**	**4.9000e-004**	**6.3700e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.5967**	**1.5967**	**4.0000e-005**	**4.0000e-005**	**1.6106**

Castlerock Parking Lot - South Coast Air Basin, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Restroom Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8600e-003	0.0703	0.0715	1.1000e-004		3.7200e-003	3.7200e-003		3.4200e-003	3.4200e-003	0.0000	10.0148	10.0148	3.2400e-003	0.0000	10.0957
Total	**6.8600e-003**	**0.0703**	**0.0715**	**1.1000e-004**		**3.7200e-003**	**3.7200e-003**		**3.4200e-003**	**3.4200e-003**	**0.0000**	**10.0148**	**10.0148**	**3.2400e-003**	**0.0000**	**10.0957**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	9.9000e-004	3.2000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.3748	0.3748	1.0000e-005	5.0000e-005	0.3914
Worker	1.7000e-004	1.4000e-004	1.7700e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4435	0.4435	1.0000e-005	1.0000e-005	0.4474
Total	**2.1000e-004**	**1.1300e-003**	**2.0900e-003**	**0.0000**	**6.8000e-004**	**1.0000e-005**	**6.9000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.8183**	**0.8183**	**2.0000e-005**	**6.0000e-005**	**0.8388**

Castlerock Parking Lot - South Coast Air Basin, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Restroom Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8600e-003	0.0703	0.0715	1.1000e-004		3.7200e-003	3.7200e-003		3.4200e-003	3.4200e-003	0.0000	10.0148	10.0148	3.2400e-003	0.0000	10.0957
Total	**6.8600e-003**	**0.0703**	**0.0715**	**1.1000e-004**		**3.7200e-003**	**3.7200e-003**		**3.4200e-003**	**3.4200e-003**	**0.0000**	**10.0148**	**10.0148**	**3.2400e-003**	**0.0000**	**10.0957**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	9.9000e-004	3.2000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.3748	0.3748	1.0000e-005	5.0000e-005	0.3914
Worker	1.7000e-004	1.4000e-004	1.7700e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4435	0.4435	1.0000e-005	1.0000e-005	0.4474
Total	**2.1000e-004**	**1.1300e-003**	**2.0900e-003**	**0.0000**	**6.8000e-004**	**1.0000e-005**	**6.9000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.8183**	**0.8183**	**2.0000e-005**	**6.0000e-005**	**0.8388**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.544368	0.059978	0.184244	0.130791	0.023854	0.006227	0.012011	0.008603	0.000829	0.000521	0.023988	0.000741	0.003845

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.6952	0.6952	6.0000e-005	1.0000e-005	0.6988
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.6952	0.6952	6.0000e-005	1.0000e-005	0.6988
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

Mitigated

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	3920	0.6952	6.0000e-005	1.0000e-005	0.6988
Total		**0.6952**	**6.0000e-005**	**1.0000e-005**	**0.6988**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	3920	0.6952	6.0000e-005	1.0000e-005	0.6988
Total		**0.6952**	**6.0000e-005**	**1.0000e-005**	**0.6988**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.1000e-004	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004
Unmitigated	9.1000e-004	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004
Total	**9.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.9000e-004**	**6.9000e-004**	**0.0000**	**0.0000**	**7.4000e-004**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.9000e-004	6.9000e-004	0.0000	0.0000	7.4000e-004
Total	**9.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.9000e-004**	**6.9000e-004**	**0.0000**	**0.0000**	**7.4000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX 2
BRA / JD

Biological Resources Assessment & Jurisdictional Delineation Report

Jacobs

City of Big Bear Lake
Castle Rock Trail Parking Lot Project

Biological Resources Assessment And Jurisdictional Delineation Report

Document No. | 2nd Revision

August 2022

Tom Dodson & Associates

Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
1	8.23.22	First Revision	DS			
2	8.29.22	TDA Review	DS			
3	2.26.23	3rd Revision	DS			

Distribution of copies

Revision	Issue approve	Date issued	Issued to	Comments

City of Big Bear Lake Castle Rock Trail Parking Lot Project

Project No:	W3X83304 (BBL Castle Rock)
Document Title:	Biological Resources Assessment & Jurisdictional Delineation Report
Revision:	3rd Revision
Date:	February 26, 2022
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File Name:	REVISED 2022 BBL Castle Rock Trail Parking Lot BRA_DS 2.26.23

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1. Introduction

The City of Big Bear Lake (City) has received Federal Highway Administration (FHWA) funding support to construct a 28-space trailhead parking lot to access the existing Castle Rock Trail located in the western portion of the City. The proposed parking lot will be installed contiguous to the San Bernardino National Forest adjacent to State Highway (SH) 18. The purpose of the new parking lot is to eliminate unsafe parking along SH-18 and minimize pedestrians interacting with vehicles on the highway by providing safe parking space to access the Castle Rock Trail on the south side of the highway. The trailhead parking lot would be constructed entirely on City owned land.

On behalf of Tom Dodson and Associates (TDA), Jacobs Engineering Group, Inc. (Jacobs) has prepared this Biological Resources Assessment (BRA) report for the proposed Castle Rock Trail Parking Lot Project (Project). The BRA fieldwork, which included a floristic botanical field survey, was conducted by Jacobs biologist Daniel Smith in May and June of 2022. The purpose of the BRA surveys were to address potential effects of the Project on designated Critical Habitats and/or any species currently listed or formally proposed for listing as endangered or threatened under the federal Endangered Species Act (ESA) and/or the California Endangered Species Act (CESA), as well as any species otherwise designated as sensitive by the California Department of Fish and Wildlife (CDFW [formerly California Department of Fish and Game]) and/or the California Native Plant Society (CNPS).

Although the Project includes a trail connection from the parking area to the existing U.S. Forest Service (Forest Service) Castle Rock Trail, the Forest Service will address all aspects of the trail relocation and existing trailhead decommissioning on Forest Service land separately/in-house and there are no specific Forest Service requirements for the Project on City owned property. However, the proposed Project would involve funds administered by the FHWA. Therefore, this Biological Resources Assessment and Jurisdictional Waters Assessment was prepared in accordance with the standards required by the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) review processes.

The Project Area was assessed for sensitive species known to occur locally. Attention was focused on those state and/or federally listed as threatened or endangered species and California Fully Protected species that have been documented in the vicinity of the Project Area, whose habitat requirements are present within or adjacent to the Project Area. Results of the habitat assessment are intended to provide sufficient baseline information to the Project Proponent (City) and, if required, to City, County or other local government planning officials and federal and state regulatory agencies, including the USFS, U.S. Fish and Wildlife Service (USFWS) and CDFW, respectively, to determine if the Project is likely to result in any adverse effects on sensitive biological resources and to identify mitigation measures to offset those effects.

In addition to the BRA and floristic botanical field survey, Jacobs biologists assessed the Project Area for the presence of state and/or federal jurisdictional waters potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Porter Cologne Water Quality Control Act, and CDFW under Section 1600 of the California Fish and Game Code (FGC), respectively.

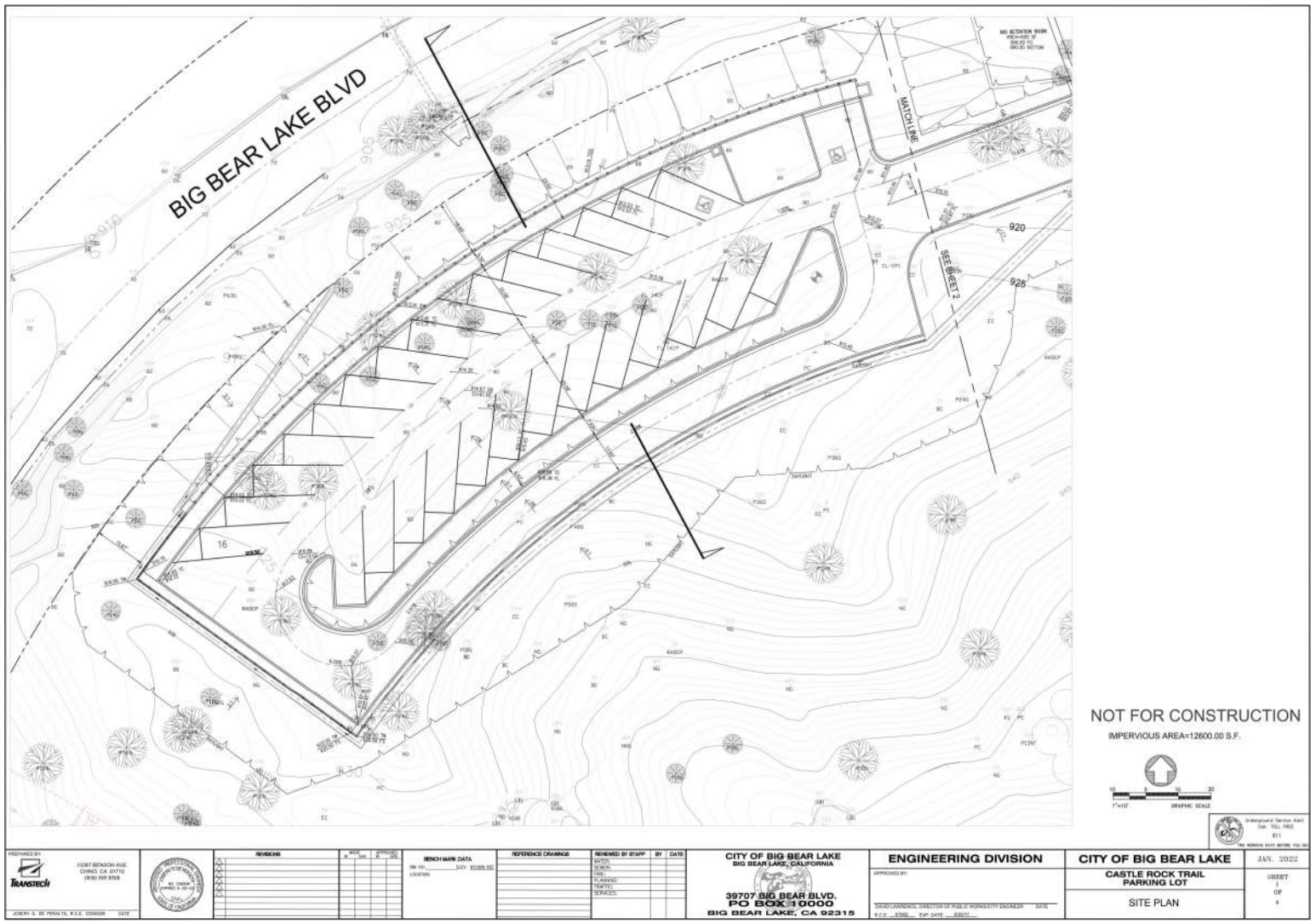
1.1 Project Description

The basic component of the proposed Project is the installation of a paved parking lot that will encompass approximately 12,600 square feet (sf) of impervious surface. The parking lot will be installed and owned by the City of Big Bear Lake which will utilize a grant from the FHWA, Central Federal Lands Highway Division (CFLHD), to partially fund the new parking facility construction. Once constructed and placed into operation, the City will oversee operation and maintenance of the parking facility. The proposed Project design consists of one of two possible alternatives: an approximately 0.98-acre, double loaded parking lot (Alternative A), or an approximately

0.86-acre, single loaded parking lot (Alternative B). Please refer to Figures 1a-1b and 2a-2b on pages 3-6 for a conceptual site plan of the two possible alternatives. Both alternatives would include a restroom facility, new trailhead connection, and a bio retention basin to accommodate on-site drainage. The parking lot would accommodate 28 parking spaces, two of which would be ADA standard. The proposed trailhead connection would connect the existing Castle Rock Trail (1W03) to the westernmost end of the proposed parking lot. Sewer, water, and electrical services would connect to existing utility lines in adjacent roadways. Low retaining walls would be constructed around the parking lot to reduce the Project footprint. Grading of the site may require between 5,000 and 10,000 cubic yards of fill, which could possibly be balanced onsite. Depending on depth of bedrock, some blasting may be required. However, the single loaded parking lot alternative may avoid the need for blasting. Lighting would be minimal.

Construction Scenario

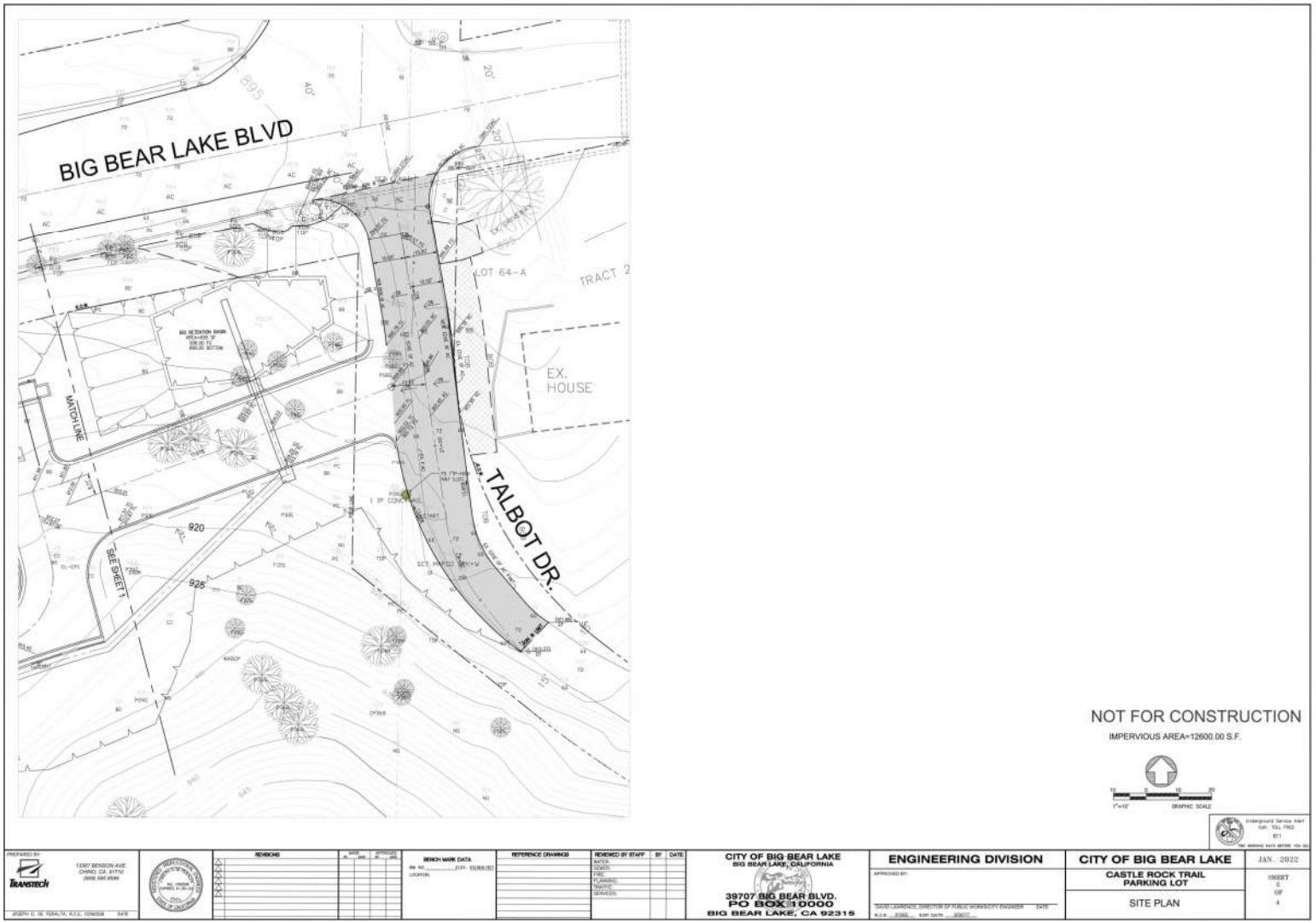
The site will be cleared and grubbed and then equipment will be brought to the site to carry out site grading. During this period the deteriorated pavement in the adjacent Talbot Drive will be removed and new pavement will be installed. The existing driveway onto the property will be graded to match the adjacent new paved roadway. Once the grading is completed and support facilities have been installed, the site will be paved. The walking paths will also be installed.



SOURCE: City of Big Bear Lake

FIGURE 1a

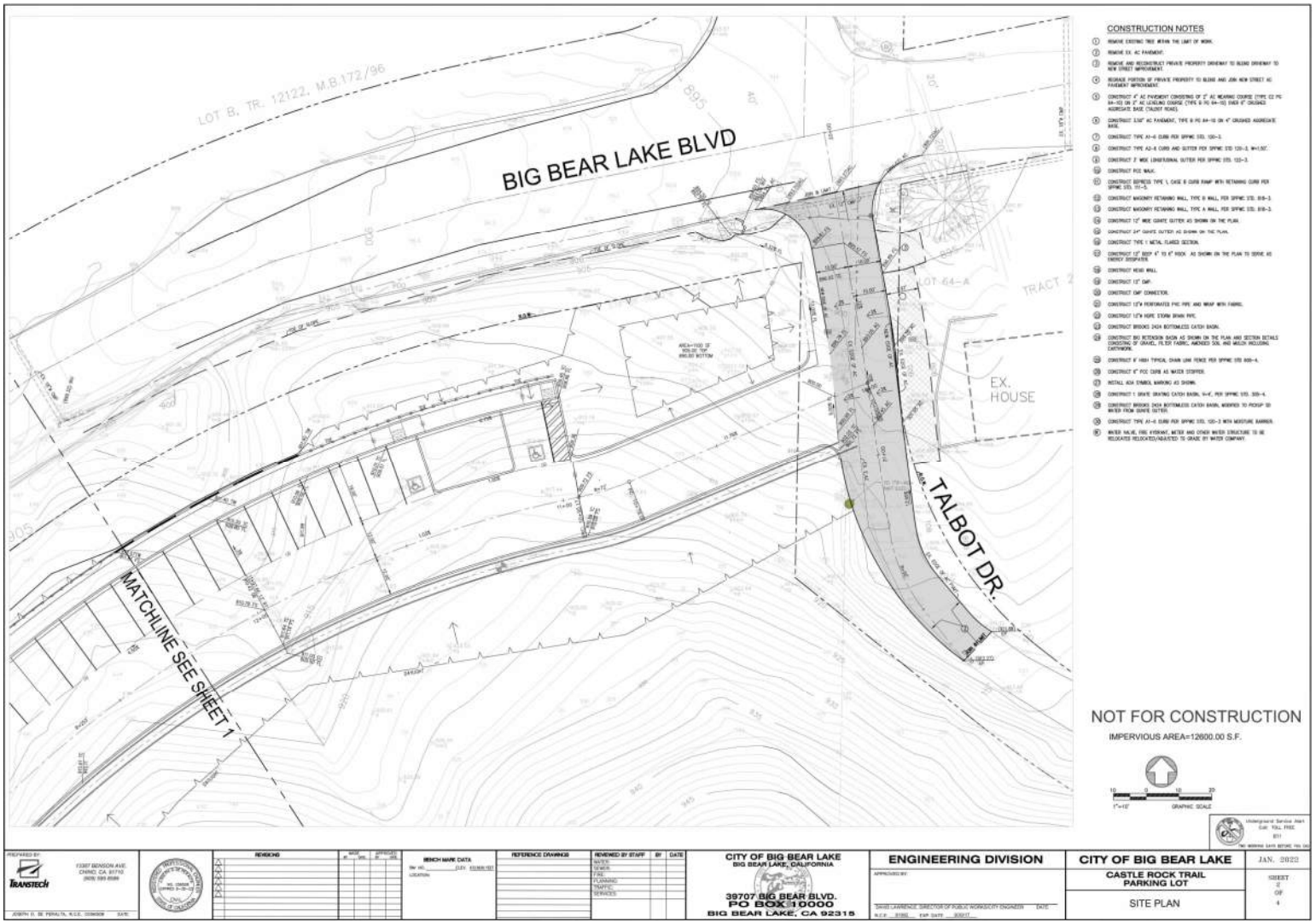
Site Plan – Alternative A
City of Big Bear Lake Castle Rock Trail Parking Lot Project



SOURCE: City of Big Bear Lake

FIGURE 1b

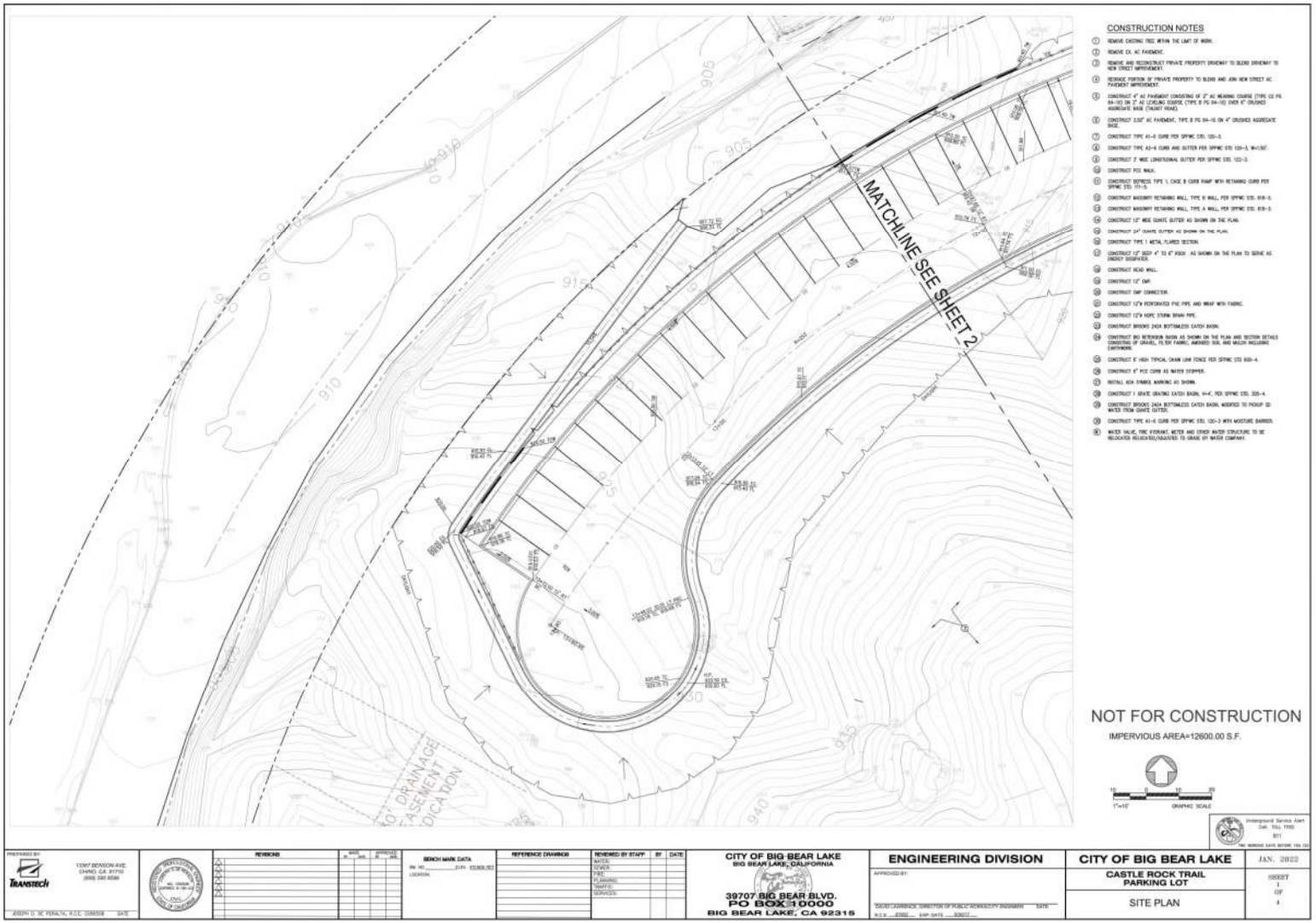
Site Plan – Alternative A
City of Big Bear Lake Castle Rock Trail Parking Lot Project



SOURCE: City of Big Bear Lake

FIGURE 2a

Site Plan – Alternative B
City of Big Bear Lake Castle Rock Trail Parking Lot Project



SOURCE: City of Big Bear Lake

FIGURE 2b

Site Plan – Alternative B
City of Big Bear Lake Castle Rock Trail Parking Lot Project

1.1.1 Area of Potential Effect

The Area of Potential Impact (API) for the proposed Project encompasses all areas that may be affected directly and/or indirectly by the Project, including the proposed construction footprint, stockpile and staging areas, as well as immediate adjacent areas outside of the proposed Project site. It encompasses the geographic extent of environmental changes (i.e., the physical, chemical, and biotic effects) that will result directly and/or indirectly from the Project.

1.2 Location

The Project site is situated entirely within Assessor Parcel Number (APN): 0306-011-02, which is owned by the City of Big Bear Lake. The Project Area is generally located south of Big Bear Lake in Section 23, Township 2 North, Range 1 West, San Bernardino Base Meridian (SBBM), in the City of Big Bear Lake, San Bernardino County, California (Figures 3&4). The Project Area is depicted on the *Big Bear Lake* U. S. Geological Survey's (USGS) 7.5-Minute Series Quadrangle map. Specifically, the Project API is located on the southwest corner of Big Bear Boulevard (SR-18) and Talbot Drive (Figures 4&5).

SOURCE: Google Earth

FIGURE 3

Regional Location
City of Big Bear Lake Castle Rock Trail Parking Lot Project

SOURCE: Google Earth

FIGURE 4

Topographic Map of Project Site
City of Big Bear Lake Castle Rock Trail Parking Lot Project

SOURCE: Google Earth

FIGURE 5

Aerial Photo of Project Site
City of Big Bear Lake Castle Rock Trail Parking Lot Project

1.3 Environmental Setting

The Project Area is within the City of Big Bear Lake in San Bernardino County, which is south of Big Bear Lake and situated near the western end of the Big Bear Valley in the San Bernardino Mountains. The Big Bear Valley area is subject to both seasonal and annual variations in temperature and precipitation. Average annual maximum temperatures peak at 80.8 degrees Fahrenheit (° F) in July and fall to an average annual minimum temperature of 20.3° F in January. Average annual precipitation is greatest from November through April and reaches a peak in January (4.49 inches). Precipitation is lowest in the month of June (0.14 inches). Annual total precipitation averages 21.84 inches and annual total snowfall averages 62.6 inches.

The topography of the Project site is mostly sloped, with a north facing aspect. The elevation of the Project site ranges from 6,856 feet above mean sea level (amsl) at the northern end of the site to 6,872 feet amsl at the south end of the site.

Hydrologically, the Project Area is situated within the Bear Valley Hydrologic Sub-Area (HSA 801.71). The Bear Valley HSA comprises a 34,333-acre drainage area, within the larger Santa Ana Watershed (HUC 18070203). The Santa Ana River is the major hydrogeomorphic feature within the Santa Ana Watershed. One of several tributaries to the Santa Ana River is Bear Creek, which outflows from Big Bear Lake from the Bear Valley Dam located at the westernmost (downstream) end of Big Bear Lake. Big Bear Lake is one of the head waters of the Santa Ana River Watershed.

Soils within the Project Area are comprised entirely of Pacifico-Groutcreek-Rock outcrop complex, 15 to 30 percent slopes. Pacifico family soils consist of gravelly coarse sand, coarse sand, and bedrock horizons comprised of residuum weathered from granitoid. This soil type is excessively drained and does not have a hydric soil rating. Groutcreek family soils consist of gravelly sandy loam and bedrock horizons comprised of residuum weathered from granitoid. This soil type is somewhat excessively drained and does not have a hydric soil rating.

The City of Big Bear Lake is a mountain community in the San Bernardino National Forest (SBNF) situated south of Big Bear Lake that consists of a mix of residential and commercial development surrounded by undeveloped montane conifer forest (Figures 3&4). Existing land use surrounding the Project API consists of Big Bear Boulevard (SH-18) and existing residential neighborhood to the north, existing residential neighborhood to the east, and open space comprised of *Pinus jeffreyi* Forest and Woodland Alliance (Jeffrey pine forest and woodland) to the south and west.

2. Assessment Methodology

2.1 Biological Resources Assessment

Data regarding biological resources in the Project Area were obtained through literature review and field investigation. Prior to performing the survey, available databases, and documentation relevant to the Project Area were reviewed for documented occurrences of sensitive species in the Project vicinity (approximately 3 miles). The USFWS threatened and endangered species occurrence data overlay and the most recent versions of the California Natural Diversity Database (CNDDB; *Rarefind 5*) and California Native Plant Society Electronic Inventory (CNPSEI) databases were searched for sensitive species data in the *Big Bear Lake, Fawnskin, Keller Peak,* and *Butler Peak* USGS 7.5-Minute Series Quadrangles (Appendix E). These databases contain records of reported occurrences of state and federally listed species or otherwise sensitive species and habitats that may occur within the vicinity of the Project site (approximately 3 miles). Other available technical information on the biological resources of the area was also reviewed including previous surveys and recent findings. Additionally, Jacobs contacted the San Bernardino National Forest – Mountaintop Ranger District's Acting District Ranger and District Botanist Scott Eliason, as well as with District Wildlife Biologist Julie Donnell, to request information from the Forest Service on any potential sensitive biological resources known to occur in the Project Area. According to Mr. Eliason and Ms. Donnell, no rare plant species are known to occur in the Project Area but there is potentially suitable habitat for some sensitive wildlife species known to occur in the Project vicinity (USFS pers. comm. May 12, 2022)

2.1.1 Biological Resources Assessment Field Survey

Jacobs biologist Daniel Smith conducted a biological resources assessment of the Project API on May 3, 2022. The reconnaissance-level field survey consisted of a pedestrian survey that encompassed 100% of the Project site, which was assessed for habitat type and its potential to support species status species. Wildlife species were detected during field surveys by sight, calls, tracks, scat, and/or other sign. Down logs, woody debris, and other potential cover objects that were encountered within the Project site during survey were flipped to detect any wildlife species that may seek refuge under said objects. In addition to species observed, expected wildlife usage of the site was determined based on known habitat preferences of regional wildlife species and knowledge of their relative distribution in the area. The focus of the faunal species survey was to identify potential habitat for special status wildlife that may occur within the Project vicinity.

Floristic Botanical Field Survey

A floristic botanical field survey was also conducted by Jacobs biologist Daniel Smith on May 3 and June 14, 2022. In accordance with the CDFW's March 20, 2018 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*, the surveys were conducted during the appropriate time of year, when the target species were both evident and identifiable. The target species consisted of those state and/or federally listed plant species that have been documented in the Project vicinity (approximately 3 miles), whose environmental requirements may be present within the Project Area. Target species included:

- Ash-gray paintbrush (*Castilleja cinerea*);
- Bear Valley sandwort (*Eremogone ursina*);
- Southern mountain buckwheat (*Eriogonum kennedyi* var. *austromontanum*); and
- San Bernardino Mountains bladderpod (*Physaria kingii* ssp. *bernardina*).

Prior to conducting the survey, Mr. Smith visited multiple reference sites within the Big Bear area, where the target species are known to occur, to determine whether the target species were identifiable at the time of the

survey and to obtain a visual image of the target species, associated habitat, and associated natural communities. The reference sites that were visited prior to survey included previously documented occurrences within the Big Bear area, near the Aspen Glen Picnic Area (Bear Valley sandwort), the Eagle Point Rare Plant Preserve (ash-gray paintbrush and southern mountain buckwheat) and the vicinity of Holcomb Valley/Caribou Creek (San Bernardino Mountains bladderpod). All four target species were evident and identifiable at the reference sites prior to the June 14 survey visit. During the survey, 100 percent visual coverage of the Project site was achieved by walking transects spaced approximately 5 meters (15 feet) apart.

2.2 Jurisdictional Delineation

On September 22, 2021, Mr. Smith also evaluated the Project API for the presence of riverine/riparian/wetland habitat and jurisdictional waters, i.e. Waters of the U.S. (WOTUS), as regulated by the USACE and RWQCB, and/or jurisdictional streambed and associated riparian habitat as regulated by the CDFW. Prior to the field visit, aerial photographs of the Project Area were viewed and compared with the surrounding USGS 7.5-Minute Topographic Quadrangle maps to identify drainage features within the survey area as indicated from topographic changes, blue-line features, or visible drainage patterns. The USFWS National Wetland Inventory and Environmental Protection Agency (EPA) Water Program "My Waters" Google Earth Pro data layer were also reviewed to determine whether any hydrologic features and wetland areas had been documented within the vicinity of the site. Similarly, the United States Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS) Web Soil Survey was reviewed for soil types found within the Project Area to identify the soil series in the area and to check these soils to determine whether they are regionally identified as hydric soils. Upstream and downstream connectivity of waterways (if present) were reviewed on Google Earth Pro aerial photographs and topographic maps to determine jurisdictional status. The lateral extent of potential USACE jurisdiction was measured at the Ordinary High Watermark (OHWM) in accordance with regulations set forth in 33CFR part 328 and the USACE guidance documents listed below:

- *USACE Wetlands Research Program Technical Report Y-87-1 (on-line edition), Wetlands Delineation Manual, Environmental Laboratory, 1987 (Wetland Delineation Manual).*
- *USACE Minimum Standards for Acceptance of Preliminary Wetlands Delineations, November 30, 2001 (Minimum Standards).*
- *USACE Jurisdictional Determination Form Instructional Guidebook, May 30, 2007 (JD Form Guidebook).*
- *USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), May 2010.*
- *USACE A Guide to Ordinary High-Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States, August 2014 (Delineation Manual).*

To be considered a *jurisdictional wetland* under the federal CWA, Section 404, an area must possess three (3) wetland characteristics: hydrophytic *vegetation*, hydric *soils*, and wetland *hydrology*.

- *Hydrophytic vegetation*: Hydrophytic vegetation is plant life that grows, and is typically adapted for life, in permanently or periodically saturated soils. The hydrophytic vegetation criterion is met if more than 50 percent of the dominant plant species from all strata (tree, shrub, and herb layers) is considered hydrophytic. Hydrophytic species are those included on the 2018 National Wetland Plant Lists for the Arid West Region (USACE 2018). Each species on the lists is rated with a wetland indicator category, as shown in Table 1. To be considered hydrophytic, the species must have *wetland indicator status*, i.e., be rated as OBL, FACW or FAC.

Table 1. Wetland Indicator Vegetation Categories

Category	Probability
Obligate Wetland (OBL)	Almost always occur in wetlands (estimated probability >99%)
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability 67 to 99%)
Facultative (FAC)	Equally likely to occur in wetlands and non-wetlands (estimated probability 34 to 66%)
Facultative Upland (FACU)	Usually occur in non-wetlands (estimated probability 67 to 99%)
Obligate Upland (UPL)	Almost always occur in non-wetlands (estimated probability >99%)

- *Hydric Soil*: Soil maps from the USDA-NRCS Web Soil Survey (USDA 2021) were reviewed for soil types found within the Project Area. Hydric soils are saturated or inundated long enough during the growing season to develop anaerobic conditions that favor growth and regeneration of hydrophytic vegetation. There are several indirect indicators that may signify the presence of hydric soils including hydrogen sulfide generation, the presence of iron and manganese concretions, certain soil colors, gleying, and the presence of mottling. Generally, hydric soils are dark in color or may be gleyed (bluish, greenish, or grayish), resulting from soil development under anoxic (without oxygen) conditions. Bright mottles within an otherwise dark soil matrix indicate periodic saturation with intervening periods of soil aeration. Hydric indicators are particularly difficult to observe in sandy soils, which are often recently deposited soils of flood plains (entisols) and usually lack sufficient fines (clay and silt) and organic material to allow use of soil color as a reliable indicator of hydric conditions. Hydric soil indicators in sandy soils include accumulations of organic matter in the surface horizon, vertical streaking of subsurface horizons by organic matter, and organic pans.

  The hydric soil criterion is satisfied at a location if soils in the area can be inferred or observed to have a high groundwater table, if there is evidence of prolonged soil saturation, or if there are any indicators suggesting a long-term reducing environment in the upper part of the soil profile. Reducing conditions are most easily assessed using soil color. Soil colors were evaluated using the Munsell Soil Color Charts (Munsell 2000). Soil pits are dug (when necessary) to an approximate depth of 16-20 inches to evaluate soil profiles for indications of anaerobic and redoximorphic (hydric) conditions in the subsurface.

- *Wetland Hydrology*: The wetland hydrology criterion is satisfied at a location based upon conclusions inferred from field observations that indicate an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (USACE 1987 and USACE 2008).

Evaluation of CDFW jurisdiction followed guidance in the FGC. Specifically, CDFW jurisdiction would occur where a stream has a definite course with a distinguishable bed and bank showing evidence of where waters rise to their highest level and to the extent of associated riparian vegetation.

3. Results

3.1 Existing Biological and Physical Conditions

The Project API consists of an approximately 0.26-acre site comprised of undeveloped montane conifer forest bordered by adjacent residential development and paved roads (Big Bear Blvd and Talbot Dr) to the north and east, and open space to the south and west. Disturbances on site include an existing hiking trail (Castle Rock Trail 1W03), previous tree cutting, pedestrian use, and litter.

3.1.1 Habitat

Habitat within and adjacent the Project site consists of *Pinus jeffreyi* Forest and Woodland Alliance (Jeffrey pine forest and woodland) plant community. This habitat is co-dominated by Jeffrey pine (*Pinus jeffreyi*) and white fir (*Abies concolor*) in the tree canopy. The shrub layer within and adjacent the site is dominated by mountain whitethorn (*Ceanothus cordulatus*). The herbaceous layer is sparse or absent throughout much of the site. A complete list of plant species identified within the Project Area during the reconnaissance level field survey is included in Appendix C.

3.1.2 Wildlife

The only wildlife species observed or otherwise detected within the Project Area during the reconnaissance-level field survey were common raven (*Corvus corax*), Steller's jay (*Cyanocitta stelleri*), dark-eyed junco (*Junco hyemalis*), mountain chickadee (*Poecile gambeli*), pygmy nuthatch (*Sitta pygmaea*), and Merriam's chipmunk (*Neotamias merriami*). Additionally, evidence of domestic dogs was observed in the Project Area. No focused faunal surveys were conducted, and no small mammal trapping was performed.

3.2 Special Status Species and Habitats

According to the CNDDB, 83 sensitive species (58 plant species, 25 animal species) and one sensitive habitat have been documented in the *Big Bear Lake, Fawnskin, Keller Peak,* and *Butler Peak* USGS 7.5-Minute Series Quadrangles. This list of sensitive species and habitats includes any state and/or federally listed threatened or endangered species, California Fully Protected species, CDFW designated Species of Special Concern (SSC), and otherwise Special Animals. "Special Animals" is a general term that refers to all the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special status species." The CDFW considers the taxa on this list to be those of greatest conservation need.

Of the 83 sensitive species documented within the within the *Big Bear Lake, Fawnskin, Keller Peak,* and *Butler Peak* quad, 18 are state and/or federally listed as threatened or endangered species. However, only 12 have been documented in the Project vicinity (approximately 3 miles). Table 2 (below) provides a list of all state and/or federally listed threatened and endangered species documented within the Project vicinity, where they are found (locally, adjacent to the Project APE, or within the Project APE), if suitable habitat for that species exists within the API and whether the Project may affect that species.

Table 2. Listed Species Documented within the Project Vicinity

Common Name	Scientific Name	Status	Found Locally	Found Adjacent	Found Within	Suitable Habitat	Project Affect
Plants:							
ash-gray paintbrush	*Castilleja cinerea*	FT	Yes	No	No	Marginal	No Effect
Big Bear Valley sandwort	*Eremogone ursina*	FT	Yes	No	No	None	No Effect
southern mountain buckwheat	*Eriogonum kennedyi* var. *austromontanum*	FT	Yes	No	No	None	No Effect
San Bernardino Mountains bladderpod	*Physaria kingii* ssp. *bernardina*	FE	No	No	No	None	No Effect
San Bernardino blue grass	*Poa atropurpurea*	FE	No	No	No	None	No Effect
bird-foot checkerbloom	*Sidalcea pedata*	FE/SE	Yes	No	No	None	No Effect
California dandelion	*Taraxacum californicum*	FE	No	No	No	None	No Effect
Amphibians:							
southern mountain yellow-legged frog	*Rana muscosa*	FE/SE	No	No	No	None	No Effect
Fish:							
Steelhead - southern California DPS	*Oncorhynchus mykiss irideus* pop. 10	FE/ SCE	No	No	No	None	No Effect
Birds:							
bald eagle	*Haliaeetus leucocephalus*	FD/SE	Yes	No	No	Marginal	No Effect
southwestern willow flycatcher	*Empidonax traillii extimus*	FE/SE	Yes	No	No	None	No Effect
Reptiles:							
southern rubber boa	*Charina umbratica*	ST	Yes	No	No	Yes	May Affect

The aquatic/riparian habitats required by steelhead, southern mountain yellow-legged frog, and southwestern willow flycatcher are absent from the Project Area. Additionally, the mesic meadow habitats associated with San Bernardino blue grass, bird-foot checkerbloom, and California dandelion are absent from the Project Area and immediate vicinity. Therefore, no further discussion of these species is warranted.

Although not a state or federally listed species, the California spotted owl (*Strix occidentalis occidentalis*) and San Bernardino flying squirrel (*Glaucomys sabrinus californicus*) are both CDFW SSC and are considered particularly sensitive species within the region. Furthermore, these species have been documented in the Project vicinity (within approximately 3 miles). Therefore, California spotted owl (SPOW) and flying squirrel will be included in the discussion below.

An analysis of the likelihood for occurrence of all CNDDB sensitive species documented in the *Big Bear Lake, Fawnskin, Keller Peak,* and *Butler Peak* quads is provided in Appendix A. This analysis considers species' range as well as documentation within the vicinity of the Project Area and includes the habitat requirements for each species and the potential for their occurrence on site, based on required habitat elements and range relative to the current site conditions. A complete list of all sensitive species identified by the CNDDB and CNPSEI databases as potentially occurring in the Project vicinity is provided in Appendix E.

3.2.1 Special Status Species

No state or federally listed threatened or endangered species have been documented within or adjacent the Project site.

Ash-gray Paintbrush – Threatened (Federal)

The federally listed as threatened ash-gray paintbrush is a hemiparasitic, perennial herb in the broomrape family (Orobanchaceae), with several ascending to decumbent (trailing) grayish stems sprouting from the root crown. The stems are 1 to 2 decimeters (4 to 8 inches) tall (Munz 1974, p. 795). Ash-gray paintbrush is distinguished from other species of *Castilleja* within its range by its perennial nature, ashy-puberulent (covered with short hairs) stems and leaves, yellowish or reddish flowers, with calyx lobes of equal length (Wetherwax et al. 2012, p. 957). Host plants include *Eriogonum kennedyi* var. *austromontanum*, *Eriogonum kennedyi* var. *kennedyi*, *Eriogonum wrightii* var. *subscaposum*, *Artemisia tridentata* ssp. *tridentata*, *Artemisia nova*, and other *Artemisia* taxa (USFWS 2013). However, because this species also possesses photosynthetic green leaves that can produce sugars, it is termed hemiparasitic and does not require a host plant species for its survival (USFWS 2013). This species typically occupies the meadow/forest ecotone (transitional area of vegetation between two different plant communities) of the San Bernardino Mountains at elevations between 1,800 and 3,300 meters (5,905 to 10,827 feet.) and has been recorded in the following ecological communities: pebble plains, dry and wet forest meadows, mixed conifer forests, open pine forests, and pinyon-juniper woodlands (USFWS 2013). However, the primary habitat for this species is pebble plains, supporting one or more of the host plant species for ash-gray paintbrush (USFWS 2013). This species typically blooms from June through August (Calflora 2022).

> *Findings*: According to the CNDDB, ash-gray paintbrush has been documented (2003) approximately 0.15 miles north of the Project site. However, potential host plants for ash-gray paintbrush (i.e., *Eriogonum kennedyi* var. *austromontanum*, *Eriogonum kennedyi* var. *kennedyi*, *Eriogonum wrightii* var. *subscaposum*, *Artemisia* spp.) are absent from the Project site and this species was not detected during the floristic botanical field survey conducted by Jacobs in May and June of 2022. Therefore, ash-gray paintbrush is considered absent from the Project site at the time of survey and the Project will not affect this species.

Bear Valley Sandwort – Threatened (Federal)

The federally listed as threatened Bear Valley sandwort is a low, tufted perennial herb in the pink family (Caryophyllaceae). Individual plants are green, with stems from 10 to 18 centimeters (3.9 to 7.1 inches) long. The leaves are opposite and 0.5 to 1 centimeter (0.2 to 0.39 inches) long. The flowers are white, five-petaled, and arranged in open cymes (clusters). The petals are 0.2 to 0.45 centimeters (0.1 to 0.18 inches) long (USFWS 2015). This species is typically found in pebble plain habitat in the northeastern San Bernardino Mountains of southwest San Bernardino County at elevations between 1,950 and 2,100 meters (6,393 to 6,885 feet.) (USFWS 2015). Pebble plains are a rare plant community that occur in treeless, open patches within pine forests and pinyon-juniper woodlands that are comprised of clay soil mixed with quartzite pebbles and gravel that are continually pushed to the surface through frost action (USFS 2002, pp. 12, 15). Bear Valley sandwort is typically found within pebble plain habitat and is one of three indicator plant species, along with *Eriogonum kennedyi* var. *austromontanum*, and *Ivesia argyrocoma* var. *argyrocoma* defining a pebble plain (USFWS 2015). This species typically blooms from May through August (Calflora 2022).

> *Findings*: According to the CNDDB, Bear Valley sandwort has been documented (1981) approximately 0.76 mile east of the Project site. However, there is no pebble plain or pebble plain-like habitat suitable for Bear Valley sandwort within the Project Area and this species was not detected during the floristic botanical field survey conducted by Jacobs in May and July of 2022. Therefore, Bear Valley sandwort is considered absent from the Project site at the time of survey and the Project will not affect this species.

Southern Mountain Buckwheat – Threatened (Federal)

The federally listed as threatened southern mountain buckwheat is a woody-based, cushion-like, perennial plant in the buckwheat family (Polygonaceae). Individual plants are 8 to 15 centimeters (3.1 to 5.9 inches) tall, with stems forming loose, leafy mats, 14 to 36 centimeters (5.5 to 14.1 inches) wide. The leaves are oblanceolate (broadest above the middle and tapering toward the base) and 0.5 to 1 centimeter (0.2 to 0.4 inches) long, with dense white hair. The inflorescences (flower clusters) are 8 to 15 centimeters (3.2 to 5.9 inches) high, bearing head-like inflorescences. The perianth is white to rose and composed of inner and outer lobes that are similar in appearance (USFWS 2015). This species is typically found in pebble plain habitat in the northeastern San Bernardino Mountains of southwest San Bernardino County at elevations between 2,000 and 2,200 meters (6,557 to 7,213 feet.) (USFWS 2015). Southern mountain buckwheat is typically found within pebble plain habitat and is one of three indicator plant species, along with *Eremogone ursina*, and *Ivesia argyrocoma* var. *argyrocoma* defining a pebble plain (USFWS 2015). This species typically blooms from June through September (Calflora 2022).

> *Findings*: According to the CNDDB, southern mountain buckwheat has been documented (2003) approximately 0.15 miles north of the Project site. However, there is no pebble plain or pebble plain-like habitat suitable for southern mountain buckwheat within the Project Area and this species was not detected during the floristic botanical field survey conducted by Jacobs in May and July of 2022. Therefore, southern mountain buckwheat is considered absent from the Project site at the time of survey and the Project will not affect this species.

San Bernardino Mountains bladderpod – Endangered (Federal)

The federally listed as endangered San Bernardino Mountains bladderpod is a silvery, short-lived perennial in the mustard family (Brassicaceae), that reaches approximately 5 to 15 centimeters (2 to 6 inches) in height (USFWS 2009a). The outer basal leaves are diamond-shaped to round, and the inner leaves are elliptic with petioles 2 to 5 centimeters (0.8 to 2 inches) long. The flower petals are yellow, and the fruits are spherical, pubescent, two-chambered, and contain 2 to 4 seeds per chamber (USFWS 2009a). This species is typically found within single

leaf pinyon-mountain juniper and white fir forest on limestone and dolomite soils and gentle to moderate slopes at elevations between 2,098 and 2,700 meters (6,883 and 8,800 feet) in the San Bernardino Mountains (USFWS 2009a). This species typically blooms from May to June (Calflora 2022).

Findings: According to the CNDDB, the nearest documented San Bernardino Mountains bladderpod occurrence is a 1916 historical collection described as being near Metcalf Bay (CNDDB 2022). The Metcalf Bay area is highly developed, and it is likely this occurrence location is either extirpated or an error. The nearest known extant San Bernardino Mountains bladderpod occurrence (2019) to the Project Area is approximately 5.1 miles northeast of the Project site, north of Big Bear Lake on substrate described as "carbonate hills" (CNDDB 2022).

The USFWS lists the primary constituent elements (PCEs) for San Bernardino Mountains bladderpod designated Critical Habitat as:

1. Soils derived primarily from Bonanza King Formation and Undivided Cambrian parent materials that occur on hillsides or on large rock outcrops at elevations between 6,883 and 8,800 feet (2,098 and 2,700 meters);

2. Soils with intact, natural surfaces that have not been substantially altered by land use activities (e.g., graded, excavated, re-contoured, or otherwise altered by ground-disturbing equipment); and

3. Associated plant communities that have areas with an open canopy cover and little accumulation of organic material (e.g., leaf litter) on the surface of the soil (USFWS 1994).

The carbonate soils San Bernardino Mountains bladderpod is associated with (PCE 1) do not occur within the Project Area. Furthermore, this species was not detected during the floristic botanical field survey conducted by Jacobs in May and July of 2022. Therefore, San Bernardino Mountains bladderpod is considered absent from the Project site at the time of survey and the Project will not affect this species.

Southern Rubber Boa – Threatened (State)

The state listed as threatened southern rubber boa (rubber boa) is a small, rather stout-bodied snake with smooth scales and a blunt head and tail (Stewart et al. 2005). Adults grow to about 49.5-55.9 centimeters (19.5-22 inches) in length. Adult rubber boas are light brown or tan in dorsal color with an unmarked yellow venter; juveniles are pale without a distinct margin between dorsal and ventral coloration (Stewart et al. 2005). Rubber boas are primarily fossorial and are rarely encountered on the surface, except on days and nights of high humidity and overcast sky. During warm months, this snake is typically active at night and on overcast days. Rubber boas hibernate during the winter, usually in crevices in rocky outcrops. Other potential hibernacula for this species may include rotting stumps.

Typical southern rubber boa habitat is mixed conifer-oak forest or woodland dominated by two or more of the following species: Jeffrey pine (*Pinus jeffreyi*), yellow pine (*P. ponderosa*), sugar pine (*P. lambertiana*), incense cedar (*Calocedrus decurrens*), white fir (*Abies concolor*), and black oak (*Quercus kelloggii*) (Stewart et al., 2005). Rubber boas are usually found near streams or wet meadows or within or under surface objects with good moisture retaining properties such as rotting logs (CDFW 2014). Much of the literature suggests that the rubber boa prefers moist conifer-oak forests and woodlands between 5,000 and 8,000 feet in elevation, especially in canyons and on cool, north facing slopes (CDFW 1987). However, the factors of overriding importance seem to be access to hibernation sites below the frost line and access to damp soil (Keasler 1982). In all habitat types,

rock outcrops and surface materials (i.e., rocks, logs, and a well-developed duff layer) are important habitat components because they provide cover and maintain soil moisture (Loe 1985, as cited in Stewart et al. 2005).

> *Findings*: According to the CNDDB, the nearest documented southern rubber boa occurrence (2010) is approximately 1 mile northwest of the Project site, near the dam at the west end of Big Bear Lake (CDFW pers. comm.). Southern rubber boa have not been documented in the Project Area and this species was not observed during the reconnaissance level assessment survey. However, the conditions within the Project Area are suitable to support this species. There are several rock outcrops immediately adjacent the Project site and there is sufficient ground cover (i.e., rotting stumps, down logs, rocks, woody debris, duff layer) within and adjacent the site that could provide sufficient soil moisture for potential rubber boa hibernacula and refugia. Therefore, the habitat within the Project Area is suitable for southern rubber boa and implementing precautionary measures to avoid any Project related impacts to this species is recommended.

Bald Eagle – Delisted (Federal)/Endangered (State)

The bald eagle (BAEA) was a federally listed species until 2007 when it was delisted because of the increase in population. However, it remains a state listed endangered species and is covered under the federal Migratory Bird Treaty Act (MBTA) of 1918, as well as the Bald and Golden Eagle Protection Act of 1940, as amended in 1962. BAEA are distinguished by a white head and white tail feathers, are powerful, brown birds that may weigh 14 pounds and have a wingspan of 8 feet. Male eagles are smaller, weighing as much as 10 pounds and have a wingspan of 6 feet. Sometimes confused with Golden Eagles, BAEA are mostly dark brown until they are four to five years old and acquire their characteristic coloring. They live near rivers, lakes, and marshes where they can find fish, their staple food. BAEA will also feed on waterfowl, turtles, rabbits, snakes, and other small animals and carrion. BAEA require a good food base, perching areas, and nesting sites. Their habitat includes estuaries, large lakes, reservoirs, rivers, and some seacoasts (CDFW 2016). In winter, the birds congregate near open water in tall trees for spotting prey and night roosts for sheltering (CDFW 1999). They mate for life, choosing the tops of large trees to build nests, which they typically use and enlarge each year. In most of California, the breeding season lasts from about January through July or August (CDFW 2016). Nests may reach 10 feet across and weigh a half ton. They may also have one or more alternate nests within their breeding territory (CDFW 2016). The young eagles are flying within three months and are on their own about a month later.

Perches in the immediate vicinity of lakeshores form an essential habitat requirement for BAEA in the Big Bear Valley and the major threat to the continued existence of wintering BAEA in this area comes from development and modification of habitat near the shoreline (Walter and Garrett 1981).

> *Findings*: The Forest Service conducts annual surveys for BAEA in the San Bernardino Mountains. Migrating BAEA have long been documented to overwinter at Big Bear Lake. During a two-year study of the wintering BAEA population in the Big Bear Valley, it was estimated that about 30 individuals wintered in the Big Bear Valley. The wintering period for migrating BAEA in the Big Bear Valley area is generally December through March, with the first eagles arriving in mid-November and the last eagles leaving in early April (Walter and Garrett 1981). The highest numbers of wintering eagles in the area is in January and early February (Walter and Garrett 1981).
>
> Since 2012, at least one resident pair has been documented in the Big Bear Valley, which first nested successfully in 2012 and 2015. These eagles typically nest to the west of Grout Bay in the Fawnskin area, approximately 2 miles north of the Project Area.
>
> Although Big Bear and Baldwin lakes support overwintering migratory BAEA and the Project Area may be used by BAEA for perching, this species is not known to nest in the Project Area and given the existing

human disturbance adjacent the Project site, consisting mostly of residential development, BAEA are not likely to nest within the Project Area. Furthermore, the nearest lake shoreline perching/foraging habitat for this species is approximately 700 feet away from the Project site. Therefore, the Project will not affect BAEA.

California Spotted Owl – SSC

The California spotted owl (SPOW) is considered an SSC by the CDFW and is listed as a Sensitive Species by the U.S. Forest Service. The SPOW breeds and roosts in forests and woodlands with large old trees and snags, high basal areas of trees and snags, dense canopies (≥70% canopy closure), multiple canopy layers, and downed woody debris (Verner et al. 1992a, as cited in Davis and Gould 2008). Large, old trees are the key component; they provide nest sites and cover from inclement weather and add structure to the forest canopy and woody debris to the forest floor. These characteristics typify old-growth or late-seral-stage habitats (Davis and Gould 2008). Because the SPOW selects stands that have higher structural diversity and significantly more large trees than those generally available, it is considered a habitat specialist (Moen and Gutiérrez 1997, as cited in Davis and Gould 2008). In southern California, SPOW principally occupy montane hardwood and montane hardwood-conifer forests, especially those with canyon live oak (*Quercus chrysolepis*) and bigcone Douglas-fir (*Pseudotsuga macrocarpa*), at mid to high elevations (Davis and Gould 2008).

SPOW prey on small mammals, particularly dusky-footed woodrats (*Neotoma fuscipes*) at lower elevations (oak woodlands and riparian forests) and throughout southern California (Verner et al. 1992a, as cited in Davis and Gould 2008). The SPOW breeding season occurs from early spring to late summer or fall. Breeding spotted owls begin pre-laying behaviors, such as preening and roosting together, in February or March and juvenile owl dispersal likely occurs in September and October (Meyer 2007). The SPOW does not build its own nest but depends on finding suitable, naturally occurring sites in tree cavities or on broken-topped trees or snags, on abandoned raptor or common raven (*Corvus corax*) nests, squirrel nests, dwarf mistletoe (*Arceuthobium* spp.) brooms, or debris accumulations in trees (Davis and Gould 2008). In the San Bernardino Mountains, platform nests predominate (59%) and were in trees with an average diameter at breast height (dbh) of 75 cm, whereas cavity nest trees and broken-top nest trees were significantly larger (mean dbh of 108.3 cm and 122.3 cm, respectively) (LaHaye et al. 1997, as cited in Davis and Gould 2008).

According to LaHaye and Gutierrez (2005), urbanization in the form of primary and vacation homes has degraded or consumed some forest in most mountain ranges. The results of spotted owl surveys conducted between 1987 and 1998 in the San Bernardino Mountains indicated that a large area of potentially suitable spotted owl habitat, enough to support 10-15 pairs, existed between Running Springs and Crestline (LaHaye and others 1999, as cited in LaHaye and Gutierrez 2005). However, only four pairs have been found in this area, and owls were found only in undeveloped sites. Thus, residential development within montane forests may preclude spotted owl occupancy, even when closed-canopy forest remains on developed sites (LaHaye and Gutierrez 2005).

Findings: According to the CNDDB Spotted Owl Observations Database (2022), the nearest documented SPOW observations are a nesting site located approximately 1.4 miles west of the Project site and a SPOW activity center approximately 1.4 miles southeast of the Project site, respectively. The Project site is adjacent existing residential development to the north and east and is subject to adjacent human disturbances. Additionally, the Project Area does not support the montane hardwood and montane hardwood-conifer forests that SPOW typically occupy in the region. Therefore, SPOW are not likely to occur within the Project Area and the Project will not affect this species.

San Bernardino Flying Squirrel – SSC

The San Bernardino flying squirrel (flying squirrel) is considered an SSC by the CDFW and is listed as a Sensitive Species by the U.S. Forest Service. The flying squirrel is a nocturnally active, arboreal squirrel that is distinguished by the furred membranes extending from wrist to ankle that allow squirrels to glide through the air between trees at distances up to 91 meters (300 feet) (Wolf 2010). The San Bernardino flying squirrel is the most southerly distributed subspecies of northern flying squirrel (*Glaucomys sabrinus*) and is paler in color and smaller than most other northern flying squirrel subspecies. It inhabits high-elevation mixed conifer forests comprised of white fir, Jeffrey pine, and black oak between ~4,000 to 8,500 feet. It has specific habitat requirements that include associations with mature forests, large trees and snags, closed canopy, downed woody debris, and riparian areas, and it is sensitive to habitat fragmentation. It specializes in eating truffles (e.g. hypogeous mycorrhizal sporocarps) buried in the forest floor as well as arboreal lichens in winter when truffles are covered with snow and unavailable (Wolf 2010). This flying squirrel historically occurred as three isolated populations in the San Gabriel, San Bernardino, and San Jacinto Mountain forests.

Flying squirrel populations are adversely affected by habitat fragmentation. Rosenberg and Raphael (1984) found that in northwestern California, the abundance of squirrels increased with stand size, they were generally absent in stands smaller than 20 hectares (ha), and approximately 75% of stands over 100 ha had flying squirrels. An additional problem with fragmented habitats is the constraints that open spaces pose to the movements of individuals and the colonization of unoccupied habitat patches. Mowrey and Zasada (1982) reported an average gliding distance of about 20 meters in *sabrinus*, with a maximum of 48 meters, and concluded that movements are unimpeded in areas with average openings of 20 meters and occasional openings of 30 to 40 meters (Bolster 1998).

> *Findings*: The Flying Squirrels of Southern California is a project of the San Diego Natural History Museum (SDNHM), in collaboration with the U.S. Forest Service and the USFWS, to try to determine the distribution and habitat use of the flying squirrel in southern California. According to the SDNHM database, the nearest documented flying squirrel occurrences (2017) is approximately 0.16 mile southeast of the Project site. There is potentially suitable habitat for this species within and adjacent the Project site consisting of Jeffrey pine forest and woodland habitat dominated by Jeffrey pine and white fir. Additionally, the Project Area is contiguous with extensive unfragmented habitat to the south and west. Therefore, flying squirrel are likely to occur within the Project Area and the Project may impact this species.

3.2.2 Special Status Habitats

The Project Area does not contain any sensitive habitats, including any USFWS designated Critical Habitat for any federally listed species. The nearest Critical Habitat unit is approximately 1 mile south of the Project site. This Critical Habitat unit (Unit 5 – Bluff Meadow) consists of USFWS designated Critical Habitat for the federally listed as endangered San Bernardino blue grass and California dandelion. However, no portion of the Project Area is within or adjacent this Critical Habitat unit, or any other sensitive habitats. Therefore, the Project will not affect USFWS designated Critical Habitat, or any other special status habitats.

3.3 Jurisdictional Delineation

The Project Area is within the Baldwin Hydrologic Sub-Area (HSA 801.73). The Baldwin HSA comprises a 34,333-acre drainage area, within the larger Santa Ana Watershed (HUC 18070203). This watershed is primarily within San Bernardino County and includes Riverside and Orange Counties with a small portion of Los Angeles Counties. The Santa Ana Watershed is bound on the north by the Mojave and Southern Mojave Watersheds, on the southeast by the Whitewash and San Jacinto Watersheds, and on the west by the San Gabriel, Seal Beach,

Newport Bay, and Aliso-San Onofre Watersheds. The Santa Ana Watershed encompasses a portion of the San Gabriel and San Bernardino Mountains in the south and is approximately 3,000 square miles in area. The Santa Ana River is the major hydrogeomorphic feature within the Santa Ana Watershed. One of several tributaries to the Santa Ana River is Bear Creek, which outflows from Big Bear Lake from the Bear Valley Dam located at the westernmost (downstream) end of Big Bear Lake. Big Bear Lake is one of the head waters of the Santa Ana River Watershed.

Waters of the U.S.

The USACE has authority to permit the discharge of dredged or fill material in WOTUS under Section 404 of the CWA. WOTUS are defined as:

> "All waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; or wetlands adjacent to these waters" (Section 404 of the CWA; 33 CFR 328.3 (a).

Therefore, CWA jurisdiction exists over the following:

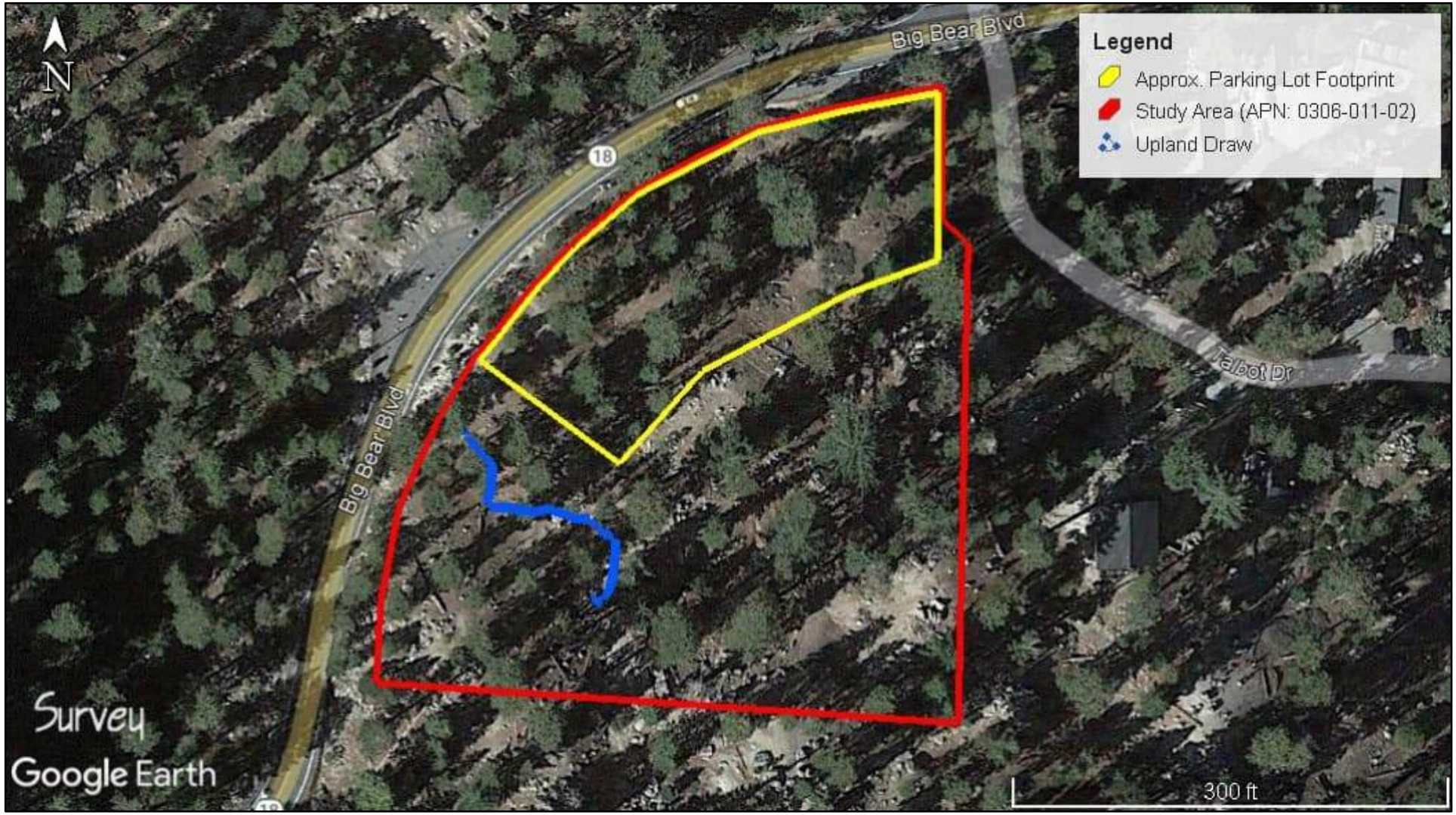
1. All traditional navigable waters (TNWs);
2. All wetlands adjacent to TNWs;
3. Non-navigable tributaries of TNWs that are relatively permanent waters (RPWs) i.e., tributaries that typically flow year-round or have continuous flow at least seasonally; and
4. Every water body determined to have a significant nexus with TNWs.

Additionally, areas meeting all three wetland parameters would be designated as USACE wetlands, if they are adjacent to jurisdictional WOTUS, or otherwise determined to have a significant nexus to a TNW.

There are no wetland or non-wetland WOTUS within the Project Area. There is an upland draw in the hillslope to the west/southwest of the proposed parking lot site (Figure 6). However, this topographical feature does not meet the definition of a WOTUS and is situated outside of the proposed Project footprint. Therefore, the Project will not result in any impacts (temporary or permanent) to jurisdictional waters subject to regulation by the USACE or RWQCB under Sections 404/401 of the CWA.

State Lake/Streambed

The upland draw in the hillslope to the west/southwest of the proposed parking lot site would not be subject to regulation by the CDFW under Section 1602 of the FGC, or by the RWQCB under the Porter Cologne Water Quality Control Act. This topographical feature does not meet the CDFW definition of a lake, river, or stream and does not support any aquatic resources, stream-dependent wildlife resources, or riparian habitats. It does not have an identifiable bed and bank to define the maximal extent of the feature and there is no riparian vegetation present. Furthermore, this topographical feature is situated outside (to the west) of the proposed Project footprint (Figure 6). Therefore, the Project will not result in any permanent or temporary impacts to jurisdictional waters of the State and no FGC Section 1602 or RWQCB Waste Discharge Requirements (WDRs) permitting is required.



SOURCE: Google Earth

FIGURE 6

Upland Drainage Feature
City of Big Bear Lake Castle Rock Trail Parking Lot Project

4. Conclusions and Recommendations

4.1 Sensitive Biological Resources

A BRA survey was conducted by Jacobs in May and June of 2022 to identify potential habitat for special status plant and wildlife species within the Project Area. No special status species, including any state and/or federally listed threatened or endangered species, were observed within the Project Area during the reconnaissance-level assessment survey, which included 100% visual coverage of the Project site. Due to the environmental conditions on site and adjacent disturbances, BAEA and SPOW are not likely to nest in the Project Area and the Project will not affect these species. However, the Project Area and adjacent land to the south and west consist of open space comprised of Jeffrey pine forest and woodland habitat that is potentially suitable to support several sensitive species including the state listed as threatened southern rubber boa and the California SSC San Bernardino flying squirrel. The Project Area does not contain any sensitive habitats, including any USFWS designated Critical Habitat for federally listed species, and the Project will not affect Critical Habitat. Furthermore, the proposed Project will not affect any resources protected under the Coastal Barriers Resources Act, Coastal Zone Management Act, Fish and Wildlife Conservation Act, Magnuson-Stevens Fishery Conservation and Management Act, the Protection of Wetlands – Executive Order 11990 or Wild and Scenic Rivers Act, respectively. Based on the preceding findings, the proposed action will have no effect on federally listed or sensitive species.

Special Status Plant Species

There is no pebble plain or pebble plain-like habitat within the Project site suitable for Bear Valley sandwort or southern mountain buckwheat and the carbonate soils that San Bernardino Mountains bladderpod is associated with do not occur within the Project Area. Furthermore, no ash-gray paintbrush, Bear Valley sandwort, southern mountain buckwheat, or San Bernardino Mountains bladderpod were detected on site during the floristic botanical field survey conducted by Jacobs in May and July of 2022. Therefore, these species are considered absent from the Project site at the time of survey and the Project will not affect any special status plant species.

Southern Rubber Boa

Although the state listed as threatened southern rubber boa was not observed on site during the reconnaissance level assessment survey, the habitat within and adjacent the Project Area to the south and west is suitable to support southern rubber boa and there is a potential for rubber boa to occur within the Project Area. Therefore, the following precautionary measures are recommended to avoid any potential Project related impacts on southern rubber boa:

- A pre-construction southern rubber boa survey is recommended that would provide 100% visual coverage of the entire Project site and would consist of a systematic ground search that would focus on moveable surface materials such as rocks, logs, duff, and man-made debris that may provide shelter for southern rubber boa.

- If focused presence/absence surveys are negative for southern rubber boa presence, it is recommended that rubber boa exclusion fence (e.g., silt fence) be installed around the perimeter of the proposed Project footprint, prior to commencement of any Project-related ground disturbing activities. All construction activities should be restricted to within the fenced disturbance limits to avoid potential harm to rubber boa that may be present in adjacent habitat.

- A qualified biologist who is familiar with southern rubber boa and their habits should be on site during all ground disturbing activities to monitor the clearing/removal of any surface objects that could potentially

provide rubber boa refugia or hibernacula (i.e., rotting logs/stumps, duff layer). The biological monitor should visually inspect under any surface cover objects prior to their removal to ensure no rubber boa are harmed or killed.

- If southern rubber boa is found during pre-construction presence/absence surveys or during construction activities, all Project activities shall be halted, CDFW shall be contacted, and a CESA Incidental Take Permit shall be obtained from CDFW prior to reinitiating Project activities.

San Bernardino Flying Squirrel

The habitat within and adjacent the Project Area to the south and west is suitable to support San Bernardino flying squirrel and there is a potential for flying squirrel to occur within the Project Area. Therefore, the following precautionary avoidance measure is recommended to ensure the Project does not result in any impacts to San Bernardino flying squirrel:

- To ensure the Project does not impact San Bernardino flying squirrel, it is recommended that a pre-construction survey be conducted to identify potentially suitable cavity nesting sites and foraging habitat, prior to the removal of any trees or downed woody debris.

- If suitable San Bernardino flying squirrel cavity nesting sites are detected within the Project site, then coordination with the CDFW would be necessary to determine appropriate minimization and mitigation measures to offset Project related impacts to this species.

BAEA, SPOW, and Other Nesting Birds

Although BAEA and SPOW are not likely to nest within the Project Area due to existing on-site and adjacent disturbances, the Project Area is suitable to support other nesting bird species. Most native bird species are protected from unlawful take by the MBTA (Appendix D). Additionally, the State of California provides protection for native bird species and their nests in the FGC (Appendix D). Bird nesting protections in the FGC include the following (Sections 3503, 3503.5, 3511, 3513 and 3800):

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.

- Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others), and Strigiformes (owls).

- Section 3511 prohibits the take or possession of Fully Protected birds.

- Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that Project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.

- Section 3800 prohibits the take of any any non-game bird (i.e., bird that is naturally occurring in California that is not a gamebird, migratory game bird, or fully protected bird).

In general, impacts to all bird species (common and special status) can be avoided by conducting work outside of the nesting season, which is generally February 1st through August 31st. However, if all work cannot be conducted outside of nesting season, the following is recommended:

- To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist should conduct pre-construction nesting bird surveys prior to Project-related disturbance to suitable nesting areas to identify any active nests. The nesting bird surveys should consist of a minimum of five (5) consecutive survey days and should include an additional three (3) consecutive nights of survey for SPOW and other nocturnal species. Nocturnal spotted owl surveys should be conducted between the hours of 9:00 pm. and midnight, during appropriate weather conditions (e.g., no rain or winds), and should include a spot calling survey component that would utilize California spotted owl call playback at predetermined fixed calling points.

- If no active nests are found, no further action would be required. If an active nest is found, the biologist should set appropriate no-work buffers around the nest which would be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity, and duration of disturbance. The nest(s) and buffer zones should be field checked weekly by a qualified biological monitor. The approved no-work buffer zone should be clearly marked in the field, within which no disturbance activity should commence until the qualified biologist has determined the young birds have successfully fledged and the nest is inactive.

Lighting Impacts

To avoid potential impacts to nocturnal species including SPOW, San Bernardino flying squirrel, and other nocturnal species due to light pollution, Project related night lighting (both temporary and permanent) should be directed away from adjacent undeveloped areas to protect nocturnal species from direct night lighting. Shielding should be incorporated in Project designs to ensure ambient lighting in adjacent habitat is not increased.

Blasting Impacts

The City has identified the potential for rock fracturing and excavation to be necessary to construct the proposed parking lot. The proposed single loaded parking lot alternative (Alternative B, Figures 2a-2b) would be the preferred alternative to avoid/minimize the necessity for blasting. Should rock fracturing be necessary, it is recommended that nonexplosive rock breaking methods, such as hydraulic splitter or expansive chemical agents, be implemented as alternative methods to conventional blasting, to minimize potential impacts to local wildlife.

4.2 Jurisdictional Waters

In addition to the BRA field survey, Jacobs also assessed the Project site for the presence of any state and/or federal jurisdictional waters. The result of the jurisdictional waters assessment is that there are no wetland or non-wetland WOTUS or waters of the State present within the proposed Project site that would potentially be subject to regulation by the USACE under Section 404 of the CWA, the RWQCB under Section 401 of the CWA and/or Porter Cologne Water Quality Control Act, or the CDFW under Section 1602 of the California FGC, respectively.

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Appendix A. CNDDB Species and Habitats Documented Within the *Big Bear Lake*, *Fawnskin*, *Keller Peak* and *Butler Peak* USGS 7.5-Minute Quadrangles

Special Status Species Occurrence Potential Analysis

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Acanthoscyphus parishii var. *goodmaniana*	Cushenbury oxytheca	Endangered/ None	G4?T1; S1; CNPS: 1B.1	Pinyon and juniper woodland. On limestone talus and rocky slopes. 1400-2350 m.	The pinyon-juniper woodland habitat this species is associated with is absent from the Project Area and the nearest documented occurrence for this species is approx. 5.2 miles N of the site. Occurrence potential is low.
Accipiter cooperii	Cooper's hawk	None/ None	G5; S4; CDFW: WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	No suitable nesting habitat for this species exists within the Project Area. Occurrence potential is low.
Anniella stebbinsi	Southern California legless lizard	None/ None	G3; S3; CDFW: SSC	Generally, south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats; generally, in moist, loose soil. They prefer soils with a high moisture content.	There is some suitable habitat for this species within the Project Area, but the only documented occurrence for this species in the 4-quad CNDDB query is a historical collection (1966) from approx. 5.4 miles SW of the site. Occurrence potential is low.
Aquila chrysaetos	golden eagle	None/ None	G5; S3; CDFW: FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	The nearest documented occurrence for this species is approx. 8.5 miles N of the Project Area, on the north slopes of the San Bernardino Mountains. This species has not been documented nesting in the Big Bear Valley area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Arenaria lanuginosa var. *saxosa*	rock sandwort	None/ None	G5T5; S2; CNPS: 2B.3	Subalpine coniferous forest, upper montane coniferous forest. Mesic, sandy sites. 1920-2935 m.	The microhabitat this species is associated with (i.e. mesic sites) is absent from the Project Area. Occurrence potential is low.
Astragalus albens	Cushenbury milk-vetch	Endangered/ None	G1; S1; CNPS: 1B.1	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Sandy or stony flats, rocky hillsides, canyon washes, and fans, on carbonate or mixed granitic-calcareous debris. 1185-1950 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Occurrence potential is low.
Astragalus bernardinus	San Bernardino milk-vetch	None/ None	G3; S3; CNPS: 1B.2	Joshua tree woodland, pinyon and juniper woodland. Granitic or carbonate substrates. 290-2290 m.	The habitats this species is associated with are absent from the Project Area. Occurrence potential is low.
Astragalus lentiginosus var. *sierrae*	Big Bear Valley milk-vetch	None/ None	G5T2; S2; CNPS: 1B.2	Mojavean desert scrub, meadows and seeps, pinyon and juniper woodland, upper montane coniferous forest. Stony meadows and open pinewoods; sandy and gravelly soils in a variety of habitats. 1710-3230 m.	Some of the habitat this species is associated with is present within the Project Area and the nearest documented occurrence for this species is approx. 2.1 miles E of the site. Occurrence potential is moderate.
Astragalus leucolobus	Big Bear Valley woollypod	None/ None	G2; S2; CNPS: 1B.2	Lower montane coniferous forest, pebble plain, pinyon and juniper woodland, upper montane coniferous forest. Dry pine woods, gravelly knolls among sagebrush, or stony lake shores in the pine belt. 1460-2895 m.	Some of the habitat this species is associated with is present within the Project Area and the nearest documented occurrence for this species is approx. 1.9 miles NE of the site. Occurrence potential is moderate.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Boechera dispar	pinyon rockcress	None/ None	G3; S3; CNPS: 2B.3	Joshua tree woodland, pinyon and juniper woodland, Mojavean desert scrub. Granitic, gravelly slopes and mesas. Often under desert shrubs which support it as it grows. 1005-2805 m.	The habitats this species is associated with are absent from the Project Area. Occurrence potential is low.
Boechera parishii	Parish's rockcress	None/ None	G2; S2; CNPS: 1B.2	Pebble plain, pinyon and juniper woodland, upper montane coniferous forest. Generally found on pebble plains on clay soil with quartzite cobbles, sometimes on limestone. 1825-2805 m.	The microhabitat this species is associated with (i.e. clay soils with quartzite cobbles) is absent from the Project Area. Occurrence potential is low.
Boechera shockleyi	Shockley's rockcress	None/ None	G3; S2; CNPS: 2B.2	Pinyon and juniper woodland. On ridges, rocky outcrops and openings on limestone or quartzite. 875-2515 m.	The habitats this species is associated with are absent from the Project Area. Occurrence potential is low.
Bombus caliginosus	obscure bumble bee	None/ None	G4?; S1S2	Coastal areas from Santa Barbara County to north to Washington state. Food plant genera include *Baccharis, Cirsium, Lupinus, Lotus, Grindelia* and *Phacelia*.	The Project Area is outside the current known range for this species and the food plants for this species are absent from the Project Area. Occurrence potential is low.
Bombus crotchii	Crotch bumble bee	None/ Candidate Endangered	G3G4; S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia,* and *Eriogonum*.	The food plants for this species are absent from the Project Area and the nearest documented occurrence for this species (1999) is approx. 5.6 miles NE of the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Bombus morrisoni	Morrison bumble bee	None/ None	G4G5; S1S2	From the Sierra-Cascade ranges eastward across the intermountain west. Food plant genera include *Cirsium, Cleome, Helianthus, Lupinus, Chrysothamnus,* and *Melilotus*.	The food plants for this species are absent from the Project Area and the nearest documented occurrence for this species (1999) is approx. 5.2 miles NE of the Project Area. Occurrence potential is low.
Botrychium crenulatum	scalloped moonwort	None/ None	G4; S3; CNPS: 2B.2	Bogs and fens, meadows and seeps, upper montane coniferous forest, lower montane coniferous forest, marshes and swamps. Moist meadows, freshwater marsh, and near creeks. 1185-3110 m.	The microhabitats this species is associated with (i.e. moist meadows, freshwater marsh, and creeks) are absent from the Project Area. Occurrence potential is low.
Calochortus palmeri var. *palmeri*	Palmer's mariposa-lily	None/ None	G3T2; S2; CNPS: 1B.2	Meadows and seeps, chaparral, lower montane coniferous forest. Vernally moist places in yellow-pine forest, chaparral. 195-2530 m.	The microhabitats this species is associated with (i.e. vernally moist places) are absent from the Project Area. Occurrence potential is low.
Calochortus plummerae	Plummer's mariposa-lily	None/ None	G4; S4; CNPS: 4.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m.	Some of the habitat this species is associated with is present within the Project Area, but the nearest documented occurrence for this species is approx. 4.2 miles SE of the Project Area and this species has not been documented in the Big Bear Valley area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Calyptridium pygmaeum	pygmy pussypaws	None/ None	G1G2; S1S2; CNPS: 1B.2	Upper montane coniferous forest, subalpine coniferous forest. Sandy or gravelly sites. 2145-3415 m.	Some of the habitat this species is associated with is present in the Project Area. However, the only documented occurrence for this species in the 4-quad CNDDB query is a historical collection (1926) from approx. 1.3 miles SW of the site. Occurrence potential is low.
Carex occidentalis	western sedge	None/ None	G4; S3; CNPS: 2B.3	Lower montane coniferous forest, meadows and seeps. 1645-2320 m.	The microhabitats this species is associated with (i.e. meadows and seeps) are absent from the Project Area. Occurrence potential is low.
Castilleja cinerea	ash-gray paintbrush	Threatened/ None	G1G2; S1S2; CNPS: 1B.2	Pebble plains, upper montane coniferous forest, Mojavean desert scrub, meadows and seeps, pinyon and juniper woodland. Endemic to the San Bernardino Mountains, in clay openings; often in meadow edges. 725-2860 m.	The result of the floristic botanical field survey is that this species is absent from the Project site.
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	None/ None	G2?; S2?; CNPS: 1B.2	Meadows and seeps, pebble plain, upper montane coniferous forest, chaparral, riparian woodland. Mesic to drying soils in open areas of stream and meadow margins or in vernally wet areas. 1140-2320 m.	The microhabitats this species is associated with (i.e. stream and meadow margins and vernally wet areas) are absent from the Project Area. Occurrence potential is low.
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/ None	G5T34; S3S4; CDFW: SSC	Desert border areas in eastern San Diego County in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	No suitable habitat for this species exists within the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Charina umbratica	southern rubber boa	None/ Threatened	G2G3; S2S3	Known from the San Bernardino and San Jacinto mtns; found in a variety of montane forest habitats. Snakes resembling *C. umbratica* reported from Mt. Pinos and Tehachapi mtns group with *C. bottae* based on mtDNA. Further research needed. Found in vicinity of streams or wet meadows; requires loose, moist soil for burrowing; seeks cover in rotting logs, rock outcrops, and under surface litter.	There is some suitable habitat for this species within the Project Area and the nearest documented occurrence for this species (2010) is approx. 1 mile NE of the site. Occurrence potential is moderate.
Claytonia peirsonii ssp. *bernardinus*	San Bernardino spring beauty	None/ None	G2G3T1; S1; CNPS: 1B.1	Pinyon and juniper woodland, upper montane coniferous forest. Rocky, talus slopes, carbonate, usually openings. 2360-2465 m.	The Project Area is outside the known elevation range for this species. Occurrence potential is low.
Claytonia peirsonii ssp. *californacis*	Furnace spring beauty	None/ None	G2G3T1; S1; CNPS: 1B.1	Pinyon and juniper woodland, upper montane coniferous forest. Rocky, talus slopes, carbonate, usually openings. 2300 m.	The Project Area is outside the known elevation range for this species. Occurrence potential is low.
Corynorhinus townsendii	Townsend's big-eared bat	None/ None	G3G4; S2; CDFW: SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	There is a moderate to high level of human disturbance within the Project vicinity and there are no suitable roost sites within the Project site. Occurrence potential is low.
Cymopterus multinervatus	purple-nerve cymopterus	None/ None	G4G5; S2; CNPS: 2B.2	Mojavean desert scrub, pinyon and juniper woodland. Sandy or gravelly places. 765-2195 m.	The habitats this species is associated with are absent from the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Drymocallis cuneifolia var. *cuneifolia*	wedgeleaf woodbeauty	None/ None	G2T1; S1; CNPS: 1B.1	Upper montane coniferous forest, riparian scrub. Sometimes on carbonate. 1520-2220 m.	There is no riparian scrub habitat within the Project Area and the nearest documented occurrence for this species is approx. 2.4 miles NW of the site. Occurrence potential is low.
Dryopteris filix-mas	male fern	None/ None	G5; S2; CNPS: 2B.3	Upper montane coniferous forest. In granite crevices. 1855-3075 m.	Some of the habitat this species is associated with is present within the Project Area. However, the only documented occurrence for this species in the 4-quad CNDDB query is a historical collection (1882) from approx. 5.1 miles NE of the Project Area and this species was not observed on site during reconnaissance level field survey. Occurrence potential is low.
Dudleya abramsii ssp. *affinis*	San Bernardino Mountains dudleya	None/ None	G4T2; S2; CNPS: 1B.2	Pebble (pavement) plain, upper montane coniferous forest, pinyon and juniper woodland. Outcrops, granite or quartzite, rarely limestone. 1200-2425 m.	Some of the habitat this species is associated with is present in the Project Area and the nearest documented occurrence for this species is approx. 2.9 miles NE of the site. Occurrence potential is moderate.
Empidonax traillii extimus	southwestern willow flycatcher	Endangered/ Endangered	G5T2; S1	Riparian woodlands in Southern California.	No suitable habitat for this species exists within the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Ensatina eschscholtzii klauberi	large-blotched salamander	None/ None	G5T2?; S3; CDFW: WL	Found in conifer and woodland associations. Found in leaf litter, decaying logs and shrubs in heavily forested areas.	There is some marginally suitable habitat for this species within the Project Area. However, the nearest documented occurrence for this species is approx. 8.2 miles NE of the site (on the north slopes of the San Bernardino Mountains) and this species has not been documented in the Big Bear Valley area. Occurrence potential is low.
Eremogone ursina	Big Bear Valley sandwort	Threatened/ None	G1; S1; CNPS: 1B.2	Pebble plain, pinyon and juniper woodland, meadows and seeps. Mesic, rocky sites. 1795-2895 m.	The habitats this species is associated with are absent from the Project Area and the result of the floristic botanical field survey is that this species is absent from the Project site.
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	Endangered/ Endangered	G4T1; S1; CNPS: 1B.1	Coastal scrub, chaparral. In sandy soils on river floodplains or terraced fluvial deposits. 180-705 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Occurrence potential is low.
Erigeron parishii	Parish's daisy	Threatened/ None	G2; S2; CNPS: 1B.1	Mojavean desert scrub, pinyon and juniper woodland. Often on carbonate; limestone mountain slopes; often associated with drainages. Sometimes on granite. 1050-2245 m.	The habitats this species is associated with are absent from the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Eriogonum evanidum	vanishing wild buckwheat	None/ None	G2; S1; CNPS: 1B.1	Chaparral, cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland. Sandy sites. 975-2240 m.	Some of the habitat this species is associated with is present within the Project Area, but the nearest documented occurrence for this species is approx. 5.6 miles NE of the site. Occurrence potential is low.
Eriogonum kennedyi var. *austromontanum*	southern mountain buckwheat	Threatened/ None	G4T2; S2; CNPS: 1B.2	Pebble (pavement) plain, lower montane coniferous forest. Usually found in pebble plain habitats. 1765-3020 m.	The habitats this species is associated with are absent from the Project Area and the result of the floristic botanical field survey is that this species is absent from the Project site.
Eriogonum microthecum var. *johnstonii*	Johnston's buckwheat	None/ None	G5T2; S2; CNPS: 1B.3	Subalpine coniferous forest, upper montane coniferous forest. Slopes and ridges on granite or limestone. 1795-2865 m	Some habitat this species is associated with is present within the Project Area, but the only documented occurrence for this species (1998) in the 4-quad CNDDB query is approx. 6.1 miles NE of the site. Occurrence potential is low.
Eriogonum microthecum var. *lacus-ursi*	Bear Lake buckwheat	None/ None	G5T1; S1; CNPS: 1B.1	Lower montane coniferous forest, Great Basin scrub. Clay outcrops. 2000-2100 m.	Some habitat this species is associated with is present within the Project Area, but the only documented occurrence for this species (2003) in the 4-quad CNDDB query is approx. 3 miles NE of the site. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Eriogonum ovalifolium var. *vineum*	Cushenbury buckwheat	Endangered/ None	G5T1; S1; CNPS: 1B.1	Mojavean desert scrub, pinyon and juniper woodland, Joshua tree woodland. Limestone mountain slopes. Dry, usually rocky places. 1430-2440 m.	The habitats this species is associated with are absent from the Project Area and no perennial *Eriogonum* species were observed within the Project Area during reconnaissance level field survey. Occurrence potential is low.
Erythranthe exigua	San Bernardino Mountains monkeyflower	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, pebble plains, upper montane coniferous forest. Seeps and sandy sometimes disturbed soil in moist drainages of annual streams; clay soils. 2060-2630 m.	The microhabitats this species is associated with (i.e. seeps and moist drainages) are absent from the Project Area. Occurrence potential is low.
Erythranthe purpurea	little purple monkeyflower	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, pebble plain, upper montane coniferous forest. Dry clay or gravelly soils under Jeffrey pines, along annual streams or vernal springs and seeps. 2045-2290 m.	The microhabitats this species is associated with (i.e. annual streams or vernal springs and seeps) are absent from the Project Area. Occurrence potential is low.
Euchloe hyantis andrewsi	Andrew's marble butterfly	None/ None	G3G4T1; S1	Inhabits yellow pine forest near Lake Arrowhead and Big Bear Lake, San Bernardino Mtns, San Bernardino Co, 5,000-6,000 ft. Hostplants are *Streptanthus bernardinus* and *Arabis holboellii* var. *pinetorum*; larval foodplant is *Descurainia richardsonii*.	The host and food plant species for this species are absent from the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Gilia leptantha ssp. *leptantha*	San Bernardino gilia	None/ None	G4T2; S2; CNPS: 1B.3	Lower montane coniferous forest. Sandy or gravelly sites. 1520-2595 m.	Some of the habitat this species is associated with is present within the Project Area and the nearest documented occurrence for this species is approx. 2.2 miles S of the site. However, this species has not been documented in the Project vicinity since 1926. Occurrence potential is low.
Glaucomys oregonensis californicus	San Bernardino flying squirrel	None/ None	G5T1T2; S1S2; CDFW: SSC	Known from black oak or white fir dominated woodlands between 5,200 – 8,500 ft in the San Bernardino and San Jacinto ranges. May be extirpated from San Jacinto range. Needs cavities in trees/snags for nests and cover. Needs nearby water.	The habitat on site is suitable to support this species and the nearest documented occurrence for this species (2017) is approx. 0.16 mile SE of the Project Area. Occurrence potential is high.
Haliaeetus leucocephalus	bald eagle	Delisted/ Endangered	G5; S3; CDFW: FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	The Project Area is within 700 feet of shoreline habitat suitable to support wintering BAEA and this species has been documented nesting in the Fawnskin area, approx. 2 miles NE of the Project site on the west side of Grout Bay. However, the Project site is adjacent residential to the N and E that is subject to a significant level of existing human disturbance. Therefore, the Project Area is not likely to support nesting BAEA and occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Heuchera parishii	Parish's alumroot	None/ None	G3; S3; CNPS: 1B.3	Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest, alpine boulder and rock field. Rocky places. Sometimes on carbonate. 1340-3505 m.	Some of the habitat this species is associated with is present within the Project Area and the nearest documented occurrence for this species is (1995) is approx. 1 mile W of the site. Occurrence potential is moderate.
Horkelia wilderae	Barton Flats horkelia	None/ None	G1; S1; CNPS: 1B.1	Lower montane coniferous forest, upper montane coniferous forest, chaparral. On rocky, north aspects in openings that hold persistent snowdrifts. 1980-2895 m.	Some of the habitat this species is associated with is present adjacent the Project Area. However, this species has not been documented in the Big Bear Valley area. Occurrence potential is low.
Hydroporus simplex	simple hydroporus diving beetle	None/ None	G1?; S1?	Known from aquatic habitats in Tuolumne and San Bernardino counties.	The aquatic habitats required by this species are absent from the Project Area. Therefore, this species is considered absent from the Project Area.
Imperata brevifolia	California satintail	None/ None	G4; S3; CNPS: 2B.1	Coastal scrub, chaparral, riparian scrub, Mojavean desert scrub, meadows, and seeps (alkali), riparian scrub. Mesic sites, alkali seeps, riparian areas. 3-1495 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Occurrence potential is low.
Ivesia argyrocoma var. *argyrocoma*	silver-haired ivesia	None/ None	G2T2; S2; CNPS: 1B.2	Meadows and seeps, pebble plains, upper montane coniferous forest. In pebble plains and meadows with other rare plants. 1490-2960 m.	The habitats this species is associated with are absent from the Project Area. Occurrence potential is low.
Lewisia brachycalyx	short-sepaled lewisia	None/ None	G4; S2; CNPS: 2B.2	Lower montane coniferous forest, meadows and seeps. Dry to moist meadows in rich loam. 1400-2290 m.	The microhabitats this species is associated with (i.e. dry to moist meadows in rich loam) are absent from the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Linanthus killipii	Baldwin Lake linanthus	None/ None	G1; S1; CNPS: 1B.2	Alkaline meadows, pebble plain, pinyon and juniper woodland, Joshua tree woodland. Usually on pebble plains with other rare species. 1645-2645 m.	The habitats this species is associated with are absent from the Project Area. Occurrence potential is low.
Myotis evotis	long-eared myotis	None/ None	G5; S3	Found in all brush, woodland and forest habitats from sea level to about 9,000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Some suitable habitat for this species exists adjacent the Project Area. However, the nearest documented occurrence for this species (1998) is approx. 6.3 miles NE of the Project Area. Occurrence potential is moderate.
Myotis thysanodes	fringed myotis	None/ None	G4; S3	In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.	Some suitable habitat for this species exists adjacent the Project Area. However, the only documented occurrence for this species in the 4-quad CNDDB query (1998) is approx. 6.3 miles NE of the Project Area. Occurrence potential is low.
Myotis volans	long-legged myotis	None/ None	G5; S3	Most common in woodland and forest habitats above 4,000 ft. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	Some suitable habitat for this species exists adjacent the Project Area. The only documented occurrence for this species in the 4-quad CNDDB query (1998) is approx. 7.5 miles NW of the Project Area. Occurrence potential is low.
Myotis yumanensis	Yuma myotis	None/ None	G5; S4	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	There are no water bodies present within the Project Area and the only documented occurrence for this species in the 4-quad CNDDB query (1998) is approx. 5.8 miles NE of the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Navarretia peninsularis	Baja navarretia	None/ None	G3; S2; CNPS: 1B.2	Lower montane coniferous forest, chaparral, meadows and seeps, pinyon and juniper woodland. Wet areas in open forest. 1150-2365 m.	The Project Area consists of an exposed slope that does not support the mesic conditions associated with this species. Occurrence potential is low.
Neotamias speciosus speciosus	lodgepole chipmunk	None/ None	G4T2T3; S2S3	Summits of isolated Piute, San Bernardino, and San Jacinto mountains. Usually found in open-canopy forests. Habitat is usually lodgepole pine forests in the San Bernardino Mts and chinquapin slopes in the San Jacinto Mts.	The lodgepole pine forests this species typically occurs in are absent from the Project Area. Occurrence potential is low.
Oncorhynchus mykiss irideus pop. 10	Steelhead – southern California DPS	Endangered/ None	G5T1Q; S1	Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	The aquatic habitats required by this species are absent from the Project Area. Therefore, this species is considered absent from the Project Area.
Oxytropis oreophila var. *oreophila*	rock-loving oxytrope	None/ None	G5T4T5; S2; CNPS: 2B.3	Alpine boulder and rock field, subalpine coniferous forest. Gravelly or rocky sites. 2615-3505 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Occurrence potential is low.
Packera bernardina	San Bernardino ragwort	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, pebble plains, upper montane coniferous forest. Mesic, sometimes alkaline meadows, and dry rocky slopes. 1615-2470 m.	Some of the habitat this species is associated with is present within the Project Area and the nearest documented occurrence for this species (1964) is approx. 1 mile NW of the site. Occurrence potential is moderate.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
	Pebble Plains	None/ None	G1; S1.1		There is no pebble plain or pebble plain-like habitat within the Project Area and pebble plain indicator species are absent from the Project site.
Perideridia parishii ssp. *parishii*	Parish's yampah	None/ None	G4T3T4; S2; CNPS: 2B.2	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. Damp meadows or along streambeds- prefers an open pine canopy. 1470-2530 m.	The microhabitats this species is associated with (i.e. damp meadows or streambeds) are absent from the Project Area. Occurrence potential is low.
Phlox dolichantha	Big Bear Valley phlox	None/ None	G2; S2; CNPS: 1B.2	Pebble plains, upper montane coniferous forest. Sloping hillsides, in shade under pines and *Quercus kelloggii*, with heavy pine litter; also, in openings. 1980-2805 m.	Some of the habitat this species is associated with is present within the Project Area and the nearest documented occurrence for this species (1979) is approx. 1.2 miles E of the site. Occurrence potential is moderate.
Phrynosoma blainvillii	coast horned lizard	None/ None	G3G4; S3S4; CDFW: SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	This species has not been documented in the Big Bear Valley and the Project Area is likely outside the current range of this species. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Physaria kingii ssp. *bernardina*	San Bernardino Mountains bladderpod	Endangered/ None	G5T1; S1; CNPS: 1B.1	Pinyon and juniper woodland, lower montane coniferous forest, subalpine coniferous forest. Dry sandy to rocky carbonate soils. 1980-2590 m.	The carbonate soils this species requires are absent from the Project Area and the nearest known extant occurrence for this species is approx. 5.1 miles NE of the site, N of Big Bear Lake. Furthermore, the result of the floristic botanical field survey is that this species is absent from the Project site.
Poa atropurpurea	San Bernardino blue grass	Endangered/ None	G2; S2; CNPS: 1B.2	Meadows and seeps. Mesic meadows of open pine forests and grassy slopes, loamy alluvial to sandy loam soil. 1255-2655 m.	The habitats this species is associated with (i.e. meadows and seeps) are absent from the Project Area. Occurrence potential is low.
Pyrrocoma uniflora var. *gossypina*	Bear Valley pyrrocoma	None/ None	G5T1; S1; CNPS: 1B.2	Pebble plain, meadows and seeps. Meadows, meadow edges, and along streams in or near pebble plain habitat. 2040-2280 m.	The microhabitats this species is associated with (i.e. meadow edges, seeps, and streams) are absent from the Project Area. Occurrence potential is low.
Rana muscosa	southern mountain yellow-legged frog	Endangered/ Endangered	G1; S1; CDFW: WL	Federal listing refers to populations in the San Gabriel, San Jacinto and San Bernardino mountains (southern DPS). Northern DPS was determined to warrant listing as endangered, Apr 2014, effective Jun 30, 2014. Always encountered within a few feet of water. Tadpoles may require 2 - 4 yrs. to complete their aquatic development.	The aquatic habitats required by this species are absent from the Project Area. Therefore, this species is considered absent from the Project Area.
Saltugilia latimeri	Latimer's woodland-gilia	None/ None	G3; S3; CNPS: 1B.2	Chaparral, Mojavean desert scrub, pinyon and juniper woodland. Rocky or sandy substrate; sometimes in washes, sometimes limestone. 120-2200 m.	The habitats this species is associated with are absent from the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Sidalcea hickmanii ssp. *parishii*	Parish's checkerbloom	None/ Rare	G3T1; S1; CNPS: 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest. Disturbed burned or cleared areas on dry, rocky slopes, in fuel breaks and fire roads along the mountain summits. 1095-2135 m.	Some of the habitat this species is associated with is present within the Project Area, but this species has not been documented in the Big Bear Valley area . Occurrence potential is low.
Sidalcea malviflora ssp. *dolosa*	Bear Valley checkerbloom	None/ None	G5T2; S2; CNPS: 1B.2	Meadows and seeps, riparian woodland, lower montane coniferous forest, upper montane coniferous forest. Known from wet areas within forested habitats. Affected by hydrological changes. 1575-2590 m.	The habitats this species is associated with (i.e. wet areas) are absent from the Project site. Occurrence potential is low.
Sidalcea pedata	bird-foot checkerbloom	Endangered/ Endangered	G1; S1; CNPS: 1B.1	Meadows and seeps, pebble plains. Vernally mesic sites in meadows or pebble plains. 1840-2305 m.	The habitats this species is associated with (i.e. vernally mesic sites in meadows or pebble plains) are absent from the Project Area. Occurrence potential is low.
Streptanthus bernardinus	Laguna Mountains jewelflower	None/ None	G3G4; S3S4; CNPS: 4.3	Chaparral, lower montane coniferous forest. Clay or decomposed granite soils; sometimes in disturbed areas such as stream sides or roadcuts. 1440-2500 m.	Some of the habitat this species is associated with is present within the Project Area and the nearest documented occurrence for this species is approx. 1.7 miles NW of the site. Occurrence potential is moderate.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Streptanthus campestris	southern jewelflower	None/ None	G3; S3; CNPS: 1B.3	Chaparral, lower montane coniferous forest, pinyon and juniper woodland. Open, rocky areas. 605-2590 m.	Some of the habitat this species is associated with is present within the Project Area, but the only documented occurrence for this species in the 4-quad CNDDB query is approx. 5.3 miles SW of the site and this species has not been documented in the Big Bear Valley area. Occurrence potential is low.
Streptanthus juneae	June's jewelflower	None/ None	G2; S2; CNPS: 1B.2	Lower montane coniferous forest, chaparral (montane). Openings. 2155-2370 m.	Some of the habitat this species is associated with is present within the Project Area and the nearest documented occurrence for this species is approx. 1.3 miles SW of the site. Occurrence potential is moderate.
Symphyotrichum defoliatum	San Bernardino aster	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 3-2045 m.	The mesic conditions this species is associated with are absent from the Project Area. Occurrence potential is low.
Taraxacum californicum	California dandelion	Endangered/ None	G1G2; S1S2; CNPS: 1B.1	Meadows and seeps. Mesic meadows, usually free of taller vegetation. 1620-2590 m.	The habitats this species is associated with (i.e. mesic meadows and seeps) are absent from the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
Thamnophis hammondii	two-striped garter snake	None/ None	G4; S3S4; CDFW: SSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	The aquatic habitats required by this species are absent from the Project Area. Therefore, this species is considered absent from the Project Area.
Thelypodium stenopetalum	slender-petaled thelypodium	Endangered/ Endangered	G1; S1; CNPS: 1B.1	Meadows and seeps. Seasonally moist alkaline clay soils; associated with seeps and springs in the pebble plains. 2045-2240 m.	The habitats this species is associated with (i.e. meadows, seeps and springs in pebble plains) are absent from the Project Area. Occurrence potential is low.
Viola pinetorum ssp. *grisea*	grey-leaved violet	None/ None	G4G5T3; S3; CNPS: 1B.2	Subalpine coniferous forest, upper montane coniferous forest, meadows, and seeps. Dry mountain peaks and slopes. 1580-3700 m.	The only documented occurrence for this species is a 1886 collection from the “historic Bear Valley” area. Occurrence potential is low.

Coding and Terms

E = Endangered T = Threatened C = Candidate FP = Fully Protected SSC = Species of Special Concern R = Rare

State Species of Special Concern: An administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited acreages, and/or continuing threats. Raptor and owls are protected under section 3502.5 of the California Fish and Game code: "It is unlawful to take, possess or destroy any birds in the orders Falconiformes or Strigiformes or to take, possess or destroy the nest or eggs of any such bird."

State Fully Protected: The classification of Fully Protected was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Global Rankings (Species or Natural Community Level):
G1 = Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2 = Imperiled – At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
G3 = Vulnerable – At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
G4 = Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5 = Secure – Common; widespread and abundant.

Subspecies Level: Taxa which are subspecies or varieties receive a taxon rank (T-rank) attached to their G-rank. Where the G-rank reflects the condition of the entire species, the T-rank reflects the global situation of just the subspecies. For example: the Point Reyes mountain beaver, *Aplodontia rufa* ssp. *phaea* is ranked G5T2. The G-rank refers to the whole species range i.e., *Aplodontia rufa.* The T-rank refers only to the global condition of ssp. *phaea*.

State Ranking:
S1 = Critically Imperiled – Critically imperiled in the State because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the State.
S2 = Imperiled – Imperiled in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the State.
S3 = Vulnerable – Vulnerable in the State due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the State.
S4 = Apparently Secure – Uncommon but not rare in the State; some cause for long-term concern due to declines or other factors.
S5 = Secure – Common, widespread, and abundant in the State.

California Rare Plant Rankings (CNPS List):
1A = Plants presumed extirpated in California and either rare or extinct elsewhere.
1B = Plants rare, threatened, or endangered in California and elsewhere.
2A = Plants presumed extirpated in California, but common elsewhere.
2B = Plants rare, threatened, or endangered in California, but more common elsewhere.
3 = Plants about which more information is needed; a review list.
4 = Plants of limited distribution; a watch list.

Threat Ranks:
.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
.3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Appendix B. Site Photos

	Photo 1. Northeast corner of the Project site; looking west at the proposed parking lot entrance from Talbot Drive.
	Photo 2. Southeast corner of the Project site; looking north along the eastern boundary of the site.

	Photo 3. Southeast corner of the Project site; looking west along the southern boundary of the site.
	Photo 4. Southwest corner of the Project site; looking north along the western boundary of the site.

	Photo 5. Northwest corner of the Project site; looking south along the western boundary of the site from Big Bear Boulevard.
	Photo 6. Northwest corner of the Project site; looking east along the northern boundary of the site.

Appendix C. Plant List

List of Plant Species Observed within the Project Area

Scientific Name	Common Name	Life Form
Asteraceae	Aster Family	
Achillea millefolium	common yarrow	perennial herb
Symphyotrichum ascendens	western aster	perennial herb
Brassicaceae	Mustard Family	
*Chorispora tenella**	Crossflower*	annual herb
Erysimum capitatum	western wallflower	perennial herb
Boraginaceae	Forget-Me-Not Family	
Cryptantha sp.	cryptantha	annual herb
Ericaceae	Heath Family	
Arctostaphylos patula	green leaf manzanita	shrub
Sarcodes sanguinea	snow plant	perennial herb (mycoparasitic)
Hydrophyllaceae	Waterleaf Family	
Phacelia hastata	white leafed phacelia	perennial herb
Montiaceae	Miner's Lettuce Family	
Calyptridium umbellatum	pussy toes	annual or perennial herb
Orobanchaceae	Broomrape Family	
Castilleja applegatei	wavy leaf paintbrush	perennial herb
Pedicularis semibarbata	pinewoods lousewort	perennial herb
Pinaceae	Pine Family	
Abies concolor	white fir	tree
Pinus jeffreyi	Jeffrey pine	tree
Pinus ponderosa	yellow pine	tree
Plantaginaceae	Plantain Family	
Collinsia parviflora	few flowered blue eyed Mary	annual herb
Penstemon caesius	San Bernardino beardtongue	perennial herb
Penstemon labrosus	San Gabriel beardtongue	perennial herb
Penstemon rostriflorus	Bridge's penstemon	perennial herb
Poaceae	Grass Family	
Stipa sp.	grass	perennial grasses

Scientific Name	Common Name	Life Form
Polygonaceae	Buckwheat Family	
Eriogonum davidsonii	Davidson buckwheat	annual herb
Rhamnaceae	Buckthorn Family	
Ceanothus cordulatus	mountain whitethorn	shrub
Rosaceae	Rose Family	
Amelanchier utahensis	pale leaved serviceberry	shrub
Horkelia rydbergii	Rydberg's horkelia	perennial herb
Salicaceae	Willow Family	
Salix scouleriana	Scouler willow	tree or shrub

*Non-native

Appendix D. Regulatory Framework

Federal Regulations

Clean Water Act

The purpose of the Clean Water Act (CWA) of 1977 is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" (WOTUS) without a permit from the United States Army Corps of Engineers (USACE). The definition of waters of the United States includes rivers, streams, estuaries, territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are 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" (33 Code of Federal Regulations [CFR] 328.3 7b). The U.S. Environmental Protection Agency (EPA) also has authority over wetlands and may override a USACE permit. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; in California this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

Federal Endangered Species Act (ESA)

The federal Endangered Species Act (ESA) of 1973 protects plants and wildlife that are listed by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) as endangered or threatened. Section 9 of the ESA (USA) prohibits the taking of endangered wildlife, where taking is defined as any effort to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 United States Code [USC] 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect an endangered species (including plants) or its Critical Habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the action will not jeopardize the continued existence of the species. The ESA specifies that the USFWS designate habitat for a species at the time of its listing in which are found the physical or biological features "essential to the conservation of the species," or which may require "special Management consideration or protection…" (16 USC § 1533[a][3].2; 16 USC § 1532[a]). This designated Critical Habitat is then afforded the same protection under the ESA as individuals of the species itself, requiring issuance of an Incidental Take Permit prior to any activity that results in "the destruction or adverse modification of habitat determined to be critical" (16 USC § 1536[a][2]).

Interagency Consultation and Biological Assessments

Section 7 of ESA provides a means for authorizing the "take" of threatened or endangered species by federal agencies, and applies to actions that are conducted, permitted, or funded by a federal agency. The statute requires federal agencies to consult with the USFWS or National Marine Fisheries Service (NMFS), as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of Critical Habitat for these species. If a Proposed Project "may affect" a listed species or destroy or modify Critical Habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the potential effect.

Habitat Conservation Plans

Section 10 of the federal ESA requires the acquisition of an Incidental Take Permit (ITP) from the USFWS by non-

federal landowners for activities that might incidentally harm (or "take") endangered or threatened wildlife on their land. To obtain a permit, an applicant must develop a Habitat Conservation Plan that is designed to offset any harmful impacts the proposed activity might have on the species.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. Sections 661 to 667e et seq.) applies to any federal Project where any body of water is impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate state wildlife agency.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (The Eagle Act) (1940), amended in 1962, was originally implemented for the protection of bald eagles (*Haliaeetus leucocephalus*). In 1962, Congress amended the Eagle Act to cover golden eagles (*Aquila chrysaetos*), a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. This act makes it illegal to import, export, take (molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or part thereof. The golden eagle, however, is accorded somewhat lighter protection under the Eagle Act than that of the bald eagle.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 implements international treaties between the United States and other nations created to protect migratory birds, any of their parts, eggs, and nests from activities, such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code (CFGC).

Executive Orders (EO)

> *Invasive Species – EO 13112 (1999)*: Issued on February 3, 1999, promotes the prevention and introduction of invasive species and provides for their control and minimizes the economic, ecological, and human health impacts that invasive species cause through the creation of the Invasive Species Council and Invasive Species Management Plan.
>
> *Migratory Bird – EO 13186 (2001)*: Issued on January 10, 2001, promotes the conservation of migratory birds and their habitats and directs federal agencies to implement the Migratory Bird Treaty Act. Protection and Enhancement of Environmental Quality – EO 11514 (1970a), issued on March 5, 1970, supports the purpose and policies of the National Environmental Policy Act (NEPA) and directs federal agencies to take measures to meet national environmental goals.

Migratory Bird Treaty Reform Act

The Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447) amends the Migratory Bird Treaty Act (16 U.S.C. Sections 703 to 712) such that nonnative birds or birds that have been introduced by humans to the United States or its territories are excluded from protection under the Act. It defines a native migratory bird as a species present in the United States and its territories as a result of natural biological or ecological processes. This list excluded two additional species commonly observed in the United States, the rock pigeon (*Columba livia*) and domestic goose (*Anser domesticus*).

Birds of Conservation Concern

Birds of Conservation Concern (BCC) is a USFWS list of bird species identified to have the highest conservation priority, and with the potential for becoming candidates for listing as federally threatened or endangered. The chief legal authority for BCC is the Fish and Wildlife Conservation Act of 1980 (FWCA). Other authorities include the FESA, the Fish and Wildlife Act of 1956, and the Department of the Interior U.S Code (16 U.S.C. § 701). The 1988 amendment to the FWCA (Public Law 100-653, Title VIII) requires the Secretary of the Interior, through the USFWS, to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973" (USFWS, 2008a).

State Regulations

California Fish and Game Code Sections 1600 through 1606 of the CFGC

This section requires that a Streambed Alteration Application be submitted to the CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the Department and the applicant is the Streambed Alteration Agreement. Often, Projects that require a Streambed Alteration Agreement also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

California Endangered Species Act

The California Endangered Species Act (CESA) (Sections 2050 to 2085) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats by protecting "all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation." Animal species are listed by the CDFW as threatened or endangered, and plants are listed as rare, threatened, or endangered. However, only those plant species listed as threatened or endangered receive protection under the California ESA.

CESA mandates that state agencies do not approve a Project that would jeopardize the continued existence of these species if reasonable and prudent alternatives are available that would avoid a jeopardy finding. There are no state agency consultation procedures under the California ESA. For Projects that would affect a species that is federally and state listed, compliance with ESA satisfies the California ESA if the California Department of Fish and Wildlife (CDFW) determines that the federal incidental take authorization is consistent with the California ESA under Section 2080.1. For Projects that would result in take of a species that is state listed only, the Project sponsor must apply for a take permit, in accordance with Section 2081(b).

Fully Protected Species

Four sections of the California Fish and Game Code (CFGC) list 37 fully protected species (CFGC Sections 3511, 4700, 5050, and 5515). These sections prohibit take or possession "at any time" of the species listed, with few exceptions, and state that "no provision of this code or any other law will be construed to authorize the issuance of permits or licenses to 'take' the species," and that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession.

Bird Nesting Protections

Bird nesting protections (Sections 3503, 3503.5, 3511, 3513 and 3800) in the CFGC include the following:

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others), and Strigiformes (owls).
- Section 3511 prohibits the take or possession of Fully protected birds.
- Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that Project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.

Section 3800 prohibits the take of any non-game bird (i.e., bird that is naturally occurring in California that is not a gamebird, migratory game bird, or fully protected bird).

Native Plant Protection Act

The Native Plant Protect Act (NPPA) (1977) (CFGC Sections 1900-1913) was created with the intent to "preserve, protect, and enhance rare and endangered plants in this State." The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as endangered or rare and to protect endangered and rare plants from take. CESA (CFGC 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

Appendix E. CNDDB & CNPS Species Lists

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Big Bear Lake (3411628) OR Fawnskin (3411638) OR Keller Peak (3411721) OR Butler Peak (3411731))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Acanthoscyphus parishii var. goodmaniana Cushenbury oxytheca	PDPGN0J043	Endangered	None	G4?T1	S1	1B.1
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Anniella stebbinsi Southern California legless lizard	ARACC01060	None	None	G3	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Arenaria lanuginosa var. saxosa rock sandwort	PDCAR040E4	None	None	G5T5	S2	2B.3
Astragalus albens Cushenbury milk-vetch	PDFAB0F0A0	Endangered	None	G1	S1	1B.1
Astragalus bernardinus San Bernardino milk-vetch	PDFAB0F190	None	None	G3	S3	1B.2
Astragalus lentiginosus var. sierrae Big Bear Valley milk-vetch	PDFAB0FB9L	None	None	G5T2	S2	1B.2
Astragalus leucolobus Big Bear Valley woollypod	PDFAB0F4T0	None	None	G2	S2	1B.2
Boechera dispar pinyon rockcress	PDBRA060F0	None	None	G3	S3	2B.3
Boechera parishii Parish's rockcress	PDBRA061C0	None	None	G2	S2	1B.2
Boechera shockleyi Shockley's rockcress	PDBRA061V0	None	None	G3	S2	2B.2
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G2	S1S2	
Bombus morrisoni Morrison bumble bee	IIHYM24460	None	None	G3	S1S2	
Botrychium crenulatum scalloped moonwort	PPOPH010L0	None	None	G4	S3	2B.2
Calochortus palmeri var. palmeri Palmer's mariposa-lily	PMLIL0D122	None	None	G3T2	S2	1B.2
Calochortus plummerae Plummer's mariposa-lily	PMLIL0D150	None	None	G4	S4	4.2
Calyptridium pygmaeum pygmy pussypaws	PDPOR09070	None	None	G1G2	S1S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Carex occidentalis western sedge	PMCYP039M0	None	None	G4	S3	2B.3
Castilleja cinerea ash-gray paintbrush	PDSCR0D0H0	Threatened	None	G1G2	S1S2	1B.2
Castilleja lasiorhyncha San Bernardino Mountains owl's-clover	PDSCR0D410	None	None	G2?	S2?	1B.2
Chaetodipus fallax pallidus pallid San Diego pocket mouse	AMAFD05032	None	None	G5T3T4	S3S4	SSC
Charina umbratica southern rubber boa	ARADA01011	None	Threatened	G2G3	S2S3	
Claytonia peirsonii ssp. bernardinus San Bernardino spring beauty	PDPOR03122	None	None	G2G3T1	S1	1B.1
Claytonia peirsonii ssp. californacis Furnace spring beauty	PDPOR03123	None	None	G2G3T1	S1	1B.1
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Cymopterus multinervatus purple-nerve cymopterus	PDAPI0U0Q0	None	None	G4G5	S2	2B.2
Drymocallis cuneifolia var. cuneifolia wedgeleaf woodbeauty	PDROS2D011	None	None	G2T1	S1	1B.1
Dryopteris filix-mas male fern	PPDRY0A0B0	None	None	G5	S2	2B.3
Dudleya abramsii ssp. affinis San Bernardino Mountains dudleya	PDCRA04013	None	None	G4T2	S2	1B.2
Empidonax traillii extimus southwestern willow flycatcher	ABPAE33043	Endangered	Endangered	G5T2	S1	
Ensatina eschscholtzii klauberi large-blotched salamander	AAAAD04013	None	None	G5T2?	S3	WL
Eremogone ursina Big Bear Valley sandwort	PDCAR040R0	Threatened	None	G1	S1	1B.2
Eriastrum densifolium ssp. sanctorum Santa Ana River woollystar	PDPLM03035	Endangered	Endangered	G4T1	S1	1B.1
Erigeron parishii Parish's daisy	PDAST3M310	Threatened	None	G2	S2	1B.1
Eriogonum evanidum vanishing wild buckwheat	PDPGN08780	None	None	G2	S1	1B.1
Eriogonum kennedyi var. austromontanum southern mountain buckwheat	PDPGN083B2	Threatened	None	G4T2	S2	1B.2
Eriogonum microthecum var. johnstonii Johnston's buckwheat	PDPGN083W5	None	None	G5T2	S2	1B.3
Eriogonum microthecum var. lacus-ursi Bear Lake buckwheat	PDPGN083WF	None	None	G5T1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Eriogonum ovalifolium var. vineum Cushenbury buckwheat	PDPGN084F8	Endangered	None	G5T1	S1	1B.1
Erythranthe exigua San Bernardino Mountains monkeyflower	PDSCR1B140	None	None	G2	S2	1B.2
Erythranthe purpurea little purple monkeyflower	PDSCR1B2B0	None	None	G2	S2	1B.2
Euchloe hyantis andrewsi Andrew's marble butterfly	IILEPA5032	None	None	G4G5T1	S1	
Gila orcuttii arroyo chub	AFCJB13120	None	None	G2	S2	SSC
Gilia leptantha ssp. leptantha San Bernardino gilia	PDPLM040W1	None	None	G4T2	S2	1B.3
Glaucomys oregonensis californicus San Bernardino flying squirrel	AMAFB09021	None	None	G5T1T2	S1S2	SSC
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Heuchera parishii Parish's alumroot	PDSAX0E1F0	None	None	G3	S3	1B.3
Horkelia wilderae Barton Flats horkelia	PDROS0W0J0	None	None	G1	S1	1B.1
Hydroporus simplex simple hydroporus diving beetle	IICOL55050	None	None	G1?	S1?	
Imperata brevifolia California satintail	PMPOA3D020	None	None	G3	S3	2B.1
Ivesia argyrocoma var. argyrocoma silver-haired ivesia	PDROS0X021	None	None	G2T2	S2	1B.2
Lewisia brachycalyx short-sepaled lewisia	PDPOR04010	None	None	G4	S2	2B.2
Lilium parryi lemon lily	PMLIL1A0J0	None	None	G3	S3	1B.2
Myotis evotis long-eared myotis	AMACC01070	None	None	G5	S3	
Myotis thysanodes fringed myotis	AMACC01090	None	None	G4	S3	
Myotis volans long-legged myotis	AMACC01110	None	None	G4G5	S3	
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Navarretia peninsularis Baja navarretia	PDPLM0C0L0	None	None	G3	S2	1B.2
Neotamias speciosus speciosus lodgepole chipmunk	AMAFB02172	None	None	G4T3T4	S2S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Oncorhynchus mykiss irideus pop. 10 steelhead - southern California DPS	AFCHA0209J	Endangered	Candidate Endangered	G5T1Q	S1	
Oxytropis oreophila var. oreophila rock-loving oxytrope	PDFAB2X0H3	None	None	G5T4T5	S2	2B.3
Packera bernardina San Bernardino ragwort	PDAST8H0E0	None	None	G2	S2	1B.2
Pebble Plains Pebble Plains	CTT47000CA	None	None	G1	S1.1	
Perideridia parishii ssp. parishii Parish's yampah	PDAPI1N0C2	None	None	G4T3T4	S2	2B.2
Phlox dolichantha Big Bear Valley phlox	PDPLM0D0P0	None	None	G2	S2	1B.2
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Physaria kingii ssp. bernardina San Bernardino Mountains bladderpod	PDBRA1N0W1	Endangered	None	G5T1	S1	1B.1
Poa atropurpurea San Bernardino blue grass	PMPOA4Z0A0	Endangered	None	G2	S2	1B.2
Pyrrocoma uniflora var. gossypina Bear Valley pyrrocoma	PDASTDT0K1	None	None	G5T1	S1	1B.2
Rana muscosa southern mountain yellow-legged frog	AAABH01330	Endangered	Endangered	G1	S1	WL
Saltugilia latimeri Latimer's woodland-gilia	PDPLM0H010	None	None	G3	S3	1B.2
Sidalcea hickmanii ssp. parishii Parish's checkerbloom	PDMAL110A3	None	Rare	G3T1	S1	1B.2
Sidalcea malviflora ssp. dolosa Bear Valley checkerbloom	PDMAL110FH	None	None	G5T2	S2	1B.2
Sidalcea pedata bird-foot checkerbloom	PDMAL110L0	Endangered	Endangered	G1	S1	1B.1
Streptanthus bernardinus Laguna Mountains jewelflower	PDBRA2G060	None	None	G3G4	S3S4	4.3
Streptanthus campestris southern jewelflower	PDBRA2G0B0	None	None	G3	S3	1B.3
Streptanthus juneae June's jewelflower	PDBRA2G540	None	None	G2	S2	1B.2
Symphyotrichum defoliatum San Bernardino aster	PDASTE80C0	None	None	G2	S2	1B.2
Taraxacum californicum California dandelion	PDAST93050	Endangered	None	G1G2	S1S2	1B.1
Thamnophis hammondii two-striped gartersnake	ARADB36160	None	None	G4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Thelypodium stenopetalum slender-petaled thelypodium	PDBRA2N0F0	Endangered	Endangered	G1	S1	1B.1
Viola pinetorum ssp. grisea grey-leaved violet	PDVIO04431	None	None	G4G5T3	S3	1B.2

Record Count: 84

CNPS Rare Plant Inventory

California Native Plant Society

Search Results

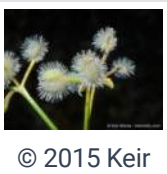
94 matches found. Click on scientific name for details

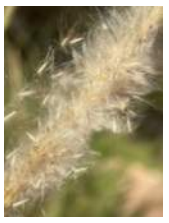
Search Criteria: Quad is one of [**3411628:3411638:3411731:3411721**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Abronia nana var. *covillei*	Coville's dwarf abronia	Nyctaginaceae	perennial herb	May-Aug	None	None	G4T3	S3	4.2	 © 2003 James M. Andre
Acanthoscyphus parishii var. *goodmaniana*	Cushenbury oxytheca	Polygonaceae	annual herb	May-Oct	FE	None	G4?T1	S1	1B.1	 © 2018 Michael Charters
Acanthoscyphus parishii var. *parishii*	Parish's oxytheca	Polygonaceae	annual herb	Jun-Sep	None	None	G4? T3T4	S3S4	4.2	 © 2014 Keir Morse
Allium parishii	Parish's onion	Alliaceae	perennial bulbiferous herb	Apr-May	None	None	G3	S3	4.3	 © 2010 Justin M. Wood
Androsace elongata ssp. *acuta*	California androsace	Primulaceae	annual herb	Mar-Jun	None	None	G5? T3T4	S3S4	4.2	 © 2008 Aaron Schusteff
Arenaria lanuginosa var. *saxosa*	rock sandwort	Caryophyllaceae	perennial herb	Jul-Aug	None	None	G5T5	S2	2B.3	No Photo Available
Astragalus albens	Cushenbury milk-vetch	Fabaceae	perennial herb	Mar-Jun	FE	None	G1	S1	1B.1	No Photo Available
Astragalus bernardinus	San Bernardino milk-vetch	Fabaceae	perennial herb	Apr-Jun	None	None	G3	S3	1B.2	No Photo Available

Astragalus bicristatus	crested milk-vetch	Fabaceae	perennial herb	May-Aug	None	None	G3	S3	4.3	No Photo Available
Astragalus lentiginosus var. *sierrae*	Big Bear Valley milk-vetch	Fabaceae	perennial herb	Apr-Aug	None	None	G5T2	S2	1B.2	No Photo Available
Astragalus leucolobus	Big Bear Valley woollypod	Fabaceae	perennial herb	May-Jul	None	None	G2	S2	1B.2	No Photo Available
Boechera dispar	pinyon rockcress	Brassicaceae	perennial herb	Mar-Jun	None	None	G3	S3	2B.3	No Photo Available
Boechera parishii	Parish's rockcress	Brassicaceae	perennial herb	Apr-May	None	None	G2	S2	1B.2	No Photo Available
Boechera shockleyi	Shockley's rockcress	Brassicaceae	perennial herb	May-Jun	None	None	G3	S2	2B.2	No Photo Available
Botrychium crenulatum	scalloped moonwort	Ophioglossaceae	perennial rhizomatous herb	Jun-Sep	None	None	G4	S3	2B.2	 © 2016 Steve Matson
Calochortus palmeri var. *palmeri*	Palmer's mariposa-lily	Liliaceae	perennial bulbiferous herb	Apr-Jul	None	None	G3T2	S2	1B.2	No Photo Available
Calochortus plummerae	Plummer's mariposa-lily	Liliaceae	perennial bulbiferous herb	May-Jul	None	None	G4	S4	4.2	No Photo Available
Calyptridium pygmaeum	pygmy pussypaws	Montiaceae	annual herb	Jun-Aug	None	None	G1G2	S1S2	1B.2	No Photo Available
Carex occidentalis	western sedge	Cyperaceae	perennial rhizomatous herb	Jun-Aug	None	None	G4	S3	2B.3	No Photo Available
Carex scirpoidea ssp. *pseudoscirpoidea*	western single-spiked sedge	Cyperaceae	perennial rhizomatous herb	Jul-Sep	None	None	G5T5	S2	2B.2	No Photo Available
Castilleja cinerea	ash-gray paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Jun-Aug	FT	None	G1G2	S1S2	1B.2	No Photo Available
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	May-Aug	None	None	G2?	S2?	1B.2	No Photo Available
Castilleja montigena	Heckard's paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	May-Aug	None	None	G3	S3	4.3	No Photo Available
Castilleja plagiotoma	Mojave paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Jun	None	None	G4	S4	4.3	No Photo Available

										Available
Claytonia peirsonii ssp. *bernardinus*	San Bernardino spring beauty	Montiaceae	perennial herb	Mar-Apr	None	None	G2G3T1	S1	1B.1	No Photo Available
Claytonia peirsonii ssp. *californacis*	Furnace spring beauty	Montiaceae	perennial herb	Mar-May	None	None	G2G3T1	S1	1B.1	No Photo Available
Cordylanthus eremicus ssp. *eremicus*	desert bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jul-Oct	None	None	G3T3	S3	4.3	No Photo Available
Cymopterus multinervatus	purple-nerve cymopterus	Apiaceae	perennial herb	Mar-Apr	None	None	G4G5	S2	2B.2	No Photo Available
Delphinium parryi ssp. *purpureum*	Mt. Pinos larkspur	Ranunculaceae	perennial herb	May-Jun	None	None	G4T4	S4	4.3	No Photo Available
Diplacus johnstonii	Johnston's monkeyflower	Phrymaceae	annual herb	May-Aug	None	None	G4	S4	4.3	No Photo Available
Drymocallis cuneifolia var. *cuneifolia*	wedgeleaf woodbeauty	Rosaceae	perennial herb	Jun-Aug	None	None	G2T1	S1	1B.1	No Photo Available
Dryopteris filix-mas	male fern	Dryopteridaceae	perennial rhizomatous herb	Jul-Sep	None	None	G5	S2	2B.3	No Photo Available
Dudleya abramsii ssp. *affinis*	San Bernardino Mountains dudleya	Crassulaceae	perennial herb	Apr-Jul	None	None	G4T2	S2	1B.2	No Photo Available
Eremogone ursina	Big Bear Valley sandwort	Caryophyllaceae	perennial herb	May-Aug	FT	None	G1	S1	1B.2	No Photo Available
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	Polemoniaceae	perennial herb	Apr-Sep	FE	CE	G4T1	S1	1B.1	No Photo Available
Erigeron breweri var. *jacinteus*	San Jacinto Mountains daisy	Asteraceae	perennial rhizomatous herb	Jun-Sep	None	None	G5T3	S3	4.3	No Photo Available
Erigeron parishii	Parish's daisy	Asteraceae	perennial herb	May-Aug	FT	None	G2	S2	1B.1	No Photo Available
Eriogonum evanidum	vanishing wild buckwheat	Polygonaceae	annual herb	Jul-Oct	None	None	G2	S1	1B.1	No Photo Available
Eriogonum kennedyi var. *austromontanum*	southern mountain buckwheat	Polygonaceae	perennial herb	Jun-Sep	FT	None	G4T2	S2	1B.2	No Photo Available
Eriogonum microthecum var.	Johnston's buckwheat	Polygonaceae	perennial deciduous	Jul-Sep	None	None	G5T2	S2	1B.3	No Photo

microthecum var. johnstonii	buckwheat		deciduous shrub							No Photo Available
Eriogonum microthecum var. lacus-ursi	Bear Lake buckwheat	Polygonaceae	perennial shrub	Jul-Aug	None	None	G5T1	S1	1B.1	No Photo Available
Eriogonum microthecum var. lapidicola	Inyo Mountains buckwheat	Polygonaceae	perennial deciduous shrub	Jul-Sep	None	None	G5T4	S2S3	4.3	No Photo Available
Eriogonum ovalifolium var. vineum	Cushenbury buckwheat	Polygonaceae	perennial herb	May-Aug	FE	None	G5T1	S1	1B.1	No Photo Available
Eriogonum umbellatum var. minus	alpine sulfur-flowered buckwheat	Polygonaceae	perennial herb	Jun-Sep	None	None	G5T4	S4	4.3	No Photo Available
Eriophyllum lanatum var. obovatum	southern Sierra woolly sunflower	Asteraceae	perennial herb	Jun-Jul	None	None	G5T4	S4	4.3	No Photo Available
Erythranthe exigua	San Bernardino Mountains monkeyflower	Phrymaceae	annual herb	May-Jul	None	None	G2	S2	1B.2	No Photo Available
Erythranthe purpurea	little purple monkeyflower	Phrymaceae	annual herb	May-Jun	None	None	G2	S2	1B.2	No Photo Available
Frasera neglecta	pine green-gentian	Gentianaceae	perennial herb	May-Jul	None	None	G4	S4	4.3	No Photo Available
Fritillaria pinetorum	pine fritillary	Liliaceae	perennial bulbiferous herb	May-Jul(Sep)	None	None	G4	S4	4.3	 © 2008 Steve Matson
Galium angustifolium ssp. gabrielense	San Antonio Canyon bedstraw	Rubiaceae	perennial herb	Apr-Aug	None	None	G5T3	S3	4.3	 © 2019 Keir Morse
Galium angustifolium ssp. gracillimum	slender bedstraw	Rubiaceae	perennial herb	Apr-Jun(Jul)	None	None	G5T4	S4	4.2	 © 2011 Duncan S. Bell
Galium jepsonii	Jepson's bedstraw	Rubiaceae	perennial rhizomatous herb	Jul-Aug	None	None	G3	S3	4.3	 © 2015 Keir Morse
Galium johnstonii	Johnston's bedstraw	Rubiaceae	perennial herb	Jun-Jul	None	None	G4	S4	4.3	 © 2015 Keir Morse

										Morse
Gilia leptantha ssp. *leptantha*	San Bernardino gilia	Polemoniaceae	annual herb	Jun-Aug	None	None	G4T2	S2	1B.3	 © 2016 Steven Thorsted
Heuchera abramsii	Abrams' alumroot	Saxifragaceae	perennial rhizomatous herb	Jul-Aug	None	None	G3	S3	4.3	 © 2005 Charles E. Jones
Heuchera caespitosa	urn-flowered alumroot	Saxifragaceae	perennial rhizomatous herb	May-Aug	None	None	G3	S3	4.3	 © 2015 Keir Morse
Heuchera parishii	Parish's alumroot	Saxifragaceae	perennial rhizomatous herb	Jun-Aug	None	None	G3	S3	1B.3	 © 2015 Keir Morse
Horkelia wilderae	Barton Flats horkelia	Rosaceae	perennial herb	May-Sep	None	None	G1	S1	1B.1	 © 2009 Thomas Stoughton
Hulsea vestita ssp. *parryi*	Parry's sunflower	Asteraceae	perennial herb	Apr-Aug	None	None	G5T4	S4	4.3	 © 2015 Keir Morse
Imperata brevifolia	California satintail	Poaceae	perennial rhizomatous herb	Sep-May	None	None	G3	S3	2B.1	 © 2020 Matt C. Berger
Ivesia argyrocoma var. *argyrocoma*	silver-haired ivesia	Rosaceae	perennial herb	Jun-Aug	None	None	G2T2	S2	1B.2	 © 2015 Keir Morse
Johnstonella holoptera	winged cryptantha	Boraginaceae	annual herb	Mar-Apr	None	None	G4G5	S4	4.3	No Photo Available
Juncus duranii	Duran's rush	Juncaceae	perennial rhizomatous herb	Jul-Aug	None	None	G3	S3	4.3	 © 2017 Keir Morse

Lewisia brachycalyx	short-sepaled lewisia	Montiaceae	perennial herb	(Feb)Apr-Jun(Jul)	None	None	G4	S2	2B.2	 Gerald and Buff Corsi © 2002 California Academy of Sciences
Lilium humboldtii ssp. ocellatum	ocellated Humboldt lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	None	None	G4T4?	S4?	4.2	 © 2008 Thomas Stoughton
Lilium parryi	lemon lily	Liliaceae	perennial bulbiferous herb	Jul-Aug	None	None	G3	S3	1B.2	 © 2009 Thomas Stoughton
Lupinus elatus	silky lupine	Fabaceae	perennial herb	Jun-Aug	None	None	G4	S4	4.3	No Photo Available
Navarretia peninsularis	Baja navarretia	Polemoniaceae	annual herb	(May)Jun-Aug	None	None	G3	S2	1B.2	No Photo Available
Oxytropis oreophila var. oreophila	rock-loving oxytrope	Fabaceae	perennial herb	Jun-Sep	None	None	G5T4T5	S2	2B.3	No Photo Available
Packera bernardina	San Bernardino ragwort	Asteraceae	perennial herb	May-Jul	None	None	G2	S2	1B.2	No Photo Available
Packera ionophylla	Tehachapi ragwort	Asteraceae	perennial herb	Jun-Jul	None	None	G4	S4	4.3	No Photo Available
Perideridia parishii ssp. parishii	Parish's yampah	Apiaceae	perennial herb	Jun-Aug	None	None	G4T3T4	S2	2B.2	No Photo Available
Phacelia exilis	Transverse Range phacelia	Hydrophyllaceae	annual herb	May-Aug	None	None	G4Q	S4	4.3	No Photo Available
Phacelia mohavensis	Mojave phacelia	Hydrophyllaceae	annual herb	Apr-Aug	None	None	G4Q	S4	4.3	No Photo Available
Phlox dolichantha	Big Bear Valley phlox	Polemoniaceae	perennial herb	May-Jul	None	None	G2	S2	1B.2	No Photo Available
Physaria kingii ssp. bernardina	San Bernardino Mountains	Brassicaceae	perennial herb	May-Jun	FE	None	G5T1	S1	1B.1	No Photo

	bladderpod									Available
Poa atropurpurea	San Bernardino blue grass	Poaceae	perennial rhizomatous herb	(Apr)May-Jul(Aug)	FE	None	G2	S2	1B.2	No Photo Available
Pyrrocoma uniflora var. gossypina	Bear Valley pyrrocoma	Asteraceae	perennial herb	Jul-Sep	None	None	G5T1	S1	1B.2	No Photo Available
Rupertia rigida	Parish's rupertia	Fabaceae	perennial herb	Jun-Aug	None	None	G4	S4	4.3	No Photo Available
Saltugilia latimeri	Latimer's woodland-gilia	Polemoniaceae	annual herb	Mar-Jun	None	None	G3	S3	1B.2	No Photo Available
Sedum niveum	Davidson's stonecrop	Crassulaceae	perennial rhizomatous herb	Jun-Aug	None	None	G3	S3	4.2	No Photo Available
Sidalcea hickmanii ssp. parishii	Parish's checkerbloom	Malvaceae	perennial herb	(May)Jun-Aug	None	CR	G3T1	S1	1B.2	No Photo Available
Sidalcea malviflora ssp. dolosa	Bear Valley checkerbloom	Malvaceae	perennial herb	May-Aug	None	None	G5T2	S2	1B.2	No Photo Available
Sidalcea pedata	bird-foot checkerbloom	Malvaceae	perennial herb	May-Aug	FE	CE	G1	S1	1B.1	No Photo Available
Sidotheca caryophylloides	chickweed oxytheca	Polygonaceae	annual herb	Jul-Sep(Oct)	None	None	G4	S4	4.3	 ©2021 Keir Morse
Streptanthus bernardinus	Laguna Mountains jewelflower	Brassicaceae	perennial herb	May-Aug	None	None	G3G4	S3S4	4.3	No Photo Available
Streptanthus campestris	southern jewelflower	Brassicaceae	perennial herb	(Apr)May-Jul	None	None	G3	S3	1B.3	No Photo Available
Streptanthus juneae	June's jewelflower	Brassicaceae	perennial herb	Jun-Aug	None	None	G2	S2	1B.2	No Photo Available
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov	None	None	G2	S2	1B.2	No Photo Available
Syntrichopappus lemmonii	Lemmon's syntrichopappus	Asteraceae	annual herb	Apr-May(Jun)	None	None	G4	S4	4.3	No Photo Available
Taraxacum californicum	California dandelion	Asteraceae	perennial herb	May-Aug	FE	None	G1G2	S1S2	1B.1	No Photo Available

Thelypodium stenopetalum	slender-petaled thelypodium	Brassicaceae	perennial herb	May-Sep	FE	CE	G1	S1	1B.1	No Photo Available
Viola pinetorum ssp. *grisea*	grey-leaved violet	Violaceae	perennial herb	Apr-Jul	None	None	G4G5T3	S3	1B.2	No Photo Available
Yucca brevifolia							GNR	SNR	CBR	No Photo Available

Showing 1 to 94 of 94 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 25 August 2022].

APPENDIX 3
WQMP

Preliminary

Water Quality Management Plan

For:

Castlerock Trail Parking Lot

Big Bear, California

APN 030-601-102

Prepared for:

City of Big Bear Lake

39707 Big Bear Blvd

Big Bear Lake, CA 92315

909 866 5831

Prepared by:

C.G. Resource Management and Engineering, Inc.

2105 Foothill Blvd. Ste B-135

La Verne, California 91750

909-455-8520

Submittal Date: 12/30/22

Revision Date: _____

Approval Date:_____

Project Owner's Certification

This Water Quality Management Plan (WQMP) has been prepared for the City of Big Bear Lake by CG Resource Management and Engineering, Inc. The WQMP is intended to comply with the requirements of the County of San Bernardino and the NPDES Areawide Stormwater Program requiring the preparation of a WQMP. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with San Bernardino County's Municipal Storm Water Management Program and the intent of the NPDES Permit for San Bernardino County and the incorporated cities of San Bernardino County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors in interest and the city/county shall be notified of the transfer. The new owner will be informed of its responsibility under this WQMP. A copy of the approved WQMP shall be available on the subject site in perpetuity.

"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the WQMP have been accepted and that the plan will be transferred to future successors."

.

Project Data			
Permit/Application Number(s):	22.001	Grading Permit Number(s):	NA
Tract/Parcel Map Number(s):		Building Permit Number(s):	NA
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APN: 030-601-102

Owner's Signature			
Owner Name: City of Big Bear Lake/ Sean Sullivan			
Title	Public Works Manager		
Company	City of Big Bear Lake		
Address	39707 Big Bear Lake, Big Bear Lake Ca 92315		
Email			
Telephone #	909 866 5831		
Signature		Date	

Preparer's Certification

Project Data			
Permit/Application Number(s):	22.001	Grading Permit Number(s):	NA
Tract/Parcel Map Number(s):		Building Permit Number(s):	NA
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APN: 030-601-102

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan were prepared under my oversight and meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0036."

Engineer: Cynthia Gabaldon, PE		PE Stamp Below
Title	President	
Company	CG Resource Management and Engineering, Inc.	
Address	2105 Foothill Blvd, Ste B-135 La Verne, Ca 91750	
Email	Cynthia.Gabaldon@cgrme.com	
Telephone #	909-455-8520	
Signature		
Date		

Contract Engineer to City of Big Bear

Table of Contents

Forms

Section 1 Discretionary Permit(s)

Form 1-1 Project Information					
Project Name	Castlerock Trail Parking Lot				
Project Owner Contact Name:	City of Big Bear Lake				
Mailing Address:	39707 Big Bear Lake, Big Bear Lake Ca 92315	E-mail Address:		Telephone:	909 866 5831
Permit/Application Number(s):	22.001		Tract/Parcel Map Number(s):		
Additional Information/ Comments:					
Description of Project:	Construction of a new trailhead parking lot. The entire site 40,360 square feet (.99 acres). This includes 216 square foot restroom. The remaining site will be landscaped using local, native plants. All impervious areas drain to pervious areas before reaching onsite treatment. Runoff to be treated with two bioretention basins with underdrains for all parking lot and building roof runoff. Total impervious area – 21,206.78 square feet Total pervious area – 19,153.22 square feet. This includes bio-retention basins and slopes				
Provide summary of Conceptual WQMP conditions (if previously submitted and approved). Attach complete copy.					

Section 2 Project Description

2.1 Project Information

This section of the WQMP should provide the information listed below. The information provided for Conceptual/ Preliminary WQMP should give sufficient detail to identify the major proposed site design and LID BMPs and other anticipated water quality features that impact site planning. Final Project WQMP must specifically identify all BMP incorporated into the final site design and provide other detailed information as described herein.

The purpose of this information is to help determine the applicable development category, pollutants of concern, watershed description, and long-term maintenance responsibilities for the project, and any applicable water quality credits. This information will be used in conjunction with the information in Section 3, Site Description, to establish the performance criteria and to select the LID BMP or other BMP for the project or other alternative programs that the project will participate in, which are described in Section 4.

Form 2.1-1 Description of Proposed Project

1 Development Category (Select all that apply):

☐ Significant re-development involving the addition or replacement of 5,000 ft^2 or more of impervious surface on an already developed site	☒ New development involving the creation of 10,000 ft^2 or more of impervious surface collectively over entire site	☐ Automotive repair shops with standard industrial classification (SIC) codes 5013, 5014, 5541, 7532- 7534, 7536-7539	☐ Restaurants (with SIC code 5812) where the land area of development is 5,000 ft^2 or more
☐ Hillside developments of 5,000 ft^2 or more which are located on areas with known erosive soil conditions or where the natural slope is 25 percent or more	☐ Developments of 2,500 ft^2 of impervious surface or more adjacent to (within 200 ft) or discharging directly into environmentally sensitive areas or waterbodies listed on the CWA Section 303(d) list of impaired waters.	☒ Parking lots of 5,000 ft^2 or more exposed to storm water	☐ Retail gasoline outlets that are either 5,000 ft^2 or more, or have a projected average daily traffic of 100 or more vehicles per day

☐ Non-Priority / Non-Category Project *May require source control LID BMPs and other LIP requirements. Please consult with local jurisdiction on specific requirements*.

2 Project Area (ft2):	40,360	**3** Number of Dwelling Units:	0	**4** SIC Code:	na

5 Is Project going to be phased? Yes ☐ No ☒ *If yes, ensure that the WQMP evaluates each phase as a distinct DA, requiring LID BMPs to address runoff at time of completion.*

6 Does Project include roads? Yes ☐ No ☒ *If yes, ensure that applicable requirements for transportation projects are addressed (see Appendix A of TGD for WQMP)*

2.2 Property Ownership/Management

Describe the ownership/management of all portions of the project and site. State whether any infrastructure will transfer to public agencies (City, County, Caltrans, etc.) after project completion. State if a homeowners or property owners association will be formed and be responsible for the long-term maintenance of project stormwater facilities. Describe any lot-level stormwater features that will be the responsibility of individual property owners.

Form 2.2-1 Property Ownership/Management

Describe property ownership/management responsible for long-term maintenance of WQMP stormwater facilities:
The City of Big Bear Lake Public Works department will be responsible for the on-going operations and maintenance.

2.3 Potential Stormwater Pollutants

Determine and describe expected stormwater pollutants of concern based on land uses and site activities (refer to Table 3-3 in the TGD for WQMP).

Form 2.3-1 Pollutants of Concern			
Pollutant	Please check: E=Expected, N=Not Expected		Additional Information and Comments
Pathogens (Bacterial / Virus)	E ☒	N ☐	Potential pollutant discharge from user access (vehicles).
Nutrients - Phosphorous	E ☒	N ☐	Receiving waters (Big Bear Lake) impairment. Potential pollutant discharge from proposed landscaping maintenance.
Nutrients - Nitrogen	E ☒	N ☐	Receiving waters (Big Bear Lake) impairment. Potential pollutant discharge from proposed landscaping maintenance.
Noxious Aquatic Plants	E ☒	N ☐	Receiving waters (Big Bear Lake) impairment. Potential pollutant discharge from proposed landscaping maintenance.
Sediment	E ☒	N ☐	Receiving waters (Big Bear Lake) impairment. Potential pollutant discharge from proposed landscaping maintenance.
Metals	E ☒	N ☐	Potential pollutant discharge from user access (vehicles).
Oil and Grease	E ☒	N ☐	Potential pollutant discharge from user access (vehicles).
Trash/Debris	E ☒	N ☐	Potential pollutant discharge from user access, offsite debris, etc.
Pesticides / Herbicides	E ☒	N ☐	Potential pollutant discharge from proposed landscaping maintenance.
Organic Compounds	E ☒	N ☐	Potential pollutant discharge from customer access, and business operations.
Other:	E ☐	N ☒	
Other:	E ☐	N ☒	
Other:	E ☐	N ☒	
Other:	E ☐	N ☒	
Other:	E ☐	N ☒	

2.4 Water Quality Credits

A water quality credit program is applicable for certain types of development projects if it is not feasible to meet the requirements for on-site LID. Proponents for eligible projects, as described below, can apply for water quality credits that would reduce project obligations for selecting and sizing other treatment BMP or participating in other alternative compliance programs. Refer to Section 6.2 in the TGD for WQMP to determine if water quality credits are applicable for the project.

Form 2.4-1 Water Quality Credits

1 Project Types that Qualify for Water Quality Credits: *Select all that apply*

☐ Redevelopment projects that reduce the overall impervious footprint of the project site. [Credit = % impervious reduced]	Higher density development projects ☐ Vertical density [20%] ☐ 7 units/ acre [5%]	☐ Mixed use development, (combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that demonstrate environmental benefits not realized through single use projects) [20%]	☐ Brownfield redevelopment (redevelop real property complicated by presence or potential of hazardous contaminants) [25%]
☐ Redevelopment projects in established historic district, historic preservation area, or similar significant core city center areas [10%]	☐ Transit-oriented developments (mixed use residential or commercial area designed to maximize access to public transportation) [20%]	☐ In-fill projects (conversion of empty lots & other underused spaces < 5 acres, substantially surrounded by urban land uses, into more beneficially used spaces, such as residential or commercial areas) [10%]	☐ Live-Work developments (variety of developments designed to support residential and vocational needs) [20%]

2 Total Credit % 0 *(Total all credit percentages up to a maximum allowable credit of 50 percent)*

Description of Water Quality Credit Eligibility (if applicable)	Not applicable

Section 3 Site and Watershed Description

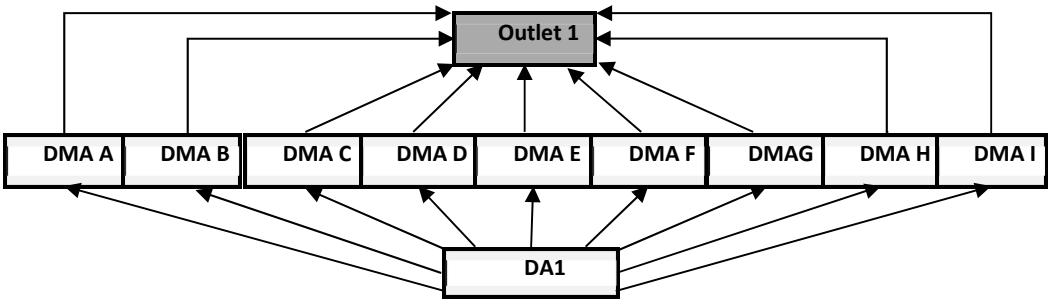
Describe the project site conditions that will facilitate the selection of BMP through an analysis of the physical conditions and limitations of the site and its receiving waters. Identify distinct drainage areas (DA) that collect flow from a portion of the site and describe how runoff from each DA (and sub-watershed DMAs) is conveyed to the site outlet(s). Refer to Section 3.2 in the TGD for WQMP. The form below is provided as an example. Then complete Forms 3.2 and 3.3 for each DA on the project site.

Form 3-1 Site Location and Hydrologic Features

Site coordinates *take GPS measurement at approximate center of site*	Latitude 34.238083	Longitude -116.960203	Thomas Bros Map

1 San Bernardino County climatic region: ☐ Valley ☒ Mountain

2 Does the site have more than one drainage area (DA): Yes ☐ No ☒ *If no, proceed to Form 3-2. If yes, then use this form to show a conceptual schematic describing DMAs and hydrologic feature connecting DMAs to the site outlet(s). An example is provided below that can be modified for proposed project or a drawing clearly showing DMA and flow routing may be attached*



Conveyance	Briefly describe on-site drainage features to convey runoff that is not retained within a DMA
DA1 to Outlet 1	Impervious asphalt and concrete parking/drive area drain via sheet flow to two, proposed bioretention basins with underdrain. Roof runoff will also drain via downspouts and sheet flow to bioretention basins with underdrains. The bioretention basin will treat the required water quality volume through infiltration. The basin will also have an underdrain which will release treated runoff to the existing drainage way, with a combined outflow of less than the pre-existing flow rate.
Self-Treating Areas	Areas to be remain as existing or revegetated with existing trees to be preserved with natural drainage/flow patterns to not be altered.

Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA A	DMA B	DMA C	DMA D
1 DMA drainage area (ft^2)	37,620			
2 Existing site impervious area (ft^2)	0	0	0	0
3 Antecedent moisture condition *For desert areas, use* http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf	III	III	III	III
4 Hydrologic soil group *Refer to Watershed Mapping Tool –* http://permitrack.sbcounty.gov/wap/	B	B	B	B
5 Longest flowpath length (ft)	183			
6 Longest flowpath slope (ft/ft)	0.2			
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Woodland	Woodland	Woodland	Woodland
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Fair	Fair	Fair	Fair

Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1 cont.

For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA E	DMA F	DMA G	DMA H	DMA I
1 DMA drainage area (ft^2)					
2 Existing site impervious area (ft^2)	0	0	0	0	0
3 Antecedent moisture condition *For desert areas, use* http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf	III	III	III	III	III
4 Hydrologic soil group *Refer to Watershed Mapping Tool –* http://permitrack.sbcounty.gov/wap/	B	B	B	B	B
5 Longest flowpath length (ft)					
6 Longest flowpath slope (ft/ft)					
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Woodland	Woodland	Woodland	Woodland	Woodland
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Fair	Fair	Fair	Fair	Fair

☐

X

Form 3-3 Watershed Description for Drainage Area	
Receiving waters *Refer to Watershed Mapping Tool - http://permitrack.sbcounty.gov/wap/ See 'Drainage Facilities" link at this website*	Big Bear Lake
Applicable TMDLs *Refer to Local Implementation Plan*	Big Bear Lake: Nutrients, Sediment
303(d) listed impairments *Refer to Local Implementation Plan and Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/ and State Water Resources Control Board website – http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/index.shtml*	Pathogens & Metals
Environmentally Sensitive Areas (ESA) *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	N/A
Unlined Downstream Water Bodies *Refer to Watershed Mapping Tool –*	

Section 4 Best Management Practices (BMP)

4.1 Source Control BMP

4.1.1 Pollution Prevention

Non-structural and structural source control BMP are required to be incorporated into all new development and significant redevelopment projects. Form 4.1-1 and 4.1-2 are used to describe specific source control BMPs used in the WQMP or to explain why a certain BMP is not applicable. Table 7-3 of the TGD for WQMP provides a list of applicable source control BMP for projects with specific types of potential pollutant sources or activities. The source control BMP in this table must be implemented for projects with these specific types of potential pollutant sources or activities.

The preparers of this WQMP have reviewed the source control BMP requirements for new development and significant redevelopment projects. The preparers have also reviewed the specific BMP required for project as specified in Forms 4.1-1 and 4.1-2. All applicable non-structural and structural source control BMP shall be implemented in the project.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	☒	☐	City Staff shall be educated on stormwater BMP's.
N2	Activity Restrictions	☒	☐	Pesticide application shall be performed by a licensed applicator and car washing shall be prohibited.
N3	Landscape Management BMPs	☒	☐	Low water vegetation utilized onsite, mowing/landscaping trimmings to be collected and properly disposed of, irrigation runoff minimized by automatic timers.
N4	BMP Maintenance	☒	☐	BMP's shall be visually inspected regularly for accumulation of sediment, proper drainage, invasive plant life, soil/media displacement/loss, trash/debris and shall be maintained as necessary to remedy any issues pertaining to BMP functionality.
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	No hazardous materials
N6	Local Water Quality Ordinances	☒	☐	This WQMP meets San Bernardino County's Municipal Stormwater Management Program. City of Big Bear Lake Landscape ordinance will be followed.
N7	Spill Contingency Plan	☒	☐	Outdoor spills shall be cleaned immediately by occupant. Maintain good housekeeping practices and regularly inspect outdoor areas for vehicle fluid leaks, debris/litter, foreign materials, etc. and contain/clean up to avoid impact on site BMP's.
N8	Underground Storage Tank Compliance	☐	☒	No underground storage tanks
N9	Hazardous Materials Disclosure Compliance	☐	☒	No hazardous materials

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	☐	☒	No hazardous materials
N11	Litter/Debris Control Program	☒	☐	City staff shall define location and scheduling for emptying and maintenance of trash bins, containers, and common ground areas to reduce debris on the property.
N12	Employee Training	☒	☐	City staff participate in annual training for citywide NPDES compliance
N13	Housekeeping of Loading Docks	☐	☒	No loading docks
N14	Catch Basin Inspection Program	☐	☒	No catch basins
N15	Vacuum Sweeping of Private Streets and Parking Lots	☒	☐	Minimization of debris in parking lot areas by sweeping and removal of litter as part of regular site maintenance. Minimization of impact to treatment facilities as runoff drains to biofilters/pervious areas before entering treatment facilities. Vacuum assisted sweeping shall be performed yearly prior to the rainy season (late summer/early fall)
N16	Other Non-structural Measures for Public Agency Projects	☐	☒	None are required
N17	Comply with all other applicable NPDES permits	☒	☐	

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stenciling and signage (CASQA New Development BMP Handbook SD-13)	☐	☒	No catch basins
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	☐	☒	No outdoor storage
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	☒	☐	Drainage to be diverted from trash area, area to be screened, trash bins to have attached lids, trash area paved to mitigate spills, no storm drain facilities in immediate vicinity.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	☒	☐	Smart irrigation controller to be utilized on site, grouping of vegetation with similar water needs.
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	☒	☐	All site pervious areas will be below adjacent impervious grades per site design procedures.
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	☒	☐	Proposed constructed slopes to be stabilized utilizing landscaping improvements, channels to be protected with rip rap, also providing energy dissipation.
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	☐	☒	No loading docks
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	☐	☒	No maintenance bays
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	No vehicle wash areas

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	☐	☒	No outdoor storage
S11	Equipment wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	No equipment wash
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	☐	☒	No fueling
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	☒	☐	Revegetate constructed slopes for stabilization with native/drought resistant vegetation.
S14	Wash water control for food preparation areas	☐	☒	No food preparation
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	☐	☒	No car wash

4.1.2 Preventative LID Site Design Practices

Site design practices associated with new LID requirements in the MS4 Permit should be considered in the earliest phases of a project. Preventative site design practices can result in smaller DCV for LID BMP and hydromodification control BMP by reducing runoff generation. Describe site design and drainage plan including:

- A narrative of site design practices utilized or rationale for not using practices
- A narrative of how site plan incorporates preventive site design practices
- Include an attached Site Plan layout which shows how preventative site design practices are included in WQMP

Refer to Section 5.2 of the TGD for WQMP for more details.

Form 4.1-3 Preventative LID Site Design Practices Checklist

Site Design Practices *If yes, explain how preventative site design practice is addressed in project site plan. If no, other LID BMPs must be selected to meet targets*
Minimize impervious areas: Yes ☒ No ☐ Explanation: Minimization of parking and sidewalk areas to minimum code requirements, maximize landscaping and undisturbed areas to promote retaining existing established trees.
Maximize natural infiltration capacity: Yes ☒ No ☐ Explanation: All parking lot runoff routed to depressed landscape area prior to entering BMP. Building runoff to drain to landscape buffer prior to entering BMP.
Preserve existing drainage patterns and time of concentration: Yes ☒ No ☐ Explanation: The treatment control facilities will equal and improve the drainage patterns through retention and infiltration.
Disconnect impervious areas: Yes ☒ No ☐ Explanation: Roof downspouts drain to pervious area, or drain to pavement that drains to pervious landscape areas prior to arrival at BMP.
Protect existing vegetation and sensitive areas: Yes ☒ No ☐ Explanation: Native vegetation to be preserved in areas where no construction activities planned, and parking lot designed to avoid existing established trees as possible. No sensitive area onsite.
Re-vegetate disturbed areas: Yes ☒ No ☐ Explanation: Landscaping proposed.
Minimize unnecessary compaction in stormwater retention/infiltration basin/trench areas: Yes ☒ No ☐ Explanation: Construction activities limited in proposed infiltration areas. Note to be provided on grading plans regarding BMP construction practices- including temporary fencing provided to reduce access/unnecessary compaction.
Utilize vegetated drainage swales in place of underground piping or imperviously lined swales: Yes ☒ No ☐ Explanation: Implementation of landscape buffer provided between roof downspouts and bioretention basin with underdrain.
Stake off areas that will be used for landscaping to minimize compaction during construction : Yes ☒ No ☐ Explanation: Construction activities limited in proposed landscaping areas. Note to be provided on grading plans regarding landscaping construction practices- including temporary fencing provided to reduce access/unnecessary compaction.

4.2 Project Performance Criteria

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in the MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection of any downstream waterbody segments with a HCOC.

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), the San Bernardino County Stormwater Program requires use of the P_6 method (MS4 Permit Section XI.D.6a.ii) – Form 4.2-1
- For HCOC pre- and post-development hydrologic calculation, the San Bernardino County Stormwater Program requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi²), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for HCOC performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA 1)

1 Project area DA 1 (ft^2): 37,620	**2** Imperviousness after applying preventative site design practices (Imp%): 47.5	**3** Runoff Coefficient (Rc): _0.323 *$R_c = 0.858(Imp\%)^{\wedge 3} - 0.78(Imp\%)^{\wedge 2} + 0.774(Imp\%) + 0.04$*
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2yr\text{-}1hr}$ (in): 0.782 http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html		
5 Compute P_6, Mean 6-hr Precipitation (inches): 1.492 *P_6 = Item 4 *C_1, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)*		
6 Drawdown Rate *Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.*		24-hrs ☐ 48-hrs ☒
7 Compute design capture volume, DCV (ft^3): 2.966 *DCV = 1/12 * [Item 1* Item 3 *Item 5 * C_2], where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)* *Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2*		

Form 4.2-2 Summary of HCOC Assessment (DA 1)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes ☐ No ☒

Go to: *http://permitrack.sbcounty.gov/wap/*

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below

(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft^3)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	**1** *Form 4.2-3 Item 12*	**2** *Form 4.2-4 Item 13*	**3** *Form 4.2-5 Item 10*
Post-developed	**4** *Form 4.2-3 Item 13*	**5** *Form 4.2-4 Item 14*	**6** *Form 4.2-5 Item 14*
Difference	**7** *Item 4 – Item 1*	**8** *Item 2 – Item 5*	**9** *Item 6 – Item 3*
Difference (as % of pre-developed)	**10** *Item 7 / Item 1*	**11.** *Item 8 / Item 2*	**12** *Item 9 / Item 3*

Form 4.2-3 HCOC Assessment for Runoff Volume (DA 1)

Weighted Curve Number Determination for:	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H	DMA I
1a Land Cover type	Woodland, Grass	Woodland, Grass	Woodland, Grass	Woodland, Grass	Woodland, Grass	Woodland, Grass	Woodland, Grass	Woodland, Grass	Woodland, Grass
2a Hydrologic Soil Group (HSG)	B	B	B	B	B	B	B	B	B
3a DMA Area, ft^2 *sum of areas of DMA should equal area of DA*									
4a Curve Number (CN) *use Items 1 and 2 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*									
Weighted Curve Number Determination for:									
1b Land Cover type									
2b Hydrologic Soil Group (HSG)									
3b DMA Area, ft^2 *sum of areas of DMA should equal area of DA*									
4b Curve Number (CN) *use Items 5 and 6 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*									

5 Pre-Developed area-weighted CN:	**7** Pre-developed soil storage capacity, S (in): *S = (1000 / Item 5) - 10*		**9** Initial abstraction, I_a (in): *I_a = 0.2 * Item 7*
6 Post-Developed area-weighted CN:	**8** Post-developed soil storage capacity, S (in): *S = (1000 / Item 6) - 10*		**10** Initial abstraction, I_a (in): *I_a = 0.2 * Item 8*

11 Precipitation for 2 yr, 24 hr storm (in):
Go to: http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html

12 Pre-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 9)^2 / ((Item 11 – Item 9 + Item 7)*

13 Post-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 10)^2 / ((Item 11 – Item 10 + Item 8)*

14 Volume Reduction needed to meet HCOC Requirement, (ft^3):
*V_{HCOC} = (Item 13 * 0.95) – Item 12*

Form 4.2-4 HCOC Assessment for Time of Concentration (DA 1)

Compute time of concentration for pre and post developed conditions for each DA *(For projects using the Hydrology Manual complete the form below)*

Variables	Pre-developed DA1 *Use additional forms if there are more than 4 DMA*				Post-developed DA1 *Use additional forms if there are more than 4 DMA*			
	DMA A	DMA B	DMA C	DMA D	DMA A	DMA B	DMA C	DMA D
1 Length of flowpath (ft) *Use Form 3-2 Item 5 for pre-developed condition*								
2 Change in elevation (ft)								
3 Slope (ft/ft), S_o *= Item 2 / Item 1*								
4 Land cover								
5 Initial DMA Time of Concentration (min) *Appendix C-1 of the TGD for WQMP*								
6 Length of conveyance from DMA outlet to project site outlet (ft) *May be zero if DMA outlet is at project site outlet*								
7 Cross-sectional area of channel (ft^2)								
8 Wetted perimeter of channel (ft)								
9 Manning's roughness of channel (n)								
10 Channel flow velocity (ft/sec) V_{fps} *= (1.49 / Item 9) * (Item 7/Item 8)^0.67 * (Item 3)^0.5*								
11 Travel time to outlet (min) T_t *= Item 6 / (Item 10 * 60)*								
12 Total time of concentration (min) T_c *= Item 5 + Item 11*								
13 Pre-developed time of concentration (min): *Minimum of Item 12 pre-developed DMA*								
14 Post-developed time of concentration (min): *Minimum of Item 12 post-developed DMA*								
15 Additional time of concentration needed to meet HCOC requirement (min): $T_{C\text{-}HCOC}$ *= (Item 13 * 0.95) – Item 14*								

Form 4.2-4 HCOC Assessment for Time of Concentration (DA 1) cont.

Compute time of concentration for pre and post developed conditions for each DA *(For projects using the Hydrology Manual complete the form below)*

Variables	Pre-developed DA2 *Use additional forms if there are more than 4 DMA*					Post-developed DA2 *Use additional forms if there are more than 4 DMA*				
	DMA E	DMA F	DMA G	DMA H	DMA I	DMA E	DMA F	DMA G	DMA H	DMA I
1 Length of flowpath (ft) *Use Form 3-2 Item 5 for pre-developed condition*										
2 Change in elevation (ft)										
3 Slope (ft/ft), *S_o = Item 2 / Item 1*										
4 Land cover										
5 Initial DMA Time of Concentration (min) *Appendix C-1 of the TGD for WQMP*										
6 Length of conveyance from DMA outlet to project site outlet (ft) *May be zero if DMA outlet is at project site outlet*										
7 Cross-sectional area of channel (ft^2)										
8 Wetted perimeter of channel (ft)										
9 Manning's roughness of channel (n)										
10 Channel flow velocity (ft/sec) *V_{fps} = (1.49 / Item 9) * (Item 7/Item 8)^0.67 * (Item 3)^0.5*										
11 Travel time to outlet (min) *T_t = Item 6 / (Item 10 * 60)*										
12 Total time of concentration (min) *T_c = Item 5 + Item 11*										

13 Pre-developed time of concentration (min): *Minimum of Item 12 pre-developed DMA*

14 Post-developed time of concentration (min): *Minimum of Item 12 post-developed DMA*

15 Additional time of concentration needed to meet HCOC requirement (min): *$T_{C\text{-}HCOC}$ = (Item 13 * 0.95) – Item 14*

Form 4.2-5 HCOC Assessment for Peak Runoff (DA 1)

Compute peak runoff for pre- and post-developed conditions

Variables		Pre-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*			Post-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*		
		DMA A	DMA B	DMA C	DMA A	DMA B	DMA C
1 Rainfall Intensity for storm duration equal to time of concentration *I_{peak} = 10^(LOG Form 4.2-1 Item 4 - 0.6 LOG Form 4.2-4 Item 5 /60)*							
2 Drainage Area of each DMA (Acres) *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
3 Ratio of pervious area to total area *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
4 Pervious area infiltration rate (in/hr) *Use pervious area CN and antecedent moisture condition with Appendix C-3 of the TGD for WQMP*							
5 Maximum loss rate (in/hr) *F_m = Item 3 * Item 4* *Use area-weighted F_m from DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
6 Peak Flow from DMA (cfs) *Q_p =Item 2 * 0.9 * (Item 1 - Item 5)*							
7 Time of concentration adjustment factor for other DMA to site discharge point *Form 4.2-4 Item 12 DMA / Other DMA upstream of site discharge point (If ratio is greater than 1.0, then use maximum value of 1.0)*	DMA A	n/a			n/a		
	DMA B		n/a			n/a	
	DMA C			n/a			n/a

8 Pre-developed Q_p at T_c for DMA A: *Q_p = Item 6_{DMAA} + [Item 6_{DMAB} * (Item 1_{DMAA} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAA/2}$] + [Item 6_{DMAC} * (Item 1_{DMAA} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAA/3}$]*	**9** Pre-developed Q_p at T_c for DMA B: *Q_p = Item 6_{DMAB} + [Item 6_{DMAA} * (Item 1_{DMAB} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAB/1}$] + [Item 6_{DMAC} * (Item 1_{DMAB} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAB/3}$]*	**10** Pre-developed Q_p at T_c for DMA C: *Q_p = Item 6_{DMAC} + [Item 6_{DMAA} * (Item 1_{DMAC} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAC/1}$] + [Item 6_{DMAB} * (Item 1_{DMAC} - Item 5_{DMAB})/(Item 1_{DMAB} – Item 5_{DMAB})* Item $7_{DMAC/2}$]*
10 Peak runoff from pre-developed condition confluence analysis (cfs): *Maximum of Item 8, 9, and 10 (including additional forms as needed)*		
11 Post-developed Q_p at T_c for DMA A: *Same as Item 8 for post-developed values*	**12** Post-developed Q_p at T_c for DMA B: *Same as Item 9 for post-developed values*	**13** Post-developed Q_p at T_c for DMA C: *Same as Item 10 for post-developed values*
14 Peak runoff from post-developed condition confluence analysis (cfs): *Maximum of Item 11, 12, and 13 (including additional forms as needed)*		
15 Peak runoff reduction needed to meet HCOC Requirement (cfs): *$Q_{p\text{-}HCOC}$ = (Item 14 * 0.95) – Item 10*		

Form 4.2-5 HCOC Assessment for Peak Runoff (DA 1) cont.

Compute peak runoff for pre- and post-developed conditions

Variables		Pre-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*			Post-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*		
		DMA D	DMA E	DMA F	DMA D	DMA E	DMA F
1 Rainfall Intensity for storm duration equal to time of concentration *I_{peak} = 10^(LOG Form 4.2-1 Item 4 - 0.6 LOG Form 4.2-4 Item 5 /60)*							
2 Drainage Area of each DMA (Acres) *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
3 Ratio of pervious area to total area *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
4 Pervious area infiltration rate (in/hr) *Use pervious area CN and antecedent moisture condition with Appendix C-3 of the TGD for WQMP*							
5 Maximum loss rate (in/hr) *F_m = Item 3 * Item 4* *Use area-weighted F_m from DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
6 Peak Flow from DMA (cfs) *Q_p =Item 2 * 0.9 * (Item 1 - Item 5)*							
7 Time of concentration adjustment factor for other DMA to site discharge point *Form 4.2-4 Item 12 DMA / Other DMA upstream of site discharge point (If ratio is greater than 1.0, then use maximum value of 1.0)*	DMA D	*n/a*			*n/a*		
	DMA E		*n/a*			*n/a*	
	DMA F			*n/a*			*n/a*

8 Pre-developed Q_p at T_c for DMA D: *Q_p = Item 6_{DMAA} + [Item 6_{DMAB} * (Item 1_{DMAA} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAA/2}$] + [Item 6_{DMAC} * (Item 1_{DMAA} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAA/3}$]*	**9** Pre-developed Q_p at T_c for DMA E: *Q_p = Item 6_{DMAB} + [Item 6_{DMAA} * (Item 1_{DMAB} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAB/1}$] + [Item 6_{DMAC} * (Item 1_{DMAB} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAB/3}$]*	**10** Pre-developed Q_p at T_c for DMA F: *Q_p = Item 6_{DMAC} + [Item 6_{DMAA} * (Item 1_{DMAC} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAC/1}$] + [Item 6_{DMAB} * (Item 1_{DMAC} - Item 5_{DMAB})/(Item 1_{DMAB} – Item 5_{DMAB})* Item $7_{DMAC/2}$]*
10 Peak runoff from pre-developed condition confluence analysis (cfs): *Maximum of Item 8, 9, and 10 (including additional forms as needed)*		
11 Post-developed Q_p at T_c for DMA D: *Same as Item 8 for post-developed values*	**12** Post-developed Q_p at T_c for DMA E: *Same as Item 9 for post-developed values*	**13** Post-developed Q_p at T_c for DMA F: *Same as Item 10 for post-developed values*
14 Peak runoff from post-developed condition confluence analysis (cfs): *Maximum of Item 11, 12, and 13 (including additional forms as needed)*		
15 Peak runoff reduction needed to meet HCOC Requirement (cfs): *$Q_{p\text{-}HCOC}$ = (Item 14 * 0.95) – Item 10*		

Form 4.2-5 HCOC Assessment for Peak Runoff (DA 1) cont.

Compute peak runoff for pre- and post-developed conditions

Variables		Pre-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*			Post-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*		
		DMA G	DMA H	DMA I	DMA G	DMA H	DMA I
1 Rainfall Intensity for storm duration equal to time of concentration *I_{peak} = 10^(LOG Form 4.2-1 Item 4 - 0.6 LOG Form 4.2-4 Item 5 /60)*							
2 Drainage Area of each DMA (Acres) *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
3 Ratio of pervious area to total area *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
4 Pervious area infiltration rate (in/hr) *Use pervious area CN and antecedent moisture condition with Appendix C-3 of the TGD for WQMP*							
5 Maximum loss rate (in/hr) *F_m = Item 3 * Item 4* *Use area-weighted F_m from DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
6 Peak Flow from DMA (cfs) *Q_p =Item 2 * 0.9 * (Item 1 - Item 5)*							
7 Time of concentration adjustment factor for other DMA to site discharge point *Form 4.2-4 Item 12 DMA / Other DMA upstream of site discharge point (If ratio is greater than 1.0, then use maximum value of 1.0)*	DMA G	*n/a*			*n/a*		
	DMA H		*n/a*			*n/a*	
	DMA I			*n/a*			*n/a*

8 Pre-developed Q_p at T_c for DMA G: *Q_p = Item 6_{DMAA} + [Item 6_{DMAB} * (Item 1_{DMAA} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAA/2}$] + [Item 6_{DMAC} * (Item 1_{DMAA} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAA/3}$]*	**9** Pre-developed Q_p at T_c for DMA H: *Q_p = Item 6_{DMAB} + [Item 6_{DMAA} * (Item 1_{DMAB} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAB/1}$] + [Item 6_{DMAC} * (Item 1_{DMAB} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAB/3}$]*	**10** Pre-developed Q_p at T_c for DMA I: *Q_p = Item 6_{DMAC} + [Item 6_{DMAA} * (Item 1_{DMAC} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAC/1}$] + [Item 6_{DMAB} * (Item 1_{DMAC} - Item 5_{DMAB})/(Item 1_{DMAB} – Item 5_{DMAB})* Item $7_{DMAC/2}$]*
10 Peak runoff from pre-developed condition confluence analysis (cfs): *Maximum of Item 8, 9, and 10 (including additional forms as needed)*		
11 Post-developed Q_p at T_c for DMA G: *Same as Item 8 for post-developed values*	**12** Post-developed Q_p at T_c for DMA H: *Same as Item 9 for post-developed values*	**13** Post-developed Q_p at T_c for DMA I: *Same as Item 10 for post-developed values*
14 Peak runoff from post-developed condition confluence analysis (cfs): *Maximum of Item 11, 12, and 13 (including additional forms as needed)*		
15 Peak runoff reduction needed to meet HCOC Requirement (cfs): *$Q_{p\text{-}HCOC}$ = (Item 14 * 0.95) – Item 10*		

4.3 Project Conformance Analysis

Complete the following forms for each project site DA to document that the proposed LID BMPs conform to the project DCV developed to meet performance criteria specified in the MS4 Permit (WQMP Template Section 4.2). For the LID DCV, the forms are ordered according to hierarchy of BMP selection as required by the MS4 Permit (see Section 5.3.1 in the TGD for WQMP). The forms compute the following for on-site LID BMP:

- Site Design and Hydrologic Source Controls (Form 4.3-2)
- Retention and Infiltration (Form 4.3-3)
- Harvested and Use (Form 4.3-4) or
- Biotreatment (Form 4.3-5).

At the end of each form, additional fields facilitate the determination of the extent of mitigation provided by the specific BMP category, allowing for use of the next category of BMP in the hierarchy, if necessary.

The first step in the analysis, using Section 5.3.2.1 of the TGD for WQMP, is to complete Forms 4.3-1 and 4.3-3) to determine if retention and infiltration BMPs are infeasible for the project. For each feasibility criterion in Form 4.3-1, if the answer is "Yes," provide all study findings that includes relevant calculations, maps, data sources, etc. used to make the determination of infeasibility.

Next, complete Forms 4.3-2 and 4.3-4 to determine the feasibility of applicable HSC and harvest and use BMPs, and, if their implementation is feasible, the extent of mitigation of the DCV.

If no site constraints exist that would limit the type of BMP to be implemented in a DA, evaluate the use of combinations of LID BMPs, including all applicable HSC BMPs to maximize on-site retention of the DCV. If no combination of BMP can mitigate the entire DCV, implement the single BMP type, or combination of BMP types, that maximizes on-site retention of the DCV within the minimum effective area.

If the combination of LID HSC, retention and infiltration, and harvest and use BMPs are unable to mitigate the entire DCV, then biotreatment BMPs may be implemented by the project proponent. If biotreatment BMPs are used, then they must be sized to provide sufficient capacity for effective treatment of the remainder of the volume-based performance criteria that cannot be achieved with LID BMPs (TGD for WQMP Section 5.4.4.2). **Under no circumstances shall any portion of the DCV be released from the site without effective mitigation and/or treatment**.

Form 4.3-1 Infiltration BMP Feasibility (DA 1)

Feasibility Criterion – Complete evaluation for each DA on the Project Site

[1] Would infiltration BMP pose significant risk for groundwater related concerns? Yes ☐ No ☒
Refer to Section 5.3.2.1 of the TGD for WQMP

If Yes, Provide basis: (attach)

[2] Would installation of infiltration BMP significantly increase the risk of geotechnical hazards? Yes ☐ No ☒
(Yes, if the answer to any of the following questions is yes, as established by a geotechnical expert):

- The location is less than 50 feet away from slopes steeper than 15 percent
- The location is less than eight feet from building foundations or an alternative setback.
- A study certified by a geotechnical professional or an available watershed study determines that stormwater infiltration would result in significantly increased risks of geotechnical hazards.

If Yes, Provide basis: (attach)

[3] Would infiltration of runoff on a Project site violate downstream water rights? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[4] Is proposed infiltration facility located on hydrologic soil group (HSG) D soils or does the site geotechnical investigation indicate presence of soil characteristics, which support categorization as D soils? Yes ☒ No ☐

If Yes, Provide basis: (attach)

[5] Is the design infiltration rate, after accounting for safety factor of 2.0, below proposed facility less than 0.3 in/hr (accounting for soil amendments)? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[6] Would on-site infiltration or reduction of runoff over pre-developed conditions be partially or fully inconsistent with watershed management strategies as defined in the WAP, or impair beneficial uses? Yes ☐ No ☒ *See Section 3.5 of the TGD for WQMP and WAP*

If Yes, Provide basis: (attach)

[7] Any answer from Item 1 through Item 3 is "Yes": Yes ☐ No ☒
If yes, infiltration of any volume is not feasible onsite. Proceed to Form 4.3-4, Harvest and Use BMP. If no, then proceed to Item 8 below.

[8] Any answer from Item 4 through Item 6 is "Yes": Yes ☒ No ☐
If yes, infiltration is permissible but is not required to be considered. Proceed to Form 4.3-2, Hydrologic Source Control BMP. If no, then proceed to Item 9, below.

[9] All answers to Item 1 through Item 6 are "No":
Infiltration of the full DCV is potentially feasible, LID infiltration BMP must be designed to infiltrate the full DCV to the MEP. Proceed to Form 4.3-2, Hydrologic Source Control BMP.

4.3.1 Site Design Hydrologic Source Control BMP

Section XI.E. of the Permit emphasizes the use of LID preventative measures; and the use of LID HSC BMPs reduces the portion of the DCV that must be addressed in downstream BMPs. Therefore, all applicable HSC shall be provided except where they are mutually exclusive with each other, or with other BMPs. Mutual exclusivity may result from overlapping BMP footprints such that either would be potentially feasible by itself, but both could not be implemented. Please note that while there are no numeric standards regarding the use of HSC, if a project cannot feasibly meet BMP sizing requirements or cannot fully address HCOCs, feasibility of all applicable HSC must be part of demonstrating that the BMP system has been designed to retain the maximum feasible portion of the DCV. Complete Form 4.3-2 to identify and calculate estimated retention volume from implementing site design HSC BMP. Refer to Section 5.4.1 in the TGD for more detailed guidance.

Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1)

1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes ☐ No ☒ *If yes, complete Items 2-5; If no, proceed to Item 6*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Total impervious area draining to pervious area (ft^2)			
3 Ratio of pervious area receiving runoff to impervious area			
4 Retention volume achieved from impervious area dispersion (ft^3) *V = Item2 * Item 3 * (0.5/12), assuming retention of 0.5 inches of runoff*			
5 Sum of retention volume achieved from impervious area dispersion (ft^3):	$V_{retention}$ *=Sum of Item 4 for all BMPs*		
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes ☐ No ☒ *If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
7 Ponding surface area (ft^2)			
8 Ponding depth (ft)			
9 Surface area of amended soil/gravel (ft^2)			
10 Average depth of amended soil/gravel (ft)			
11 Average porosity of amended soil/gravel			
12 Retention volume achieved from on-lot infiltration (ft^3) $V_{retention}$ *= (Item 7 *Item 8) + (Item 9 * Item 10 * Item 11)*			
13 Runoff volume retention from on-lot infiltration (ft^3):	$V_{retention}$ *=Sum of Item 12 for all BMPs*		

Form 4.3-2 cont. Site Design Hydrologic Source Control BMPs (DA 1)

14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes☐ No☒ *If yes, complete Items 15-20. If no, proceed to Item 21*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
15 Rooftop area planned for ET BMP (ft^2)			
16 Average wet season ET demand (in/day) *Use local values, typical ~ 0.1*			
17 Daily ET demand (ft^3/day) *Item 15 * (Item 16 / 12)*			
18 Drawdown time (hrs) *Copy Item 6 in Form 4.2-1*			
19 Retention Volume (ft^3) *$V_{retention}$ = Item 17 * (Item 18 / 24)*			
20 Runoff volume retention from evapotranspiration BMPs (ft^3): *$V_{retention}$ =Sum of Item 19 for all BMPs*			
21 Implementation of Street Trees: Yes☐ No☒ *If yes, complete Items 22-25. If no, proceed to Item 26*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
22 Number of Street Trees			
23 Average canopy cover over impervious area (ft^2)			
24 Runoff volume retention from street trees (ft^3) *$V_{retention}$ = Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches*			
25 Runoff volume retention from street tree BMPs (ft^3): *$V_{retention}$ = Sum of Item 24 for all BMPs*			
26 Implementation of residential rain barrel/cisterns: Yes☐ No☒ *If yes, complete Items 27-29; If no, proceed to Item 30*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
27 Number of rain barrels/cisterns			
28 Runoff volume retention from rain barrels/cisterns (ft^3) *$V_{retention}$ = Item 27 * 3*			
29 Runoff volume retention from residential rain barrels/Cisterns (ft3): *$V_{retention}$ =Sum of Item 28 for all BMPs*			
30 Total Retention Volume from Site Design Hydrologic Source Control BMPs: 0 *Sum of Items 5, 13, 20, 25 and 29*			

4.3.2 Infiltration BMPs

Use Form 4.3-3 to compute on-site retention of runoff from proposed retention and infiltration BMPs. Volume retention estimates are sensitive to the percolation rate used, which determines the amount of runoff that can be infiltrated within the specified drawdown time. The infiltration safety factor reduces field measured percolation to account for potential inaccuracy associated with field measurements, declining BMP performance over time, and compaction during construction. Appendix D of the TGD for WQMP provides guidance on estimating an appropriate safety factor to use in Form 4.3-3.

If site constraints limit the use of BMPs to a single type and implementation of retention and infiltration BMPs mitigate no more than 40% of the DCV, then they are considered infeasible and the Project Proponent may evaluate the effectiveness of BMPs lower in the LID hierarchy of use (Section 5.5.1 of the TGD for WQMP)

If implementation of infiltrations BMPs is feasible as determined using Form 4.3-1, then LID infiltration BMPs shall be implemented to the MEP (section 4.1 of the TGD for WQMP).

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Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*			
BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*			
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*			
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*			
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*			
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*			
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*			
8 Infiltrating surface area, *SA_{BMP}* (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*			
9 Amended soil depth, *d_{media}* (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*			
10 Amended soil porosity			
11 Gravel depth, *d_{media}* (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*			
12 Gravel porosity			
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*			
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12)+ (Item 13 * (Item 4 / 12))]*			
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*			
16 Total Retention Volume from LID Infiltration BMPs: *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*			
17 Fraction of DCV achieved with infiltration BMP: *% Retention% = Item 16 / Form 4.2-1 Item 7*			
18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☐ No ☐ *If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.*			

4.3.3 Harvest and Use BMP

Harvest and use BMP may be considered if the full LID DCV cannot be met by maximizing infiltration BMPs. Use Form 4.3-4 to compute on-site retention of runoff from proposed harvest and use BMPs.

Volume retention estimates for harvest and use BMPs are sensitive to the on-site demand for captured stormwater. Since irrigation water demand is low in the wet season, when most rainfall events occur in San Bernardino County, the volume of water that can be used within a specified drawdown period is relatively low. The bottom portion of Form 4.3-4 facilitates the necessary computations to show infeasibility if a minimum incremental benefit of 40 percent of the LID DCV would not be achievable with MEP implementation of on-site harvest and use of stormwater (Section 5.5.4 of the TGD for WQMP).

Form 4.3-4 Harvest and Use BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC or infiltration BMP (ft^3):
V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16

BMP Type(s) *Compute runoff volume retention from proposed harvest and use BMP (Select BMPs from Table 5-4 of the TGD for WQMP) - Use additional forms for more BMPs*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Describe cistern or runoff detention facility			
3 Storage volume for proposed detention type (ft^3) *Volume of cistern*			
4 Landscaped area planned for use of harvested stormwater (ft^2)			
5 Average wet season daily irrigation demand (in/day) Use local values, typical ~ 0.1 in/day			
6 Daily water demand (ft^3/day) *Item 4 * (Item 5 / 12)*			
7 Drawdown time (hrs) *Copy Item 6 from Form 4.2-1*			
8 Retention Volume (ft^3) *$V_{retention}$ = Minimum of (Item 3) or (Item 6 * (Item 7 / 24))*			

9 Total Retention Volume (ft^3) from Harvest and Use BMP *Sum of Item 8 for all harvest and use BMP included in plan*

10 Is the full DCV retained with a combination of LID HSC, retention and infiltration, and harvest & use BMPs? Yes ☐ No ☐

If yes, demonstrate conformance using Form 4.3-10. If no, then re-evaluate combinations of all LID BMP and optimize their implementation such that the maximum portion of the DCV is retained on-site (using a single BMP type or combination of BMP types). If the full DCV cannot be mitigated after this optimization process, proceed to Section 4.3.4.

4.3.4 Biotreatment BMP

Biotreatment BMPs may be considered if the full LID DCV cannot be met by maximizing retention and infiltration, and harvest and use BMPs. A key consideration when using biotreatment BMP is the effectiveness of the proposed BMP in addressing the pollutants of concern for the project (see Table 5-5 of the TGD for WQMP).

Use Form 4.3-5 to summarize the potential for volume based and/or flow based biotreatment options to biotreat the remaining unmet LID DCV w. Biotreatment computations are included as follows:

- Use Form 4.3-6 to compute biotreatment in small volume based biotreatment BMP (e.g. bioretention w/underdrains);
- Use Form 4.3-7 to compute biotreatment in large volume based biotreatment BMP (e.g. constructed wetlands);
- Use Form 4.3-8 to compute sizing criteria for flow-based biotreatment BMP (e.g. bioswales)

Form 4.3-5 Selection and Evaluation of Biotreatment BMP (DA 1)

1 Remaining LID DCV not met by site design HSC, infiltration, or harvest and use BMP for potential biotreatment (ft^3): 2,966 *Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16- Form 4.3-4 Item 9*	List pollutants of concern *Copy from Form 2.3-1.* Pathogens, Metals, Nutrients, Noxious Plants, Sediment, Organics, Pesticides, Trash, Oil/Grease	
2 Biotreatment BMP Selected *(Select biotreatment BMP(s) necessary to ensure all pollutants of concern are addressed through Unit Operations and Processes, described in Table 5-5 of the TGD for WQMP)*	Volume-based biotreatment *Use Forms 4.3-6 and 4.3-7 to compute treated volume*	Flow-based biotreatment *Use Form 4.3-8 to compute treated volume*
	☒ Bioretention with underdrain ☐ Planter box with underdrain ☐ Constructed wetlands ☐ Wet extended detention ☐ Dry extended detention	☐ Vegetated swale ☐ Vegetated filter strip ☐ Proprietary biotreatment
3 Volume biotreated in volume based biotreatment BMP (ft^3): 0 *Form 4.3-6 Item 15 + Form 4.3-7 Item 13*	**4** Compute remaining LID DCV with implementation of volume based biotreatment BMP (ft^3): 0 *Item 1 – Item 3*	**5** Remaining fraction of LID DCV for sizing flow based biotreatment BMP: 0% *Item 4 / Item 1*
6 Flow-based biotreatment BMP capacity provided (cfs): 0 *Use Figure 5-2 of the TGD for WQMP to determine flow capacity required to provide biotreatment of remaining percentage of unmet LID DCV (Item 5), for the project's precipitation zone (Form 3-1Item 1)*		
7 Metrics for MEP determination: • Provided a WQMP with the portion of site area used for suite of LID BMP equal to minimum thresholds in Table 5-7 of the TGD for WQMP for the proposed category of development: ☒ *If maximized on-site retention BMPs is feasible for partial capture, then LID BMP implementation must be optimized to retain and infiltrate the maximum portion of the DCV possible within the prescribed minimum effective area. The remaining portion of the DCV shall then be mitigated using biotreatment BMP.*		

Form 4.3-6 Volume Based Biotreatment (DA 1) – Bioretention and Planter Boxes with Underdrains

Biotreatment BMP Type *(Bioretention w/underdrain, planter box w/underdrain, other comparable BMP)*	DA 1 DMA A BMP Type Bioretention Basin w/ Underdrain	DA 1 DMA B BMP Type Bioretention Basin w/ Underdrain	DA 1 DMA C BMP Type Bioretention Basin w/ Underdrain *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*	Pathogens, Metals, Nutrients, Sediment, Organics, Pesticides, Trash, Oil/Grease		
2 Amended soil infiltration rate *Typical ~ 5.0*	5.0		
3 Amended soil infiltration safety factor *Typical ~ 2.0*	2.0		
4 Amended soil design percolation rate (in/hr) P_{design} *= Item 2 / Item 3*	2.5		
5 Ponded water drawdown time (hr) *Copy Item 6 from Form 4.2-1*	48		
6 Maximum ponding depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	1		
7 Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 4 * Item 5) or Item 6*	1		
8 Amended soil surface area (ft^2)	1,200*		
9 Amended soil depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	1.5		
10 Amended soil porosity, *n*	0.3		
11 Gravel depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	2.5		
12 Gravel porosity, *n*	0.4		
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3		
14 Biotreated Volume (ft^3) $V_{biotreated}$ *= Item 8 * [(Item 7/2) + (Item9 * Item 10) +(Item 11 * Item 12)+ (Item 13 * (Item 4 / 12))]*	3,090		
15 Total biotreated volume from bioretention and/or planter box with underdrains BMP: 3,090 *Sum of Item 14 for all volume-based BMPs included in this form*			

*Both basins added together

Form 4.3-6 Volume Based Biotreatment (DA 1) – Bioretention and Planter Boxes with Underdrains

Biotreatment BMP Type *(Bioretention w/underdrain, planter box w/underdrain, other comparable BMP)*	DA 1 DMA D BMP Type Bioretention Basin w/ Underdrain	DA 1 DMA E BMP Type Bioretention Basin w/ Underdrain	DA 1 DMA F BMP Type Bioretention Basin w/ Underdrain *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*			
2 Amended soil infiltration rate *Typical ~ 5.0*			
3 Amended soil infiltration safety factor *Typical ~ 2.0*			
4 Amended soil design percolation rate (in/hr) P_{design} *= Item 2 / Item 3*			
5 Ponded water drawdown time (hr) *Copy Item 6 from Form 4.2-1*			
6 Maximum ponding depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 4 * Item 5) or Item 6*			
8 Amended soil surface area (ft^2)			
9 Amended soil depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Amended soil porosity, *n*			
11 Gravel depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
12 Gravel porosity, *n*			
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*			
14 Biotreated Volume (ft^3) $V_{biotreated}$ *= Item 8 * [(Item 7/2) + (Item9 * Item 10) +(Item 11 * Item 12)+ (Item 13 * (Item 4 / 12))]*			
15 Total biotreated volume from bioretention and/or planter box with underdrains BMP: *Sum of Item 14 for all volume-based BMPs included in this form*			

Form 4.3-6 Volume Based Biotreatment (DA 1) – Bioretention and Planter Boxes with Underdrains			
Biotreatment BMP Type *(Bioretention w/underdrain, planter box w/underdrain, other comparable BMP)*	DA 1 DMA A BMP Type Bioretention Basin w/ Underdrain	DA 1 DMA B BMP Type Bioretention Basin w/ Underdrain	DA 1 DMA C BMP Type Bioretention Basin w/ Underdrain *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*	Pathogens, Metals, Nutrients, Sediment, Organics, Pesticides, Trash, Oil/Grease		
2 Amended soil infiltration rate *Typical ~ 5.0*			
3 Amended soil infiltration safety factor *Typical ~ 2.0*			
4 Amended soil design percolation rate (in/hr) P_{design} *= Item 2 / Item 3*			
5 Ponded water drawdown time (hr) *Copy Item 6 from Form 4.2-1*			
6 Maximum ponding depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 4 * Item 5) or Item 6*			
8 Amended soil surface area (ft^2)			
9 Amended soil depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Amended soil porosity, *n*			
11 Gravel depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
12 Gravel porosity, *n*			
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*			
14 Biotreated Volume (ft^3) $V_{biotreated}$ *= Item 8 * [(Item 7/2) + (Item9 * Item 10) +(Item 11 * Item 12)+ (Item 13 * (Item 4 / 12))]*			
15 Total biotreated volume from bioretention and/or planter box with underdrains BMP: *Sum of Item 14 for all volume-based BMPs included in this form*			

Form 4.3-7 Volume Based Biotreatment (DA 1) Constructed Wetlands and Extended Detention

Biotreatment BMP Type *Constructed wetlands, extended wet detention, extended dry detention, or other comparable proprietary BMP. If BMP includes multiple modules (e.g. forebay and main basin), provide separate estimates for storage and pollutants treated in each module.*	DA DMA BMP Type		DA DMA BMP Type *(Use additional forms for more BMPs)*	
	Forebay	Basin	Forebay	Basin
1 Pollutants addressed with BMP forebay and basin *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*				
2 Bottom width (ft)				
3 Bottom length (ft)				
4 Bottom area (ft^2) A_{bottom} *= Item 2 * Item 3*				
5 Side slope (ft/ft)				
6 Depth of storage (ft)				
7 Water surface area (ft^2) $A_{surface}$ *=(Item 2 + (2 * Item 5 * Item 6)) * (Item 3 + (2 * Item 5 * Item 6))*				
8 Storage volume (ft^3) *For BMP with a forebay, ensure fraction of total storage is within ranges specified in BMP specific fact sheets, see Table 5-6 of the TGD for WQMP for reference to BMP design details* V *=Item 6 / 3 * [Item 4 + Item 7 + (Item 4 * Item 7)^0.5]*				
9 Drawdown Time (hrs) *Copy Item 6 from Form 2.1*				
10 Outflow rate (cfs) Q_{BMP} *= (Item* $8_{forebay}$ *+ Item* 8_{basin}*) / (Item 9 * 3600)*				
11 Duration of design storm event (hrs)				
12 Biotreated Volume (ft^3) $V_{biotreated}$ *= (Item* $8_{forebay}$ *+ Item* 8_{basin}*) +(Item 10 * Item 11 * 3600)*				
13 Total biotreated volume from constructed wetlands, extended dry detention, or extended wet detention : *(Sum of Item 12 for all BMP included in plan)*				

Form 4.3-8 Flow Based Biotreatment (DA 1)			
Biotreatment BMP Type *Vegetated swale, vegetated filter strip, or other comparable proprietary BMP*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in TGD Table 5-5*			
2 Flow depth for water quality treatment (ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
3 Bed slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
4 Manning's roughness coefficient			
5 Bottom width (ft) b_w *= (Form 4.3-5 Item 6 * Item 4) / (1.49 * Item 2^1.67 * Item 3^0.5)*			
6 Side Slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Cross sectional area (ft^2) *A = (Item 5 * Item 2) + (Item 6 * Item 2^2)*			
8 Water quality flow velocity (ft/sec) *V = Form 4.3-5 Item 6 / Item 7*			
9 Hydraulic residence time (min) *Pollutant specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Length of flow based BMP (ft) *L = Item 8 * Item 9 * 60*			
11 Water surface area at water quality flow depth (ft^2) SA_{top} *= (Item 5 + (2 * Item 2 * Item 6)) * Item 10*			

4.3.5 Conformance Summary

Complete Form 4.3-9 to demonstrate how on-site LID DCV is met with proposed site design hydrologic source control, infiltration, harvest and use, and/or biotreatment BMP. The bottom line of the form is used to describe the basis for infeasibility determination for on-site LID BMP to achieve full LID DCV, and provides methods for computing remaining volume to be addressed in an alternative compliance plan. If the project has more than one outlet, then complete additional versions of this form for each outlet.

Form 4.3-9 Conformance Summary and Alternative Compliance Volume Estimate (DA 1)

1 Total LID DCV for the Project DA-1 (ft^3): 2,966 *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft^3): 0 *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft^3): 0 *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft^3): 0 *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft^3): 3,090 *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): 0 *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes☐ No☒
  If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes☒ No☐
  If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3--5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes☐ No☒
  If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture: ☐
  Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, V_{alt} *= (Item 1 – Item 2 – Item 3 – Item 4 – Item 5) * (100 - Form 2.4-1 Item 2)%*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility: ☐
  Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

4.3.6 Hydromodification Control BMP

Use Form 4.3-10 to compute the remaining runoff volume retention, after LID BMP are implemented, needed to address HCOC, and the increase in time of concentration and decrease in peak runoff necessary to meet targets for protection of waterbodies with a potential HCOC. Describe hydromodification control BMP that address HCOC, which may include off-site BMP and/or in-stream controls. Section 5.6 of the TGD for WQMP provides additional details on selection and evaluation of hydromodification control BMP.

Form 4.3-10 Hydromodification Control BMPs (DA 1)

1 Volume reduction needed for HCOC performance criteria (ft^3): *(Form 4.2-2 Item 4 * 0.95) – Form 4.2-2 Item 1*	**2** On-site retention with site design hydrologic source control, infiltration, and harvest and use LID BMP (ft^3): *Sum of Form 4.3-9 Items 2, 3, and 4 Evaluate option to increase implementation of on-site retention in Forms 4.3-2, 4.3-3, and 4.3-4 in excess of LID DCV toward achieving HCOC volume reduction*
3 Remaining volume for HCOC volume capture (ft^3): 0 *Item 1 – Item 2*	**4** Volume capture provided by incorporating additional on-site or off-site retention BMPs (ft^3): 0 *Existing downstream BMP may be used to demonstrate additional volume capture (if so, attach to this WQMP a hydrologic analysis showing how the additional volume would be retained during a 2-yr storm event for the regional watershed)*

5 If Item 4 is less than Item 3, incorporate in-stream controls on downstream waterbody segment to prevent impacts due to hydromodification ☐ *Attach in-stream control BMP selection and evaluation to this WQMP*

6 Is Form 4.2-2 Item 11 less than or equal to 5%: Yes ☐ No ☒

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate increase in time of concentration achieved by proposed LID site design, LID BMP, and additional on-site or off-site retention BMP ☐
  BMP upstream of a waterbody segment with a potential HCOC may be used to demonstrate increased time of concentration through hydrograph attenuation (if so, show that the hydraulic residence time provided in BMP for a 2-year storm event is equal or greater than the addition time of concentration requirement in Form 4.2-4 Item 15)
- Increase time of concentration by preserving pre-developed flow path and/or increase travel time by reducing slope and increasing cross-sectional area and roughness for proposed on-site conveyance facilities ☐
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

7 Form 4.2-2 Item 12 less than or equal to 5%: Yes ☐ No ☒

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate reduction in peak runoff achieved by proposed LID site design, LID BMPs, and additional on-site or off-site retention BMPs ☐
  BMPs upstream of a waterbody segment with a potential HCOC may be used to demonstrate additional peak runoff reduction through hydrograph attenuation (if so, attach to this WQMP, a hydrograph analysis showing how the peak runoff would be reduced during a 2-yr storm event)
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

4.4 Alternative Compliance Plan (if applicable)

Describe an alternative compliance plan (if applicable) for projects not fully able to infiltrate, harvest and use, or biotreat the DCV via on-site LID practices. A project proponent must develop an alternative compliance plan to address the remainder of the LID DCV. Depending on project type some projects may qualify for water quality credits that can be applied to reduce the DCV that must be treated prior to development of an alternative compliance plan (see Form 2.4-1, Water Quality Credits). Form 4.3-9 Item 8 includes instructions on how to apply water quality credits when computing the DCV that must be met through alternative compliance. Alternative compliance plans may include one or more of the following elements:

- On-site structural treatment control BMP - All treatment control BMP should be located as close to possible to the pollutant sources and should not be located within receiving waters;
- Off-site structural treatment control BMP - Pollutant removal should occur prior to discharge of runoff to receiving waters;
- Urban runoff fund or In-lieu program, if available

Depending upon the proposed alternative compliance plan, approval by the executive officer may or may not be required (see Section 6 of the TGD for WQMP).

Section 5 Inspection and Maintenance Responsibility for Post Construction BMP

All BMP included as part of the project WQMP are required to be maintained through regular scheduled inspection and maintenance (refer to Section 8, Post Construction BMP Requirements, in the TGD for WQMP). Fully complete Form 5-1 summarizing all BMP included in the WQMP. Attach additional forms as needed. The WQMP shall also include a detailed Operation and Maintenance Plan for all BMP and may require a Maintenance Agreement (consult the jurisdiction's LIP). If a Maintenance Agreement is required, it must also be attached to the WQMP.

Form 5-1 BMP Inspection and Maintenance (use additional forms as necessary)

BMP	Responsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
DA1 Bioretention basin with underdrain	City of Big Bear Lake	Inspect basin for proper functionality and any signs of failure such as ponding water. Look for sediment displacement, trash/debris, plant growth, dead vegetation, etc. and remove as necessary to promote proper drainage and infiltration. Inspect underdrain for proper flow and clean as necessary. If all BMP features are functioning properly and water is still ponding, replace infiltration media as necessary. See attached inspection and maintenance matrix for greater detail.	Quarterly (monthly in rain season)
BMP Drainage Paths	City of Big Bear Lake	Inspect curb cuts from parking lot areas to BMP's as well as pervious areas surrounding BMP's. Curb cuts and pervious areas surrounding BMP's shall be free of excessive vegetation, trash/debris, etc. that would impede flow. Remove foreign material/trim vegetation as necessary. Also look for sediment loss/displacement or washouts. Repair by replacing lost soils to original configuration and removing displaced sediment.	Annually (prior to rain season)

Activity Restrictions	City of Big Bear Lake	Pesticides and herbicides shall be applied in accordance with California Department of Pesticides requirements. Must be performed by a state certified applicator.	Inspect monthly and apply as needed
Landscape Management	City of Big Bear Lake	Landscape management including, but not limited to, pruning of vegetation, removal of invasive plant species, shall be provided for all pervious areas of the site in accordance with SC-73 (attached) from the California Stormwater BMP Handbook.	Monthly, at a minimum, or as needed

Section 6 WQMP Attachments

6.1. Site Plan and Drainage Plan

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural Source Control BMP locations
- Site Design Hydrologic Source Control BMP locations
- LID BMP details
- Drainage delineations and flow information
- Drainage connections

6.2 Electronic Data Submittal

Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their local Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

6.3 Post Construction

Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

6.4 Other Supporting Documentation

- BMP Educational Materials
- Activity Restriction – C, C&R's & Lease Agreements

Appendix A: WQMP Site Plan

WQMP Site Plan

CONSTRUCTION NOTES

1. REMOVE EXISTING TREE WITHIN THE LIMIT OF WORK.
2. REMOVE EX. AC PAVEMENT.
3. REMOVE AND RECONSTRUCT PRIVATE PROPERTY DRIVEWAY TO BLEND DRIVEWAY TO NEW STREET IMPROVEMENT.
4. REGRADE PORTION OF PRIVATE PROPERTY TO BLEND AND JOIN NEW STREET AC PAVEMENT IMPROVEMENT.
5. CONSTRUCT 4" AC PAVEMENT CONSISTING OF 2" AC WEARING COURSE (TYPE C2 PG 64-10) ON 2" AC LEVELING COURSE (TYPE B PG 64-10) OVER 6" CRUSHED AGGREGATE BASE (TALBOT ROAD).
6. CONSTRUCT 3.50" AC PAVEMENT, TYPE B PG 64-10 ON 4" CRUSHED AGGREGATE BASE.
7. CONSTRUCT TYPE A1-6 CURB PER SPPWC STD. 120-3.
8. CONSTRUCT TYPE A2-6 CURB AND GUTTER PER SPPWC STD 120-3, W=1.50'.
9. CONSTRUCT 3' WIDE LONGITUDINAL GUTTER PER SPPWC STD. 122-3.
10. CONSTRUCT PCC WALK.
11. CONSTRUCT DEPRESS TYPE 1, CASE B CURB RAMP WITH RETAINING CURB PER SPPWC STD. 111-5.
12. CONSTRUCT MASONRY RETAINING WALL, TYPE B WALL, PER SPPWC STD. 618-3.
13. CONSTRUCT MASONRY RETAINING WALL, TYPE A WALL, PER SPPWC STD. 618-3.
14. CONSTRUCT 12" WIDE GUNITE GUTTER AS SHOWN ON THE PLAN.
15. CONSTRUCT 24" GUNITE GUTTER AS SHOWN ON THE PLAN.
16. CONSTRUCT TYPE 1 METAL FLARED SECTION.
17. CONSTRUCT 12" DEEP 4" TO 6" ROCK AS SHOWN ON THE PLAN TO SERVE AS ENERGY DISSIPATER.
18. CONSTRUCT HEAD WALL.
19. CONSTRUCT 12" CMP.
20. CONSTRUCT CMP CONNECTOR.
21. CONSTRUCT 12"ø PERFORATED PVC PIPE AND WRAP WITH FABRIC.
22. CONSTRUCT 12"ø HDPE STORM DRAIN PIPE.
23. CONSTRUCT BROOKS 2424 BOTTOMLESS CATCH BASIN.
24. CONSTRUCT BIO RETENSION BASIN AS SHOWN ON THE PLAN AND SECTION DETAILS CONSISTING OF GRAVEL, FILTER FABRIC, AMENDED SOIL AND MULCH INCLUDING EARTHWORK.
25. CONSTRUCT 6' HIGH TYPICAL CHAIN LINK FENCE PER SPPWC STD 600-4.
26. CONSTRUCT 6" PCC CURB AS WATER STOPPER.
27. INSTALL ADA SYMBOL MARKING AS SHOWN.
28. CONSTRUCT 1 GRATE GRATING CATCH BASIN, V=4', PER SPPWC STD. 305-4.
29. CONSTRUCT BROOKS 2424 BOTTOMLESS CATCH BASIN, MODIFIED TO PICKUP SD WATER FROM GUNITE GUTTER.
30. CONSTRUCT TYPE A1-6 CURB PER SPPWC STD. 120-3 WITH MOISTURE BARRIER.

(W) WATER VALVE, FIRE HYDRANT, METER AND OTHER WATER STRUCTURE TO BE RELOCATED RELOCATED/ADJUSTED TO GRADE BY WATER COMPANY.

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JOSEPH D. DE PERALTA, R.C.E. C056508 DATE

REGISTERED PROFESSIONAL ENGINEER
JOSEPH D. DE PERALTA
NO. C56508
EXPIRES 6-30-23
CIVIL
STATE OF CALIFORNIA

REVISIONS	MADE BY	MADE DATE	APPROVED BY	APPROVED DATE

BENCH MARK DATA
BM NO. _____ ELEV. 672.5930 FEET
LOCATION:

REFERENCE DRAWINGS

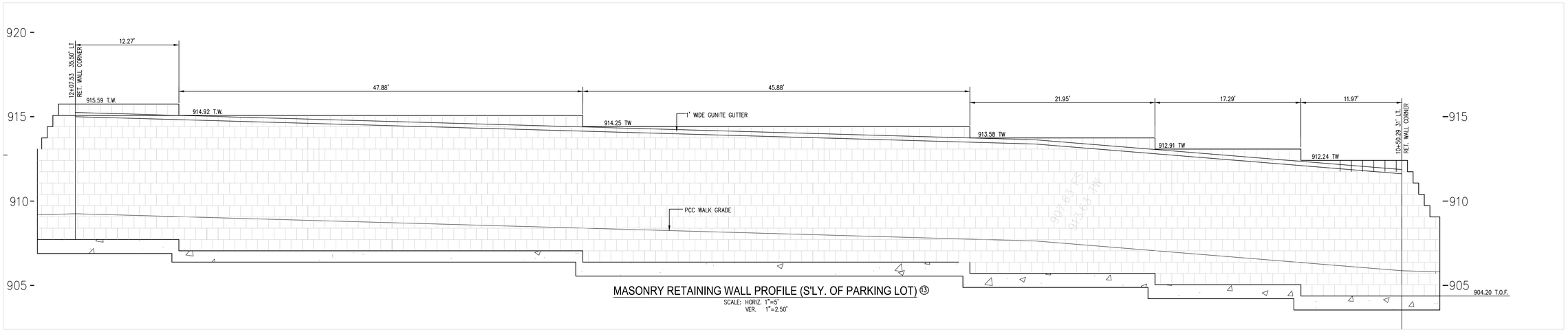
REVIEWED BY STAFF	BY	DATE
WATER:		
SEWER:		
FIRE:		
PLANNING:		
TRAFFIC:		
SERVICES:		

CITY OF BIG BEAR LAKE
BIG BEAR LAKE, CALIFORNIA
39707 BIG BEAR BLVD.
PO BOX 10000
BIG BEAR LAKE, CA 92315

ENGINEERING DIVISION
APPROVED BY:
DAVID LAWRENCE, DIRECTOR OF PUBLIC WORKS/CITY ENGINEER DATE
R.C.E. 61902 EXP. DATE 9/30/17

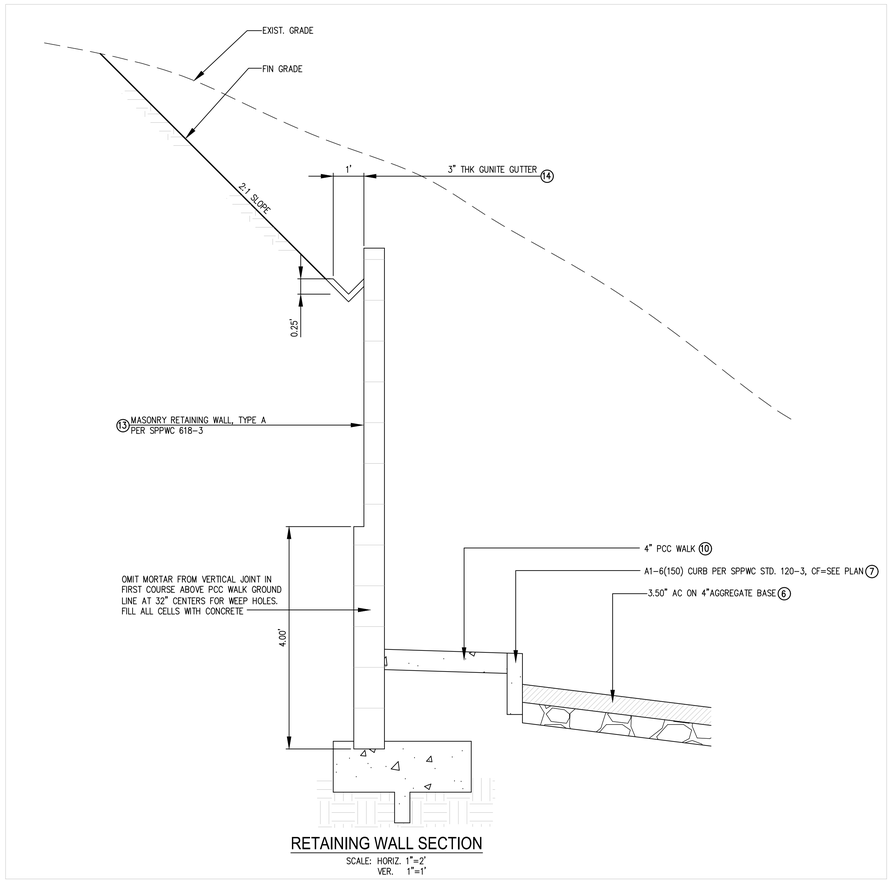
CITY OF BIG BEAR LAKE
CASTLE ROCK TRAIL PARKING LOT
SITE PLAN

JAN. 2022
SHEET 2 OF 4



MASONRY RETAINING WALL PROFILE (S'LY. OF PARKING LOT) (13)

SCALE: HORIZ. 1"=5'
VER. 1"=2.50'



RETAINING WALL SECTION

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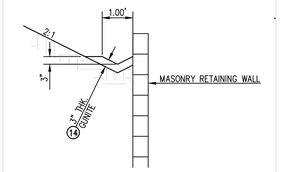
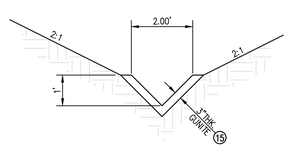
VER. 1"=1'



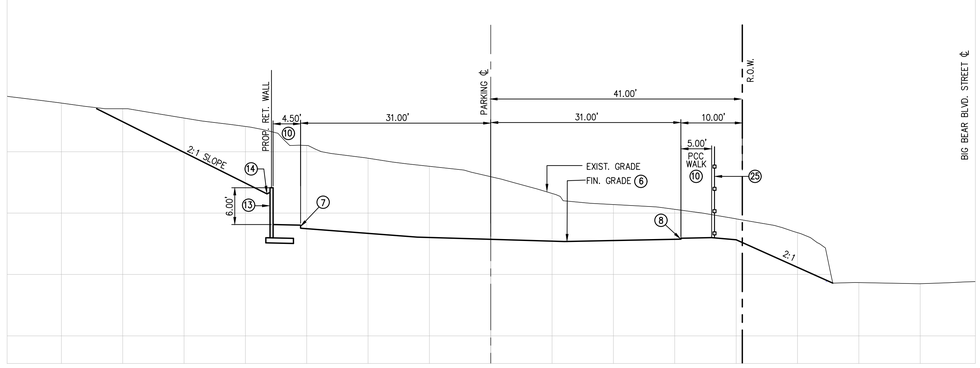
1 — 1' W. GUNITE GUTTER

SCALE: 1"=1'



2 — 2' W. GUNITE GUTTER

SCALE: 1"=1'



A — SECTION

SCALE: HORIZ. 1"=10'
VERT. 1"=10'

CONSTRUCTION NOTES

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4. REGRADE PORTION OF PRIVATE PROPERTY TO BLEND AND JOIN NEW STREET AC PAVEMENT IMPROVEMENT.
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27. INSTALL ADA SYMBOL MARKING AS SHOWN.
28. CONSTRUCT 1 GRATE GRATING CATCH BASIN, V=4', PER SPPWC STD. 305-4.
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30. CONSTRUCT TYPE A1-6 CURB PER SPPWC STD. 120-3 WITH MOISTURE BARRIER.

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JOSEPH D. DE PERALTA, R.C.E. C056508 DATE

REGISTERED PROFESSIONAL ENGINEER
JOSEPH D. DE PERALTA
NO. C56508
EXPIRES 6-30-23
CIVIL
STATE OF CALIFORNIA

REVISIONS	MADE BY	MADE DATE	APPROVED BY	APPROVED DATE

BENCH MARK DATA
BM NO. _____ ELEV. 672.5930 FEET
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REFERENCE DRAWINGS

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TRAFFIC:		
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PO BOX 10000
BIG BEAR LAKE, CA 92315

ENGINEERING DIVISION

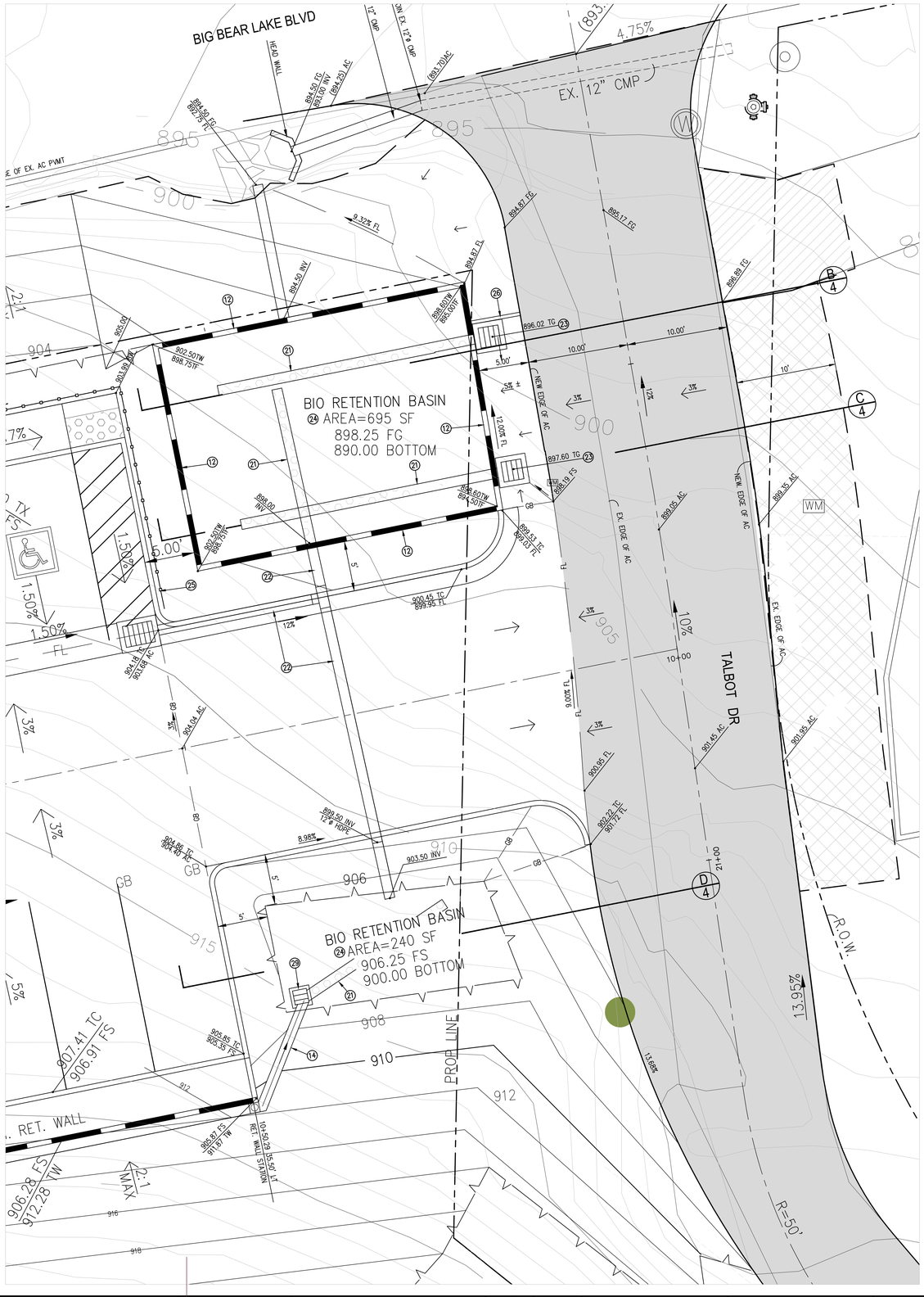
APPROVED BY:

DAVID LAWRENCE, DIRECTOR OF PUBLIC WORKS/CITY ENGINEER DATE
R.C.E. 61902 EXP. DATE 9/30/17

CITY OF BIG BEAR LAKE
CASTLE ROCK TRAIL
PARKING LOT
MASONRY RET. WALL PROFILE, SECTION, & DETAILS

JAN. 2022

SHEET 3 OF 4



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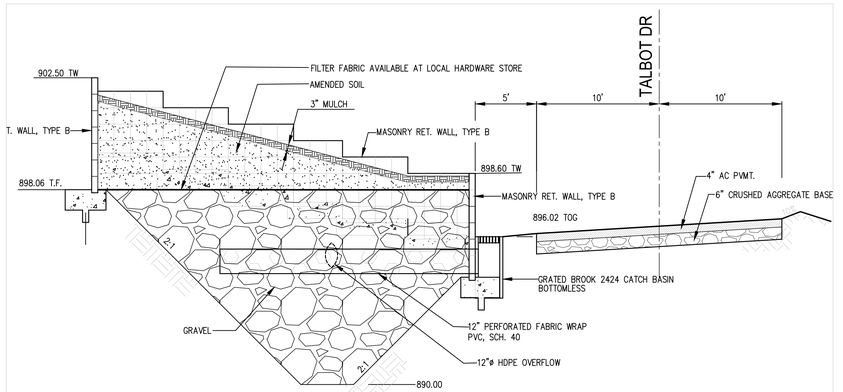
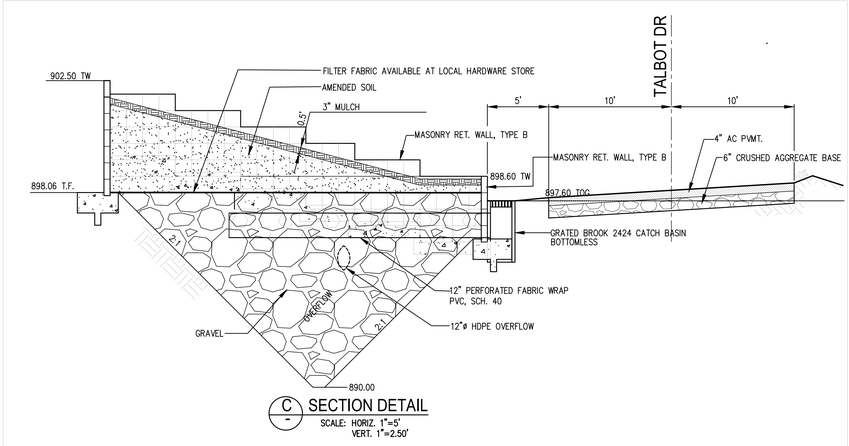
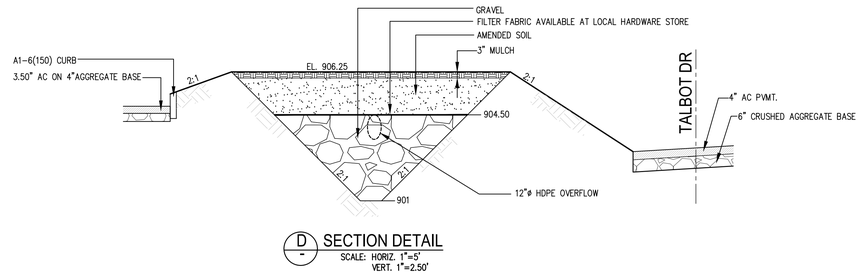
1"=5'
GRAPHIC SCALE



B SECTION DETAIL
SCALE: HORIZ. 1"=5'
VERT. 1"=2.50'



C SECTION DETAIL
SCALE: HORIZ. 1"=5'
VERT. 1"=2.50'



D SECTION DETAIL
SCALE: HORIZ. 1"=5'
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6. CONSTRUCT 3.50" AC PAVEMENT, TYPE B PG 64-10 ON 4" CRUSHED AGGREGATE BASE.
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8. CONSTRUCT TYPE A2-6 CURB AND GUTTER PER SPPWC STD 120-3, W=1.00'/1.50'.
9. CONSTRUCT 3' WIDE LONGITUDINAL GUTTER PER SPPWC STD. 122-3.
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11. CONSTRUCT DEPRESS TYPE 1, CASE B CURB RAMP WITH RETAINING CURB PER SPPWC STD. 111-5.
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26. CONSTRUCT 6" PCC CURB AS WATER STOPPER.
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JOSEPH D. DE PERALTA, R.C.E. C056508 DATE

REGISTERED PROFESSIONAL ENGINEER
JOSEPH D. DE PERALTA
NO. C56508
EXPIRES 6-30-23
CIVIL
STATE OF CALIFORNIA

REVISIONS	MADE BY	MADE DATE	APPROVED BY	APPROVED DATE

BENCH MARK DATA
BM NO. _____ ELEV. 672.5930 FEET
LOCATION:

REFERENCE DRAWINGS

REVIEWED BY STAFF	BY	DATE
WATER:		
SEWER:		
FIRE:		
PLANNING:		
TRAFFIC:		
SERVICES:		

CITY OF BIG BEAR LAKE
BIG BEAR LAKE, CALIFORNIA
39707 BIG BEAR BLVD.
PO BOX 10000
BIG BEAR LAKE, CA 92315

ENGINEERING DIVISION
APPROVED BY:
DAVID LAWRENCE, DIRECTOR OF PUBLIC WORKS/CITY ENGINEER DATE
R.C.E. 61902 EXP. DATE 9/30/17

CITY OF BIG BEAR LAKE
CASTLE ROCK TRAIL
PARKING LOT
BIO-RETENSION PLAN & DETAILS

JAN. 2022
SHEET 4 OF 4

CONSTRUCTION NOTES

1. REMOVE EXISTING TREE WITHIN THE LIMIT OF WORK.
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13. CONSTRUCT MASONRY RETAINING WALL, TYPE A WALL, PER SPPWC STD. 618-3.
14. CONSTRUCT 3 FT WIDE INTERCEPTOR DRAIN PER DETAIL 14 ON SHEET 3.
15. CONSTRUCT 12" GUNITE GUTTER DETAIL 14 ON SHEET 3.
16. CONSTRUCT TYPE 1 METAL FLARED SECTION.
17. CONSTRUCT 12" DEEP 4" TO 6" ROCK AS SHOWN ON THE PLAN TO SERVE AS ENERGY DISSIPATER.
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20. CONSTRUCT CMP CONNECTOR.
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10 0 10 20
1"=10' GRAPHIC SCALE

IMPERVIOUS AREA = 20,277.0 S.F.

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JOSEPH D. DE PERALTA, R.C.E. C056508 DATE

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BENCH MARK DATA
BM NO. _____ ELEV. 6725930 FEET
LOCATION:

REFERENCE DRAWINGS

REVIEWED BY STAFF	BY	DATE
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SEWER:		
FIRE:		
PLANNING:		
TRAFFIC:		
SERVICES:		

CITY OF BIG BEAR LAKE
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ENGINEERING DIVISION

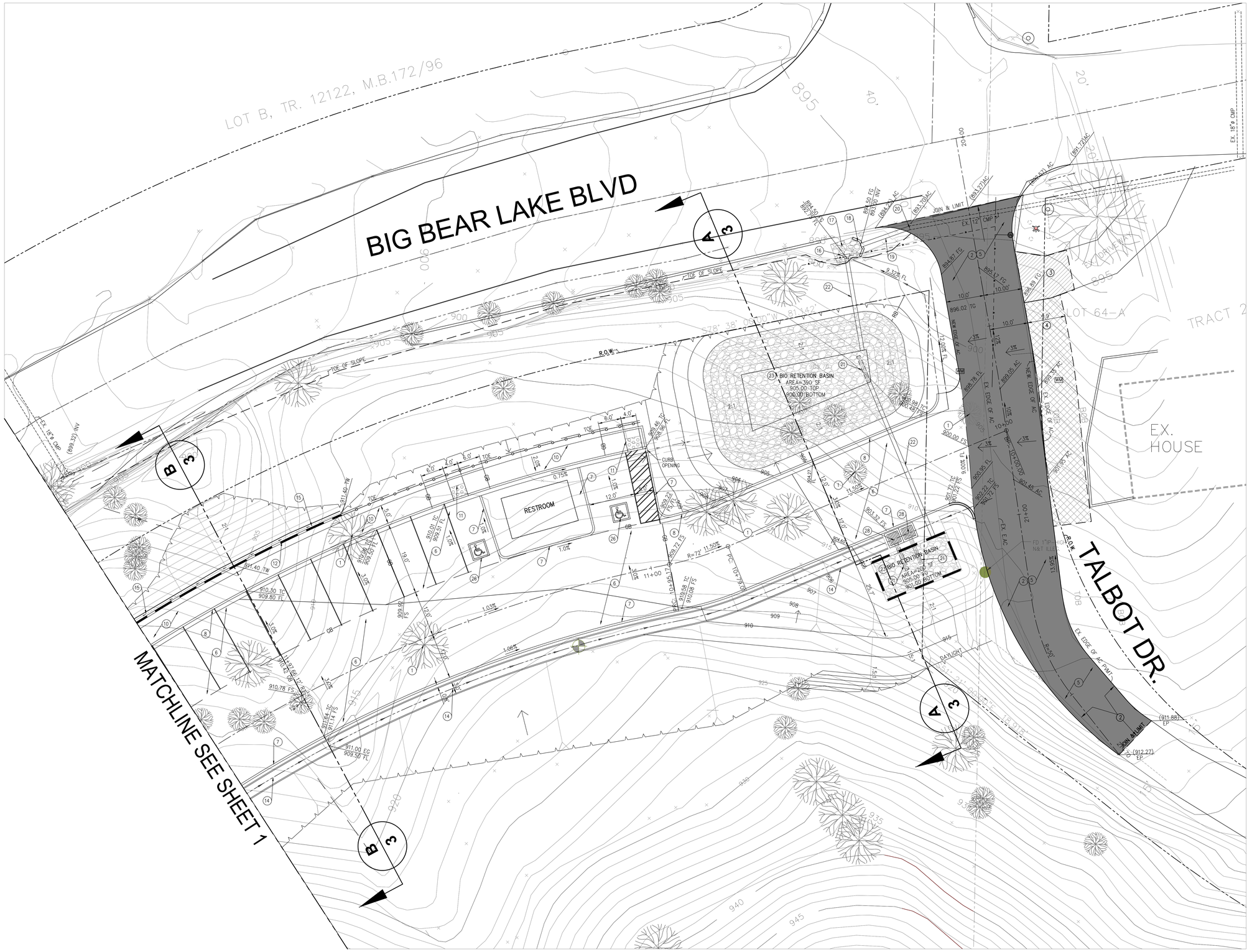
APPROVED BY:

DAVID LAWRENCE, DIRECTOR OF PUBLIC WORKS/CITY ENGINEER DATE
R.C.E. 61902 EXP. DATE 9/30/17

CITY OF BIG BEAR LAKE
CASTLE ROCK TRAIL PARKING LOT
GRADING PLAN

OCT. 2022

SHEET 1 OF 3



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23. CONSTRUCT BROOKS 36X36 BOTTOMLESS CATCH BASIN.
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27. CONSTRUCT 1 GRATE GRATING CATCH BASIN, V=4', PER SPPWC STD. 305-4.
28. CONSTRUCT BROOKS 36X36 BOTTOMLESS CATCH BASIN, MODIFIED TO PICKUP SD WATER FROM INTERCEPTOR DRAIN.

(W) WATER VALVE, FIRE HYDRANT, METER AND OTHER WATER STRUCTURE TO BE RELOCATED RELOCATED/ADJUSTED TO GRADE BY WATER COMPANY.

NOT FOR CONSTRUCTION

10 0 10 20
1"=10' GRAPHIC SCALE

IMPERVIOUS AREA = 20,277.0 S.F.

Underground Service Alert
Call: TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG

PREPARED BY:
TRANSTECH
13367 BENSON AVE.
CHINO, CA. 91710
(909) 595 8599
JOSEPH D. DE PERALTA, R.C.E. C056508 DATE

REGISTERED PROFESSIONAL ENGINEER
JOSEPH D. DE PERALTA
NO. C56508
EXPIRES 6-30-23
CIVIL
STATE OF CALIFORNIA

REVISIONS	MADE BY	MADE DATE	APPROVED BY	APPROVED DATE
1				
2				
3				
4				
5				
6				

BENCH MARK DATA
BM NO. _____ ELEV. 672.5930 FEET
LOCATION:

REFERENCE DRAWINGS

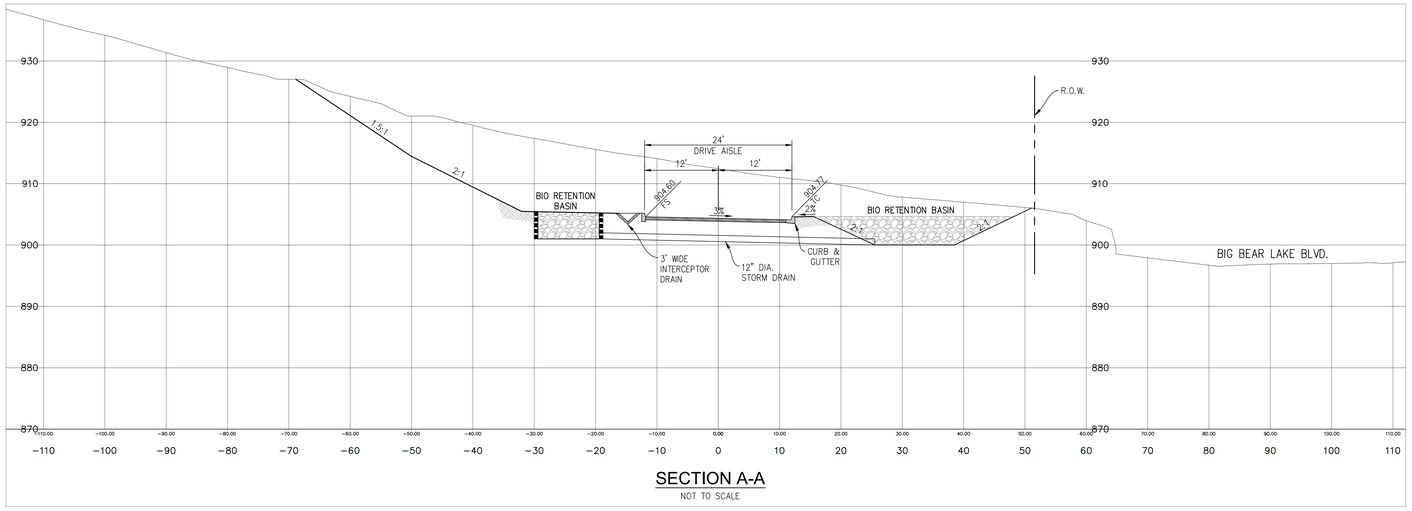
REVIEWED BY STAFF	BY	DATE
WATER:		
SEWER:		
FIRE:		
PLANNING:		
TRAFFIC:		
SERVICES:		

CITY OF BIG BEAR LAKE
BIG BEAR LAKE, CALIFORNIA
39707 BIG BEAR BLVD.
PO BOX 10000
BIG BEAR LAKE, CA 92315

ENGINEERING DIVISION
APPROVED BY:
DAVID LAWRENCE, DIRECTOR OF PUBLIC WORKS/CITY ENGINEER DATE
R.C.E. 61902 EXP. DATE 9/30/17

CITY OF BIG BEAR LAKE
CASTLE ROCK TRAIL PARKING LOT
GRADING PLAN

OCT. 2022
SHEET 2 OF 3



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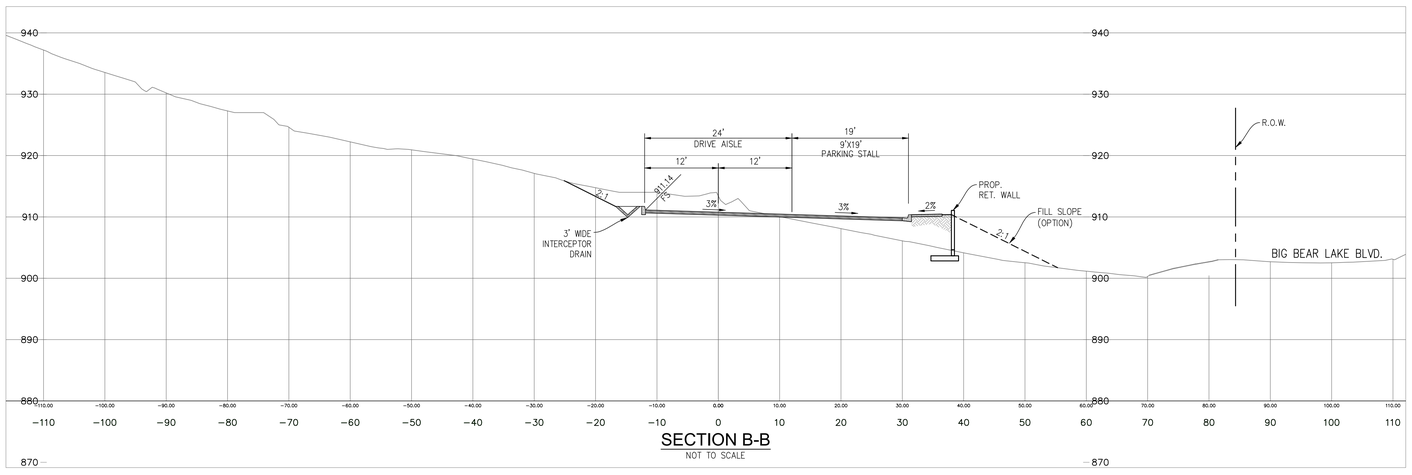

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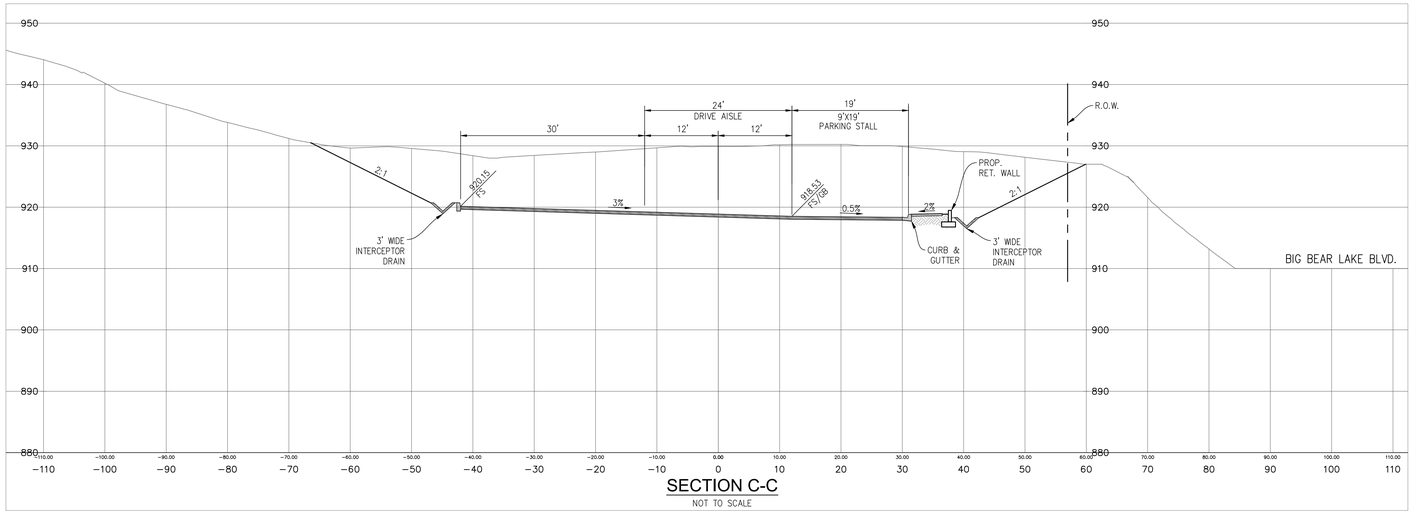

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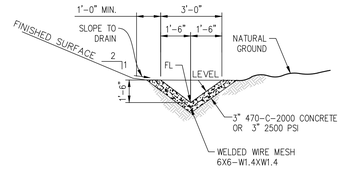

14 INTERCEPTOR DRAIN DETAIL
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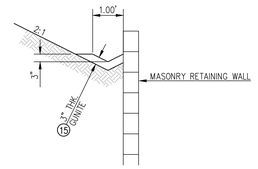


15 1' WIDE GUNITE GUTTER
NOT TO SCALE

Underground Service Alert
Call: TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG

PREPARED BY:
TRANSTECH
13367 BENSON AVE.
CHINO, CA. 91710
(909) 595 8599

JOSEPH D. DE PERALTA, R.C.E. C056508 DATE

REGISTERED PROFESSIONAL ENGINEER
JOSEPH D. DE PERALTA
NO. C56508
EXPIRES 6-30-23
CIVIL
STATE OF CALIFORNIA

REVISIONS	MADE BY	MADE DATE	APPROVED BY	APPROVED DATE

BENCH MARK DATA
BM NO. _____ ELEV. 672.5930 FEET
LOCATION:

REFERENCE DRAWINGS

REVIEWED BY STAFF	BY	DATE
WATER:		
SEWER:		
FIRE:		
PLANNING:		
TRAFFIC:		
SERVICES:		

CITY OF BIG BEAR LAKE
BIG BEAR LAKE, CALIFORNIA
39707 BIG BEAR BLVD.
PO BOX 10000
BIG BEAR LAKE, CA 92315

ENGINEERING DIVISION
APPROVED BY:
DAVID LAWRENCE, DIRECTOR OF PUBLIC WORKS/CITY ENGINEER DATE
R.C.E. 61902 EXP. DATE 9/30/17

CITY OF BIG BEAR LAKE
CASTLE ROCK TRAIL PARKING LOT
SECTIONS & DETAILS

OCT. 2022
SHEET 3 OF 3

Appendix B: Site BMP Design Exhibits

Location Map, Site Drainage Exhibits, and Trash Enclosure Detail

Appendix C: Construction Plans

Precise Grading Plans

Appendix D: BMP Sizing Calculations Supporting Documents

Rainfall Data and Infiltration Rate Calculations

Appendix E: Source Control Documents

Pollutant Sources/Source Control Checklist

Appendix F: Operations and Maintenance Documents

Operation and Maintenance Plan, Maintenance and Recoding Mechanisms

Appendix G: Educational Material

BMP Fact Sheets

Appendix H: Site Geotechnical Investigation

Site Geotechnical Study

APPENDIX 4
PARKING OCCUPANCY STUDY

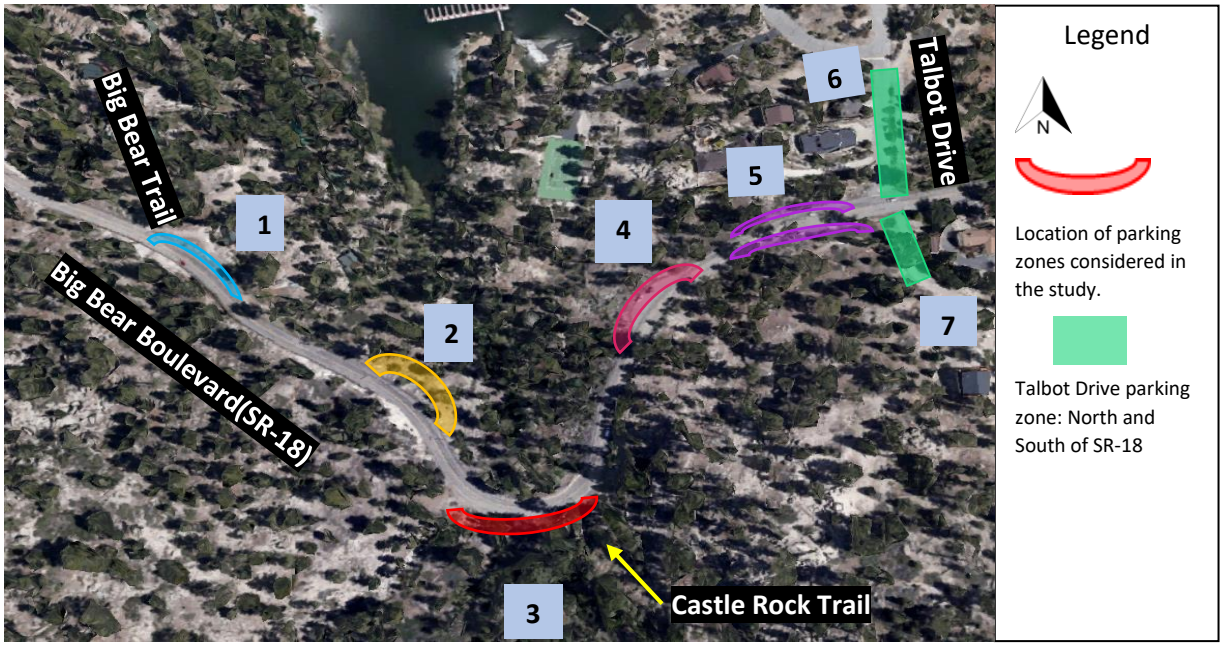
TO: Sean Sullivan
Director of Public Services
FROM: Transtech Engineers, Inc.
DATE: July 19, 2022
SUBJECT: **DRAFT BIG BEAR LAKE CASTLE ROCK PARKING OCCUPANCY STUDY**

INTRODUCTION

On behalf of the City of Big Bear Lake, Transtech Engineers Inc. has completed a parking occupancy study to understand parking conditions along the SR-18 and Talbot Drive during a typical weekday, a Saturday and on a Holiday weekend in order to quantify the number of visitors parking on the nearby streets to use the Castle Rock Trail. As part of the traffic review the following items were included: Identification of all potential parking spaces that visitors are using to access the Castle Rock Trail, the estimated number of cars that can park in each turnout or parking zone, an hourly parking count and an estimation of the parking turnover or how long visitors park to hike and then leave the area. Figure 1 provides a general Vicinity Map. Figure 2 illustrates the parking zones that were included in the parking count.

Figure 1: Vicinity Map

Figure 2: Location of Parking Areas by Zone



BACKGROUND

This report was prepared for the City of Big Bear Lake to look at ways to enhance safety for pedestrians who park and walk along the SR-18 where there is narrow shoulder width, curvy road conditions and a posted speed of 40 mph to access the popular trail of Castle Rock Trail. The City is proposing to construct a City parking lot located on the SW corner of Talbot Drive and the SR-18. The purpose of this report is twofold, one is to take a count of existing parking conditions along Talbot Drive and the SR-18 during different time periods, and two, to assist the City in determining the size of the parking lot that would be needed to offset parking demand on Highway 18 for visitors to the Castle Rock Trail. The purpose of the new parking lot is to enhance pedestrian safety by reducing or eliminating parking along highway 18 so that visitors are not forced to walk along narrow shoulders on Highway 18 to access the Castle Rock Trail. If a new parking lot is built there is the potential for the City to work with the Forestry Service to move the entrance to the Castle Rock Trail. The existing Castle Rock signage located on the SR-18 would be removed and a new entry point to the trail would be created at the south end of the parking lot. It is the intention of this report to estimate the sizing needs of the new parking facility and/or assess the potential overflow of parking to surrounding streets. The parking lot does have constraints that will need to be considered in that the topography of the lot is on a hill with trees and boulders.

EXISTING PARKING COUNTS AND SUMMARY

The objective of this parking occupancy study was to provide an existing condition snapshot of the number of visitors parking along SR-18 during different days that represent a regular Weekday, a regular Saturday, and a holiday Saturday. These days were chosen in order to see the parking demand during three very different periods to assist the City in determining what size parking lot would accommodate the demand at the walking trail.

To determine the number of vehicles parked in each parking zone location, the parking survey was conducted during peak hours of 9am to 4pm. The parking study was conducted on three separate days during typical conditions and on a holiday weekend. The study area was divided into 7 different parking zones along the SR-18 as well as on Talbot Drive as shown in **Figure 2**. The first count was taken on May 21st on what is considered a typical Saturday, then on May 25th on a typical Wednesday, and on May 28th a Saturday during Memorial Weekend. The following provides a description of each parking zone.

- **Zone 1:** A pull-out with 8 estimated total parking spaces, in front of a House on the north side of the SR-18, east of Big Bear Trail (dirt road) and about 908' from the Castle Rock Trail head. Vehicles were able to park parallel on the shoulder of Big Bear Boulevard (SR-18). During peak periods vehicles were observed blocking the resident's driveway.

- **Zone 2:** A small pull-out on the north side with an estimated 4 total parallel parking spaces on Big Bear Boulevard (SR-18) and approximately 407' from the Castle Rock Trail head.

- **Zone 3**: The entire curved road along Big Bear Boulevard (SR-18) at the entrance to Castle Rock Trail. Parking consists entirely on the South side of Big Bear Boulevard (SR-18), with an estimated 10 total parking spaces parallel to Big Bear Boulevard (SR-18).

- **Zone 4:** A large pull-out on the north side of Big Bear Boulevard (SR-18), with an estimated 9 total parking spaces. During peak periods vehicles parked perpendicular to Big Bear Boulevard (SR-18). This turnout is approximately 330' from the Castle Rock Trail head.

- **Zone 5:** Where Big Bear Boulevard (SR-18) widens and vehicles park along the North and South shoulder lanes west of Talbot Drive. It was observed that cars were parking along SR-18 at any location they felt there was enough of a shoulder. This area is estimated to have 12 total parking spaces with parallel parking. Parking is about 650' from the Castle Rock Trail head.

- **Zone 6:** Talbot Drive North of Big Bear Boulevard (SR-18): A residential street with an estimated 8 total parking spaces available near SR-18. The street has various no parking signs and cones. During the three study days it was observed that very few vehicles parked at this location, with an exception during the May 28th holiday weekend Saturday study. Talbot Drive is approximately 812' from the Sr-18 Castle Rock Trail head.

- **Zone 7**: Talbot Drive South of Big Bear Boulevard (SR-18): a narrow one lane road with 2 potential parking spaces. Only on a few occasions, vehicles parked along this road. The proposed parking lot would be located off of Talbot Drive on the west side.

Summary of Available Parking Spaces by Zone	
Segment #	**# of Spaces Available for Parked Cars**
1	8
2	4
3	10
4	9
5	12
6: Talbot N/O 18	8
7: Talbot S/O 18	2
TOTAL (on SR 18)	**53** (43 plus 10 on Talbot)

For all parking zones located on the north side of SR-18, pedestrians have to cross the highway at some point to enter the trial. It was observed that pedestrians at times would use the narrow shoulders as a walkway to get to the trail.

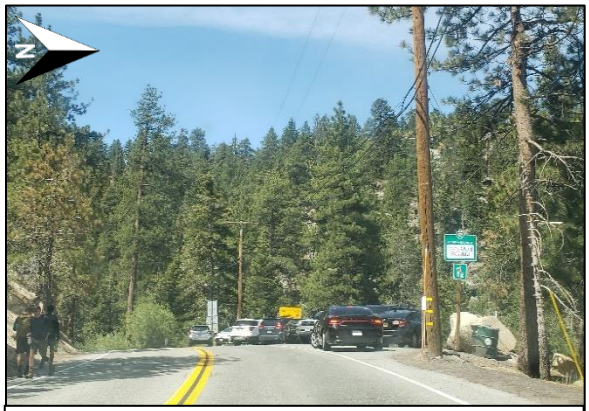
PICTURE SUMMARY OF EACH ZONE DURING ONE OF THE STUDY PERIODS

Zone 1: Parking on North Side of Big Bear Boulevard (SR-18). (May 21st Saturday)

Zone 2: Parking on North Side of Big Bear Boulevard (SR-18). (May 25th Wednesday)

Zone 3: Western Part, South Side of Big Bear Boulevard (SR-18). (May 28th Saturday Holiday Weekend)

Zone 3: Eastern Part, South Side of Big Bear Boulevard (SR-18). (May 25th Wednesday)



Zone 4: North Side of Big Bear Boulevard (SR-18). Vehicles Parked Angled (May 21st Saturday)

Zone 3: Vehicles tucked into Small Shoulder on South Side of Street. (May 28th Saturday Holiday Weekend)

Zone 5: North and South Side of Big Bear Boulevard (SR-18). (May 28th Saturday Holiday Weekend)

Zone 5: South Side of Big Bear Boulevard (SR-18) Parked in The Dirt. (May 28th Saturday Holiday Weekend)

West of Zone 1: Pedestrians Walking Back to Cars along Big Bear Boulevard (SR-18). (May 28th Saturday Holiday Weekend)

Zone 6: Talbot Drive North of Big Bear Boulevard (SR-18). (May 21st Saturday)

Zone 7: Talbot Drive South of Big Bear Boulevard (SR-18) (May 25th Wednesday)

PARKING OCCUPANCY STUDY

The parking available on Talbot Drive (Zones 6 and 7) is excluded from Table 1: Summary of Parking Conditions, for the reason of being nearly unused by travelers to Castle Rock Trail. Based on the count data on average most cars were parked for 2-3 hours, but on Saturday May 28th Memorial Day weekend during the busiest times of 11am to 2pm, some vehicles stayed 3-4 hours.

The busiest parking times for all three days were between 11am and 2pm. At the busiest times visitors would park at points farther away and walk along Big Bear Boulevard (SR-18) to get to Castle Rock Trail or in some cases they parked at places not designated for street parking. On May 28th it was observed that some visitors even parked as far as Boulder Bay Park and walked to Castle Rock Trail. As shown in Table 1 it was estimated that 43 vehicles could park in Zones 1 to 5. On Memorial Day weekend cars exceeded available capacity by parking along narrow shoulders on the SR-18 where normally cars would not park. Visitors also parked farther away from the trail head along SR-18 (west of Zone 1). This was confirmed by seeing pedestrians walking from the trail head past Zone 1 on the shoulder. On a regular Wednesday the greatest number of vehicles parked along Highway 18 was 11 vehicles with cars parking in actual turnouts. On a regular Saturday May 21st at 12 noon cars parked exceeded capacity at 44 vehicles. On Saturday of Memorial Weekend demand at 12 noon was 52+ vehicles with cars parking outside the study zones. The parking demand versus the available parking spaces along the highway are shown in the table below.

SUMMARY OF PARKING COUNT

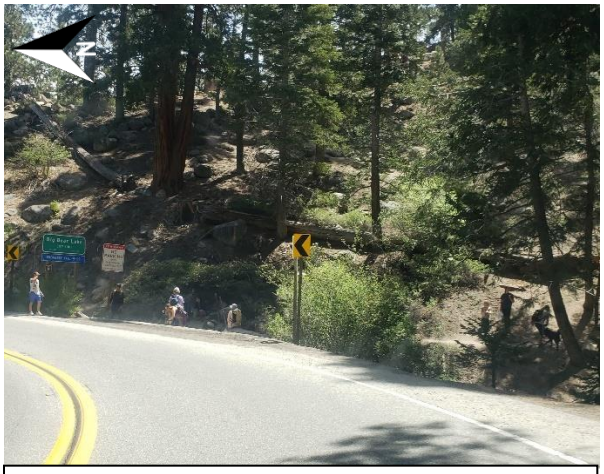
Table 1. Summary of Parking Conditions Zones 1 thru 5

Time	Saturday May 21st			Wednesday May 25th			Saturday May 28th Memorial Weekend		
	Total Parked	Estimated Total Spaces*(1)	% of Spaces Taken	Total Parked	Estimated Total Spaces*	% of Spaces Taken	Total Parked	Estimated Total Spaces*	% of Spaces Taken
9am	8	43	19%	5	43	12%	8	43	19%
10am	19	43	44%	11	43	26%	31	43	72%
11am	37	43	86%	10	43	23%	45	43	105%
12pm	44	43	102%	11	43	26%	52	43	121%
1pm	34	43	79%	7	43	16%	50	43	116%
2pm	26	43	60%	4	43	9%	43	43	100%
3pm	22	43	51%	7	43	16%	39	43	91%
4pm	17	43	40%	6	43	14%	29	43	67%

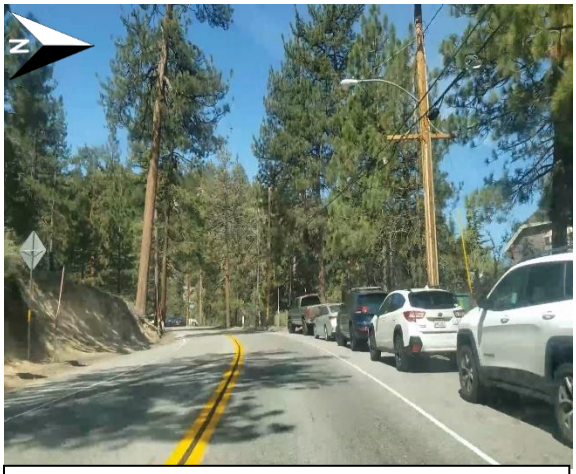
(1) *Excluding Talbot Drive

The following provides a picture summary and detailed parking count for Saturday May 21, 2022.

DAY 1 SATURDAY MAY 21, 2022



Big Bear Boulevard (SR-18) at Study Zone 3. (May 21st Saturday)



Big Bear Boulevard (SR-18) at Study Zone 5. (May 21st Saturday)

Observations: On May 21st, 2022 the study was conducted from 9am to 4pm on a typical Saturday. Pedestrians were noted walking along Big Bear Boulevard (SR-18). At the busiest time from 12pm to 1pm the number of cars parked multiple hours increased across all study zones. The turnover rate for visitors was usually 2-3 hours **(Table 2)**. **Table 3** provides a summary by hour of the number of cars parked in each zone. An attempt was made to record the last 3 digits of a license plate to determine parking duration. During peak hours this was difficult for some areas since there was no safe place to pull over to record the plates due to every parking zone along SR-18 at or over capacity.

Table 2: Parking Summary Zones 1-5			
Time	**Saturday May 21st**		
	Total Parked	**# of Vehicles That Parked Multiple Hours**	**% of All Vehicles That Parked Multiple Hours Excluding Zones 6 and 7**
9am	8	N/A	N/A
10am	19	4	21%
11am	37	12	32%
12pm	44	24	55%
1pm	34	21	62%
2pm	26	10	39%
3pm	22	6	27%
4pm	17	6	35%

Table 3A: Summary Counts Taken on Saturday May 21, 2022, All Zones 1-7				
Time: 9am				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	0	8	N/A	
2	1	4	N/A	814
3	0	10	N/A	
4	7	9	N/A	832, 614, 769, 113, 882, 724, 202
5	0	12	N/A	
6: Talbot N/O 18	0	8	N/A	
7: Talbot S/O 18	0	2	N/A	

Table 3B: Summary Counts Taken on Saturday May 21, 2022, All Zones 1-7				
Time: 10am				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	4	8	0	512, 200, 391, 404
2	3	4	1	**814**, 035, LVR
3	4	10	0	542, 724, 927, 341
4	8	9	3	**202**, **769**, **882**, 533, 609, 419
5	0	12	0	
6: Talbot N/O 18	0	8	0	
7: Talbot S/O 18	0	2	0	

Table 3C: Summary Counts Taken on Saturday May 21, 2022, All Zones 1-7				
Time: 11am				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	5	8	4	**512, 200, 391, 404**
2	3	4	2	**035**, **LVR**, 838
3	9	10	3	062, 566, **927**, 974, 842, 576, 429, **542**, **341**
4	9	9	3	**202**, **769, 882**, 190, 708, 817, 439, 500, 873
5	9	12	0	940, 106, 303, 824, 584, 910, 290, 730, 206,
6: Talbot N/O 18	0	8		
7: Talbot S/O 18	2	2		144, 203

Table 3D: Summary Counts Taken on Saturday May 21, 2022, All Zones 1-7				
Time: 12pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	6	8	2	**512**, **404**, 098, 930, 307
2	4	4	1	**035**, 658, 721, 135
3	10	10	7	410, 020, **974**, **842**, **576, 429**, 336
4	9	9	6	146, **190, 708, 817, 439, 500, 873**
5	11	12	7	**940, 106, 303, 824, 584, 910, 290**, 615
6: Talbot N/O 18	2	8	0	690, 183,
7: Talbot S/O 18	2	2	1	**144, 203**

Table 3E: Summary Counts Taken on Saturday May 21, 2022, All Zones 1-7				
Time: 1pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	4	8	2	**404, 930,** 899, 435
2	4	4	4	**035, 658, 721, 135**
3	8	10	4	**576, 429, 336, 020,** 118, 307, 516
4	8	9	3	**190, 817, 439**, 720, 603, 629, 311
5	7	12	5	**940, 303, 824, 584,** 290, 543, 221
6: Talbot N/O 18	2	8	2	**690, 183**
7: Talbot S/O 18	1	2	1	**203**

Table 3F: Summary Counts Taken on Saturday May 21, 2022, All Zones 1-7				
Time: 2pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	2	8	0	546, 189
2	3	4	0	449, 312, 289
3	5	10	2	**429**, 750, 163, 172, 883
4	6	9	2	787, **603**, 341, 372, 245
5	10	12	6	**303**, **543**, **290**, **824, 221, 940,** 107, 231
6: Talbot N/O 18	0	8	0	
7: Talbot S/O 18	0	2	0	

Table 3G: Summary Counts Taken on Saturday May 21, 2022, All Zones 1-7				
Time: 3pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	1	8	0	507
2	2	4	0	681, 512
3	6	10	0	836, 419, 935, 028, 309, 743
4	4	9	1	**603**, 227, 492, 816
5	9	12	5	**107**, **824**, 281, **543**, 221, 975, 633, 171, 412
6: Talbot N/O 18	0	8	0	
7: Talbot S/O 18	0	2	0	

Table 3H: Summary Counts Taken on Saturday May 21, 2022, All Zones 1-7				
Time: 4pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	2	8	0	052, 008
2	1	4	1	**681**
3	4	10	1	998, 370, 615, 258
4	3	9	0	401, 895, 659
5	7	12	4	**281, 975, 412, 633**, 185, 803, 767
6: Talbot N/O 18	0	8	0	
7: Talbot S/O 18	0	2	0	

The following provides a picture summary and detailed parking counts for Wednesday May 25th 2022.

DAY 2 WEDNESDAY MAY 25, 2022

Big Bear Boulevard (SR-18) at Study Zone 4. (May 25th Wednesday)

Big Bear Boulevard (SR-18) at Study Zone 1. (May 25th Wednesday)

Observations: On May 25th, 2022, the study was conducting from 9am to 4pm on a school weekday. The average percent of vehicles that parked multiple hours in the study zones was 61%. Most of the parking zones were not used with almost all of the vehicle's parking at Zone 4 and 2, where the pull-out parking is widest. Table 4 summarizes total vehicles parked and % of multiple hour parking. The highest time period with cars parked over multiple hours was at 12 noon at 82%. Tables 4 and 5 below show the Parking Summary and parking demand by hour.

Table 4: Parking Summary			
Time	Wednesday May 25th		
	Total Parked in Zones 1-5	# of Vehicles That Parked Multiple Hours	% of All Vehicles That Parked Multiple Hours Excluding Zones 6 and 7
9am	5	N/A	N/A
10am	11	5	45%
11am	10	6	60%
12pm	11	9	82%
1pm	7	3	43%
2pm	4	3	75%
3pm	7	4	57%
4pm	6	4	67%

Table 5A: Wednesday May 25, 2022, All Zones 1-7				
Time: 9am				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	0	8	N/A	
2	0	4	N/A	
3	0	10	N/A	
4	5	9	N/A	361, 422, 185, 3M2, 170
5	0	12	N/A	
Talbot N/O 18	0	8	N/A	
Talbot S/O 18	0	2	N/A	

Table 5B: Wednesday May 25, 2022, All Zones 1-7				
Time: 10am				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	0	8		
2	0	4		
3	1	10		406
4	10	9	5	**361, 422, 185, 3M2, 170**, 571, 478, 829, 640, 713
5	0	12		
6: Talbot N/O 18	0	8		
7: Talbot S/O 18	0	2		

Table 5C: Wednesday May 25, 2022, All Zones 1-7				
Time: 11am				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	0	8		
2	2	4		065, 517
3	0	10		
4	8	9	6	**185**, **3M2, 170**, **829, 713**, **478**, 793, YAW
5	0	12		
6: Talbot N/O 18	0	8		
7: Talbot S/O 18	0	2		

Table 5D: Wednesday May 25, 2022, All Zones 1-7				
Time: 12pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	0	8		
2	3	4	2	**065, 517**, 8K4
3	0	10		
4	9	9	7	**185, 170, 713, 829, 478, YAW, 793**, 386
5	0	12		
6: Talbot N/O 18	0	8		
7: Talbot S/O 18	0	2		

Table 5E: Wednesday May 25, 2022, All Zones 1-7				
Time: 1pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	0	8		
2	2	4	1	**065, 8K4**
3	0	10		
4	6	9	2	**YAW, 713**, 357, 921, 966, 467
5	0	12		
6: Talbot N/O 18	0	8		
7: Talbot S/O 18	0	2		

Table 5F: Wednesday May 25, 2022, All Zones 1-7				
Time: 2pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	0	8		
2	0	4		
3	0	10		
4	4	9	3	467, **921, 357**, 648
5	0	12		
6: Talbot N/O 18	0	8		
7: Talbot S/O 18	0	2		

Table 5G: Wednesday May 25, 2022, All Zones 1-7				
Time: 3pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	0	8		
2	0	4		
3	0	10		
4	7	9	4	**467, 921, 357, 648**, 784, 791, 2Y2
5	0	12		
6: Talbot N/O 18	0	8		
7: Talbot S/O 18	0	2		

Table 5H: Wednesday May 25, 2022, All Zones 1-7				
Time: 4pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	0	8		
2	0	4		
3	0	10		
4	6	9	4	**2Y2, 791**, **648, 784**, 142, 531
5	0	12		
6: Talbot N/O 18	0	8		
7: Talbot S/O 18	0	2		

The following provides a picture summary and detailed parking counts for Saturday May 28th 2022.

DAY 3 SATURDAY MAY 28, 2022

Big Bear Boulevard (SR-18) at Study Zone 1. (May 28th Saturday)

Big Bear Boulevard (SR-18) West of Study Zone 5. (May 28th Saturday)

Observations: On May 28th, 2022, a parking study was conducted on a holiday weekend. The average percent of vehicles that parked multiple hours in the study zones was 55%. Pedestrians where noted walking along Big Bear Boulevard (SR-18) in large groups on both the North and South sides of the street. Vehicles would park anywhere they could find a small pull-out, and pedestrians would walk in the street and move around parked cars. Visitors to Castle Rock Trail would also park farther West and East along Highway 18 beyond the parking zones marked for the study. Tables 6 and 7 below show the Parking Summary and parking demand by hour.

Table 6: Parking Summary			
Time	Saturday May 28th Zones 1 to 5		
	Total Parked	# of Vehicles That Parked Multiple Hours	% of All Vehicles That Parked Multiple Hours Excluding Zones 6 and 7
9am	8	N/A	N/A
10am	31	8	26%
11am	45	28	62%
12pm	52	26	50%
1pm	50	26	52%
2pm	43	32	74%
3pm	39	20	51%
4pm	29	20	70%

Table 7A: Saturday May 28th 2022, All Zones 1-7				
Time: 9am				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	0	8	N/A	
2	2	4	N/A	412, 601
3	0	10	N/A	
4	6	9	N/A	115, 1F2, 044, 837, 519, 201
5	0	12	N/A	
6: Talbot N/O 18	0	8	N/A	
7: Talbot S/O 18	0	2	N/A	

Table 7B: Saturday May 28th 2022, All Zones 1-7				
Time: 10am				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	6	8	0	943, 10G, 501, 226, 829, 497
2	3	4	2	**412, 601**, 80R
3	6	10	0	320, 063, 791, 446, 002, 615
4	8	9	6	**115, 1F2, 044, 837, 519, 201**, FET, 293
5	7	12	0	725, 536, 287, W32, A20, 018, 194
6: Talbot N/O 18	0	8	0	
7: Talbot S/O 18	1	2	0	584

Table 7C: Saturday May 28th 2022, All Zones 1-7				
Time: 11am				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	8	8	6	**943, 106, 501, 226, 829, 497**, 147, 258
2	3	4	3	**412, 601, 80R**
3	12	10	6	**320, 063, 791, 446, 002, 615**, 261
4	10	9	8	**115, 1F2, 044, 837, 519, 201, FET, 293**, 401, 272
5	12	12	5	**287, W32, A20, 018, 194**, 140, 293, 671, 349, 904
6: Talbot N/O 18	0	8	0	
7: Talbot S/O 18	0	2	0	

Table 7D: Saturday May 28th 2022, All Zones 1-7				
Time: 12pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	6	8	3	947, **147**, N94, **258**, 075, 3AN
2	3	4	0	AL8, 217, 582
3	11	10	7	612, **002**, **791**, **446, 320**, **615**, 239, 841, 119
4	9	9	6	**401**, **837, 293, 272, FET**, 349, 103, 080
5	16	12	10	515, DR5, 962, 204, 6W1, **287, W32, 140, A20, 018**, 144
6: Talbot N/O 18	5	8	0	709, 384, L27, 618, 947
7: Talbot S/O 18	2	2	0	928, 645

Table 7E: Saturday May 28th 2022, All Zones 1-7				
Time: 1pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	7	8	4	3AN, **147**, **258, 075**, 377, 921, 712
2	3	4	3	**AL8, 217, 582**
3	11	10	4	**119, 841, 615, 239**, 913, 393, 566, 9R2, 051, 3H4
4	8	9	2	**103**, **080**, LEX, 781, 9D2, 993, 669, 817
5	15	12	7	278, **DR5, W32, 287, 204, 515, 962**, 114, 208, 542, 103 ,562, 744
6: Talbot N/O 18	5	8	5	**709, 384, L27, 618, 947**
7: Talbot S/O 18	1	2	1	**645**

Table 7F: Saturday May 28th 2022, All Zones 1-7				
Time: 2pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	5	8	5	**712, 377, 3AN**, **075, 921**
2	3	4	1	**582**, 245, 576
3	10	10	8	**119, 841**, **239, 913**, **566, 9R2, 051**, **3H4**, 187, 527
4	9	9	7	**LEX, 9D2, 781, 993, 669, 817**, 118,
5	12	12	9	**744, 562, 103, W32**, 270, 782, 565, **962, 208**, 157, 378, 757
6: Talbot N/O 18	4	8	2	**L27, 947**, 521, 803
7: Talbot S/O 18	0	2	0	

Table 7G: Saturday May 28th 2022, All Zones 1-7				
Time: 3pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	5	8	2	447, **712, 377**, 861, 4FA
2	4	4	3	**582, 245, 576**, 017
3	9	10	6	**187, 3H4, 566, 9R2, 051, 913**, 370, 960, J24
4	7	9	3	**118, 817**, 238, L57, 520, 977, 562
5	12	12	5	**757,** 104, 805, 356**, 962**, 3M2, 651, 334, 719
6: Talbot N/O 18	2	8	1	522, 688
7: Talbot S/O 18	0	2	0	

Table 7H: Saturday May 28th 2022, All Zones 1-7				
Time: 4pm				
Segment #	**# of Parked Cars**	**Total Possible Parking Spaces**	**Multiple Hour Parked Cars**	**License Plate #'s of Parked Cars (bold numbers - car stayed more than 1 hour)**
1	4	8	4	**4FA, 861, 377, 447**
2	3	4	1	**582,** 165, 920
3	6	10	4	890, **370, 566, 913**, 933, 811
4	8	9	5	**562, 520,** L83, 781**, 977, 118**, 463, 194
5	8	12	6	**334, 719, 651, 805, 3M2**, 565, 222
6: Talbot N/O 18	0	8	0	
7: Talbot S/O 18	0	2	0	

SUMMARY OF PARKING COUNT

- Regular Saturday – Maximum cars parked along Highway 18 were 44 at 12 noon. The period from 11am to 1pm was the busiest with 34 to 44 vehicles parked along Highway 18. A couple of cars parked on Talbot Drive on a regular Saturday.
- Regular Weekday non holiday (Wednesday) – Maximum cars parked along Highway 18 were 11 cars from 10am to 12 noon. No cars parked on Talbot Drive on a regular weekday.
- Holiday weekend (Saturday): Maximum number of cars parked along Highway 18 were 52 vehicles at 12 noon. The busiest period was 11am to 2 pm with 43 to 52 cars parked along Highway 18. Cars were now parking on Talbot Drive as well as out of the study zone.

Table 8. Summary of Parking Conditions Zones 1 thru 5

Time	Saturday May 21st			Wednesday May 25th			Saturday May 28th Memorial Weekend		
	Total Parked	Estimated Total Spaces*(1)	% of Spaces Taken	Total Parked	Estimated Total Spaces*(1)	% of Spaces Taken	Total Parked	Estimated Total Spaces*(1)	% of Spaces Taken
9am	8	43	19%	5	43	12%	8	43	19%
10am	19	43	44%	11	43	26%	31	43	72%
11am	37	43	86%	10	43	23%	45	43	105%
12pm	44	43	102%	11	43	26%	52	43	121%
1pm	34	43	79%	7	43	16%	50	43	116%
2pm	26	43	60%	4	43	9%	43	43	100%
3pm	22	43	51%	7	43	16%	39	43	91%
4pm	17	43	40%	6	43	14%	29	43	67%

(1) *Excluding Talbot Drive

CONCLUSIONS

Based on the analysis of the parking survey and parking turnover counts which were taken on the three study days, we offer the following conclusions and points to consider:

1. The number of parking spaces that may be needed on a typical weekday during the year to accommodate visitors using the trail could easily be accommodated in a 28 space parking lot to be built in the future. Since the counts were taken in May during the school year, it is possible that the use on weekdays during the summer be higher than observed during May. However, the maximum demand on a weekday should be less than the proposed 28 parking spaces.

2. The number of parking spaces needed on a typical weekend will probably exceed the 28 space parking supply in a proposed lot at least during the busiest hours of 11:00 am to 2:00 pm, especially since on weekends more vehicles were observed to park for multiple hours, therefore increasing the potential demand for parking spaces in a parking lot. If the maximum number of parking spaces built in a parking lot is 28, motorists who are not able to find a parking space will probably continue to park on the main highway in the existing pull-out areas. It is likely that Zones 4 and 5 closest to Talbot Drive could accommodate the extra parking demand not available in the parking lot. If geometric and financial considerations allow, a higher number of parking supply up to 45-50 spaces should be considered.

   To encourage motorists to use the future parking lot to access the trail instead of Highway 18, it may be necessary to post some of the existing pull-out areas with either time limits or no parking.

3. The number of parking spaces needed on holiday weekends will in most likelihood continue to be much higher than a potential 28 space parking lot supply. Similar to #2 above, extra demand for parking on special holidays will likely spillover to several parking zones along Highway 18 and potentially to Talbot Drive north of Highway 18. If parking supply can be increased to about 45-50 spaces, the extent of potential parking spillover to the main highway will be much less.

If a decision is made to limit the parking duration in the nearby pull-out areas, one potential option is to block such signs during major holidays of the year to allow the spillover parking from the parking lot to be accommodated in the existing pull-out areas only on specific days during the year.

Finally, it should also be acknowledged that once a parking lot is constructed and its location is advertised, it is possible that the potential demand to use the trail may increase, and as such even more demand for parking spaces.