DRAFT

ENVIRONMENTAL IMPACT REPORT

VAIL DAM SEISMIC AND HYDROLOGIC REMEDIATION PROJECT

RIVERSIDE COUNTY, CALIFORNIA

SCH# 2020069048

Rancho Water

December 2022

This page intentionally left blank

DRAFT

ENVIRONMENTAL IMPACT REPORT

VAIL DAM SEISMIC AND HYDROLOGIC REMEDIATION PROJECT

RIVERSIDE COUNTY, CALIFORNIA

SCH# 2020069048

Submitted to:

Rancho California Water District
42135 Winchester Road
Temecula, California 92590

Prepared by:

LSA
703 Palomar Airport Road, Suite 280
Carlsbad, California 92011
(760) 931-5471

Project No. RCW1902

Rancho Water

December 2022

This page intentionally left blank

TABLE OF CONTENTS

APPENDICES

FIGURES AND TABLES

FIGURES

TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AAQS	ambient air quality standards
AB	Assembly Bill
ac-ft	acre-feet
ACMs	asbestos-containing materials
ADT	average daily trips
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AGR	agricultural supply
AP	Alquist Priolo
APS	Alternative Planning Strategy
AQMP	Air Quality Management Plan
ASTM	American Society for Testing and Materials
ATCMs	Airborne Toxic Control Measures
ATEV	Agua Tibia-Earthquake Valley fault system
BAAQMD	Bay Area Air Quality Management District
Basin	South Coast Air Basin
bgs	below ground surface
BMP	Best Management Practice
BSA	biological study area
BTUs	British thermal units
CAA	Federal Clean Air Act of 1970
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Office of Emergency Services
Cal/OSHA	California Occupational Safety and Health Administration
CalEPA	California Environmental Protection Agency
California Register	California Register of Historic Resources

CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CAT	Climate Action Team
CATTCH	California Temporary Traffic Control Handbook
CBC	California Building Code
CBIA	California Building Industry Association
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CFC	California Fire Code
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH_4	methane
CHRIS	California Historical Resources Information System
CIWMP	Countywide Integrated Waste Management Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COLD	cold freshwater habitat
Construction General Permit	General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ

County	County of Riverside
CPUC	California Public Utilities Commission
CTMP	Construction Traffic Management Plan
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
cy	cubic yards
DAMP	Drainage Area Management Plan
dBA	A-weighted decibels
DBESP	Determination of Biologically Equivalent or Superior Preservation
DMA	Drainage Management Area
DOGGR	Division of Oil, Gas, and Geothermal Resources Regulatory Program
DPM	diesel particulate matter
DPR	California Department of Parks and Recreation
DSOD	California Department of Water Resources Division of Safety of Dams
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EAP	Emergency Action Plan
EFZ	Elsinore fault zone
EIC	Eastern Information Center
EIR	Environmental Impact Report
EJ	environmental justice
EMS	Emergency Medical Services
EO	Executive Order
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FGC	California Fish and Game Code

FHSZ	fire hazard severity zone
FIRM	Flood Insurance Rate Map
FRA	Federal Responsibility Area
FRAP	Fire and Resources Assessment Program
ft	foot/feet
FTA	Federal Transit Administration
gal	gallon/gallons
GCC	global climate change
GHG	greenhouse gas
GIS	Geographic Information Systems
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWh	gigawatt-hours
GWR	groundwater recharge
H:V	horizontal to vertical
H_2S	hydrogen sulfide
HA	hydrologic area
HCP	Habitat Conservation Plan
HHWE	Household Hazardous Waste Element
HI	Hazard Index
HQTAs	High-Quality Transit Areas
HRI	California State Historic Resources Inventory
HSA	hydrologic subarea
HSC	Health and Safety Code
HU	hydrologic unit
I-15	Interstate 15
IA	Implementing Agreement
IBC	International Building Code
ICC	International Code Council
ICODS	Interagency Committee on Dam Safety
IFC	International Fire Code

in/sec	inches per second
IND	industrial service supply
IPac	Information for Planning and Consultation
IRWM	Integrated Regional Water Management
IS/NOP	Initial Study/Notice of Preparation
JPR	Joint Projects Review
JRMP	Jurisdictional Runoff Management Plan
KEI	Kampgrounds Enterprises Incorporated
kV	kilovolt
LBP	lead-based paint
lbs	pounds
LEA	Local Enforcement Agency
LEDPA	least environmentally damaging practicable alternative
L_{eq}	equivalent continuous sound level
LHMP	Local Hazard Mitigation Plan
LID	Low Impact Development
LOS	level of service
LRA	Local Responsibility Area
LST	localized significance threshold
m	meter/meters
MATES	Multiple Air Toxics Exposure Study
MBTA	Migratory Bird Treaty Act
MCE	Maximum Credible Earthquake
mg/L	milligrams per liter
MLD	Most Likely Descendant
MMT	million metric tons
mpg	miles per gallon
mph	miles per hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan

MSL	mean sea level
MT	metric tons
MUN	municipal and domestic supply
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NAVD88	North American Vertical Datum of 1988
NCCP	Natural Communities Conservation Plan
NDFE	Nondisposal Facility Element
NDSP	National Dam Safety Program
NDSRB	National Dam Safety Review Board
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NID	National Inventory of Dams
NIMS	National Incident Management System
NO_2	nitrogen dioxide
NOI	Notice of Intent
NOP	Notice of Preparation
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NTU	nephelometric turbidity units
O_3	ozone
OA	Operational Area
OHWM	ordinary high water mark
OPR	Office of Planning and Research
OSM	U.S. Department of the Interior Office of Surface Mining Reclamation and Enforcement
PCB	polychlorinated biphenyl

PFCs	perfluorocarbons
PGA	Peak Ground Acceleration
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in size
$PM_{2.5}$	particulate matter less than 2.5 microns in size
PMF	Probable Maximum Flood
PMI	point of maximum impacts
PMP	Probable Maximum Precipitation
PPV	peak particle velocity
PRC	Public Resources Code
PRIMP	Paleontological Resources Impact Mitigation Program
PROC	industrial process supply
Project, Proposed Project	Vail Dam Seismic and Hydrologic Remediation Project
PSE	Participating Special Entity
RARE	rare, threatened, or endangered species
RCA	Western Riverside County Regional Conservation Authority
RCC	Roller Compacted Concrete
RCDWR	Riverside County Department of Waste Resources
RCFC&WCD	Riverside County Flood Control and Water Conservation District
RCFD	Riverside County Fire Department
RCM	Regulatory Compliance Measure
RCP	Regional Comprehensive Plan
RCTC	Riverside County Transportation Commission
RCWD	Rancho California Water District
REC	Recognized Environmental Condition
REC1	contact water recreation
REC2	non-contact water recreation
REMAP	Riverside Extended Mountain Area Plan
ROC	reactive organic compound
ROG	reactive organic gas

RPS	Renewable(s) Portfolio Standards
RTP	Regional Transportation Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RV	recreational vehicle
RWMG	Regional Water Management Group
RWQCB	Regional Water Quality Control Board
SAFE	Safer Affordable Fuel-Efficient
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCH	State Clearinghouse
SCS	Sustainable Communities Strategy
SEMS	Standardized Emergency Management System
sf	square feet
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SHL	California Historical Landmarks
SHMP	State Hazard Mitigation Plan
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJFZ	San Jacinto fault zone
SKR	Stephens' Kangaroo Rat
SKR HCP	Stephens' Kangaroo Rat Habitat Conservation Plan
SLCPs	short-lived climate pollutants
SLF	Sacred Lands File
SMARTS	Stormwater Multiple Application and Report Tracking System
SMR HMP	Santa Margarita Region Hydromodification Management Plan
SO_2	sulfur dioxide
SoCalGas	Southern California Gas Company
SO_x	sulfur oxides

SPHI	California Points of Historical Interest
SR-79	State Route 79
SRA	State Responsibility Area
SRRE	Source Reduction and Recycling Element
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
STC	sound transmission classification
SVP	Society of Vertebrate Paleontology
SWAP	Southwest Area Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
T-BACT	best available control technology for toxics
TDS	total dissolved solids
TIA	Traffic Impact Analysis
TIA Guide	Riverside County Transportation Department's Traffic Impact Analysis Preparation Guide
TMDL	Total Maximum Daily Load
tpd	tons per day
TWh	terawatt-hours
UAV	unmanned aerial vehicle
Unified Program	Unified Hazardous Waste and Hazardous Materials Management Regulatory Program
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USMW	Upper Santa Margarita Watershed
VDC	Valle De Los Caballos
VHFHSZ	very high fire hazard severity zone
VMT	vehicle miles traveled
VOC	volatile organic compound

VR	visual range
WARM	warm freshwater habitat
WDID	Waste Discharge Identification Number
WDR	Waste Discharge Requirement
WIIN	Water Infrastructure Improvements for the Nation
WILD	wildlife habitat
WQMP	Water Quality Management Plan
WRCOG	Western Riverside Council of Governments
WUI	wildland-urban interface
ZEVs	zero emissions vehicles
ZNE	zero net energy

EXECUTIVE SUMMARY

S.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that local government agencies, before taking action on projects over which they have discretionary approval authority, consider the environmental consequences of such projects. An Environmental Impact Report (EIR) is a document designed to provide to the public and to local and State governmental agency decision-makers an analysis of potential environmental consequences of a project to support informed decision-making.

This Draft EIR has been prepared by Rancho California Water District (RCWD) to evaluate environmental impacts associated with the proposed Vail Dam Seismic and Hydrologic Remediation Project (Project); to discuss alternatives; and to propose mitigation measures that will minimize, offset, or otherwise reduce or avoid the identified potentially significant environmental impacts.

This Draft EIR has been prepared pursuant to the requirements of CEQA and the *State CEQA Guidelines*. RCWD is the Lead Agency, and as such, has reviewed all submitted drafts, technical studies, and reports for consistency with applicable regulations and policies and has commissioned the preparation of this Draft EIR to reflect its own independent judgment.

Data for this Draft EIR were obtained from on-site field observations; discussion with affected agencies; review of adopted plans and policies; review of available studies, reports, and data; and specialized environmental assessments prepared for the Project (e.g., air quality, noise, and traffic).

The Executive Summary is intended to highlight the major areas of importance in the environmental analysis for the Proposed Project as required by *State CEQA Guidelines* Section 15123. The Executive Summary includes a brief description of the Proposed Project, areas of controversy known to RCWD, including issues raised by agencies and the public, a summary of the significant unavoidable impacts of the Proposed Project, and a summary of alternatives evaluated in the Draft EIR. This Executive Summary also provides a table summarizing (1) the potential environmental impacts that would occur as a result of Project implementation and operation; (2) the level of significance prior to implementation of mitigation measures; (3) regulatory compliance measures and mitigation measures that avoid or reduce the significant impacts of the Proposed Project, and (4) the level of significance after mitigation measures are implemented.

S.2 SUMMARY OF PROJECT DESCRIPTION

Vail Dam and Vail Lake are located in unincorporated southwestern Riverside County, east of the City of Temecula, in Southern California. Vail Dam spans Temecula Creek, a northwesterly draining tributary of the Santa Margarita River that drains the north side of Palomar Mountain. The watershed for Vail Lake is approximately 318 square miles, and the lake is fed by Temecula Creek, Wilson Creek, Kolb Creek, and Arroyo Seco.

RCWD acquired approximately 7,700 acres of the Vail and Sundance Ranch properties surrounding Vail Lake in 2014 (RCWD 2016). Including Vail Lake, RCWD land holdings total 8,444 acres in the vicinity of Vail Lake; this area is referred to as the Vail Property in the Property Guidance Document

prepared by RCWD in 2016 (RCWD 2016). The Vail Property is located approximately 3 miles east of the city limits of Temecula and approximately 7 miles east of Interstate 15 (I-15). State Route 79 (SR-79) South traverses the southern portion of the property.

The Proposed Action (Proposed Project) includes construction of a straight-axis concrete gravity dam structure immediately downstream of the existing arch dam. The new dam would connect to the existing abutments. The parapet wall of the new gravity dam would extend to an elevation of 1,492.0 ft NAVD88,[1] and the existing gravity blocks and parapet walls along the existing abutments would also be raised to this elevation. A downstream parapet wall would be constructed to serve primarily as a guardrail for vehicles traversing the crest. The downstream face of the dam would be stepped concrete. The new dam would include new outlet works that would be designed to meet the emergency reservoir drawdown requirements.

S.3 AREAS OF CONTROVERSY

Pursuant to *State CEQA Guidelines* Section 15123, this EIR acknowledges the areas of controversy and issues to be resolved that are known to RCWD or were raised during the scoping process. Pursuant to Governor Executive Orders N-29-20 and N-33-20 due to COVID-19, RCWD held a virtual public scoping meeting on RCWD's YouTube Channel, which was published on July 15, 2020. As stated within the Notice of Preparation (NOP), commenters were requested to submit comments for the scoping meeting by 5:00 pm on July 10, 2020. The purpose of the virtual public scoping meeting was to present the Proposed Project and to solicit input from interested parties regarding environmental issues that should be addressed in this EIR. However, no comments were received prior to the virtual public scoping meeting. The material environmental issues and concerns raised in response to the NOP included:

- **Air Quality:** Recommendations and guidelines for the Project's air quality analysis modeling, suggestion to prepare a health risk assessment for the Project, suggestion to implement mitigation measures for the Project, and suggestion to adhere to guidelines from the South Coast Air Quality Management District (SCAQMD) and its Air Quality Handbook.

- **Tribal Cultural Resources:** Recommendations and guidelines for Project compliance with Assembly Bill (AB) 52 and Senate Bill (SB) 18, and recommendations and guidelines for conducting cultural resources assessments.

Please note that this is not an exhaustive list of areas of controversy, but rather key issues that were raised during the scoping process. This EIR addresses each of these areas of concern or controversy in detail, examines project-related and cumulative environmental impacts, identifies significant adverse environmental impacts, and proposes mitigation measures and/or alternatives designed to reduce or eliminate potentially significant impacts. Appendix A to this EIR includes the NOP and copies of written comments received in response to the NOP.

[1] NAVD88 = North American Vertical Datum of 1988.

S.4 SIGNIFICANT UNAVOIDABLE IMPACTS

Section 15126.2(b) of the *State CEQA Guidelines* requires that an EIR describe significant environmental impacts that cannot be avoided, including those effects that can be mitigated but not reduced to a less than significant level. As described in detail in Chapter 3.0, Environmental Impact Analysis, there is one significant unavoidable impact associated with the Proposed Project:

- **Nighttime Construction Noise:** The Proposed Project would result in a significant and unavoidable noise impact associated with the 12-week period for roller compacted concrete (RCC) placement. Specifically, the Proposed Project would result in significant nighttime noise impacts to adjacent rural residential properties during the 12-week period when the RCC batch plant would be operating continuously. A Regulatory Compliance Measure (RCM N-1), which includes placement of temporary construction barriers to reduce noise, has been identified that would help reduce the impacts; however, there is no feasible way to fully mitigate the nighttime noise due to the location of the sensitive residential uses and the types of construction equipment to be used. Therefore, construction-related noise impacts during nighttime hours would remain significant and unavoidable.

S.5 ALTERNATIVES

S.5.1 Alternatives Evaluated in this EIR

Public Resources Code (PRC) Section 21100 and *State CEQA Guidelines* Section 15126 require an EIR to identify and discuss a No Project Alternative and a reasonable range of alternatives to the Proposed Project that would feasibly attain most of the basic objectives of the project and would avoid or substantially lessen any of the significant environmental impacts. The following four alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the Proposed Project but that may avoid or substantially lessen any of the significant impacts of the Proposed Project. Therefore, the alternatives considered in this EIR include the following:

- **Alternative 1: No Project/No Action.** The No Project/No Action Alternative would leave Vail Dam in its current condition, without remediation of the identified seismic and hydrologic hazards.

- **Alternative 2: North Access Road Design Option.** RCWD identified a design alternative for a portion of the North Access Road to avoid an existing seasonal pool that provides habitat for fairy shrimp. No evidence of special-status fairy shrimp was identified during focused surveys. This alternative has been retained pending coordination with the applicable resource agencies.

- **Alternative 3: Oak Mountain Road Construction Access.** Under this alternative, aggregate, fly ash, and concrete deliveries would use Oak Mountain Road (a privately owned road north of the Secondary Entry Road) to access the RCC batch plant. This Alternative would reduce dust and noise along the unpaved Primary Entry Road (50 Acre Parcel) and Pond Access Road; however, noise impacts from this alternative would affect a greater number of residences and therefore would be slightly greater than impacts associated with the Proposed Project.

- **Alternative 4: Roller Compacted Concrete Batch Plant Canyon Location.** Under this alternative, the RCC batch plant would be located at the staging and laydown area at the mouth of the canyon rather than in the Upper Valle De Los Caballos (VDC) Recharge Basin area north of Pond U-4. This alternative would place the batch plant at a greater distance from residential uses and would thereby reduce the noise impacts associated with the RCC batch plant.

S.5.2 Identification of the Superior Alternative

CEQA requires the identification of an Environmentally Superior Alternative among the alternatives evaluated in an EIR. *State CEQA Guidelines* Section 15126.6(e)(2) provides that, if the No Project/No Build Alternative is the Environmentally Superior Alternative, then the EIR shall also identify an Environmentally Superior Alternative among the other alternatives. As set forth in Section 4, the Environmentally Superior Alternative is Alternative 4: RCC Batch Plant Canyon Location, because it eliminates the significant unavoidable nighttime noise impact during construction. This alternative would incrementally increase construction-related particulate air emissions and would be less desirable for the purposes of water quality control during construction. It also would increase the area of native habitat affected by indirect noise impacts during construction. These impacts would remain less than significant with mitigation.

S.6 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table S.A identifies the potential Project environmental impacts, proposed mitigation measures, and level of significance after mitigation is incorporated into the Project. Environmental topics addressed in this EIR include: Air Quality, Biological Resources, Cultural Resources, Energy, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Public Services, Transportation, Tribal Cultural Resources, Utilities and Service Systems, and Wildfire. The Initial Study, included as Appendix A, substantiates that there would less than significant impacts or no impacts with respect to several significance thresholds; those thresholds are not included in Table S.A.

S.6.1 Secondary Effects of Mitigation Measures

In accordance with *State CEQA Guidelines* Section 15126.4(a)(1)(D), if any mitigation measure would cause one or more significant effects in addition to those that would be caused by the Proposed Project, the effects of the mitigation measure shall be discussed. The mitigation measures proposed (as listed on Table S.A) require the Applicant to provide the City with lighting, grading, excavation, or other construction plans, or provide evidence that the Project would adhere to existing programs, regulations, or recommendations in technical reports. The regulations and policies listed in the mitigation measures have been evaluated during their respective adoptions or approval processes. No secondary effects related to the proposed mitigation measures are expected to occur.

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
3.1: Air Quality			
Threshold 3.1.1 Conflict with or obstruct implementation of the applicable air quality plan: Based on the consistency analysis, the Proposed Project would be consistent with the regional AQMP. Impacts would be less than significant.	Less than significant	N/A	Less than significant
Threshold 3.1.2 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard: Construction emissions associated with the Proposed Project would not exceed the SCAQMD thresholds for VOC, CO, SO_X, PM10, and PM2.5, and impacts associated with these pollutants would be less than significant. Daily regional construction emissions would exceed the daily SCAQMD thresholds for NO_X during overlapping phases of Project construction. Construction of the Proposed Project could result in emissions that would result in a cumulatively considerable net increase of a criteria pollutant for which the Project is in nonattainment under an applicable federal or State ambient air quality standard. Direct and cumulative impacts would be potentially significant.	Potentially significant	**Regulatory Compliance Measure RCM AQ-1** **Dust Control.** The Proposed Project would be required to comply with SCAQMD Rule 403 to control fugitive dust. During construction of the Proposed Project, best available control measures identified in Rule 403 would be required to minimize fugitive dust emissions from proposed earth-moving and grading activities. These measures would include site prewatering and rewatering as necessary to maintain sufficient soil moisture content. All access roads, including the Primary Entry Road, Secondary Entry Road, Pond Access Road, and Canyon Access Road, would be watered at least 3 times daily during active construction to reduce dust impact to nearby sensitive receptors, including nearby residential units and horse ranches. The dust-control methods for the Proposed Project would be specified in the dust-control plan that must be submitted to the SCAQMD per Rule 403. **Mitigation Measure AQ-1** During construction of Phase 8, Phase 9, and Phase 10, all off-road construction equipment shall meet the minimum application of EPA Tier 4 engine standards or equivalent. The Construction Contractor shall provide documentation of compliance with this measure, which will be verified by the RCWD's Resident Engineer or designee.	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Threshold 3.1.3 Expose sensitive receptors to substantial pollutant concentrations: All health risk levels to the nearest residents from Project construction and operational emissions of TACs would be well below SCAQMD's thresholds. No significant health risk would occur from Project-related activities.	Less than significant	N/A	Less than significant
Cumulative impacts: Air pollution is inherently a cumulative type of impact measured across an air basin. Threshold 3.1.2 includes an analysis of the Proposed Project's contribution to cumulative air impacts. The incremental effect of projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively considerable. With implementation of Regulatory Compliance Measure RCM AQ-1 and Mitigation Measure AQ-1, the Proposed Project's construction- and operation-related regional daily emissions are less than significant. Therefore, with mitigation, the Proposed Project would not have a cumulatively considerable increase in emissions.	Potentially cumulatively considerable	**Regulatory Compliance Measure RCM AQ-1** and **Mitigation Measure AQ-1** (see Threshold 3.1.2)	Not cumulatively considerable
3.2: Biological Resources			
Threshold 3.2.1 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service: The Project would not affect adjacent critical habitat for Quino checkerspot butterfly or coastal California gnatcatcher. Project activities within mapped arroyo toad critical habitat are limited to access for construction equipment along existing roads and would not affect this species. Impacts to critical habitat would be less than significant. No impacts to southwestern willow flycatcher, bald eagle, or arroyo toad are anticipated as suitable habitat is not within or immediately adjacent to the Project impact area. Impacts	Potentially significant	**Regulatory Compliance Measures** **RCM BIO-1:** A condition shall be placed on grading permits requiring a qualified biologist to conduct a training session for Project personnel prior to grading. The training shall include a description of the species of concern and its habitats, the general provisions of the Endangered Species Act and the MSHCP, the need to adhere to the provisions of the Act and the MSHCP, the penalties associated with violating the provisions of the Act, the general measures that are being implemented to conserve the species of concern as they relate to the Project, and the access routes to and Project site boundaries within which the Project activities must be accomplished.	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
could occur to Least Bell's vireo, coastal California gnatcatcher, tricolored blackbird, Quino checkerspot butterfly, and Stephens' kangaroo rat. Seven Nevin's barberry will be affected as part of Project activities within the Project site, located just downstream of Vail Lake Dam. All of the threatened or endangered species with the potential to be affected by the Proposed Project are considered fully covered and adequately conserved under the MSHCP and/or SKR HCP. Other special-status species covered under the MSHCP may occur on the Proposed Project site. Of the covered species that may occur, only burrowing owl has specific mitigation requirements identified in the MSHCP. Several special-status species that are not covered under the MSHCP have a moderate or high potential to occur within the Project area and could be affected by the Project. These include plants, reptiles, birds, terrestrial mammals, and bats. Mitigation Measure BIO-11 would avoid and minimize impacts to roosts. Mitigation Measure BIO-12 requires delineation of environmentally sensitive areas adjacent to the Project impact area to avoid impacts to nearby sensitive resources. Mitigation Measure BIO-3 requires revegetation of temporary impact areas, restoring potentially suitable habitat.		**RCM BIO-2:** Water pollution and erosion control plans shall be developed and implemented in accordance with RWQCB requirements. **RCM BIO-3:** The footprint of disturbance shall be minimized to the maximum extent feasible. Access to sites shall be via pre-existing access routes to the greatest extent possible. **RCM BIO-4:** The upstream and downstream limits of Project disturbance plus lateral limits of disturbance on either side of the stream shall be clearly defined and marked in the field and reviewed by the biologist prior to initiation of work. **RCM BIO-5:** Projects should be designed to avoid the placement of equipment and personnel within the stream channel or on sand and gravel bars, banks, and adjacent upland habitats used by target species of concern. **RCM BIO-6:** Projects that cannot be conducted without placing equipment or personnel in sensitive habitats should be timed to avoid the breeding season of riparian species identified in MSHCP Global Species Objective No. 7. **RCM BIO-7:** When stream flows must be diverted, the diversions shall be conducted using sandbags or other methods requiring minimal instream impacts. Silt fencing of other sediment trapping materials shall be installed at the downstream end of construction activity to minimize the transport of sediments offsite. Settling ponds where sediment is collected shall be cleaned out in a manner that prevents the	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		sediment from reentering the stream. Care shall be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream. **RCM BIO-8:** Equipment storage, fueling, and staging areas shall be located on upland sites with minimal risks of direct drainage into riparian areas or other sensitive habitats. These designated areas shall be located in such a manner as to prevent any runoff from entering sensitive habitat. Necessary precautions shall be taken to prevent the release of cement or other toxic substances into surface waters. Project-related spills of hazardous materials shall be reported to appropriate entities including but not limited to applicable jurisdictional city, USFWS, CDFW, and RWQCB and shall be cleaned up immediately and contaminated soils removed to approved disposal areas. **RCM BIO-9:** Erodible fill material shall not be deposited into watercourses. Brush, loose soils, or other similar debris material shall not be stockpiled within the stream channel or on its banks. **RCM BIO-10:** The qualified Project biologist shall monitor construction activities for the duration of the Project to ensure that practicable measures are being employed to avoid incidental disturbance of habitat and species of concern outside the Project footprint. **RCM BIO-11:** The removal of native vegetation shall be avoided and minimized to the maximum extent practicable. Temporary impacts shall be returned to	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		pre-existing contours and revegetated with appropriate native species. **RCM BIO-12:** Exotic species that prey upon or displace target species of concern should be permanently removed from the site to the extent feasible. **RCM BIO-13:** To avoid attracting predators of the species of concern, the Project site shall be kept as clean of debris as possible. All food related trash items shall be enclosed in sealed containers and regularly removed from the site(s). **RCM BIO-14:** Construction employees shall strictly limit their activities, vehicles, equipment, and construction materials to the Proposed Project footprint and designated staging areas and routes of travel. The construction area(s) shall be the minimal area necessary to complete the Project and shall be specified in the construction plans. Construction limits will be fenced with orange snow screen. Exclusion fencing should be maintained until the completion of all construction activities. Employees shall be instructed that their activities are restricted to the construction areas. **RCM BIO-15:** The Permittee [RCA] shall have the right to access and inspect any sites of approved projects including any restoration/enhancement area for compliance with project approval conditions including these BMPs. **RCM BIO-16:** RCWD shall pay the required fees associated with Riverside County Ordinance 663 for	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		impacts within the Stephens' Kangaroo Rat Habitat Conservation Plan Fee Assessment Area. **RCM BIO-17:** RCWD shall pay the required fees associated with the MSHCP Mitigation Fee Implementation Manual in accordance with the requirements of the Western Riverside County Regional Conservation Authority. **Mitigation Measures** **BIO-1:** RCWD shall apply for and obtain status as a Participating Special Entity of the MSHCP through the RCA. Prior to construction, all required surveys, reports, and other documentation shall be completed and submitted to the RCA to its satisfaction, and Take Authorization will be obtained. RCWD shall comply with any conditions of the Take Authorization stipulated by the RCA, in addition to complying with the requirements of the MSHCP as set forth in Section 6.1.2 (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools), Section 6.1.3 (Protection of Narrow Endemic Plant Species), Section 6.1.4 (Guidelines Pertaining to Urban/Wildlands Interface), Section 6.1.6 (Mitigation Responsibilities, Requirements for Participating Special Entities), Section 6.3.2 (Additional Survey Needs and Procedures), and Section 7.3.9 (Future Facilities) of Volume I. RCWD shall prepare a DBESP for impacts to riparian/riverine resources, narrow endemic plant species, and criteria area species as required pursuant to the MSHCP. **BIO-2:** RCWD shall adhere to all applicable BMPs outlined in Appendix C of Volume 1 of the MSHCP. RCWD shall verify that all relevant BMPs are stated where appropriate on the Project construction plans	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		and shall be conveyed to all workers on site during pre-construction training sessions to be held prior to each phase of construction. **BIO-3:** Prior to initiation of construction, RCWD shall retain a qualified restoration biologist to prepare a habitat restoration plan to restore to pre-Project conditions or better all upland and wetland temporary impact areas where vegetation removal will occur. To ensure the habitat restoration plan addresses all impact areas, RCWD's biologist shall review the final anticipated temporary and permanent impact areas as part of the plan preparation based on final construction plans, including any changes in anticipated contractor staging configuration, utility work, disposal areas, access requirements, or revisions to construction methodology that could affect impact limits. The restoration plan will identify appropriate native vegetation communities to be installed based on existing and anticipated final conditions. The plan shall include a plant palette using species native to the area that are appropriate for the habitat and should include locally collected seeds or cuttings of any sensitive plant species that will be cleared by the Project (e.g., chaparral sand-verbena, white rabbit-tobacco, and long-spined spineflower). The habitat restoration plan shall include specifications for planting methods, seed installation, and topsoil salvage and stockpiling, and will include a 5-year maintenance and monitoring schedule with specific target and ultimate performance criteria to be met, including the percentage of vegetative cover; native species diversity; exclusion of exotic, non-	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		native species; restoration of disrupted functions and values; and use of the restored habitat by indicator wildlife species. The habitat restoration plan shall be subject to review and approval by the permitting agencies (e.g., USACE, RWQCB, CDFW, and RCA) and shall address any specific requirements for mitigation of impacts to Nevin's barberry identified by these agencies. **BIO-4:** RCWD shall avoid vegetation clearing for the Project during the bird breeding season (typically February 1 through August 31) to the extent feasible. If vegetation clearing or initiation of construction activities is proposed during the breeding season, a qualified biologist shall be retained by RCWD to conduct a pre-construction survey of the impact area for nesting migratory birds not more than 3 days prior to vegetation clearing or initiation of construction activities. Should any nesting birds be detected within 100 feet (ft) of the impact area, a suitable buffer area (determined on a case-by-case, species-specific basis) shall be established by a qualified biologist within which no construction activity may take place until after a qualified biologist has determined that the young have fledged and the nest is no longer active. Nesting bird habitat within the Project site shall be resurveyed during the bird breeding season if there is a lapse in construction activities longer than 7 days. **BIO-5:** Consistent with the requirements of the MSHCP, no construction or vegetation clearing shall take place within suitable habitat (riparian scrub) for least Bell's vireo during the breeding season (March 15 through September 15). Additionally, RCWD shall	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		not clear occupied habitat (Riversidian sage scrub in proximity to species observations) for coastal California gnatcatcher during the breeding season (February 15 through August 15). **BIO-6:** To offset impacts to the seven Nevin's barberry that are within the Project impact limits, RCWD shall retain a qualified habitat restoration expert with experience in collecting seeds and/or cuttings for this species. Prior to impacts to the Nevin's barberry, seeds and/or cuttings shall be collected from the seven individuals to be removed as well as other individuals in the vicinity of Vail Lake to be propagated off site. Once the propagated plants have reached a suitable size for transplant (as determined by the habitat restoration expert and subject to agency approval), Nevin's barberry shall be planted in suitable areas around Vail Lake (as shown in Draft EIR Figure 3.2-7) at a minimum 10:1 ratio (i.e., 70 plants). These plantings shall be subject to maintenance and monitoring and agency sign-off consistent with the overall habitat restoration plan (see Mitigation Measure BIO-3). To avoid impacts to any Nevin's barberry in proximity to the limits of construction, RCWD shall retain a qualified biologist to survey areas within 20 ft of the construction limits (as determined based on final Project plans) within 3 months prior to construction. If any Nevin's barberry are identified within this area, the following measure shall be implemented. Prior to the commencement of construction activities, orange Environmentally Sensitive Area fencing or similar highly visible material that delineates any locations of Nevin's barberry within 20 ft of impact areas along	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		the Canyon Access Road and near the dam that are not within the impact area shall be placed by the construction contractor under the supervision of a qualified biologist retained by RCWD. The area within the fence line demarcating individual Nevin's barberry shall include an approximately 5 ft buffer. **BIO-7:** RCWD shall retain a qualified biologist to conduct an MSHCP 30-day pre-construction survey for burrowing owl within suitable habitat prior to ground-disturbing activities to ensure that no burrowing owls have colonized the site. The pre-construction survey(s) shall be conducted no more than 30 days prior to the start of construction activities. If burrowing owls have colonized the Project site prior to the initiation of ground-disturbing activities, the Project proponent will immediately inform and coordinate with CDFW. A Burrowing Owl Protection and Relocation Plan may be necessary prior to initiating ground disturbance. If ground-disturbing activities occur but the site is left undisturbed for more than 30 days, a pre-construction survey will again be necessary to ensure the burrowing owl has not colonized the site since it was last disturbed. If burrowing owl is found, the same coordination described above will be necessary. **BIO-11:** RCWD shall retain a CDFW-approved bat biologist to conduct a focused habitat assessment at buildings, rock outcrops, and mature trees and snags that will be subject to Project-related impacts. The focused habitat assessment shall be conducted prior to or during the maternity season (April 1 through August 31). At locations where suitable roosting	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		habitat is identified, the CDFW-approved bat biologist retained by RCWD shall conduct follow-up nighttime surveys for roosting bats. The nighttime surveys shall include a combination of acoustic and exit count methods and shall take place during the bat maternity season to enable detection of maternity-roosting bats. If maternity roosts are identified within the Project area, the following measures shall be implemented: ● RCWD shall retain a CDFW-approved bat biologist to confirm the absence of roosting bats prior to removal of buildings or rock outcrops with potential to house roosting bats. If bats are found or if the absence of bats cannot be confirmed, the bat biologist shall install or directly supervise installation of humane eviction devices and exclusionary material or other method(s) to prevent bats from roosting in these areas. Implementation of the humane eviction/ exclusions is typically performed in the fall (September or October) preceding construction activity at a given location to avoid impacts to hibernating bats during the winter months or during the maternity season (April through August 31), when nonvolant (flightless) young are present. Any humane eviction/exclusion methods shall be implemented at least 10 days prior to the demolition of a structure or rock outcrop housing bats to allow sufficient time for the bats to vacate the roost feature(s). ● Removal of mature trees and snags shall occur during the fall months (September or October) to the greatest extent feasible, to avoid the bat maternity season (April 1 through August 31) and	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		avoid the potential for "take" of nonvolant (flightless) young. Trees and snags that have been identified as confirmed or potential roost sites require a two-step removal process and the involvement of a CDFW-approved bat biologist, retained by RCWD, to minimize the potential for roosting bat mortality during this activity. This two-step removal shall occur over two consecutive days as follows: on Day 1, branches and limbs not containing cavities, as identified by the CDFW-approved bat biologist, shall be removed. On Day 2, the remainder of the tree shall be removed without supervision by a bat biologist. The disturbance caused by limb removal, followed by an interval of one evening, will allow bats to safely abandon the roost. **BIO-12:** RCWD's biologist shall review the final anticipated temporary and permanent impact areas as part of the plan preparation based on final construction plans, including any changes in anticipated contractor staging configuration, utility work, disposal areas, access requirements, or revisions to construction methodology that could affect impact limits. In the event that impacts are reduced, RCWD may coordinate with applicable resource agencies to determine whether compensatory mitigation requirements should be reduced. In the event that work is proposed beyond the identified limits of impact, RCWD shall retain a qualified biologist to determine the potential for special-status resources to occur, including riparian/riverine areas, special-status species, identified Critical Habitat, jurisdictional waters or wetlands, or CDFW jurisdictional riparian or streambed areas. Additional surveys for special-	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		status species shall be conducted if required prior to initiation of construction activities in the area beyond the limits of impact. If additional special-status resources would be affected, compensatory mitigation shall be adjusted in coordination with appropriate resource agencies, including the RCA. Upon completion of construction and prior to habitat restoration, RCWD's biologist shall conduct a review of the final impact areas to determine whether total impacts differ from those identified in this report. If appropriate, compensatory mitigation totals shall be adjusted in consultation with appropriate resource agencies. **BIO-13:** Prior to the start of construction activities, orange Environmentally Sensitive Area fencing or similar highly visible material that delineates sensitive biological resources that occur within 5 ft of Project impact areas shall be placed by the construction contractor under the supervision of a qualified biologist retained by RCWD. Such areas will be treated as "off-limits" during construction, in accordance with the MSHCP Standard BMPs.	
Threshold 3.2.2 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 Game or U.S. Fish and Wildlife Service: Riparian habitats including alluvial fan sage scrub, riparian scrub, and riparian forest occur within the survey area. However, only alluvial fan sage scrub and riparian scrub are anticipated to be impacted as part of Project activities. Impacts would be potentially significant.	Potentially significant	**Regulatory Compliance Measures** **RCM BIO-1 through BIO-17** (see Threshold 3.2.1) **Mitigation Measures** **BIO-1 through BIO-3** (see Threshold 3.2.1) **BIO-8:** Prior to construction activities in proximity to jurisdictional waters of the U.S., RCWD shall apply for and obtain a Section 404 Nationwide Authorization or Individual Permit from the USACE. RCWD shall comply with all requirements stated in the Section 404 permit, including standard provisions and any	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		additional special conditions such as specific mitigation standards or Project-specific BMPs. Permanent impacts to wetland waters of the U.S. will be offset by wetland creation at a minimum 1:1 ratio. **BIO-9:** Prior to construction activities in proximity to jurisdictional waters of the State, RCWD shall apply for and obtain a Section 401 Water Quality Certification or Waste Discharge Requirements from the RWQCB. RCWD shall comply with all requirements stated in the Section 401 certification or Waste Discharge Requirements, including standard provisions and any additional special conditions such as specific mitigation standards or Project-specific BMPs. Permanent impacts to wetland waters of the State will be offset by wetland creation at a minimum 1:1 ratio. **BIO-10:** Prior to construction activities in proximity to CDFW jurisdictional areas, RCWD shall apply for and obtain a Lake or Streambed Alteration Agreement from CDFW. The Project proponent shall comply with all the requirements stipulated in the agreement, including standard provisions and any additional special conditions such as specific mitigation standards or Project-specific BMPs.	
Threshold 3.2.3 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: Permanent and temporary impacts would occur to potential waters of the U.S., waters of the State, and CDFW jurisdiction. Impacts associated with the Dam Construction Area and North Access Road would be permanent. Impacts to jurisdictional areas associated with the temporary widening of the Canyon Access	Potentially significant	**Regulatory Compliance Measures** **RCM BIO-1 through BIO-17** (see Threshold 3.2.1) **Mitigation Measures** **BIO-1 through BIO-3** (see Threshold 3.2.1) and **BIO-8 through BIO-10** (see Threshold 3.2.2)	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Road (including turnouts), Staging and Laydown Areas, and portions of the South Access Road Construction Area would be temporary, with impact areas restored to approximate pre-construction contours and revegetated. Impacts would be potentially significant.			
Threshold 3.2.4 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: The Project site occurs at the existing Vail Lake Dam and the area downstream, within portions of Temecula Creek and along existing roads and residential and agricultural areas. Current wildlife movement is mostly unrestricted with the exception of the western portion of the Project site where adjacent residential and agricultural land uses reduce or eliminate the ability for wildlife to move freely. The area provides suitable nursery sites for a wide variety of animal species. Project activities may temporarily disrupt movement through the area particularly for terrestrial invertebrates, reptiles, and amphibians and would limit the use of areas within and immediately adjacent to the Project footprint as breeding/nesting habitat. Impacts to structures, rocky areas, and vegetation could affect the use of these areas as maternal roost sites by bats. Impacts would be potentially significant. Upon Project completion, no new barriers to wildlife movement would be introduced (the proposed dam would replace the existing dam, which is an existing barrier to aquatic wildlife movement along Temecula Creek).	Potentially significant	**Regulatory Compliance Measures** **RCM BIO-1 through BIO-17** (see Threshold 3.2.1) **Mitigation Measures** **BIO-1 through BIO-7 and BIO-11 through BIO-13** (see Threshold 3.2.1)	Less than significant
Threshold 3.2.5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance: RCWD will comply with the requirements of Riverside County Ordinance 663 pertaining to payment of the SKR HCP fee (see Regulatory Compliance Measure RCM BIO-16). Impacts would be less than significant.	Less than significant	**Regulatory Compliance Measure** **RCM BIO-16** (see Threshold 3.2.1)	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Threshold 3.2.6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan: The Project site is located within the MSHCP *Southwest Area Plan* in Cell Groups C and D. The Proposed Project would not conflict with the target conservation levels for Cell Groups C or D (in Proposed Core 7) in the Vail Lake Subunit of the MSHCP Southwest Area Plan. Changes in developed areas are limited to the new dam and improvements to existing access roads, which would not substantially affect wildlife or habitat once the Project is completed. No new edge effects or barriers to wildlife movement would be introduced. Access to the Project site is proposed along existing roads wherever feasible, with permanent impacts to natural vegetation communities minimized, and temporary impact areas have been located in disturbed or developed areas where possible. Temporary staging and laydown areas within the canyon downstream of the dam have been located in areas that avoid, to the extent possible, the locations of sensitive biological resources. The Project supports the ongoing presence of water in Vail Lake by addressing the seismic and hydrologic hazards of the existing dam, reducing the risk of dam failure. No changes are proposed to lake or dam operations. Permanent impacts would occur to riparian and riverine areas as defined in the MSHCP, and to threatened and endangered species and other MSHCP-covered species as discussed under Thresholds 3.2.1 and 3.2.2. Impacts would be potentially significant. The Project site is within the SKR HCP fee area. Focused surveys for SKR will not be required for this Project; however, a fee associated with the SKR HCP is required. Suitable habitat occurs on the Project site, and this species is likely present. Compliance with the SKR HCP will ensure that impacts would be less than significant.	Potentially significant	**Regulatory Compliance Measures** **RCM BIO-1 through BIO-17** (see Threshold 3.2.1) **Mitigation Measures** **BIO-1 through BIO-7, BIO-12**, and **BIO-13** (see Threshold 3.2.1)	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Cumulative impacts: Impacts from the Project are primarily associated with construction. Operations and maintenance activities are expected to be substantially similar to the existing conditions following construction of the proposed dam; the Project is not anticipated to introduce new edge effects or habitat fragmentation. Construction impacts would include temporary and permanent loss of native vegetation communities (riparian scrub, alluvial fan sage scrub, Riversidian sage scrub), including some jurisdictional waters and wetlands. These impacts would be highly localized and would be mitigated through compliance with the MSHCP, on-site restoration of temporary impact areas, and compensatory mitigation as appropriate. Impacts to threatened and endangered species would occur, including direct loss of Nevin's barberry individuals and potentially direct mortality of Quino checkerspot butterfly larvae, loss of habitat for least Bell's vireo, coastal California gnatcatcher, and southwestern willow flycatcher, as well as other non-listed species. These impacts would be avoided and minimized to the extent practicable and are not anticipated to jeopardize the continued presence of these species within the area. The MSHCP provides a comprehensive approach to the regional conservation of these habitats and, as a regional plan, serves to provide mitigation for cumulative impacts to covered species. Project compliance and consistency with the MSHCP ensures that any cumulative impacts to covered species are effectively mitigated. Special-status species that are not covered by the MSHCP also benefit from the surveys, conservation, and other measures of the MSHCP because they occupy many of the same habitats. Implementation of MSHCP Standard BMPs and mitigation measures will avoid and minimize impacts to sensitive biological resources. The Proposed Project would not preclude attainment of	Potentially cumulatively considerable	**Regulatory Compliance Measures** **RCM BIO-1 through BIO-17** (see Threshold 3.2.1) **Mitigation Measures** **BIO-1 through BIO-7** (see Threshold 3.2.1), **BIO-8 through BIO-10** (see Threshold 3.2.2), and **BIO-11 through BIO-13** (see Threshold 3.2.1)	Not cumulatively considerable

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
conservation goals within Proposed Core 7, nor would it adversely affect Public/Quasi-Public Lands consisting of Vail Lake (refer to Section 3.2 of the Biology Report for additional information).			
3.3: Cultural Resources			
Threshold 3.3.1 Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5: No resources that would be affected by the Project (Vail Lake Dam and Concrete Irrigation Pipeline) are historical resources pursuant to Section 15064.5; therefore, implementation of the Project would result in no impact to the significance of a historical resource pursuant to Section 15064.5.	No impact	N/A	No impact
Threshold 3.3.2 Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5: If the North Access Road Design Alternative is selected, the Project could cause a substantial adverse change in the significance of an archaeological resource (LSA-RCW1902-S-3). Impacts would be potentially significant. There is strong potential for subsurface Native American cultural resources that could be eligible for the California Register or significant per CEQA, which could be disturbed during construction. Impacts would be potentially significant.	Potentially significant	**Mitigation Measure CUL-1** **LSA-RCW1902-S-3.** If possible, construction of the North Access Road will avoid impacts to LSA-RCW1902-S-3. In the event the North Access Road design alternative is selected and if LSA-RCW1902-S-3 would be impacted by Project work, LSA-RCW1902-S-3 shall be evaluated for eligibility in the California Register of Historical Resources (California Register) and for status as a unique archaeological resource prior to any ground-disturbing activity. If the resource is determined to not be significant per the California Environmental Quality Act (CEQA), not be eligible for the California Register, and not be a unique archaeological resource, then the Proposed Project would not have a significant effect on an archaeological resource and no further mitigation pertaining to LSA-RCW1902-S-3 shall be required. If LSA RCW1902-S-3 is determined to be significant per CEQA or eligible for the California Register or is determined to be a unique archaeological resource, then avoidance or preservation in place (or mitigation of significant effects—such as, but not	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		limited to, archaeological data recovery and/or relocation of the resource) shall be required. **Mitigation Measure CUL-2** **Archaeological Monitoring.** Prior to construction, an archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards for archaeology shall prepare a Cultural Resources Monitoring Plan for review and approval by Rancho California Water District (RCWD) and the Pechanga Band of Luiseño Indians. An archaeologist shall attend the pre-construction meeting and provide a Cultural Resources Awareness Training to construction personnel at the pre-grade meeting. An archaeologist shall be on site during ground-disturbing construction activities associated with Project implementation to conduct archaeological monitoring, with the intent to identify, avoid, and/or mitigate for potential impacts to previously unidentified archaeological resources in accordance with the protocols specified in the Cultural Resources Monitoring Plan. The archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards for archaeology shall oversee the archaeological monitoring and serve as Project Archaeologist. In the event that archaeological cultural resources are identified by the archaeological monitor during ground-disturbing Project activities, the nature of the find shall be assessed, and the Project Archaeologist shall determine if additional cultural resources work is appropriate. Additional cultural resources work may include, but is not limited to, collection and documentation of artifacts, documentation of the cultural resources on State of California Department	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		of Parks and Recreation (DPR) Series 523 forms, or subsurface testing. Upon completion of any cultural resources work for the Project (including archaeological monitoring), the Project Archaeologist shall prepare a report to document the methods and results of the work. This report should be submitted to RCWD, to any descendant community involved in the investigation(s) that requests a copy, and to the Eastern Information Center at the University of California, Riverside.	
Threshold 3.3.3 Disturb any human remains, including those interred outside of dedicated cemeteries: Undiscovered human remains may be present below the ground surface on the Project site. Disturbing human remains could violate the California Health and Safety Code as well as destroy the resource, which would be considered a significant impact.	Potentially significant	**Mitigation Measure CUL-3** **Human Remains.** In the event that human remains are encountered during any Project work, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County of Riverside (County) Coroner has made a determination of origin and disposition pursuant to California Public Resources Code (PRC) Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner would notify the Native American Heritage Commission (NAHC) within 24 hours (per *State CEQA Guidelines* Section 15064.5(e)), and the NAHC would determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place,	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.	
Cumulative impacts: Potential impacts of the Proposed Project to unknown cultural resources could contribute to a cumulatively significant impact due to the overall loss of archaeological artifacts unique to the region. Although the Proposed Project would not have an impact on historical resources, there is a strong potential for subsurface archaeological resources within the Project site. If archaeological resources are encountered during ground-disturbing work, construction activities will stop and the resource will be evaluated for significance. Pre-established procedures would be in place to address any significant finds. All cumulative development projects would require similar review, including an investigation and appropriate mitigation measures if resources may be present. When archaeological resources are assessed and/or protected as they are discovered, impacts to these resources are less than significant.	Potentially cumulatively considerable	**Mitigation Measures CUL-1**, **CUL-2,** (see Threshold 3.3.2) and **CUL-3** (see Threshold and 3.3.3)	Not cumulatively considerable
3.4: Energy			
Threshold 3.4.1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation: The Proposed Project would have the potential to increase the demand for energy through day-to-day operations and fuel consumption associated with Project construction. The peak annual fuel demand generated during construction would be less than 0.001 percent of the total annual gasoline and diesel fuel consumption in Riverside County. No substantial changes in energy use would occur with Project operations compared with existing conditions. Impacts would be less than significant.	Less than significant	N/A	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Threshold 3.4.2 Conflict with or obstruct a state or local plan for renewable energy or energy efficiency: Energy usage on the Project site during construction would be temporary in nature and would be relatively small in comparison to the overall use in the County. Energy usage associated with operation of the Proposed Project would be relatively small in comparison to the overall use in Riverside County and the State's available energy source. Because California's energy conservation planning actions are conducted at a regional level, and because the Proposed Project's total impact on regional energy supplies would be minor, the Proposed Project would not conflict with or obstruct California's energy conservation plans. Additionally, the Proposed Project would not result in the inefficient, wasteful, and unnecessary consumption of energy. Impacts would be less than significant.	Less than significant	N/A	Less than significant
Cumulative impact: Cumulative construction and building development activities throughout the Southern California region are likely to result in the demand for new systems or supplies or substantial alterations to the existing power or natural gas utilities. The Proposed Project is consistent with long range planning in the County of Riverside and the region as a whole, the County has policies that require coordination of new development with both Southern California Edison (SCE) and the Southern California Gas Company (SoCalGas), and both providers have indicated that they can serve the region. Future projects will undergo similar environmental review and coordination with the service providers. This continual coordination process, coupled with energy use reduction strategies designed to address greenhouse gas emissions, will ensure that the types of development considered are consistent with the service plans. As this Proposed Project is consistent with the County's long-range plans and included in both the SCE and SoCalGas service area plans, the incremental contribution to cumulative energy impacts would not be cumulatively considerable.	Not cumulatively considerable	N/A	Not cumulatively considerable

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
3.5: Geology and Soils			
Threshold 3.5.1(i) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault: There are two Alquist-Priolo earthquake fault zones located in the vicinity of the site; however, there are no faults within the Project footprint that are considered capable of producing ground rupture at the site. Therefore, the potential for ground surface rupture to impact the Project is considered very low and impacts would be less than significant.	Less than significant	N/A	Less than significant
Threshold 3.5.1(ii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic ground shaking: The Project area is considered to have a potential to experience strong ground shaking due to a seismic event during the life of the Project. Through design in accordance with DSOD requirements (see Regulatory Compliance Measure RCM GEO-1 and the California Building Code), the Project would have a less than significant risk of loss, injury, or death as a result of strong seismic ground shaking since the Project would not expose people to hazardous conditions.	Less than significant	**Regulatory Compliance Measure** **RCM GEO-1** RCWD shall submit the final design plans to the California Department of Water Resources Division of Safety of Dams (DSOD), who will confirm that they are in compliance with DSOD requirements.	Less than significant
Threshold 3.5.1(iii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: seismic-related ground failure, including liquefaction: The proposed dam would be supported on bedrock and would not be impacted by seismic-related ground failure including liquefaction or related effects such as seismic settlement of dry sands or lateral spreading. There are no other structures or Project elements that would be negatively impacted by liquefaction or related effects. Impacts would be less than significant.	No impact	NA	No impact

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Threshold 3.5.1(iv) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: landslides: Active and ancient landslides are mapped along the alignment of the proposed North Access Road. There is a potential for down-slope movements to create distress within the road. However, the road will not be paved and can tolerate minor to moderate ground deformations, should they occur, while remaining operational. If more severe distress to the road occurs due to landslides, the road would be repaired. The dam would also be able to be accessed via the proposed South Access Road, and any temporary closures of the North Access Road would not negatively impact the Project. Impacts would be less than significant.	Less than significant	N/A	Less than significant
Threshold 3.5.2 Result in substantial soil erosion or the loss of topsoil: Soil erosion and loss of topsoil would be controlled by Project design features provided during construction, including the Storm Water Pollution Prevention Plan and by revegetation completed after construction. Impacts would be less than significant.	Less than significant	**Regulatory Compliance Measures** **RCM BIO-11** (see Threshold 3.2.1) and **RCM WQ-1** (see Threshold 3.8.1)	Less than significant
Threshold 3.5.3 Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse: Recent and ancient landslides are mapped along the alignment of the proposed North Access Road. However, the minor grading proposed to modify the existing road is not considered sufficient to trigger landslide movement. While the potential for liquefaction exists within and beyond the canyon downstream of the dam, the dam would be constructed on bedrock and would not be impacted by the presence of liquefaction. Further, the potential for liquefaction or related effects would not be increased due to construction of the Project. Impacts would be less than significant.	Less than significant	N/A	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Threshold 3.5.4 Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property: No expansive soils are known to exist at the Project site, and therefore no impacts would occur.	No impact	N/A	No impact
Threshold 3.5.6 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature: The Project area contains a variety of geologic units, with no, low, and high paleontological sensitivity. The Wash Deposits, Alluvial Flood Plain Deposits, and Young Alluvial Flood Plain Deposits/Young Alluvial Channel Deposits have low paleontological sensitivity from the surface to a depth of 10 ft and high paleontological sensitivity below that mark. The Old Alluvial Flood Plain Deposits and Temecula Arkose have high paleontological sensitivity. Although most Project excavation will remain in geologic units that have no or low paleontological sensitivity, some excavation in high sensitivity deposits will occur. As such, it is possible that ground-disturbing construction activities could impact significant previously undiscovered paleontological resources.	Potentially significant	**Mitigation Measure PAL-1** **Paleontological Resources Impact Mitigation Program.** Prior to commencement of construction activities, Rancho California Water District (RCWD) shall retain a qualified, professional paleontologist who meets the standards set by the Society of Vertebrate Paleontology (SVP) to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for the Project. The PRIMP shall be consistent with the guidelines of the SVP and shall include the methods that will be used to protect paleontological resources that may exist within the Project site, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a report at the conclusion of ground disturbance. At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program. Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a museum repository. **Mitigation Measure PAL-2** **Paleontological Resources.** Ground-disturbing activities in deposits with high paleontological sensitivity (i.e., Wash Deposits, Young Alluvial Channel Deposits below a depth of 10 ft; Old Alluvial	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		Flood Plain Deposits; and the Temecula Arkose) shall be monitored by a qualified paleontological monitor, to be retained by Rancho California Water District (RCWD), following the preparation of a Paleontological Resources Impact Mitigation Program (PRIMP). No monitoring is required for excavations in geologic units with low or no paleontological sensitivity (i.e., Landslide Deposits; Old Landslide Deposits; Artificial Fill; Basalt of Temecula Area; Granodiorite; Gabbro; Heterogeneous Granitic Rocks; Metasedimentary Rocks), or from the surface to a depth of 10 ft in Wash Deposits or Young Alluvial Channel Deposits. If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find in order to assess its significance. In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected and the paleontologist or paleontological monitor shall be contacted to assess the find for scientific significance. If determined to be scientifically significant, the fossil shall be collected from the field.	
Cumulative impacts: Typically, geology and soils impacts are specific to a particular project site and there is little, if any, cumulative relationship between the development of a project and development within a larger cumulative area. Moreover, while seismic conditions are regional in nature, seismic impacts on a given project site are site-specific. The Proposed Project, as well as foreseeable projects, would be required to comply with the applicable State and local requirements, including but not limited to the California Building Code (CBC). Seismic impacts are a regional issue and	Not cumulatively considerable (geology, soils, seismicity) Potentially cumulatively considerable (paleontological resources)	**Mitigation Measures PAL-1 and PAL-2** (see Threshold 3.5.6)	Not cumulatively considerable (geology, soils, seismicity, and paleontological resources)

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
are also addressed through compliance with applicable codes and design standards. Project-specific geology and soils impacts, as well as the impacts associated with other projects, would be less than significant. Potential impacts of the Proposed Project to unknown paleontological resources and unique geologic features, when combined with the impacts of past, present, and reasonably foreseeable projects in Riverside County, could contribute to a cumulatively significant impact due to the overall loss of paleontological remains unique to the region. However, CEQA review would be required to determine the nature and extent of the potentially significant resources and identify appropriate mitigation. When resources are assessed and/or protected as they are discovered, impacts to these resources are less than significant. For these reasons, with mitigation, the Project would not have a cumulatively considerable contribution to cumulative paleontological resource impacts.			
3.6: Greenhouse Gas Emissions			
Threshold 3.6.1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment: During construction of the Proposed Project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs (e.g., CO_2, methane [CH_4], and nitrous oxide [N_2O]). Furthermore, CH_4 is emitted during the fueling of heavy equipment. The GHG emissions from construction activity would be temporary and would cease when construction is complete. The Proposed Project's construction emissions are less than the SCAQMD screening threshold of 2,280 MT CO_2e/yr. The Proposed Project would not result in additional employees or maintenance requirements compared to the	Less than significant	N/A	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
existing operation of the dam. Employee traffic for reservoir operations would not be appreciably different than the existing condition scenario. As such, routine maintenance and operational activities at the dam and reservoir, and the use of the marina and reservoir, would result in negligible GHG emissions. The Proposed Project's operational impacts related to GHG emissions would result in no impact.			
Threshold 3.6.2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases: The Project would not conflict with the CARB Scoping Plan or the SCAG Regional Transportation Plan/Sustainable Communities Strategy.	No impact	N/A	No impact
Cumulative impacts: Climate change is a global environmental problem in which: (a) any given development project contributes only a small portion of any net increase in GHGs, and (b) global growth is continuing to contribute large amounts of GHGs across the world. As such, the analysis of impacts related to GHG emissions is inherently cumulative. The Proposed Project would not conflict with applicable statewide, regional, and local climate action measures. Therefore, GHG emissions impacts associated with the Proposed Project would not be cumulatively considerable.	Not cumulatively considerable	N/A	Not cumulatively considerable
3.7: Hazards and Hazardous Materials			
Threshold 3.7.1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials: Construction of all components of the Proposed Project would temporarily increase the regional transport, use, and disposal of construction-related hazardous materials and petroleum products. Hazardous waste might also be generated during demolition, excavation, or other activities that require the removal of potential hazardous building materials (e.g., ACMs, lead-based paint, and PCBs) or unknown hazardous materials.	Potentially significant	**Regulatory Compliance Measures RCM WQ-1** and **RCM WQ-4** (see Threshold 3.8.1) **Mitigation Measure H-1** **Demolition Plan.** Prior to the start of construction, the construction contractor shall provide a Demolition Plan to the RCWD Resident Engineer or designee for review and approval. The Demolition Plan shall include the procedures for pre-demolition surveys and testing for hazardous building materials such as asbestos, lead-based paint, and polychlorinated biphenyls, and removal and disposal	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		of hazardous building materials. All inspections, surveys, and analyses shall be performed by appropriately licensed and qualified individuals in accordance with applicable regulations. All identified hazardous materials shall be removed, handled, and properly disposed of by appropriately licensed contractors according to all applicable regulations during demolition of structures. The construction contractor shall provide documentation (e.g., all required waste manifests, sampling, and air monitoring analytical results) to the RCWD Resident Engineer or designee showing that abatement of hazardous building materials has been completed in full compliance with all applicable regulations. The RCWD Resident Engineer or designee shall document that the Demolition Plan has been approved prior to authorizing construction initiation and that the requirements of the Demolition Plan have been implemented prior to authorizing the demolition of existing structures. **Mitigation Measure H-2** **Construction Contingency Plan.** Prior to any demolition or ground-disturbing activities, the construction contractor shall provide a Construction Contingency Plan to the RCWD Resident Engineer or designee for review and approval. The Construction Contingency Plan shall include provisions for emergency response in the event that unidentified hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes are discovered during construction activities. The Construction Contingency Plan shall address field screening, contaminant materials testing methods, mitigation and contaminant management requirements, and health and safety requirements for construction workers.	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		The construction contractor shall implement the Construction Contingency Plan during all construction activities. During construction, the construction contractor shall cease work immediately if an unexpected release of hazardous substances is found in reportable quantities. If an unexpected release of hazardous substances is found in reportable quantities, the construction contractor shall notify the National Response Center by calling 1-800-424-8802. The Construction Contractor shall clean up any unexpected releases under appropriate federal, State, and local agency oversight. The RCWD Resident Engineer or designee shall document that the Construction Contingency Plan has been approved and that the requirements of the Construction Contingency Plan have been implemented prior to final Project acceptance.	
Threshold 3.7.2 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: PCB-containing dielectric fluids associated with on-site electrical equipment, as well as in paint and/or caulk, of the dam and associated ancillary structures may be present on the Project site. In addition, asbestos-containing materials and lead-based paint may be present in materials used during the original construction of the dam and associated ancillary structures. Construction of the Proposed Project requires modifications to and demolition of many of the existing structures, which could release these materials.	Potentially significant	**Mitigation Measures H-1 and H-2** (see Threshold 3.7.1)	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Threshold 3.7.4 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: The project is not listed in the site-specific environmental database report; adjacent sites do not present a recognized environmental concern.	Less than significant	N/A	Less than significant
Threshold 3.7.6 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan: Although construction vehicles (for worker and equipment transport, materials delivery, etc.) would use roadways designated or otherwise required for use as Evacuation Routes, construction traffic would not interfere with or create unacceptable roadway operating conditions along public roads. The use of roads for construction traffic would not preclude the roads from serving as emergency evacuation routes. The primary access route through the canyon would be widened to two lanes of traffic and is not anticipated to be obstructed during construction. Closure or obstruction of multiple access roads concurrently could result in a potentially significant impact to on-site evacuation routes. With implementation of Mitigation Measure H-3, Construction of access roads would be phased such that emergency access to the dam and ancillary appurtenant structures and to all construction areas is maintained at all times, allowing evacuation of these areas if necessary. RCWD operations at Vail Dam are not anticipated to substantially change; however, the total area of the lake will increase slightly (by approximately 0.66 acre) through the addition of the area between the existing and proposed dam, and the new outlet facilities will improve RCWD's ability to implement emergency drawdowns. The updated facilities and remediation of seismic and hydrologic hazards is anticipated to reduce hazards associated with potential dam failure. As	Potentially significant	**Regulatory Compliance Measure RCM H-1** **Vail Dam Emergency Action Plan Update.** Consistent with 23 CCR Sections 335.14, 335.16, and 335.20, RCWD shall provide an updated Emergency Action Plan including information about the proposed dam and appurtenant structures to DSOD for review and approval, which is required prior to DSOD approval of any construction or enlargement application. Following DSOD review and approval, RCWD shall provide the updated Vail Dam EAP, including any appropriate changes to emergency notification flowcharts, response process, responsibilities, preparedness activities, and inundation maps, to Cal OES for review and approval. **Regulatory Compliance Measure RCM H-2** **Coordination with County of Riverside Emergency Management Department.** Once the Vail Lake EAP update has been completed and submitted to Cal OES, RCWD shall transmit relevant information about the new dam, including the revised inundation maps, to the County of Riverside Emergency Management Department for inclusion in the next update to the Local Hazard Mitigation Plan (LHMP). **Mitigation Measure H-3** **Construction Traffic Management Plan.** Prior to commencement of grading activities, the	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
required by SB 92, the Vail Lake Emergency Action Plan (EAP) will be updated. In addition, updated information regarding the dam facilities will be provided to the County of Riverside Emergency Management Department. Changes to emergency actions resulting from the Project would be addressed through updates to the Vail Lake EAP and, if appropriate, the County of Riverside LHMP. Operations impacts would be less than significant.		construction contractor shall prepare a CTMP to the satisfaction of Rancho California Water District and shall ensure that the plan is implemented during construction with the goal of maintaining acceptable intersection LOS during peak traffic hours and ensuring that construction traffic does not queue on public roadways. The CTMP shall be consistent with the California Temporary Traffic Control Handbook (CATTCH) (previously known as the California Joint Utility Traffic Control Manual). At a minimum, the CTMP shall include, but not be limited to, the following: ● Provisions for temporary traffic control to improve traffic flow on public roadways and ensure the safe access into and out of the site (e.g., warning signs, lights and devices, and flag person). ● Prohibiting construction-related vehicles from parking on public streets. ● Providing safety precautions for pedestrians, equestrians, and bicyclists through such measures as alternate routing and protection barriers. ● Obtaining the required permits for truck haul routes from the City of Temecula and/or the California Department of Transportation (Caltrans). ● All emergency access to the Project site and adjacent areas shall be kept clear and unobstructed during all phases of demolition and construction. ● Flag persons shall be trained to assist in emergency response by restricting or controlling the movement of traffic that could interfere with emergency vehicle access.	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Threshold 3.7.7 Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires: During construction, the number of people present at the Project site, which is within moderate, high, and very high fire hazard severity zones, would be substantially increased. This would temporarily increase the number of people exposed to a risk of loss, injury, or death involving wildland fire.	Potentially significant	**Mitigation Measure H-3** (see Threshold 3.7.6)	Less than significant
Cumulative impacts: With the exception of hazardous materials transport, the Proposed Project would not create potential significant cumulative impacts off site. Transport of hazardous materials is closely regulated and, with implementation of Mitigation Measures H-1 and H-2, would be adequately monitored to ensure there would be no significant impact to the environment or to human health. There are no known projects in the vicinity of the Project site that could be affected by on-site handling of hazardous materials or that could result in significant hazards or hazardous materials impacts at the Project site. Operation of the Proposed Project would not increase the exposure of people or structures to risks from wildland fires and would not therefore contribute to cumulative impacts. Although construction would temporarily increase the number of individuals on the Project site that could be exposed to risks from wildland fires, implementation of the CTMP required in Mitigation Measure H-3 would ensure adequate evacuation routes and emergency access. Due to the isolated nature of most of the Project site, the Project-related impacts are not anticipated to result in a cumulative impact in combination with other past, present, or future projects in the area. The Project would reduce the risk of seismic and hydrologic hazards that could otherwise result in dam failure. Therefore,	Potentially cumulatively considerable (hazardous materials transport)	**Mitigation Measures H-1 and H-2** (see Threshold 3.7.1) and **Mitigation Measure H-3** (see Threshold 3.7.6)	Not cumulatively considerable

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
the Project would not contribute to cumulative impacts associated with dam inundation.			
3.8: Hydrology and Water Quality			
Threshold 3.8.1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality: Construction of the Proposed Project would comply with existing NPDES regulations (as specified in Regulatory Compliance Measure RCM WQ-1), which includes preparation of a SWPPP and Erosion and Sediment Control Plans and implementation of Construction BMPs to target and reduce pollutants of concern in stormwater runoff, and with the requirements of the Groundwater Discharge Permit (as specified in Regulatory Compliance Measure RCM WQ-2), which includes testing and treatment (if required) of any groundwater prior to discharge to surface waters. Compliance with regulatory requirements would ensure that impacts related to violation of any water quality standards or waste discharge requirements, degradation of surface or ground water quality, and alteration of receiving water quality during construction would be less than significant. Construction of the Proposed Project would comply with existing NPDES regulations (as specified in Regulatory Compliance Measure RCM WQ-3), which include preparation of a Final WQMP and implementation of operational BMPs to target and reduce pollutants of concern in stormwater runoff from the Project site. Compliance with regulatory requirements would ensure that impacts related to violation of any water quality standards or WDRs, degradation of surface water or groundwater quality, and alteration of receiving water quality during Project operation would be less than significant.	Less than significant	**Regulatory Compliance Measure RCM WQ-1 Construction General Permit.** Prior to commencement of construction activities, Rancho California Water District (RCWD) shall obtain coverage under the *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit),* NPDES No. CAS000002, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ, or any other subsequent permit. This shall include submission of Permit Registration Documents (PRDs), including permit application fees, a Notice of Intent (NOI), a risk assessment, a site plan, a Stormwater Pollution Prevention Plan (SWPPP), a signed certification statement, and any other compliance-related documents required by the permit, to the State Water Resources Control Board via the Stormwater Multiple Application and Report Tracking System (SMARTS). Construction activities shall not commence until a Waste Discharge Identification Number (WDID) is obtained for the Project from the SMARTS and provided to the Riverside County Flood Control and Water Conservation District Chief Engineer, or designee, to demonstrate that coverage under the Construction General Permit has been obtained. Project construction shall comply with all applicable requirements specified in the Construction General Permit, including but not limited to, preparation of a SWPPP and implementation of construction site Best Management Practices (BMPs)	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate risk level identified for the Project. The SWPPP shall identify the sources of pollutants that may affect the quality of stormwater and shall include BMPs (e.g., Sediment Control, Erosion Control, and Good Housekeeping BMPs) to control the pollutants in stormwater runoff. Upon completion of construction activities and stabilization of the Project site, a Notice of Termination shall be submitted via SMARTS. **Regulatory Compliance Measure RCM WQ-2** **Groundwater Dewatering Permit.** If groundwater dewatering is required during construction or excavation activities and the dewatered groundwater is discharged to the storm drain system, Rancho California Water District (RCWD) shall obtain coverage under the *General Waste Discharge Requirements for Groundwater Extraction Discharges to Surface Waters within the San Diego Region (*Order No. R9-2015-0013, NPDES No. CAG919003) (Groundwater Dewatering Permit), which covers general waste discharge requirements for discharges to surface waters within the San Diego region. This shall include submission of a Notice of Intent for coverage under the permit to the RWQCB at least 45 days prior to the start of dewatering. RCWD shall provide the Waste Discharge Identification Number (WDID) to the Riverside County Flood Control and Water Conservation District Chief Engineer, or designee, to demonstrate proof of coverage under the Groundwater Dewatering Permit. Groundwater dewatering shall not be initiated until a WDID is received from the San Diego Regional Water Quality	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		Control Board (RWQCB) and is provided to the Director of the Riverside County Flood Control and Water Conservation District Chief Engineer, or designee. Groundwater dewatering activities shall comply with all applicable provisions in the permit, including water sampling, analysis, treatment (if required), and reporting of dewatering-related discharges. Upon completion of groundwater dewatering activities, a Notice of Termination shall be submitted to the San Diego RWQCB. **Regulatory Compliance Measure RCM WQ-3** **Final Water Quality Management Plan.** Prior to the issuance of grading or building permits, Rancho California Water District (RCWD) shall submit a Final Water Quality Management Plan (WQMP) to the Riverside County Flood Control and Water Conservation District Chief Engineer, or designee, in compliance with the requirements of the *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region* (Regional MS4 Permit). The Final WQMP shall be prepared consistent with the requirements of the *Model Santa Margarita Region Water Quality Management Plan* (2018), or subsequent guidance manuals. The Final WQMP shall specify the BMPs to be incorporated into the Project design to target pollutants of concern in runoff from the Project area. RCWD shall ensure that the BMPs specified in the Final WQMP are incorporated into the final Project design.	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Threshold 3.8.2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin: Groundwater dewatering would be localized and temporary, and the volume of groundwater removed would not be substantial. Therefore, construction impacts related to a decrease in groundwater supplies or interference with groundwater recharge would be less than significant. Development of the Proposed Project would increase impervious surface area by approximately 0.97 acres. The additional impervious surface areas would not substantially decrease infiltration compared to existing conditions. Additionally, any decrease in infiltration would be minimal in comparison to the size of the Temecula Valley Groundwater Basin.	Less than significant	N/A	Less than significant
Threshold 3.8.3(i) 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: result in substantial erosion or siltation on- or off-site: During Project construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. With compliance with the requirements of the Construction General Permit and with implementation of the construction BMPs, construction impacts related to on- or off-site erosion or siltation would be less than significant. The Proposed Project would be exempt from the Regional MS4 Permit hydromodification requirements as the Project	Less than significant	**Regulatory Compliance Measure RCM WQ-1** (see Threshold 3.8.1) **Regulatory Compliance Measure RCM WQ-4** **Final Hydrology and Hydraulic Analysis.** Rancho California Water District (RCWD) shall submit a Final Hydrology Study to the Riverside County Flood Control and Water Conservation District Chief Engineer, or designee, prior to issuance of grading and building permits. The Final Hydrology Study shall be prepared consistent with the requirements of the *Riverside County Flood Control and Water Conservation District Hydrology Manual* (2018), or subsequent guidance manuals. The Final Hydrology Study shall demonstrate that the energy dissipater basin and on-site drainage facilities are designed in compliance with the hydromodification requirements of the *National Pollutant Discharge Elimination*	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
discharges stormwater runoff directly to an exempt reservoir (Vail Lake) and the drainage area for the Project is larger than 100 square miles and has a 100-year design flow higher than 20,000 cubic ft per second. A Final Hydrology Study would be prepared and would confirm that the energy dissipater basin is appropriately sized to accommodate the minor increase in peak stormwater flows. Therefore, with implementation of Regulatory Compliance Measure RCM WQ-4, any increase in stormwater runoff from the Project site to receiving waters would not have a potential to result in downstream erosion or siltation. For these reasons, operational impacts related to substantial on- or off-site erosion or siltation would be less than significant		*System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region* Order No. R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-0100 (NPDES No. CAS0109266) (Regional MS4 Permit). The Final Hydrology Study shall also demonstrate that the energy dissipater basin is adequately sized to accommodate stormwater runoff from the design storm.	
Threshold 3.8.3(ii) 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: substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site: Project construction would comply with the requirements of the Construction General Permit and would include the preparation and implementation of a SWPPP. For the area immediately downstream of the existing dam, the peak flow for the 10-year storm and the 100-year storm would increase by less than 1 percent each, which is considered negligible. As specified in RCM WQ-4, a Final Hydrology Study would be prepared and reviewed by the Riverside County Flood Control & Water Conservation District. As demonstrated in the *Hydrology Study* (AECOM 2022a) and to be subsequently confirmed in the Final Hydrology Study, impacts related to an increase in the rate or amount of surface stormwater runoff in a manner that would result in on- or off-site flooding would be less than significant.	Less than significant	**Regulatory Compliance Measure RCM WQ-1** (see Threshold 3.8.1) and **Regulatory Compliance Measure RCM WQ-4** (see Threshold 3.8.3(i))	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Threshold 3.8.3(iii) 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: 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: Stormwater runoff from the Proposed Project would not discharge to a stormwater drainage system. As specified in Regulatory Compliance Measure RCM WQ-1, the Construction General Permit requires preparation of a SWPPP, which would identify construction BMPs to be implemented during construction to reduce impacts to water quality, including those impacts associated with soil erosion, siltation, and spills. In addition, any groundwater extracted during groundwater dewatering activities that is discharged to surface waters would be tested and treated (if necessary) to ensure that any discharges meet the water quality limits specified in the applicable NPDES permit (as specified in Regulatory Compliance Measure RCM WQ-2). Impacts would be less than significant. During operation, pollutants of concern would remain similar to existing conditions as the Proposed Project is not changing the use of the Project site, and the number of vehicle trips for site maintenance would not change from the existing condition. The only pollutant that is anticipated to increase during operation is soil erosion. As specified in Regulatory Compliance Measure RCM WQ-3, implementation of operational BMPs (i.e., the energy dissipater basin) would prevent substantial additional sources of polluted stormwater runoff being discharged to receiving waters and would target pollutants of concern in stormwater runoff from the Project site. As specified in Regulatory Compliance Measure RCM WQ-4, the Final Hydrology Report would confirm that the energy dissipater basin is appropriately sized to accommodate	Less than significant	**Regulatory Compliance Measures RCM WQ-1, RCM WQ-2,** and **RCM WQ-3** (see Threshold 3.8.1), and **Regulatory Compliance Measure RCM WQ-4** (see Threshold 3.8.3(i))	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
the minor increase in peak stormwater flows based on the final design plans. Impacts would be less than significant.			
Threshold 3.8.3(iv) 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: impede or redirect flood flows: The Proposed Project would construct an entry road within an area mapped as the 100-year flood zone; however, the road would not raise flood flows as it would be at approximately the same elevation as the existing surface. The entry road will be surfaced with gravel, which would be pervious and which would allow stormwater to infiltrate the soil; the Project would not place permanent structures directly within a 100-year floodplain. Therefore, the Proposed Project would not impede or redirect flood flows, and impacts would be less than significant. The majority of the Project site is located within the inundation area in the event of catastrophic failure of Vail Lake Dam. However, per Regulatory Compliance Measure RCM H-1, the Vail Dam inundation map will be revised to reflect the changes to the inundation zone due to implementation of the Proposed Project. Impacts would be less than significant.	Less than significant	**Regulatory Compliance Measure RCM H-1** (see Threshold 3.7.1)	Less than significant
Threshold 3.8.5 Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan: The San Diego RWQCB adopted a Basin Plan that designates beneficial uses for all surface and groundwater within its jurisdiction and establishes the water quality objectives and standards necessary to protect those beneficial uses. The Project would comply with the applicable NPDES permits and would implement construction and operational BMPs to reduce pollutants of concern in stormwater runoff, and impacts would be less than significant. There is currently no adopted Groundwater Sustainability Plan	Less than significant	**Regulatory Compliance Measures RCM WQ-1, RCM WQ-2,** and **RCM WQ-3** (see Threshold 3.8.1)	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
for the Temecula Valley Groundwater Basin. However, the Proposed Project does not have the potential to impact groundwater quality, interfere with groundwater recharge, or decrease groundwater supplies with implementation of Regulatory Compliance Measures RCM WQ-1, RCM WQ-2, and RCM WQ-3.			
Cumulative impacts: Many of the related projects identified by RCWD, the County, and the City of Temecula would likely discharge to the Project's receiving waters (i.e., Temecula Creek, Santa Margarita River [Upper], and Santa Margarita River [Lower]). Each of these related projects could potentially increase the volume of stormwater runoff and contribute to pollutant loading in stormwater runoff reaching the downstream storm drain system and Santa Margarita Watershed, thereby resulting in cumulative impacts to hydrology and surface water quality. Because the Proposed Project and other related projects would comply with applicable NPDES requirements and would include construction and operational BMPs to reduce the volume of stormwater runoff and pollutants of concern in stormwater runoff, the cumulative hydrology and water quality impacts of the Proposed Project and the related projects would be less than significant. Therefore, the Proposed Project's incremental hydrology and water quality impacts would not be cumulatively considerable.	Not cumulatively considerable	**Regulatory Compliance Measures RCM WQ-1, RCM WQ-2,** and **RCM WQ-3** (see Threshold 3.8.1), and **Regulatory Compliance Measure RCM WQ-4** (see Threshold 3.8.3(i))	Not cumulatively considerable
3.9: Land Use and Planning			
Threshold 3.9.2 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: The Project is consistent with applicable policies of the SCAG Regional Comprehensive Plan, the County of Riverside General Plan (with one exception, noted below), the Western Riverside County MSHCP, the RCWD Property Guidance Document, and the Upper Santa Margarita Watershed Integrated Regional Water	Less than significant	**Regulatory Compliance Measures** **RCM LU-1** The access point at De Portola Road at the Primary Entry Road (50 Acre Parcel) will comply with Riverside County's minimum intersection spacing standards. Prior to the approval of final plans, the design of the proposed intersection will be provided by RCWD to Riverside County for review.	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Management Plan Update. Regulatory Compliance Measures address specific requirements. The Project is partially consistent with County of Riverside General Plan Noise Element Policy N 13.2, Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas. Where appropriate (e.g., where noise-sensitive uses may be affected by the Project), construction activities will be limited to appropriate hours of operation to the maximum extent feasible, consistent with applicable County noise regulations. Delivery of aggregate and other materials to the batch plant site will be limited to daytime hours only to reduce noise impacts. During placement of RCC at the dam, operations at the RCC batch plant would be required during both daytime and nighttime to allow uninterrupted construction of the dam. During this time, nighttime noise levels may exceed County noise standards at the property line of a rural residential parcel. Although RCWD is not subject to County noise criteria, noise barriers have been proposed to reduce nighttime noise levels on sensitive receptors. Due to the short-term nature of the construction noise, land use impacts would be less than significant.		**RCM LU-2** The Project will minimize light and glare impacts in accordance with Riverside County Ordinance No. 655, Regulating Light Pollution, including use of allowed light fixtures and types specified within the ordinance. RCWD shall verify compliance with this requirement prior to issuing the Final Design Plans. **RCM N-1** (see Threshold 3.10.1)	
Cumulative impacts: The Proposed Project would not introduce new land uses or substantially change the existing land uses on the Project site, which are compatible with the adopted land use plans. The Project is consistent with land use and zoning regulations, the policies of the County General Plan and SWAP, the WRC MSHCP, the Property Guidance Document, and the Upper Santa Margarita River Watershed IRWM Plan Update. There are no incompatibilities between the Proposed Project and planned future projects. No significant land use impacts would occur as a result of the Project on its own or in conjunction with past, present, or	Not cumulatively considerable	N/A	Not cumulatively considerable

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
future projects. Therefore, impacts would not be cumulatively considerable.			
3.10: Noise			
Threshold 3.10.1 Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies: For the majority of the duration of construction, activities would only occur during daytime hours and construction-related noise impacts would remain below the 90 A-weighted decibels (dBA) L_{eq} 1-hour construction noise level criteria as established by the FTA for residential land uses. However, during the period of 12 weeks nighttime work generating noise levels at the residential uses to the west would range from 49 to 57 dBA L_{eq} and would exceed the nighttime noise level standard of 45 dBA L_{eq} by 12 dBA. Although RCWD is an independent water district and is not subject to County noise regulations, based on the very perceptible and potentially disruptive increase in nighttime noise levels during this phase of construction, impacts are anticipated to be significant. A Regulatory Compliance Measure (RCM N-1) has been identified that would help reduce the impacts; however, there is no feasible way to mitigate the nighttime noise due to the location of the sensitive residential uses and the types of construction equipment to be used. Operational noise would be similar to existing conditions, and noise impacts would be less than significant.	Significant (nighttime noise during construction) Less than significant (all other noise impacts)	**Regulatory Compliance Measure** **RCM N-1** Although as a special district RCWD is not subject to County requirements, for consistency with County standards, RCWD will implement the following measures during construction of the Proposed Project: ● Prior to the commencement of construction activities, RCWD will incorporate the following measures as noted on the Project plans to reduce noise impacts and ensure that the greatest distance between noise sources and sensitive receptors during construction activities has been achieved: ○ Construction equipment, fixed or mobile, shall be equipped with properly operating and maintained noise mufflers consistent with manufacturers' standards. ○ Operations at construction staging areas shall be located away from off-site sensitive uses to the extent feasible. ○ If acceptable to adjacent property owners, to reduce construction noise, it is recommended that RCWD install temporary noise barriers along the property lines of NexStar Ranch and Rancho Pacifica Ranch as shown on Figures B-3 and B-6 in Appendix B of the Noise and Vibration Impact Analysis, or identify and implement other measures demonstrated through an acoustical study to provide equivalent or superior noise attenuation. It is recommended that the temporary noise	Significant and unavoidable (nighttime noise during construction) Less than significant (all other noise impacts)

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		barriers be 18 ft in height and constructed of material with a minimum weight of 2 pounds per square foot with no gaps of perforations. Noise barriers may be constructed of, but are not limited to, 5/8-inch plywood, 5/8-inch oriented strand board, or sound rated blankets. All noise control barrier walls should be designed to preclude structural failure due to such factors as winds, shear, shallow soil failure, earthquakes, and erosion. A typical sound rated blanket support frame would be constructed of steel tubing. The sound rated blankets should have a minimum breaking and tear strength of 120 pounds and 30 pounds, respectively. The sound rated blankets should have a minimum sound transmission classification (STC) of 20 and noise reduction coefficient of 0.70. The sound blankets should be of sufficient length to extend from the top of the frame and drape on the ground/lower wall or be sealed at the ground/lower wall. The sound blankets will have grommets along the top edge with exterior grade hooks, and loop fasteners along the vertical edges with overlapping seams, with a minimum overlap of 2 inches. ○ All stationary construction equipment shall be placed so that emitted noise is directed away from sensitive receptors nearest the Proposed Project site and/or placed in proximity to temporary noise barriers to achieve the greatest noise reduction, whenever feasible. ● Consistent with Section 9.52.020 of the County's noise regulations, construction shall be limited, where possible, to the hours between 6:00 a.m.	

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		and 6:00 p.m., during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May.	
Threshold 3.10.2 Result in generation of excessive groundborne vibration or groundborne noise levels: Construction equipment would not generate groundborne vibration or noise in excess of established thresholds at the nearest sensitive receptor. Blasting activities that would occur during construction are not anticipated to generate groundborne vibration levels above the criteria for potential building damage, and such activities would be subject to a Blasting Plan as outlined in RCM N-2. Construction impacts would be less than significant. The Project does not include any sources of long-term operational vibration, and activities associated with ongoing operations would be similar to existing conditions. There are no groundborne vibration impacts associated with the long-term operation of the Project.	Less than significant	**Regulatory Compliance Measure** **RCM N-2** A Blasting Plan for construction shall be prepared by RCWD prior to issuance of grading permits. The Blasting Plan shall be followed during construction with the RCWD Development & Design Services Director or designee oversight. The plan shall include the following related to noise and vibration impacts: ● Type and quantity of explosives and description of detonation device; ● Identification of blast officer; ● Drawings of blast locations, surrounding buildings, and other locations that could be inhabited; ● Blasting notification procedures, lead times, and list of those notified, including public notification to potentially affected vibration and nuisance noise receptors describing the expected extent and duration of the blasting; ● Identification of transportation practices, on-site storage, and security of explosives in accordance with local, State, and federal regulations; ● Acceptable weather conditions for blasting and safety provisions for potential stray current (if electric detonation); ● Procedures for handling, setting, wiring, and firing explosives; and procedures for handling misfires; ● Methods of matting or covering of blast area to prevent flyrock and excessive air blast pressure; ● Description of blast vibration and air blast monitoring programs;	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
		• A sound attenuation plan shall be prepared outlining sound control measures that would include the use of blasting mats or sound walls; and • The stability of all nearby surrounding structures shall be monitored during all blasting events.	
Cumulative impacts: The nearest projects with the potential to contribute to a cumulative noise impact would be RCWD's proposed Well No. 172 within the Upper VDC Recharge Basins, RCWD's proposed pump station to be constructed on the 50 Acre Parcel, and ongoing operations and maintenance activities. No nighttime earthwork is anticipated for these RCWD projects, although nighttime work for drilling Well No. 172 would be required. This work is not anticipated to occur concurrently with batch plant operations as it is scheduled to begin in early 2023 and be completed before the batch plant is operational. Therefore, although the Proposed Project would result in a significant nighttime noise impact during construction, it would not be exacerbated by cumulative projects in the vicinity. With respect to the remaining projects identified in Section 3.0, all of which are off site, it is not possible to predict whether contiguous or nearby properties may be developed at the same time as the Vail Dam Project. However, it is unlikely that adjacent properties will be developed at the same time as the Project area because of the low density and open space characteristics of the vicinity. In the event that adjacent properties are developed at the same time as the Proposed Project, adherence to the County's provisions that regulate construction activities and other development standards would ensure that potential cumulative noise impacts of the Proposed Project and nearby projects would be less than significant.	Not cumulatively considerable	**Regulatory Compliance Measures RCM N-1** (see Threshold 3.10.1) and **RCM N-2** (see Threshold 3.10.2)	Not cumulatively considerable

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
3.11: Public Services			
Threshold 3.11.1(iv and v) 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: (iv) parks or (v) other public facilities: The Vail Lake Resort is located on RCWD-owned property along the southern shore of Vail Lake, in the vicinity of the confluence of Arroyo Seco Creek and Vail Lake. KEI operates this property as a recreational amenity under contract to RCWD. Project construction would not result in direct impacts to this area. RCWD does not propose changes to lake operations. The Proposed Project would result in a less than significant impact associated with the provision of 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 measures.	Less than significant	N/A	Less than significant
Cumulative impacts: The Proposed Project would not increase Riverside County's population or remove park or recreation facilities, and therefore it would not increase demand for park facilities or other recreational facilities. Therefore, the Proposed Project and the applicable related projects are not expected to result in any significant cumulative impact to the County's size of park and recreational facilities, and the incremental contribution of the Proposed Project to a potentially significant impact would not be cumulatively considerable.	Not cumulatively considerable	N/A	Not cumulatively considerable

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
3.12: Transportation			
Threshold 3.12.1 Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities: The Proposed Project would be required to comply with the County's General Plan Circulation Element policies addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The Proposed Project would generate a temporary increase in trips by vehicles and trucks; however, it would not preclude alternative modes of transportation or facilities (e.g., transit, bicycle, equestrian, or pedestrian). Although not required to mitigate a transportation impact, the CTMP set forth in Mitigation Measure H-3 would further reduce impacts to pedestrian, bicycle, equestrian, and transit facilities.	Less than significant	Although not needed to mitigate a transportation impact, **Mitigation Measure H-3** (see Threshold 3.7.6) would further reduce impacts.	Less than significant
Threshold 3.12.2 Conflict or be inconsistent with CEQA Guidelines section 15064.3 or will conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways: The Proposed Project is not anticipated to result in any LOS or operational deficiencies to the surrounding circulation system based on its description, location, and temporary construction trip generation (peak of 250 ADT, including 49 trips in the a.m. and p.m. peak hours). Because the Proposed Project would generate less than 110 ADT (68 worker trips via passenger cars), it is screened out of a VMT analysis due to the presumption of a less than significant impact. Therefore, the Proposed Project would not conflict with any congestion management program, standards, or travel demand measures for roads or highways, and impacts would be less than significant.	Less than significant	N/A	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Cumulative impacts: Because the Proposed Project is located in a remote area with low traffic volumes, would not result in operational trips, and would not add 50 or more peak-hour trips to an intersection of a Collector (or higher classification) Street and a Collector (or higher classification) Street, the Project's contribution to cumulative traffic impacts would be less than significant, and no mitigation is required.	Not cumulatively considerable	N/A	Not cumulatively considerable
3.13: Tribal Cultural Resources			
Threshold 3.13.1 Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k): There are no tribal cultural resources within the Project site that are listed or eligible for listing in the California Register of Historical Resources (California Register), or in a local register of historical resources as defined in PRC Section 5020.1(k). As such, the Proposed Project would result in no impact to the significance of a tribal cultural resource (as defined in PRC Section 21074) that is listed or eligible for listing in the California Register, or in a local register of historical resources as defined in PRC Section 5020.1(k).	No impact	N/A	No impact
Threshold 3.13.2 Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be	Potentially significant	**Mitigation Measure Tribal-1 Native American Monitoring.** A representative from the Pechanga Band of Luiseño Indians shall attend the pre-construction meeting and shall be invited to present a Tribal Cultural Resources Awareness Training to construction personnel at the pre-grade meeting. A Tribal Monitor from the Pechanga Band of Luiseño Indians shall be required on site during all ground-	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1 (in applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe): Native American consultation was conducted in compliance with AB 52. Two tribes requested consultation on the Proposed Project. RCWD as the Lead Agency has determined that previously unidentified tribal cultural resources that are significant (including undiscovered human remains) may be present within the Project site. Impacts to these resources would be potentially significant. Mitigation Measure Tribal-1 requires tribal monitoring during all ground-disturbing activities associated with the Project to avoid and/or mitigate for potential impacts to tribal cultural resources. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect, or halt the ground-disturbance activities to allow recovery of cultural resources and tribal cultural resources, in coordination with the Project Archaeologist. Implementation of Mitigation Measure Tribal-1 would reduce the impact of the Proposed Project on the significance of tribal cultural resources to a less than significant level. Because Native American human remains may also be a tribal cultural resource, implementation of Mitigation Measure CUL-3 would reduce the potential impact on Native American human remains as tribal cultural resources to less than significant.		disturbing activities, including grading and trenching. Rancho California Water District (RCWD) shall retain a qualified Tribal Monitor(s) from the Pechanga Band of Luiseño Indians. Prior to initiating ground disturbing activities, RCWD shall execute a contract between the Pechanga Band of Luiseño Indians and RCWD for the monitoring of the Project. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect, or halt the ground-disturbance activities to allow recovery of cultural resources and tribal cultural resources, in coordination with the Project Archaeologist (as defined in Mitigation Measure CUL-2 provided in Section 3.3, Cultural Resources). **Mitigation Measure CUL-3** (see Threshold 3.3.3)	
Cumulative impacts: Potential impacts of the Proposed Project to tribal cultural resources, when combined with the impacts of past, present, and reasonably foreseeable projects in the vicinity of the Proposed Project, could contribute to a cumulatively significant impact due to the overall loss of tribal cultural resources in the region and in Luiseño territory. The	Potentially cumulatively considerable	**Mitigation Measures Tribal-1** (see Threshold 3.13.2) and **CUL-3** (see Threshold 3.3.3)	Not cumulatively considerable

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
Proposed Project would not have an impact on the significance of a known tribal cultural resource that is listed or eligible for listing in the California Register, or in a local register of historical resources. There is a potential for the presence of tribal cultural resources that are significant (including undiscovered human remains) within the Project site. Mitigation Measure Tribal-1 requires tribal monitoring during ground-disturbing construction activities associated with the Proposed Project. Mitigation Measure CUL-3 requires compliance with the California Health and Safety Code for the treatment of human remains. When tribal cultural resources are assessed and/or protected as they are discovered, impacts to these resources would be less than significant.			
3.14: Utilities and Service Systems			
Threshold 3.14.1 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: No changes to water, wastewater treatment, stormwater drainage, natural gas facilities, or telecommunications facilities are proposed as part of the Project. New power poles will be required to route existing service to the new dam. Short-term construction activities would be limited to providing power to the staging area and portable construction equipment and would not substantially increase demand for electricity. The Proposed Project would not increase electrical demand beyond existing projections from the local electricity provider, and the Project site is within a developed service area with existing demand. Therefore, the Proposed Project would not require the construction of any physical improvements related to the provision of electricity service that would result in significant	Less than significant	N/A	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
environmental impacts, and the Project's potential impacts would be less than significant.			
Threshold 3.14.4 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: Project construction will include substantial site preparation activities and partial demolition of the existing Vail Dam. For waste materials that would not be suitable for reuse, including approximately 1,250 cy of dam demolition debris, waste materials would be transported off site to the Lamb Canyon Landfill. The Proposed Project would be served by a landfill with sufficient permitted capacity to accommodate its solid waste disposal needs. Additionally, operation of the Project would not appreciably change solid waste generation compared with existing conditions, as the nature and frequency of operation and maintenance activities at the dam would be similar for the gravity dam as for the existing arch dam. Therefore, the Proposed Project would result in less than significant impacts related to solid waste and landfill facilities.	Less than significant	N/A	Less than significant
Threshold 3.14.5 Comply with federal, state, and local management and reduction statutes and regulations related to solid waste: The majority of demolition debris from the proposed dam would be stored on site for potential reuse. Waste materials not suitable for reuse would be transported to the nearest landfill, Lamb Canyon Landfill. As the Proposed Project is the replacement of an existing dam, waste generation during operation would remain similar to existing conditions. Therefore, the Proposed Project would comply with federal, State, and local statutes and regulations related to solid waste, and impacts would be less than significant.	Less than significant	N/A	Less than significant
Cumulative impacts: Although the Proposed Project would contribute waste during construction, the majority of debris from demolition of the existing dam would be stockpiled for future reuse. Therefore, the Lamb Canyon Landfill has	Not cumulatively considerable	N/A	Not cumulatively considerable

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
sufficient permitted capacity to provide adequate capacity for the County's solid waste needs, and with compliance with federal, State, and regional statutes and regulations related to solid waste, which require reductions in solid waste generation, the Proposed Project's contribution to solid waste impacts would not be cumulatively considerable. Operation of the Proposed Project would not appreciably increase energy use at Vail Dam. Although the forecast represents a large increase in electricity consumption, the Proposed Project would not contribute to the increase. In relation to the cumulative study area, the Proposed Project would not generate a significant cumulative increase in demand for electricity or a significant disruption in service or service level. Therefore, the Proposed Project's contribution to electricity impacts would not be cumulatively considerable.			
3.15 Wildfire			
Threshold 3.15.2 Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire: The Project is the remediation of seismic and hydrologic hazards at Vail Dam. Construction would substantially alter localized topography at the site of the proposed gravity dam; however, this is not anticipated to affect prevailing winds or otherwise exacerbate wildfire risks as the topographic changes would be generally confined to the proposed dam and abutments and the realigned South Access Road. During construction, additional workers would be within areas classified as high to very high Fire Hazard Severity Zone (FHSZ). Project construction activities would use vehicles and machinery that have the potential to spark a fire in the area, which could expose workers and residents in neighborhoods to the west of the Project site to fire-related pollutants. During operations and maintenance, potential ignition sources such as vehicles and	Less than significant	**Regulatory Compliance Measure RCM FIRE-1** **Fuel Hazard Abatement Program.** Section 8.56.010 of Chapter 8.56 of Title 8 of the Riverside County Municipal Code establishes a hazardous vegetation abatement program to protect the lives and property of the citizens of Riverside County. The program requires all property owners to maintain their property and remove noxious vegetation and other hazardous conditions to prevent wildfires. RCWD shall maintain the Project site in accordance with the Fuel Hazard Abatement Program.	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
gas- or electric-powered small hand tools and maintenance equipment may be used, similar to the existing operations of Vail Dam. As detailed in Regulatory Compliance Measure RCM FIRE-1, the Proposed Project would adhere to the County's Fuel Hazard Abatement Program to minimize ignition sources on the Project site and to reduce the unlikely chance of wildfire on the Project site.			
Threshold 3.15.3 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: Improvements include modifications to existing SCE power line infrastructure to provide electricity to the new gravity dam facilities. Above-ground power lines would have the potential to exacerbate fire risks associated with sparking in the event of damage to the lines or transformers. The Project site is in an area where power can be shut off by SCE, thus reducing potential for wildfire starting and spreading throughout the Project site. During and following construction, Vail Lake would also remain available as an emergency water source. Access road improvements would accommodate construction traffic and would provide potential evacuation routes in the event of a wildfire, and therefore would not exacerbate fire risk. Therefore, the Proposed Project would not require the installation or maintenance of associated infrastructure (e.g., roads, fuel breaks, emergency water sources, power lines, or other utilities) that would exacerbate fire risk or result in temporary or ongoing impacts to the environment.	Less than significant	N/A	Less than significant
Threshold 3.15.4 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: The Project would adhere to the County's Fuel Abatement Program (Regulatory Compliance Measure RCM FIRE-1). Additionally, the Project site is only susceptible	Less than significant	**Regulatory Compliance Measures** **RCM FIRE-1** (see Threshold 3.15.2) and **RCM WQ-1** and **RCM WQ-3** (see Threshold 3.8.1)	Less than significant

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
to landslide along the proposed North Access Road. With implementation of Regulatory Compliance Measure RCM FIRE-1, a less than significant impact would occur related to exposure of people or structures to significant risks, including downslope landslides, as a result of runoff, post-fire slope instability, or drainage changes. During construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered, and there would be an increased potential for flooding compared to existing conditions. With incorporation of Regulatory Compliance Measures RCM WQ-1 and RCM WQ-3, the Proposed Project would not expose people or structures to significant risks, such as flooding, as a result of runoff, post-fire slope instability, or drainage changes. In the event of a wildfire, these measures would be applied to post-fire conditions. Therefore, impacts would be less than significant.			
Cumulative impacts: The Proposed Project would not increase the risk of wildfire or introduce new land uses into moderate, high, and very high FHSZ areas. Impacts are limited to the construction period, during which time additional personnel and sources of ignition would be present within high and very high FHSZ areas. The Proposed Project and all related projects are required to adhere to regional, State, and federal regulations designed to reduce and/or avoid impacts related to wildfire. With compliance with these regulations, cumulative impacts related to wildfire would be less than significant. Other projects are not anticipated to result in increased fire hazards during construction of the Proposed Project or require additional personnel in the high and very high FHSZ areas, and therefore would not exacerbate the temporarily changed risk to additional personnel associated with the Proposed Project. Each development application received by the County is required to undergo environmental review pursuant to CEQA. If there were any potential for	Not cumulatively considerable	**Regulatory Compliance Measure RCM FIRE-1** (see Threshold 3.15.2)	Not cumulatively considerable

Table S.A: Summary of Project Impacts, Regulatory Compliance Measures, and Level of Significance After Mitigation

Environmental Impact	Level of Significance Prior to Mitigation	Regulatory Compliance Measures and Mitigation Measures	Level of Significance After Mitigation
significant impacts with regard to wildfire and related risks, an investigation would be required to determine the nature and extent of the resources and identify the appropriate mitigation measures. Therefore, the Proposed Project's impact related to wildfire would not be cumulatively considerable.			

Source: LSA 2022.

1.0 INTRODUCTION

This Draft Environmental Impact Report (EIR) has been prepared to evaluate environmental impacts associated with the proposed Vail Dam Seismic and Hydrologic Remediation Project (Project) in Riverside County, California. Rancho California Water District (RCWD) is the "public agency which has the principal responsibility for carrying out or approving the project"[1] and, as such, is the "Lead Agency" for the Proposed Project under the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.). CEQA requires the Lead Agency to consider the information contained in the EIR prior to taking any discretionary action on the Proposed Project. This EIR is intended to serve as an informational document to be considered by RCWD and any Responsible Agencies during deliberations on the Proposed Project. PRC Section 21069 defines a "Responsible Agency" as a public agency other than the Lead Agency that has responsibility for carrying out or approving a project. The approvals and permits associated with the Proposed Project are described in Chapter 2.0, Project Description.

Based upon the Initial Study prepared for the Proposed Project, RCWD, as Lead Agency, determined that the Proposed Project may have a significant effect on the environment and that an EIR would be required to more fully evaluate potential adverse environmental impacts that may result from development of the Proposed Project. As a result, this EIR has been prepared in accordance with CEQA and the *State CEQA Guidelines* (California Code of Regulations [CCR], Title 14, Section 15000 et seq.). This EIR also complies with the procedures established by RCWD in RCWD's *Local Guidelines for Implementing the California Environmental Quality Act (2022)*.

Questions regarding the preparation of this document and RCWD review of the Proposed Project should be referred to the following person:

Jacob Wiley, P.E.
Rancho California Water District
42135 Winchester Road
Temecula, California 92590
Email: wileyj@ranchowater.com
Phone: (951) 296-6900, ext. 6980

1.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

This Draft EIR has been prepared to evaluate potential environmental impacts that could result from implementation of the Proposed Project. As the Lead Agency, RCWD has the principal responsibility for approving the Proposed Project. In that capacity, RCWD has decided to prepare this Draft EIR and, after the public review process, will decide whether to certify the Final EIR.

RCWD and any Responsible Agencies have the authority to make decisions on discretionary actions relating to development of the Proposed Project. As stated previously, this Draft EIR is intended to serve as an informational document to be considered by RCWD and Responsible Agencies during deliberations on the Proposed Project. This Draft EIR evaluates a reasonable worst-case scenario of

[1] As defined in PRC Section 21067.

potential impacts associated with the Proposed Project and identifies feasible mitigation and alternatives for any identified potentially significant impacts.

This Draft EIR will serve as a Project EIR pursuant to *State CEQA Guidelines* Section 15161. According to Section 15161 of the *State CEQA Guidelines*, a Project EIR is appropriate for specific development projects and should examine the environmental impacts that could result from all phases of the project, including planning, construction, and operation.

As the Lead Agency for the Proposed Project under CEQA, RCWD must consider the information contained in the Final EIR prior to taking any discretionary action with respect to the Proposed Project. This Draft EIR provides information to the Lead Agency and other public agencies, the general public, and decision-makers regarding the potential environmental impacts from construction and operation of the Proposed Project. The purpose of the public review of this Draft EIR is to evaluate the adequacy of the environmental analysis in terms of compliance with CEQA. *State CEQA Guidelines* Section 15151 states the following regarding standards from which adequacy is judged:

> "An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts. The courts have not looked for perfection but for adequacy, completeness, and a good faith effort at full disclosure."

PRC Section 21002.1(a) states:

> "The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided."

An EIR is the most comprehensive form of environmental documentation identified in CEQA and the *State CEQA Guidelines* and provides the information needed to assess the environmental consequences of a proposed project. EIRs are intended to provide an objective, factually supported, full-disclosure analysis of the environmental consequences associated with a proposed project that has the potential to result in significant, adverse environmental impacts.

1.2 PUBLIC REVIEW PROCESS

In compliance with CEQA and the *State CEQA Guidelines,* RCWD has taken steps to promote opportunities for the public and other public agencies to participate in the environmental review process. RCWD conducted the scoping process, issued a Notice of Preparation (NOP), prepared an Initial Study for the Proposed Project, and determined that an EIR was required to evaluate the potentially significant environmental effects of the Proposed Project and related actions. Additionally, a public scoping session was conducted, as discussed below.

1.2.1 Notice of Preparation

On June 29, 2020, an NOP for the Proposed Project was distributed by RCWD via the State Clearinghouse (SCH). The SCH issued a project number for this EIR (SCH No. 2020069048). In accordance with *State CEQA Guidelines* Section 15082, the NOP was circulated to the agencies and individuals listed in Appendix A and was posted at the Riverside County Clerk's Office for a period of 30 days, during which time written comments were solicited pertaining to environmental issues/ topics that this EIR should evaluate. The NOP was also made available for public review on RCWD's website during the review period. Responses to the NOP were received from the following agencies:

- South Coast Air Quality Management District (SCAQMD)
- Native American Heritage Commission (NAHC)

1.2.2 Scoping Meeting and Areas of Controversy

Pursuant to Governor Executive Orders N-29-20 and N-33-20 due to COVID-19, RCWD held a virtual public scoping meeting on RCWD's YouTube Channel, which was published on July 15, 2020. As stated within the NOP, commenters were requested to submit comments to be considered in the scoping meeting by 5:00 p.m. on July 10, 2020. The purpose of the virtual public scoping meeting was to present the Proposed Project and to solicit input from interested parties regarding environmental issues that should be addressed in this EIR. However, no comments were received prior to the virtual public scoping meeting. The material environmental issues and concerns raised in response to the NOP included:

- **Air Quality:** Recommendations and guidelines for the Project's air quality analysis modeling, suggestion to prepare a health risk assessment for the Project, suggestion to implement mitigation measures for the Project, and suggestion to adhere to guidelines from the SCAQMD and its Air Quality Handbook.

- **Tribal Cultural Resources:** Recommendations and guidelines for Project compliance with Assembly Bill (AB) 52 and Senate Bill (SB) 18, and recommendations and guidelines for conducting cultural resources assessments.

Please note that this is not an exhaustive list of areas of controversy, but rather key issues that were raised during the scoping process. This EIR addresses each of these areas of concern or controversy in detail, examines Project-related and cumulative environmental impacts, identifies significant adverse environmental impacts, and proposes mitigation measures and/or alternatives designed to reduce or eliminate potentially significant impacts. Appendix A to this EIR includes the NOP and copies of written comments received in response to the NOP.

1.2.3 Environmental Impact Report Public Review Period

This EIR is being distributed to numerous public agencies and other interested parties for review and comment. This EIR is also available at the following locations and on RCWD's website: https://www.ranchowater.com/127/CEQA-Compliance.

Ronald H. Roberts Temecula Public Library
30600 Pauba Road
Temecula, CA 92592

Grace Mellman Community Library
4100 County Center Drive
Temecula, CA 92591

Murrieta Public Library
8 Town Square
Murrieta, CA 92562

Fallbrook Branch Library
124 S Mission Road
Fallbrook, CA 92028

Patrick J. Carney Library (Camp Pendleton)
1108 E Street
Oceanside, CA 92058

All comments received from agencies and individuals on this EIR will be accepted during the public comment period, which will not be less than 45 days, in compliance with CEQA and the *State CEQA Guidelines*. All comments on this EIR should be sent to the following RCWD contact person:

Jacob Wiley, P.E.
Rancho California Water District
42135 Winchester Road
Temecula, California 92590
Email: wileyj@ranchowater.com
Phone: (951) 296-6900, ext. 6980

Following the close of the Draft EIR public comment period, RCWD will prepare written responses to all written comments received during the public comment period and will compile these comments and responses, together with any text changes to this EIR, into a Final EIR that includes all of the information required pursuant to *State CEQA Guidelines* Section 15132. The Final EIR will be provided to all public agencies that submitted comments on this EIR at least 10 days prior to certification of the Final EIR. The Final EIR shall consist of the Draft EIR or a revision of the draft; comments and recommendations received on the Draft EIR either verbatim or in summary; a list of persons, organizations, and public agencies commenting on the Draft EIR; the response of RCWD significant environmental points raised in the review and consultation process and in comments submitted on the Draft EIR; and any other information added by RCWD.

RCWD will make findings regarding the extent and nature of the impacts as presented in the Final EIR. The Final EIR must be certified as complete by the County of Riverside prior to a decision being made on the requested entitlements for the Proposed Project. Public input is encouraged at all public hearings regarding the Proposed Project.

1.3 SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

As required by *State CEQA Guidelines* Section 15128, this EIR must identify the effects of the Proposed Project that are determined to be significant. Environmental topics addressed in this EIR include: Air Quality, Biological Resources, Cultural Resources, Energy, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Public Services, Transportation, Tribal Cultural Resources, Utilities and Service Systems, and Wildfire.

As discussed in Section 1.2 above, the scoping process for this EIR included the preparation of an Initial Study. Per *State CEQA Guidelines* Section 15063, RCWD conducted an Initial Study to determine whether the Proposed Project could have a significant effect on the environment. RCWD determined that the Proposed Project may have a significant impact on the environment and issued an NOP soliciting comments from Responsible and Trustee Agencies and other interested parties, including members of the public. In addition to identifying potentially significant impacts of the Proposed Project that required additional study, the Initial Study also identified effects determined not to be significant consistent with *State CEQA Guidelines* Section 15063(c)(3)(B). Impacts that were determined to be less than significant are discussed and evaluated in the Initial Study, which is included in Appendix A of this EIR. The analysis determined that the Proposed Project would not have the potential to cause significant impacts in the following areas:

- Aesthetics
- Agriculture and Forestry
- Air Quality (odors)
- Geology and Soils (soils capability to support the use of septic tanks or other alternative wastewater disposal systems)
- Hazards and Hazardous Materials (hazardous materials within one-quarter mile of an existing or proposed school, and airport land use plan)
- Hydrology and Water Quality (flood hazard, tsunami, or seiche zones)
- Land Use and Planning (division of an established community)
- Mineral Resources
- Noise (airport land use plan)
- Population and Housing
- Public Services (fire protection, police protection, and schools)
- Transportation (geometric design, emergency access)
- Utilities and Service Systems (sufficient water supplies, wastewater treatment provider capacity)
- Wildfire (emergency response plan or emergency evacuation plan)

Topics that would not have the potential to cause significant impacts are discussed solely in the Initial Study and can be found in Appendix A of this EIR. RCWD's Initial Study and Environmental Checklist Form are discussed in Chapter 3.0 of this document, and a copy of the Initial Study and Environmental Checklist for the Proposed Project is included in Appendix A of this EIR.

1.4 FORMAT OF THE ENVIRONMENTAL IMPACT REPORT

This EIR contains the information and analysis required by CEQA and the *State CEQA Guidelines*, including Sections 15122–15131, and is generally organized as follows:

- **Chapter ES: Executive Summary.** The Executive Summary of this EIR lists all significant Project impacts, feasible mitigation measures that have been recommended to reduce any significant impacts of the Proposed Project, and the level of significance of each impact following feasible mitigation. The summary is presented in a table format.

- **Chapter 1.0: Introduction.** Chapter 1.0 contains a discussion of the purpose and intended use of this EIR.

- **Chapter 2.0: Project Description.** Chapter 2.0 includes a discussion of the Proposed Project's geographical setting, the Project site's previous uses, and the Proposed Project's objectives, characteristics, components, and construction phases, as well as the anticipated discretionary and ministerial permits and approvals for the Proposed Project.

- **Chapter 3.0: Environmental Impact Analysis.** Chapter 3.0 includes an analysis of the Proposed Project's environmental impacts. It is organized into the following topical sections: Air Quality, Biological Resources, Cultural Resources, Energy, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Public Services, Transportation, Tribal Cultural Resources, Utilities and Service Systems, and Wildfire. The environmental setting discussions describe the "existing conditions" of the environment on the Project site and in the vicinity of the site as they pertain to the environmental issues being analyzed (*State CEQA Guidelines* Section 15125).

  The impact discussions identify and focus on the potentially significant environmental effects of the Proposed Project. The direct and indirect effects of the Proposed Project on the environment are identified and described, giving due consideration to both the short-term and long-term effects, as necessary (*State CEQA Guidelines* Section 15126.2[a]).

  Chapter 3.0 also includes within the analysis of each environmental topic a discussion of the cumulative effects of the Proposed Project when considered in combination with other projects causing related impacts, as required by *State CEQA Guidelines* Section 15130. Cumulative impacts are based on the build out of the Proposed Project and the known relevant approved and proposed projects in the surrounding area.

  The discussions of mitigation measures identify and describe feasible measures that could minimize or lessen potentially significant impacts for each significant environmental effect identified in this EIR (*State CEQA Guidelines* Section 15126[e]). The levels of significance before and after mitigation are provided. Significant unavoidable adverse effects are identified where mitigation is not expected to reduce the effects to less than significant levels.

- **Chapter 4.0: Alternatives to the Proposed Project.** In accordance with CEQA, the alternatives discussion in Chapter 4.0 describes a reasonable range of alternatives that could feasibly attain the basic objectives of the Proposed Project and are capable of eliminating or substantially reducing any of the Proposed Project's significant unavoidable adverse environmental effects or reducing them to a less than significant level. The alternatives analyzed in Chapter 4.0 include the No Project/No Action Alternative, the North Access Road Alignment Alternative, the Oak Mountain Road Access Alternative, and the Roller Compacted Concrete (RCC) Batch Plant

Canyon Location Alternative. This chapter also includes a discussion of alternatives that were considered but rejected.

- **Chapter 5.0: Other CEQA Considerations.** Chapter 5.0 contains discussions on the following topics as required by *State CEQA Guidelines* Section 15126: (1) growth-inducing impacts of the Proposed Project; (2) whether there are any significant adverse environmental impacts associated with the Proposed Project for which either no mitigation or only partial mitigation is feasible; and (3) whether there are any significant irreversible environmental changes caused by the Proposed Project, such as use of nonrenewable resources.

- **Chapter 6.0: List of Preparers.** Chapter 6.0 provides the organizations and persons contacted during preparation of this EIR, the EIR preparers and technical report authors, and other experts involved in the preparation of this EIR.

- **Chapter 7.0: References.** Chapter 7.0 provides the references used in this EIR.

This page intentionally left blank

2.0 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

2.1.1 Regional Location and Setting

Vail Dam and Vail Lake are located in unincorporated southwestern Riverside County, east of the City of Temecula, in Southern California (see Figures 2-1 and 2-2). Vail Dam spans Temecula Creek, a northwesterly draining tributary of the Santa Margarita River that drains the north side of Palomar Mountain. The watershed for Vail Lake is approximately 318 square miles, and the lake is fed by Temecula Creek, Wilson Creek, Kolb Creek, and Arroyo Seco.

The Rancho California Water District (RCWD) acquired approximately 7,700 acres of the Vail and Sundance Ranch properties surrounding Vail Lake in 2014 (RCWD 2016). Including Vail Lake, RCWD land holdings total 8,444 acres in the vicinity of Vail Lake; this area is referred to as the Vail Property in the Property Guidance Document prepared by RCWD in 2016 (RCWD 2016). The Vail Property is located approximately 3 miles east of the city limits of Temecula and approximately 7 miles east of Interstate 15 (I-15). State Route 79 (SR-79) South traverses the southern portion of the property.

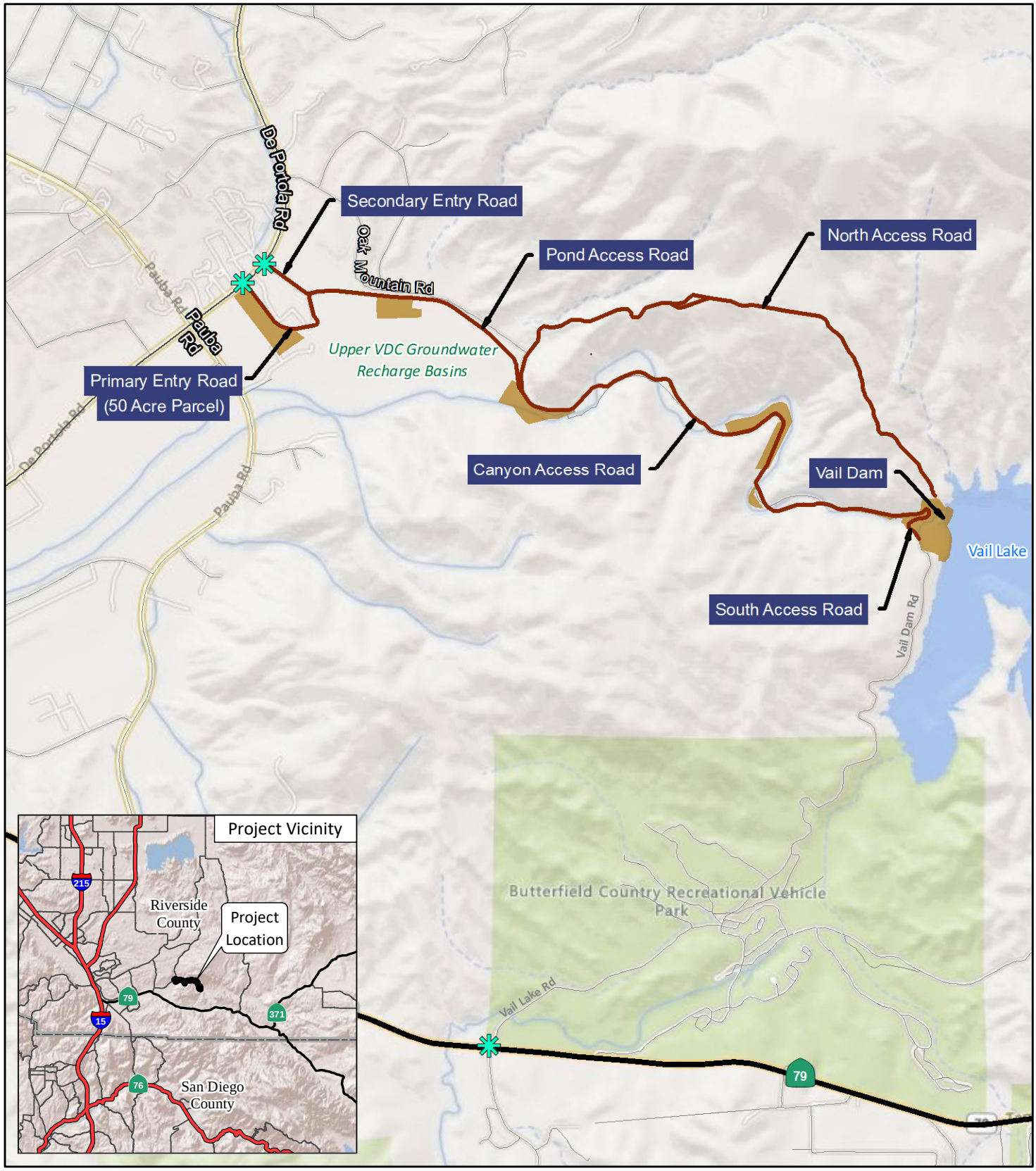
In addition to the lake, the terrain includes nearly flat stream valleys, step-like alluvial fan and terrace deposits, canyons, steep-sided river gorges, and moderate to steep mountain slopes. The topography slopes in all directions from various peaks and canyons in the vicinity of the lake. Vail (Oak) Mountain is located on the western portion of the property, and the area generally separates the Lancaster and Aguanga Valleys on the east from the Pauba and Temecula Valleys on the west.

Vegetation and wildlife are diverse in the area, with scrub communities (inland sage scrub, chamise chaparral, and alluvial fan scrub) dominant. Woodland vegetation is limited but present, including both oak and riparian woodland communities. Native and nonnative grasslands occur, along with freshwater marsh and reservoir semiaquatic plant communities. The area supports several rare, threatened, and endangered species.

Land uses on the Vail Property include the following (RCWD 2016):

- The Vail Lake Village and RV Resort, which contains campsites, numerous associated buildings, maintenance facilities, sports courts, pools, boat and recreational vehicle (RV) storage, and electrical, water, and sewer facilities;
- The Vail Lake Marina facilities, including associated buildings, a boat launch, fields, RV and boat storage, and similar facilities (the boat launch is presently closed due to low lake levels);
- Numerous hiking, equestrian, and mountain biking trails located within the property; and
- Vail Dam facilities, including pipelines and other appurtenances.

This page intentionally left blank



LSA

LEGEND

- Project Feature Access Roads
- Project Feature Areas
- Site Access Point

N

0 1250 2500

FEET

FIGURE 2-1

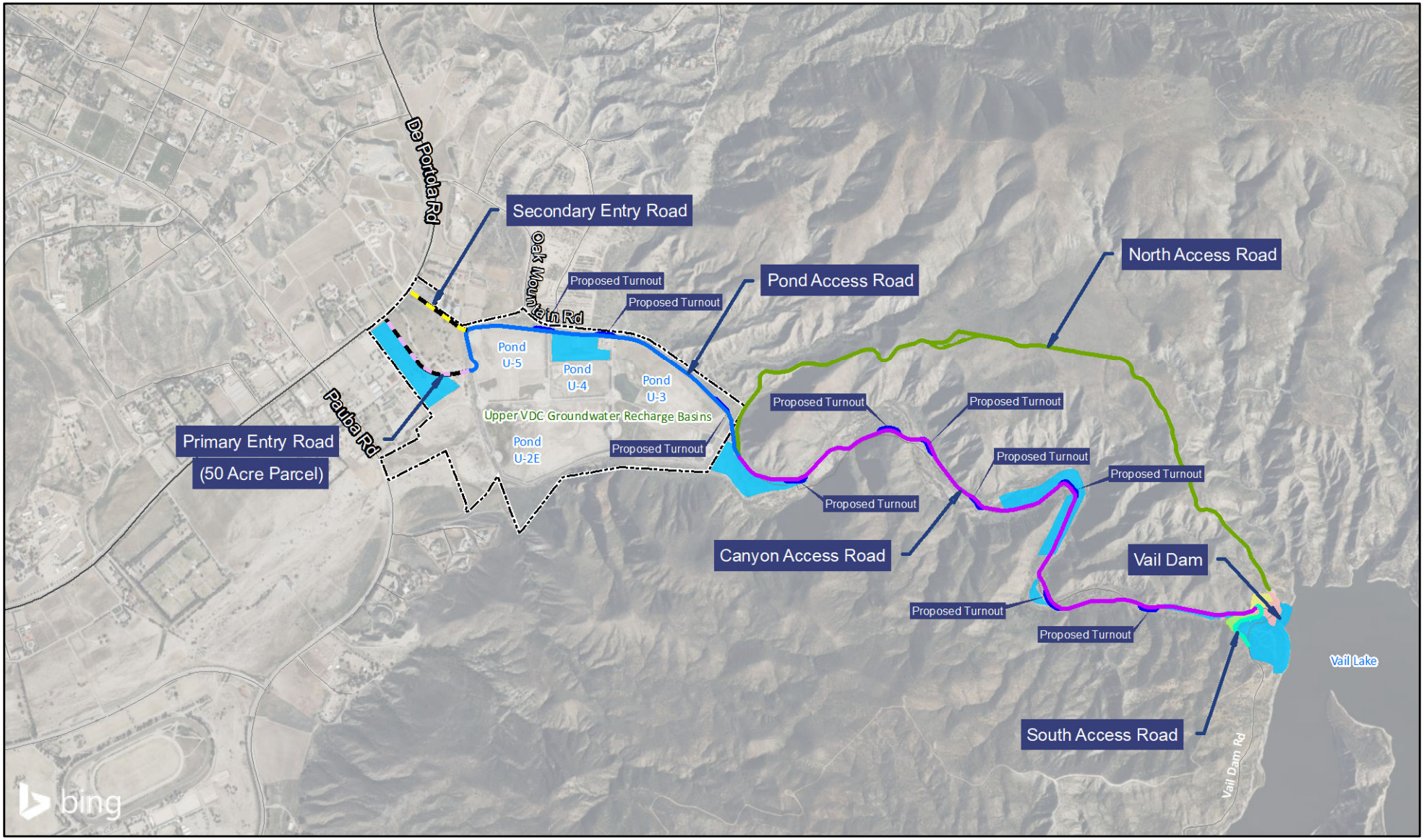
Vail Dam Seismic and Hydrologic Remediation Project

Project Vicinity

SOURCE: Bing Maps (2018); AECOM (6/2022)

I:\RCW1902\GIS\MXD\EIR-EIS\ProjectLocation_Vicinity.mxd (7/15/2022)

This page intentionally left blank



LSA

LEGEND

- Canyon Access Road
- North Access Road
- North Access Road Design Alternative
- Primary Entry Road (50 Acre Parcel)
- Secondary Entry Road
- Pond Access Road
- South Access Road
- Proposed Truck Turnout
- Property Boundary
- Dam Construction Area
- South Access Road Construction Area
- Staging and Laydown Area
- Temporary Construction Area

0 1000 2000
FEET

SOURCE: Bing Maps (2020); AECOM (6/2022)

I:\RCW1902\GIS\MXD\EIR-EIS\ProjectLocation.mxd (7/15/2022)

FIGURE 2-2

Vail Dam Seismic and Hydrologic Remediation Project

Project Location

This page intentionally left blank

Land uses and land use designations surrounding Vail Lake can be characterized as follows (see Figure 2-3).

- To the north, the area generally consists of undeveloped property with a County of Riverside (County) land use designation of rural mountainous (10-acre minimum lot size) or Bureau of Land Management conservation property with a County land use designation of open space-conservation.

- To the west (beyond the canyon below Vail Dam), the area generally consists of developed ranch property within the Valle De Los Caballos (VDC) Policy Area, with a County land use designation of rural residential (5-acre minimum), undeveloped property with a land use designation of agricultural, and RCWD's Upper VDC Groundwater Recharge Basins.

- To the south, the area consists primarily of recreational/campground uses, Cleveland National Forest, a variety of ranch and agricultural properties, and vacant undeveloped properties. The County land use designations for this area are rural residential (5-acre minimum), rural mountainous (10-acre minimum), open-space conservation, open-space habitat, and open-space recreation.

- To the east, the area generally consists of developed property associated with the Sundance Meadows private membership campground with a County land use designation of rural residential (5-acre minimum) or vacant undeveloped property with a land use designation of rural mountainous (10-acre minimum).

2.1.2 Vail Dam Construction History

Vail Lake was created through the construction of the existing Vail Dam by the Vail Company in 1948 and 1949, to store local runoff for the purpose of irrigation and water supply. The dam and reservoir were acquired by RCWD in 1978 and have been used since that time for water supply and replenishment of RCWD's groundwater basins.

Since initial construction of Vail Dam, modifications have included the following:

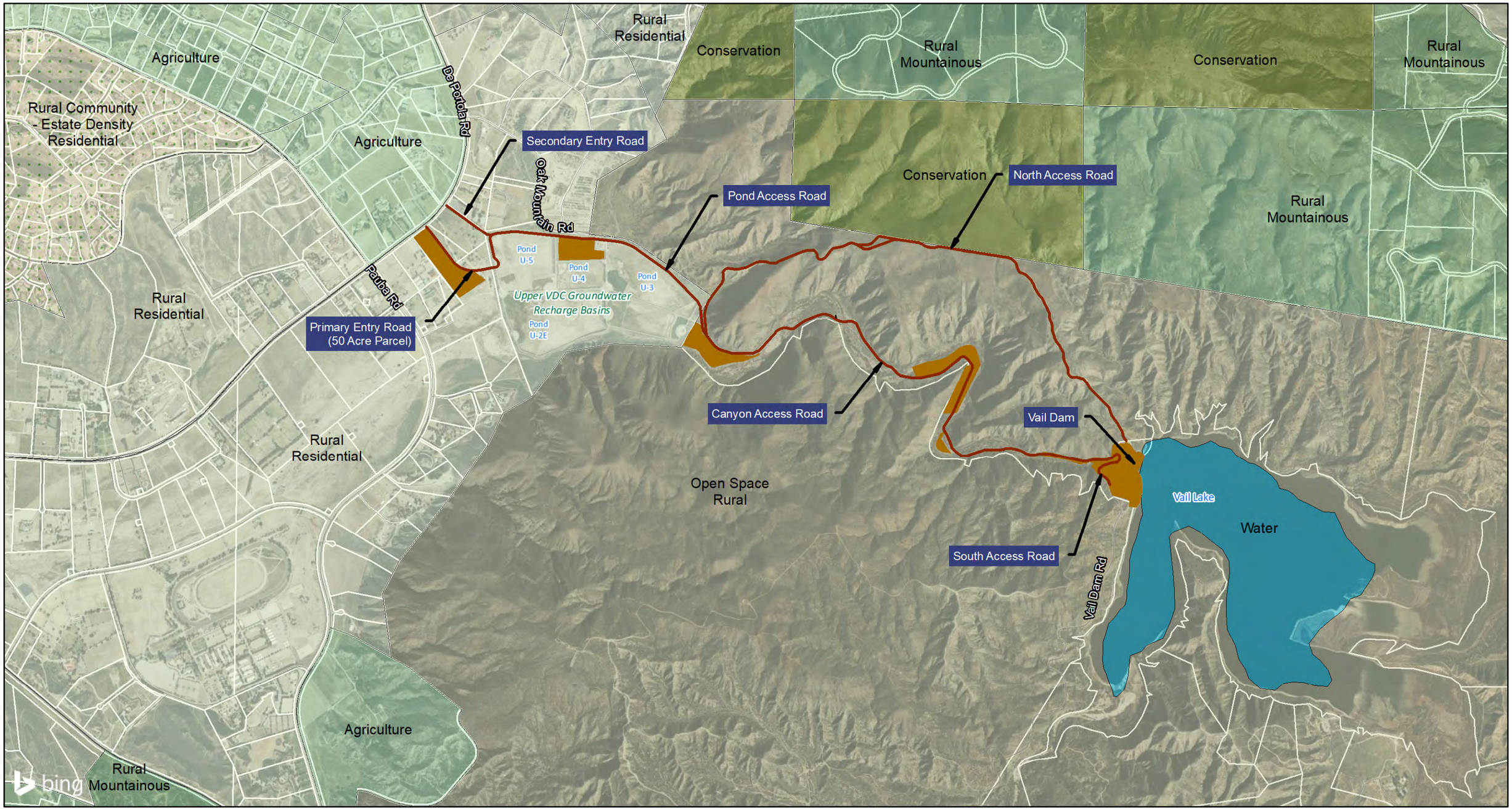
- In the 1980s, the training wall near the left[1] abutment gravity section was extended and raised to address erosion concerns during spill events.

- In 1987, modifications to the outlet works to prevent cavitation in the outlet pipe were completed.

- In 2007, a rehabilitation of the outlet works was completed. The repairs included replacement of the intake gates and associated trash racks, including the gate operators, stems, and stem guides. The rehabilitation also included replacement of portions of the conduit from the Intake No. 8 pipe, and replacement of the 24-inch discharge conduits downstream of the dam, as well as replacement of several conduit connections.

[1] Left or right side refers to the side when looking downstream.

This page intentionally left blank



LSA

LEGEND

Project Feature Access Roads

Project Feature Areas

Surrounding Land Use

Rural Community - Estate Density Residential

Rural Residential

Rural Mountainous

Agriculture

Conservation

Open Space Rural

Water

0 850 1700

FEET

SOURCE: Bing Maps (2020); AECOM (6/2022); Riverside County Transportation and Land Use Management Agency (2012)

I:\RCW1902\GIS\MXD\EIR-EIS\LandUse.mxd (7/15/2022)

FIGURE 2-3

Vail Dam Seismic and Hydrologic Remediation Project

Surrounding Land Use

This page intentionally left blank

- In 2009, a new transmission main pipe was constructed that connects Vail Dam to the Upper VDC percolation ponds located downstream of the dam at the mouth of the canyon.

2.1.3 Rancho California Water District

RCWD's service area is located in southwestern Riverside County and includes the City of Temecula, portions of the City of Murrieta, and unincorporated areas of the County. RCWD has two divisions: the Rancho Division and the Santa Rosa Division. Vail Lake is located in the Rancho Division. As of June 2022, RCWD's current service area represents 100,000 acres, and RCWD has 970 miles of water mains, 39 storage reservoirs, four storage tank reservoirs (recycled water), five wet weather storage ponds (recycled water), one surface reservoir (Vail Lake), 43 active groundwater wells, and 45,000 service connections (RCWD 2022c). More than 150,000 people are served by RCWD.

2.1.4 Vail Dam and Reservoir

2.1.4.1 Vail Dam

Vail Dam is a concrete arch dam spanning between concrete and rock abutments, approximately 120 feet (ft) high in the middle. The dam, at elevation 1,481.7 ft NAVD88,[2] has a maximum height of 152 ft from the dam crest to the lowest point in the foundation and has a 3.5 ft high concrete parapet wall extending above the upstream dam crest (elevation 1,485.2 ft NAVD88). The crest length, including the right and left abutment concrete gravity blocks, is 790 ft. The dam thickness varies from a maximum of 15 ft to a minimum of 4.5 ft, and the dam is thicker in the lower portion and thinner closer to the crest.

The dam has eight outlets, including a low-level outlet. An at-grade meter vault is located approximately 100 ft downstream, and a stream release valve building is located approximately 200 ft downstream of the dam.

The spillway[3] is located beyond the left abutment and connects to the left abutment[4] gravity block at a right angle. The spillway, at elevation 1,472.6 ft NAVD88, is comprised of a 119 ft long ogee[5] weir[6], a 343 ft long flat-crested weir, and a 65 ft long concrete overpour weir. A concrete pier separates the flat-crested weir from the overpour weir. The flat-crested weir includes a 5 ft wide concrete sill along its length. The concrete overpour weir is approximately 20 ft high and was constructed across a saddle in the ridge line. Figure 2-4 illustrates the existing arch dam and spillway.

2 NAVD88 = North American Vertical Datum of 1988.

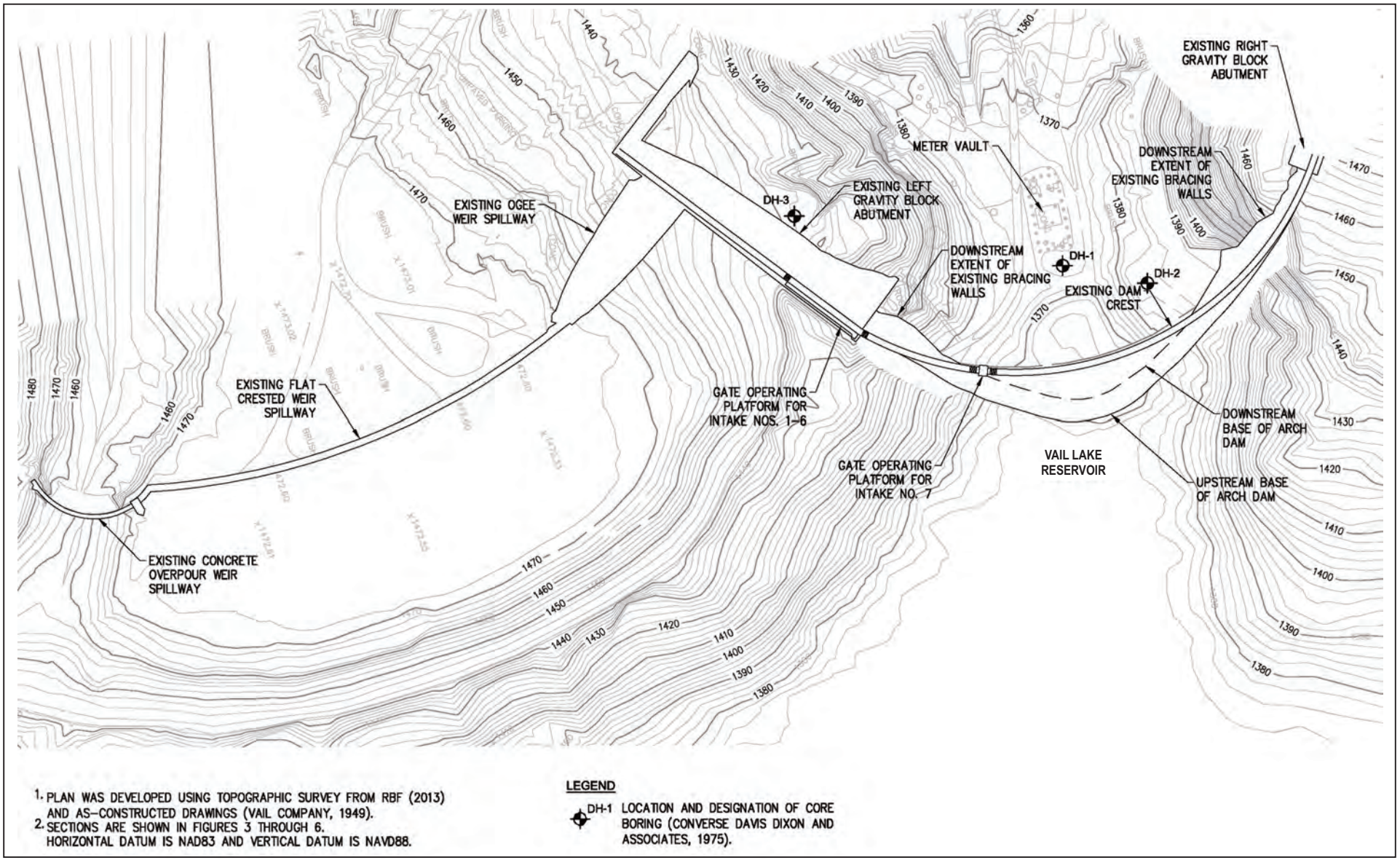
3 A spillway is a structure used to provide the controlled release of flows from a dam or levee into a downstream area.

4 Abutment refers to the substructure at each end of the dam.

5 Ogee refers to the weir shape. An ogee is a curve shaped similar to the letter S, consisting of two arcs that curve in opposite directions.

6 A weir is a dam across the width of a river or stream to raise the water level or divert its flow.

This page intentionally left blank



LSA

FIGURE 2-4

* For further information, refer to Figure 2 in the Seismic Structural Analyses - Phase 3.1 Vail Dam (DSOD Dam No. 2028) by URS Corporation (December 2015)

N

0 50 100
FEET

SOURCE: URS 2015

Vail Dam Seismic and Hydrologic Remediation Project

Existing Vail Dam and Spillway

I:\RCW1902\G\Existing Dam&Spillway.cdr (1/14/2020)

This page intentionally left blank

Access to the dam is currently available from De Portola Road via the Upper VDC Pond Access Road, and from that point, along the Canyon Access Road to access the left side of the dam or the North Access Road to access the right side of the dam. The left side of the dam can also be accessed from SR-79 at Vail Lake Road, then via the campground area to Vail Dam Road (a gated access road) and then to the South Access Road (refer to Figure 2-1).

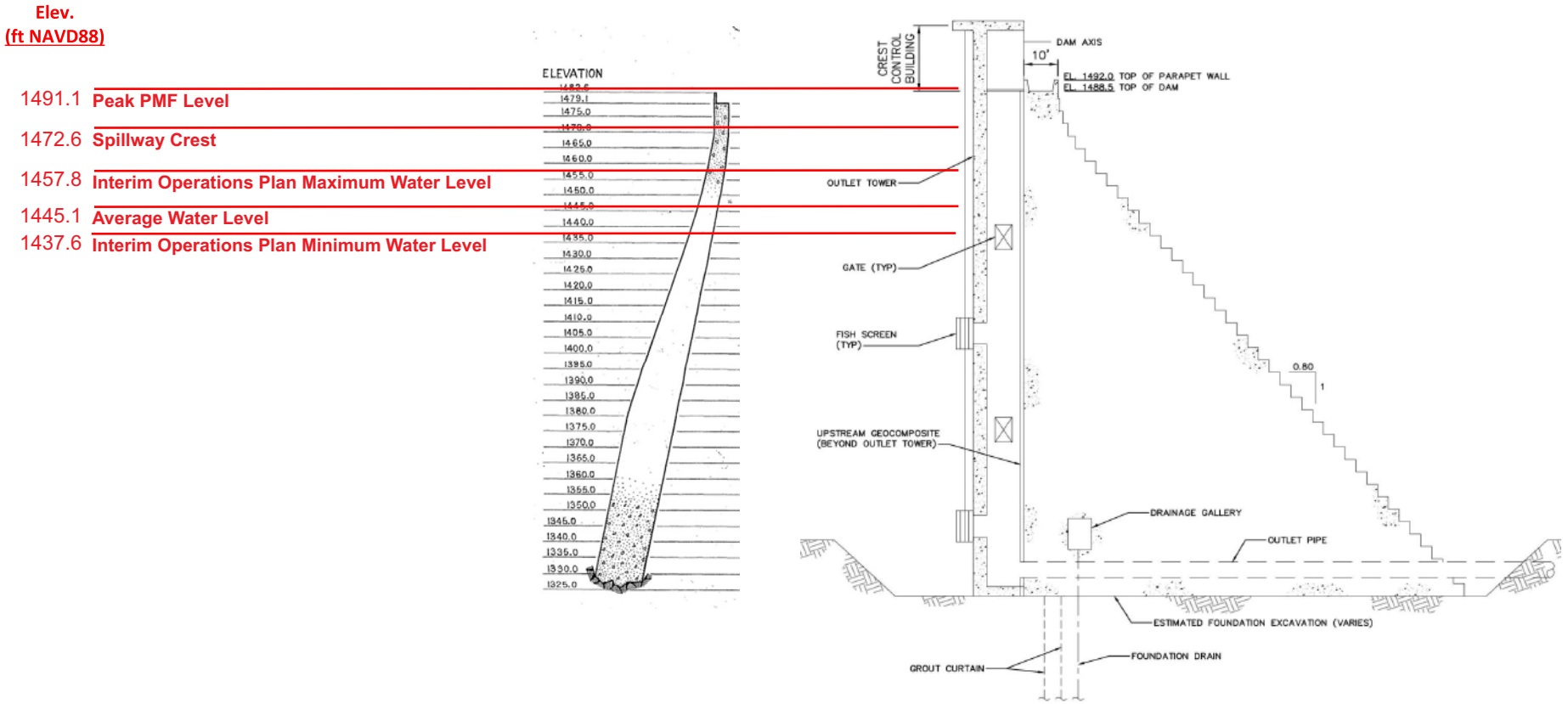
2.1.4.2 Reservoir

Vail Lake impounds up to 42,680 acre-feet (ac-ft) of water with the reservoir at the spillway crest. The reservoir is currently used primarily for water supply but historically has also been utilized for recreation. As noted previously, the Vail Lake Village and RV Resort, Vail Lake Marina, and numerous trails are the primary recreational resources. The reservoir and surrounding areas provide vital upland and riparian habitats for plants and wildlife and include Core and Linkage areas identified in the *Western Riverside County Multiple Species Habitat Conservation Plan* (Riverside County Transportation and Land Management Agency 2003). The reservoir has a 318-square-mile drainage area, which rapidly fills the reservoir in wet years. Water released from Vail Lake is typically re-stored in the Pauba Valley groundwater basin via the Upper VDC Recharge Basins.

The spillway crest of Vail Dam is located at 1,472.6 ft NAVD88. In 1966, Vail Dam was approved by the California Department of Water Resources, Division of Safety of Dams (DSOD) to impound water to an elevation of 1,470 ft NAVD88. The acquisition of Vail Dam and Vail Lake by RCWD from KACOR Realty in 1978 included an agreement to restrict the lake level to at least a minimum level of 1,437 ft for recreation use. RCWD acquired approximately 7,700 acres of the Vail and Sundance Ranch properties surrounding Vail Lake in 2014, eliminating the minimum lake level restriction for recreation use. Figure 2-5 shows both the existing and the proposed dam and spillway with elevations indicating water levels under the various scenarios; Figure 2-6 shows the aerial extent of Vail Lake at different water levels.

As discussed in the Interim Operation Restriction Plan (URS 2014b), DSOD restricts the maximum reservoir elevation until the hydrologic and seismic deficiencies are remediated. In June 2015, DSOD established an interim restriction level of 1,457.60 ft NAVD88, which is 15 ft below the spillway crest. Although DSOD typically restricts the highest level at which a reservoir can operate with a deficient dam, additional studies conducted by DSOD also indicated that lower reservoir levels exacerbate the seismically induced stresses on Vail Dam. Therefore, the Interim Operation Restriction Plan also included a restriction for the lowest level at which the reservoir should operate, 1,437.6 ft NAVD88. The average water level from 1978 (the year during which RCWD took ownership of Vail Dam) through May 2020 has been 1,445.1 ft NAVD88, as is indicated on Figure 2-7. RCWD is required to balance operating water demands to meet the water restriction level. The operating level of the reservoir is dependent on a variety of factors, including restrictions on pumping into the reservoir to prevent introduction of quagga mussel, requirements to recharge groundwater to reduce evaporation of stored water, mandated releases between May and October to maintain the water flow in the creek, and the amount of precipitation. At times, there is insufficient rainfall to maintain water levels at the lower level restriction of 1,437.6 ft NAVD88 and still comply with existing obligations.

This page intentionally left blank



LSA

FIGURE 2-5

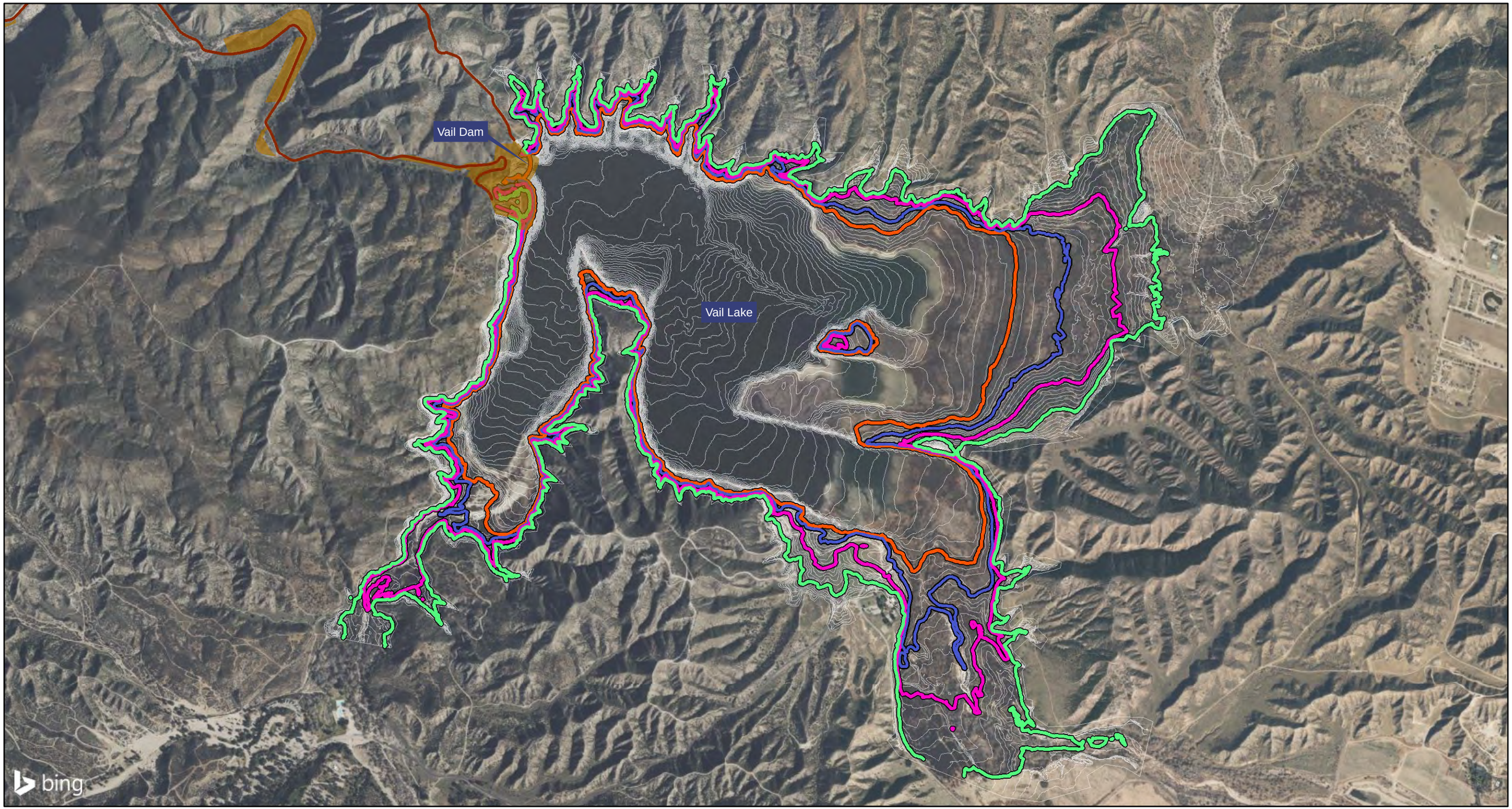
Vail Dam Seismic and Hydrologic Remediation Project

Existing and Proposed Dam Cross Section with Elevation

SOURCE: AECOM (2019)

I:\RCW1902\G\Cross Sections.cdr (6/20/2022)

This page intentionally left blank



LSA

LEGEND

- Project Feature Access Roads
- Project Feature Areas
- Spillway Crest (1472.6' NAVD88)
- Interim Operations Plan Maximum Water Level (1457.6' NAVD88)
- Average Historic Water Level 1978-2020 (1445.1' NAVD88)
- Interim Operations Plan Minimum Water Level (1437.6' NAVD88)

N

0 625 1250
FEET

SOURCE: Bing (2020); AECOM (10/2019 and 6/2022)

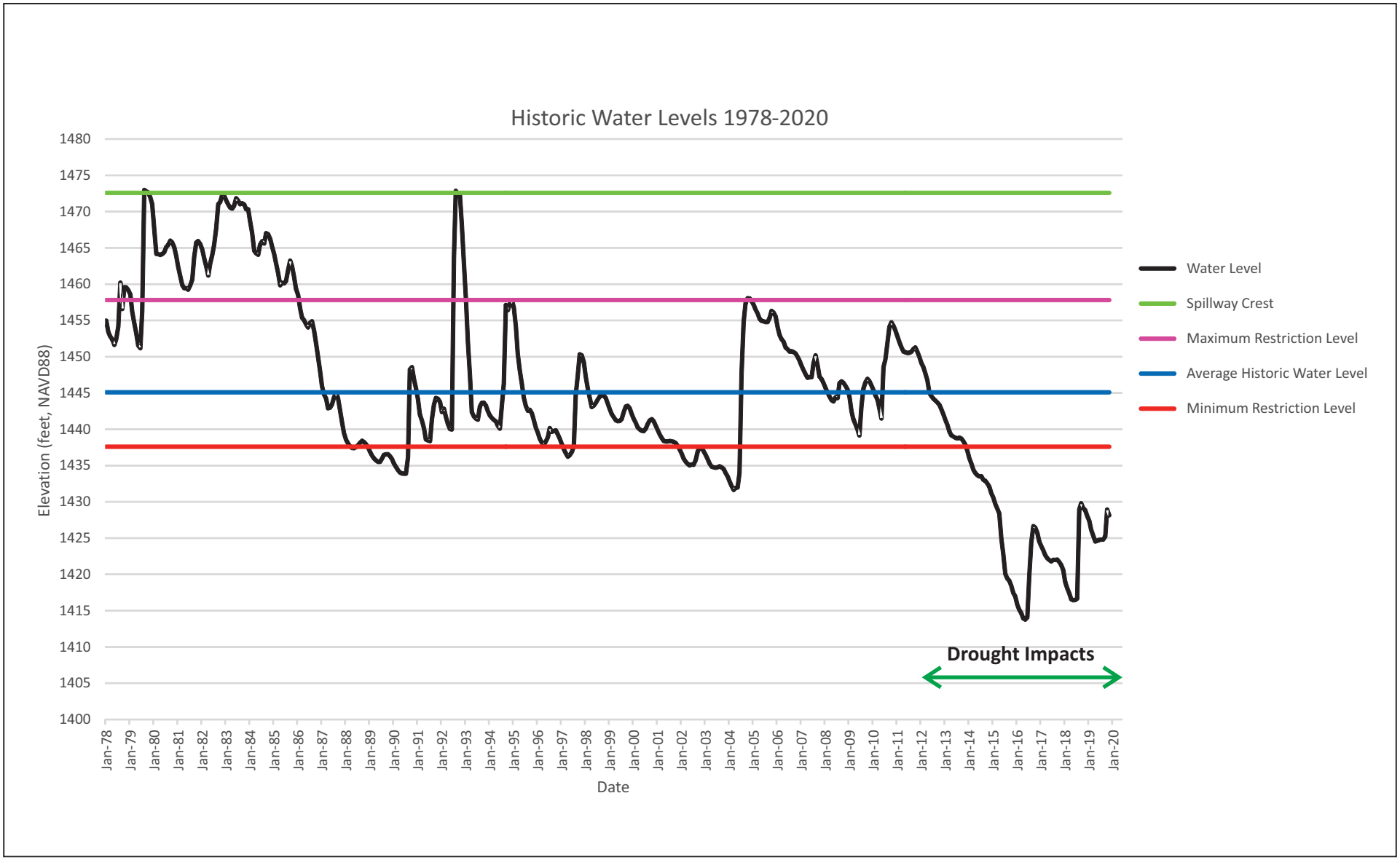
I:\RCW1902\GIS\MXD\EIR-EIS\VailLakeInundationArea.mxd (7/15/2022)

FIGURE 2-6

Vail Dam Seismic and Hydrologic Remediation Project

Vail Lake Inundation Area

This page intentionally left blank



LSA

FIGURE 2-7

Vail Dam Seismic and Hydrologic Remediation Project

Vail Lake Historic Water Levels

SOURCE: USGS

I:\RCW1902\G\Hist_Water_Levels.cdr (12/13/2022)

This page intentionally left blank

2.1.5 Seismic and Hydrologic Deficiencies

DSOD performed seismic stability and hydrologic analyses to evaluate potential hazards to the safety of Vail Dam and identified several deficiencies. RCWD conducted seismic and hydrologic analyses and flood routing studies for the dam and reservoir in 2014, 2015, and 2016 to evaluate these concerns.

2.1.5.1 Seismic Evaluations

DSOD conducted independent seismic stability analyses of Vail Dam and issued a Memorandum of Design Review, Seismic Evaluation in 2012 (DSOD 2021a). DSOD determined that the dam is seismically deficient in its current state.

RCWD conducted dynamic seismic analyses of the existing dam, which indicate that the stresses induced by strong ground shaking during an earthquake would exceed the dam's allowable tensile strengths on the downstream face of the arch dam. The extent and duration of the overstress is such that a failure of the dam could occur during the Maximum Credible Earthquake (MCE). The analyses also indicate sliding instabilities at the base of some of the dam blocks (URS 2016).

2.1.5.2 Hydrologic Evaluations

DSOD performed a hydrologic analysis of Vail Dam and issued a Memorandum of Hydrologic Review (DSOD 2012b) that concluded that the dam would overtop by 3.4 ft during the Probable Maximum Flood (PMF). The DSOD memorandum recommended that RCWD should take measures to address erosion that would result from the overtopping of the dam or prevent overtopping during the PMF altogether.

RCWD conducted an independent hydrologic analysis to calculate the Probable Maximum Precipitation (PMP) and PMF to verify whether Vail Dam would overtop during the PMF. It was determined that the General Storm PMF would overtop the Vail Dam parapet wall by 4.0 ft (URS 2013).

2.1.5.3 Emergency Drawdown Analysis

RCWD completed an emergency drawdown analysis to determine whether the Vail Dam outlet system is capable of lowering the maximum storage depth of the lake by 10 percent within 7 days and draining the full contents of the lake within 90 days as required by DSOD. The results of the analysis showed that the existing outlet system is able to meet both criteria when the water level is 1,439.6 ft NAVD88 or below, but does not at the maximum normal operating level (1,457.6 ft NAVD88) (URS 2013b).

2.2 PROJECT CHARACTERISTICS

2.2.1 Proposed Project

The Proposed Action (Proposed Project) includes construction of a straight-axis concrete gravity dam structure immediately downstream of the existing arch dam. The new dam would connect to the existing abutments. The parapet wall of the new gravity dam would extend to an elevation of 1,492.0 ft NAVD88, which is 6.8 ft higher than the existing dam, and the existing gravity blocks and

parapet walls along the existing abutments would also be raised to this elevation. A downstream parapet wall would be constructed to serve primarily as a guardrail for vehicles traversing the crest. The downstream face of the dam would be stepped concrete. The new dam would include new outlet works that would be designed to meet the emergency reservoir drawdown requirements. Figure 2-8 shows the proposed gravity dam plan and profile, and Figure 2-9 shows a cross-section of the proposed gravity dam. Figure 2-10 includes a photograph of the existing dam and a visual simulation of the proposed dam.

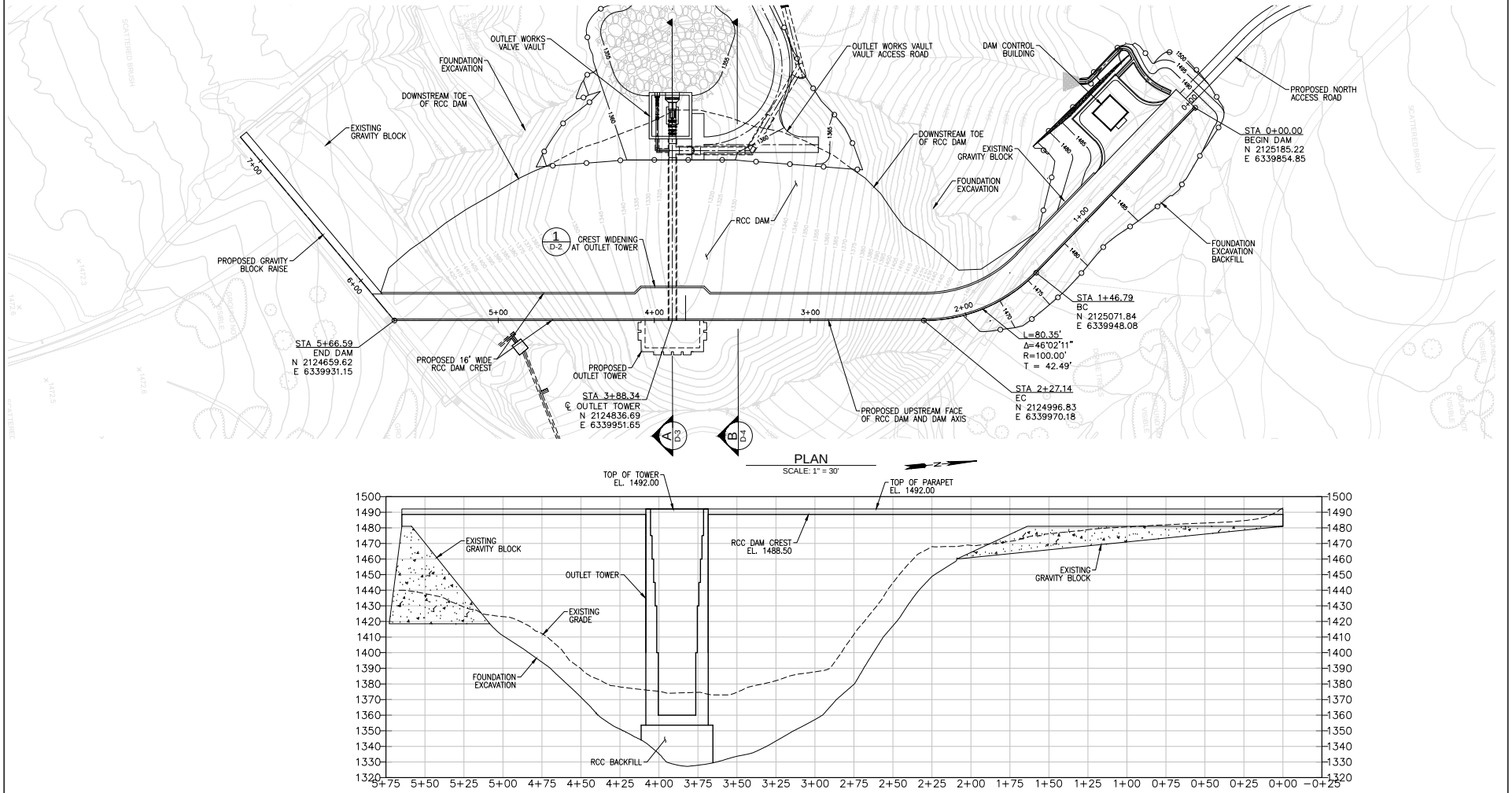
Construction materials and methods used for the Proposed Project would take into account local seismic activity. The added straight-axis concrete gravity structure would be constructed of Roller Compacted Concrete (RCC), which would be vertical at the upstream face of the structure and at a slope of approximately 0.8 horizontal to 1 vertical (H:V) on the downstream side. The downstream face would be constructed using 4 ft high lifts, and the crest would be 16 ft wide. These improvements would protect against catastrophic dam failure during an MCE.

The *Design Report (90% Design) Vail Dam Seismic and Hydrologic Remediation Project* (90% Design Report) (AECOM 2022a) and the *Vail Dam Seismic and Hydrologic Remediation Project 90% Design Submittal* (90% Design Plans) (AECOM 2022b) provide the basis of design for the dam and appurtenant facilities for the Proposed Action. They include detailed descriptions of the proposed dam configuration; inlet and outlet facilities; modifications required to existing facilities; the dam foundation; seepage control; RCC mix design and placement; electrical, mechanical, and instrumentation requirements of the new dam; site development needs; and construction methods. The Proposed Project elements are presented below at a summary level appropriate for California Environmental Quality Act analysis; refer to the 90% Design Report and 90% Design Plans for specific details.

2.2.1.1 Dam Layout

The new gravity dam would be constructed immediately downstream of the existing arch dam and abut the existing gravity abutments. The new gravity dam would be 6.8 ft higher than the original dam and route the PMF entirely through the existing spillway system. The maximum water level in the reservoir would remain at the spillway elevation of 1,472.6 NAVD88. A 3.5 ft high parapet wall would be located on both sides of the crest. Reservoir water would not normally be against the upstream parapet wall, but the parapet wall would prevent overtopping of the dam during the PMF. The width of the dam crest (between parapet walls) would be 16 ft in most locations and up to 20 ft near the outlet tower. The crest width would allow vehicular access for construction and maintenance of the dam structure. Vehicular access would be provided by wrapping the dam around the existing right gravity abutment and providing access from the North Access Road. The existing left gravity abutment downstream of the new dam would also need to be raised. The surface area of the lake would increase slightly (approximately 0.66 acre) with the addition of the area between the existing arch dam and the proposed straight-axis gravity dam.

As stated above, the upstream face of the new gravity dam would be vertical. The downstream face of the dam would generally be inclined at 0.8:1 H:V, extending from the upstream edge at the crest elevation down to the downstream toe. This inclination would be steeper in the upper part of the dam. The downstream face would be formed using steps with vertical faces of 4 ft.



LSA

* For further information, refer to Sheet D-1 in the Vail Dam Seismic and Hydrologic Remediation Project 90% Design Submittal by AECOM (June 2022)

FIGURE 2-8

0 15 30
FEET

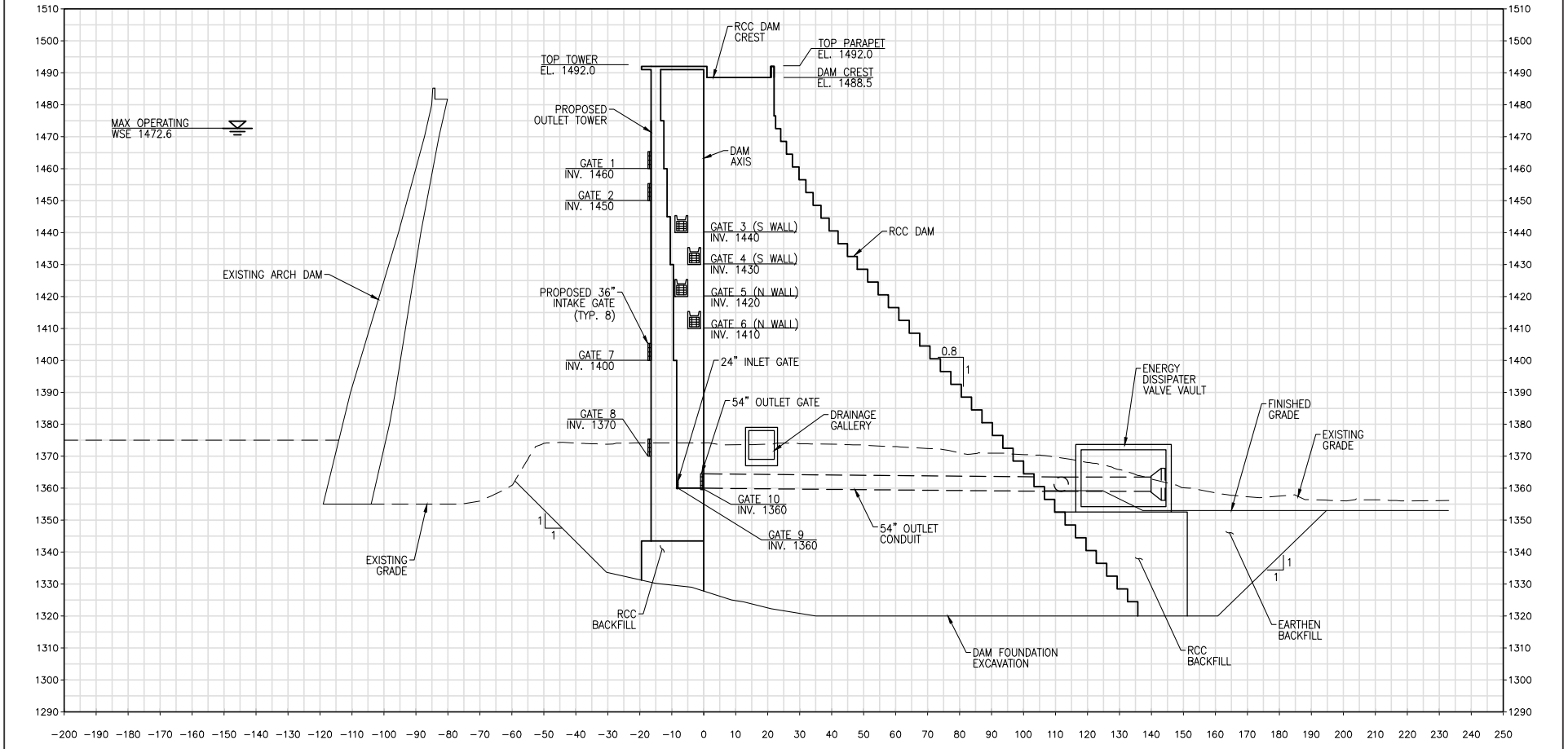
SOURCE: AECOM 2022

I:\RCW1902\G\Proposed_Dam_Section.ai (6/20/22)

Vail Dam Seismic and Hydrologic Remediation Project

Proposed Gravity Dam Plan and Profile

This page intentionally left blank



LSA

* For further information, refer to Sheet D-3 in the Vail Dam Seismic and Hydrologic Remediation Project 90% Design Submittal by AECOM (June 2022)

FIGURE 2-9

0 25 50
FEET

SOURCE: AECOM 2022

I:\RCW1902\G\Proposed_Dam_Section.ai (6/20/22)

Vail Dam Seismic and Hydrologic Remediation Project

Proposed Gravity Dam Section

This page intentionally left blank

Existing Dam

Proposed Dam

LSA

FIGURE 2-10

Vail Dam Seismic and Hydrologic Remediation Project

Existing Dam and Proposed Dam Visual Simulation

SOURCE: AECOM 2020

I:\RCW1902\G\Ex+Prop Dam Sim.cdr (8/20/2020)

This page intentionally left blank

2.2.1.2 Inlet/Outlet Facilities

As stated previously, the existing arch dam has eight outlets, including a low-level outlet. A reinforced concrete outlet tower would be constructed on the upstream side of the new dam. The tower would have nine intake gates and one outlet gate. The new facilities would retain RCWD's capability to store imported water in the reservoir by filling through the existing 48-inch-diameter transmission pipeline that comes up the canyon from the Upper VDC Recharge Basins. The new outlet facilities would also have the capability for emergency releases that meet regulatory requirements.

Downstream control facilities would provide for releases to Temecula Creek, and valves and meters would control and measure reservoir inflows and outflows. These facilities include an energy dissipater valve vault, an energy dissipater stilling basin and outlet channel for the creek releases, and a meter vault to measure reservoir inflows and outflows.

2.2.1.3 Modifications to Existing Facilities

Relocation of Pipelines. There are a number of pipelines that currently service the existing dam that cross the footprint of the new dam foundation excavation. The water pipelines would be replaced with a temporary header and a single 54-inch-diameter pipeline that would connect to energy dissipater valves temporarily located downstream of the dam foundation excavation. The temporary header and pipelines between the dams would be removed upon completion of construction. The temporary 54-inch pipeline through the new dam would be capped and filled at the end of construction.

Existing Dam Demolition. Demolition of the existing gravity abutments would occur where the new dam contacts those abutments. This would consist of hydroblasting and removing 2–3 inches of concrete on the sloping downstream faces of the abutments and removing the upper 6 inches of the crests of both the right and left gravity abutments.

Portions of the existing arch dam would be partially demolished after the new dam and outlet works are functional to allow for hydraulic connection of the reservoir with the new outlet tower. The remainder of the existing arch dam would remain in place. As shown on Figure 2-11, the three central monoliths would be partially removed. The demolition would likely include saw cutting the arch monoliths into manageable sizes that can be removed with a barge-supported crane. Auxiliary barges would transport the demolition debris to the shoreline, likely to the spillway staging area. All the demolition debris will be removed from the site for off-site disposal via the Canyon Access Road. It is anticipated that the demolition will occur over a period of 3 to 4 months.

It is anticipated that the contractor would support the demolition equipment on a modular pontoon system that would be trucked to the site and then assembled to form a larger barge. Multiple barges may be required to transport equipment and demolition debris to/from the shoreline and the dam. The barges could be launched from the existing launch ramp (in the southeast part of the reservoir) or lofted into the reservoir with a crane located in the staging area planned in the spillway area. Use of the existing launch ramp will not be feasible if the water level in the reservoir is too low. No improvements are planned to the existing launch ramp, Vail Lake Road (the access road to the ramp), or Vail Dam Road south of the ramp. Any grading performed in the vicinity of the staging area

This page intentionally left blank

PHOTOGRAPH OF ARCH DAM DOWNSTREAM FACE
NTS

GENERAL NOTES

1. REMOVE THE UPPER PORTIONS OF THE EXISTING ARCH DAM BLOCKS AS INDICTED IN THE TABLE HEREON. LOWEST LEVELS OF DEMOLITION SHALL BE SAW OR WIRE CUT TO A LEVEL SURFACE.
2. SEE AS-BUILT ARCH DAM DRAWINGS FOR THE LOCATION OF JOINTS BETWEEN BLOCKS.
3. SEE SHEET X-6 FOR JOINT DETAILS AND ADDITIONAL INFORMATION.
4. SEE SHEET G-4 FOR AVAILABLE ACCESS AND STAGING AREAS.
5. ACCESS TO THE RESERVOIR FOR FLOATING EQUIPMENT TO ASSIST IN THE DEMOLITION CAN BE FROM THE STAGING AREA UPSTREAM OF THE SPILLWAY OR FROM THE BOAT LAUNCH RAMP LOCATED OFF OF VAIL OAK ROAD.

DEMOLITION ELEVATIONS	
BLOCK	DEMOLITION REQUIREMENTS
A	PROTECT-IN-PLACE (SHOWN ON X-6)
B	PROTECT-IN-PLACE
C	PROTECT-IN-PLACE
D	REMOVE TO EL. 1450' IN 5 FOOT STEPS (RISE AND RUN) EXCEPT FOR HIGHEST STEP OF 6.7'. ALTERNATIVELY, REMOVAL COULD BE ALONG SAW OR WIRE CUT AT 45 DEGREES FROM HORIZONTAL.
E	REMOVE TO EL. 1450'
F	REMOVE TO EL. 1450' IN 5 FOOT STEPS (RISE AND RUN) EXCEPT FOR HIGHEST STEP OF 6.7'. ALTERNATIVELY, REMOVAL COULD BE ALONG SAW OR WIRE CUT AT 45 DEGREES FROM HORIZONTAL.
G	PROTECT-IN-PLACE
H	PROTECT-IN-PLACE (SHOWN ON X-6)

LSA

LEGEND

- Portion of Dam to be Demolished

*For further information, refer to Sheet X-7 in the Vail Dam Seismic and Hydrologic Remediaton Project 90% Design Submittal by AECOM (June 2022)

0 1000 2000
FEET

SOURCE: AECOM (6/13/22)

I:\RCW1902\G\Demolition.ai (6/14/2022)

FIGURE 2-11

Vail Dam Seismic and Hydrologic Remediation Project

Existing Dam Partial Demolition

This page intentionally left blank

to prepare a flat area for crane access will use on-site materials (e.g., dam foundation excavation materials) and will be restored with native vegetation at the end of the demolition.

Spillway Modifications. The existing spillway would be used as the spillway for the new gravity dam. Concrete aprons would be installed to armor the area below the ogee and overpour weirs.

2.2.1.4 Dam Foundation

Preparation of the new gravity dam foundation includes excavation to moderately weathered or fresh rock and then treatment of the excavated surface. Shallow consolidation grouting of the rock would increase the stiffness of the foundation. Dewatering of the excavation would also be required.

2.2.1.5 Seepage Control

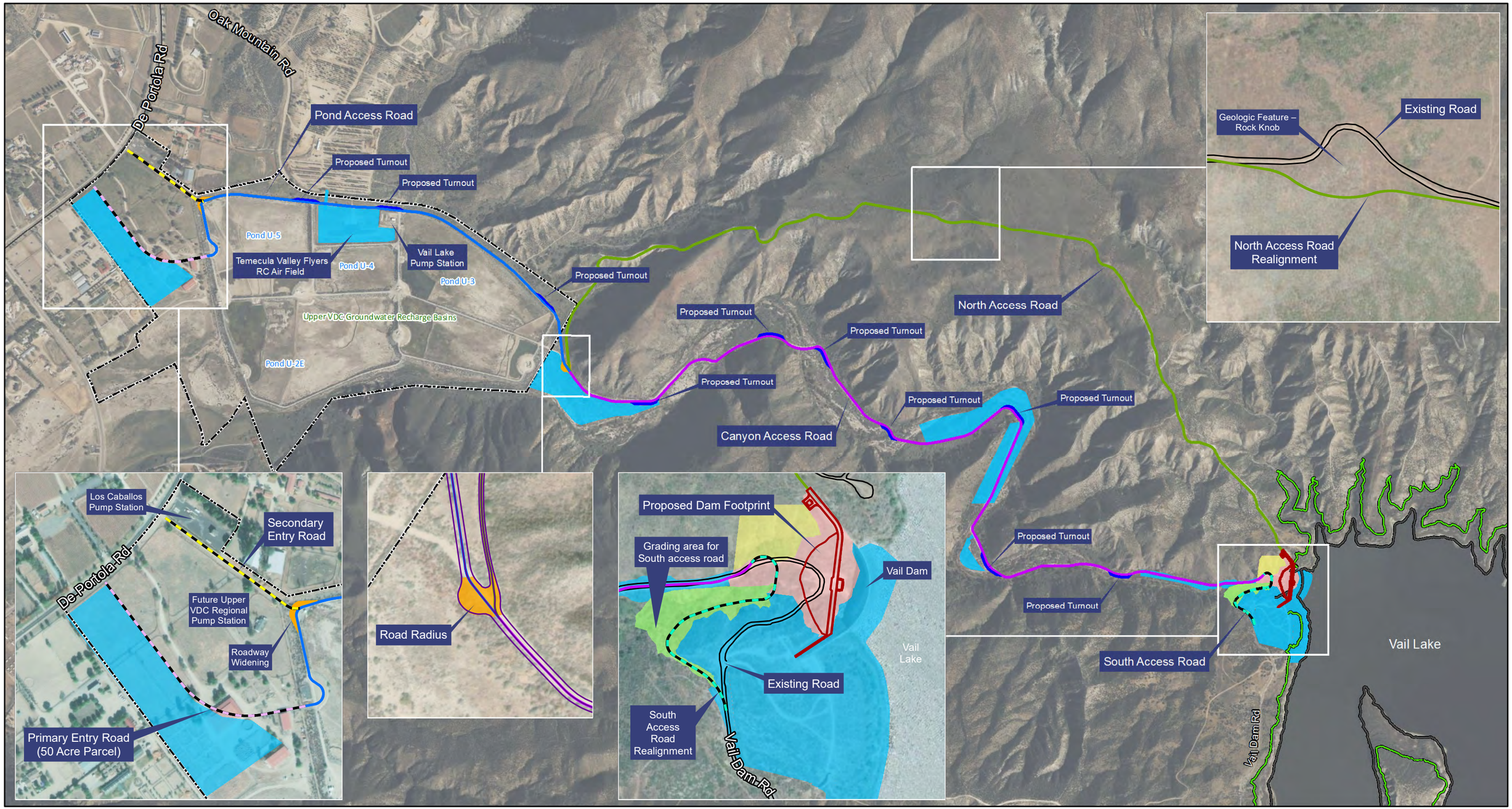
Seepage through the dam foundation would be controlled by foundation grouting, which would include a grout curtain, possibly stitch grouting, and foundation drains. Seepage through the dam would be controlled by the upstream facing of the dam, the internal dam drains, and water stops at the concrete joints.

2.2.1.6 RCC Mix Plant

The RCC mix would be produced on the Project site using a concrete batch plant, which would be located within the Upper VDC area north of Pond U-4 that is currently leased to the Temecula Valley Flyers (referred to herein as the Flyers Field). Prior to dam construction, the RCC mix, which is comprised of aggregate, cement, and fly ash, would be tested on the Project site by placing approximately 680 cubic yards (cy) of RCC within the staging area used for the RCC batch plant or the laydown area on the 50 Acre Parcel near De Portola Road (see Figure 2-12). Off-site materials testing has been conducted to evaluate potential aggregate and water sources to develop the proposed RCC mix. The objective of the RCC mix design is to develop an efficient mix that does not segregate, is easy to compact, and provides engineering properties that are consistent with the design loading.

It is currently estimated that dam construction would require approximately 93,100 cy of RCC, which would require approximately 195,500 tons of aggregate that would need to be imported and stored on site prior to use. However, this volume would increase if additional foundation excavation is required to enhance the seismic response of the dam. Refer to Figure 2-12 for the location of staging and laydown areas. Potential quarries for aggregate include a quarry located in the community of Fallbrook east of I-15 along SR-76, approximately 25 miles from the Project site, as well as a quarry located in the City of Corona. Cement would also be imported from the City of Victorville. Fly ash, a byproduct of coal power generation, would be imported from out of state.

This page intentionally left blank



LEGEND

- Canyon Access Road
- North Access Road
- Primary Entry Road (50 Acre Parcel)
- Secondary Entry Road
- Pond Access Road
- Realigned South Access Road
- Proposed Truck Turnout
- Roadway Radius
- Proposed Dam Footprint
- Property Boundary
- Dam Construction Area
- South Access Road Construction Area
- Staging and Laydown Area
- Temporary Construction Area
- Spillway Crest Elevation (1472.6' NAVD88)
- Current Water Level (1428.2' NAVD88)

0 500 1000
FEET

SOURCE: Bing Maps (2020); AECOM (6/2022)

I:\RCW1902\GIS\MXD\EIR-EIS\Staging_Laydown_Areas_AccessRds_PD.mxd (8/23/2022)

FIGURE 2-12

Vail Dam Seismic and Hydrologic Remediation Project

Staging/Laydown Areas and Access Roads

This page intentionally left blank

2.2.1.7 Electrical, Mechanical, and Instrumentation for the Dam

The existing dam facilities have overhead electrical service provided by Southern California Edison (SCE). The existing overhead service would need to be rerouted to accommodate the footprint of the new dam and outlet works facilities. New power poles would be provided to route the existing service up the downstream side of the right abutment to the new Dam Control Building. If needed, permanent access (unpaved roads) from existing access roads to the new poles would be established. All new electrical utility facilities would be designed per SCE standards. Improvements would take place primarily within the identified impact areas for the Project. Power is used for lighting, security cameras, gate actuators, trash rack hoists, and monitoring and control systems.

2.2.1.8 Site Development

The Project site would need to be further developed to support construction and operation of the proposed dam. This would include improvements to access roads, provision for construction staging and material disposal areas, and partial demolition of the existing dam.

Construction Access Roads. Existing on-site roadways that provide access from De Portola Road to the dam include the Secondary Entry Road (the existing, unpaved access road from De Portola Road to the Pond Access Road), the Pond Access Road, the Canyon Access Road, and the North Access Road. The South Access Road connects to Vail Dam Road, providing access to Vail Lake Road (which connects to SR-79) via the campground area. Construction access from SR-79 is limited to delivery of modular barges to Vail Lake; improvements to the South Access Road would consist of realigning the existing road, and no improvements are proposed to Vail Dam Road or Vail Lake Road. Oak Mountain Road, an existing private dirt road accessed off De Portola Road, would not be used for construction access. Improvements are proposed to the existing access roads to accommodate construction traffic and existing access by RCWD light-duty vehicles (see Figure 2-12).

One new road segment would be constructed. The Primary Entry Road (50 Acre Parcel) is a proposed alternate access point from De Portola Road that would connect to the Pond Access Road at the edge of the Upper VDC Recharge Basins. Once the Primary Entry Road (50 Acre Parcel) has been completed, all construction access for the Project area would be provided along that route. The existing Secondary Entry Road at De Portola Road would provide a secondary access for RCWD vehicles only. RCWD intends to maintain both the Primary Entry Road (50 Acre Parcel) and the Secondary Entry Road after completion of the Proposed Project. Improvements are described in more detail below.

> ***Primary Entry Road (50 Acre Parcel).*** The Primary Entry Road (50 Acre Parcel) is a short segment across the RCWD's 50 Acre Parcel that would connect the Pond Access Road to De Portola Road (an existing, paved roadway) and would be constructed within property owned by RCWD, south of the future Upper VDC Regional Pump Station and Chlorine Contact Tank Project (RCWD Project No. D1903) to avoid conflict with that project. The first order of work will be to construct this access road for construction access to the dam. The Primary Entry Road (50 Acre Parcel) would provide two travel lanes (25 ft total width) and include gravel surfacing, and it would also provide access to one of the construction staging areas. RCWD would demolish one unused structure, formerly a horse stable, to allow construction of the Primary Entry Road (50 Acre Parcel).

Secondary Entry Road. An existing unpaved access road from De Portola Road located adjacent to the RCWD's Los Caballos Pump Station will continue to provide routine access for RCWD vehicles only from De Portola Road to the Pond Access Road. This unpaved roadway is 20 ft wide in the existing condition; improvements would be limited to scraping the surface and placing a 4-inch gravel wear surface within the existing road limits. This road would be used during daytime hours for RCWD service vehicles only and would not provide routine construction access. Construction-related activities would be limited to installation of a noise barrier and potential delivery of oversized equipment; daily construction traffic would be routed along the Primary Entry Road (50 Acre Parcel).

North Access Road. There is an existing unimproved North Access Road that traverses approximately 2 miles from the northeast corner of the Upper VDC percolation ponds to the right abutment of the existing dam. The existing connection between the North Access Road and the Pond Access Road would be improved to facilitate the turning radius of a truck with a 40 ft wheelbase. The details of the proposed improvement to this area are shown on Figure 2-12. The existing North Access Road would be improved to provide vehicular access to the crest of the proposed dam. The North Access Road would be the primary vehicular access route to the crest of the proposed dam after Project completion. Vehicular access is not feasible from the left abutment due to the height of the existing left gravity abutment.

Project improvements would include gravel surfacing and improvement of drainage. The road would remain a single-lane road. As shown on Figure 2-12, realignment would be needed where the road is outside of the property boundary and where excavation through a rock knob would be required.

Canyon Access Road. The existing unpaved access road through the canyon below the dam is approximately 2 miles long and is currently a single-lane road bound on both sides by vegetation with limited sight lines (Figure 2-12)**.** This access road would need to be widened to two lanes (25 ft total width) for construction traffic, with several turnouts to allow vehicles to pass. Widening would be accomplished through removal of the existing vegetation on both sides of the current roadway. This widening would be only for the purpose of construction, and the access road would be revegetated and restored to its existing single-lane configuration after construction of the dam is complete. Other improvements to the Canyon Access Road would include gravel surfacing, which would remain within the single-lane road following construction. The existing five Arizona type crossings of the creek would remain; however, temporary culverts or placement of clean rock may be required during construction at the five Arizona crossings to provide adequate support for construction vehicle crossings. Any temporary culverts or fill would be removed following completion of construction, and the creek would be restored to approximate pre-Project contours and habitat conditions or better. Within approximately 550 ft of the new dam, the elevation of the Canyon Access Road would be raised by up to 7 ft to avoid overtopping during high-volume lake water release. Vegetated riprap would be placed within the Temecula Creek channel along the southern side of the raised road portion to reduce potential erosion.

Pond Access Road. The Pond Access Road is an existing unpaved road providing access to the Upper VDC Recharge Basins and connecting to the North Access Road and Canyon Access Road.

It is 20–25 ft wide in the existing condition. The roadway surface would be scraped or lightly graded to smooth the roadway surface, and vegetation that has encroached onto the roadway from the slopes of the road would be removed as part of the Proposed Project. Vegetated slopes on the sides of the roadway would not be scraped or graded. The Pond Access Road would not be widened as part of the Proposed Project with the exception of three turnouts to allow trucks to pass and a small area near the northeast corner of the ponds where there is insufficient turning radius for the larger trucks turning onto the North Access Road. At the maximum curve, this area would be widened from approximately 25 ft (including shoulders) to 50 ft as part of the Proposed Project; the location of the widening is shown on Figure 2-12. The Pond Access Road would provide two travel lanes for light utility vehicles and one travel lane for the heavy hauling trucks. During construction, on-site construction flag persons may be required to facilitate heavy hauling truck use of the Pond Access Road.

South Access Road. The existing South Access Road connects to Vail Dam Road, which is a gravel one-lane roadway used by RCWD service vehicles that connects to Vail Lake Road via the campground (this route would not be used except as a possible delivery route for the modular barge system). The current South Access Road would need to be relocated as it is within the footprint of the foundation excavation of the new dam. A new roadway embankment will be constructed along the north-facing slope of the canyon, approximately 150 ft downstream of the existing access road. The alignment of the new South Access Road is shown on Figure 2-12. This location was selected to provide access from the spillway area and to provide an area immediately downstream of the new dam for construction staging. After relocation, the South Access Road would maintain a connection to Vail Dam Road for use by RCWD service vehicles. Following construction, the graded slopes on the side of the South Access Road would be revegetated with appropriate native vegetation. Vegetated riprap would be placed at the foot of the embankment along Temecula Creek to reduce potential erosion.

It is anticipated that the South Access Road embankment would be constructed using materials excavated from the new dam foundation. This road would also have gravel surfacing and drainage improvements. The South Access Road would be inundated in the event the reservoir spills; therefore, during operation, major erosion would need to be repaired on this road in the event of spill events. Implementation of the Project would give RCWD greater control over the lake water level in the event of an emergency release and would substantially decrease the likelihood of a spill event. Therefore, damage to the South Access Road during a major weather event is considered to be a low risk.

Construction Staging and Disposal Areas. The site development would include staging areas to support construction and demolition activities. Material disposal areas are also planned for placement of excess foundation excavation spoils.

Staging Areas. Limited area is available immediately adjacent to the proposed dam and downstream due to the narrow width of this portion of the canyon. Therefore, staging areas have been identified in various locations, including the relatively level area downstream of the spillway, wider portions of the canyon downstream of the dam, within a vacant portion of RCWD's property adjacent to De Portola Road, and within the Flyers Field north of Basin U-4 in the Upper VDC Recharge Basins. The proposed staging areas are shown on Figure 2-12**.** Staging

areas include aggregate stockpile areas, laydown areas, and access and staging areas. It is anticipated that the contractor would determine the optimal locations within the staging areas for each activity. Staging areas would be required to provide the following:

1. **RCC Mix Plant Area:** This area will contain a portable concrete mix plant with silos of cement and fly ash and stockpiles of aggregate in 3 to 4 sizes. This mix plant area is anticipated to be located at the Flyers Field. The RCC would be hauled from the mix plant to the dam site with off-road trucks.

2. **Foundation Grout Mix Plant:** This area will contain a small mix plant for the grout used in the foundation grouting. This grout mix plant will be located adjacent to the dam site.

3. **Crushing Plant:** This area will contain a portable rock crushing plant for crushing materials excavated from the dam foundation. Because of the limited space available adjacent to the dam, it is likely that the crushing plant will be located in a mid-canyon area.

4. **Contractor Trailers:** Both the contractor's and engineer's field offices will be located within staging areas.

5. **Laydown Areas:** These areas will provide material laydown/storage areas and space for activities such as fabricating rebar and assembling concrete forms, etc.

6. **Crane Access Areas:** Portions of the staging and laydown area near the dam spillway may be graded to provide flat areas for crane access during the partial demolition of the existing arch dam. Cranes may be used to lift modular barge components from flatbed trucks into the lake and to move demolition debris from barges onto trucks for disposal.

7. **Topsoil Stockpile Areas:** Topsoil from areas within the impact limits that support native vegetation will be salvaged and stockpiled during construction. Following construction, the salvaged topsoil will be spread onto areas to be restored to native habitat.

Disposal Areas. As discussed previously, approximately 64,900 cy of materials (including the previous foundation spoils, alluvium, fill, and moderately weathered rock) would be generated from excavation for the dam foundation. Most of this material would be used to grade the new alignment of the South Access Road and to provide flat areas near Vail Dam to support crane access for demolition activities. The balance of the excavation materials would require removal from the dam area and subsequent disposal. RCWD currently plans to keep the excess materials on its property for possible future reuse. Disposal areas are anticipated to be located within the staging and laydown area near De Portola Road on RCWD's 50 Acre Parcel as shown on Figure 2-12. Off-site disposal, if needed, would be at a nearby licensed landfill.

2.2.1.9 Construction Schedule and Phasing

Construction of the new dam is anticipated to be initiated in the fall of 2023 and completed in late 2025. It is anticipated that the new dam and outlet works would be substantially complete in approximately 23 months. The existing dam would then be partially demolished after completion of the new Vail Dam outlet tower, and it is expected that construction would be complete in

approximately 31 months (AECOM 2019). The Project would be constructed in 14 phases, as shown in Table 2.A. Construction of the Primary Entry Road (50 Acre Parcel), part of Phase 2, would be the first order of work. Overlapping phases are shown in Table 2.B.

Table 2.A: Construction Phases

Phase Number	Description	Duration
1	Mobilization	16 Weeks (Months 1–4)
2	Access Roads and Staging Areas	24 Weeks (Months 2–8)
3	Demolition of Facilities at New Dam	10 Weeks (Months 5–9)
4	Foundation Excavation	48 Weeks (Months 5–16)
5	Temporary Energy Dissipation Vault	18 Weeks (Months 5–9)
6	Armor Spillway	6 Weeks (Months 8–10)
7	Foundation Treatment and Grouting	20 Weeks (Months 10–15)
8	Roller Compacted Concrete Placement	31 Weeks (Months 13–20)
9	Outlet Tower	28 Weeks (Months 17–23)
10	Dam Drainage Facilities	19 Weeks (Months 18–22)
11	Dam Instrumentation	10 Weeks (Months 22–24)
12	Permanent Energy Dissipation Vault	8 Weeks (Months 23–25)
13	Demolition of Existing Facilities	19 Weeks (Months 25–29)
14	Site Reclamation and Demobilization	6 Weeks (Months 30–31)

Source: Construction information memorandum (AECOM 2020). Adjusted to account for 90% Design.

Table 2.B: Overlapping Construction Phases

Overlapping Phases	Duration
1 and 2	10 Weeks (Months 2–4)
3, 4, and 5	6 Weeks (Months 5–6)
7 and 8	8 Weeks (Months 13–15)
8 and 9	4 Weeks (Months 17–18)
8, 9, and 10	11 Weeks (Months 18–20)
9 and 10	5 Weeks (Months 21–22)
9, 10, and 11	2 Weeks (Month 22)
9 and 11	4 Weeks (Months 22–23)
11 and 12	7 Weeks (Months 23–24)

Source: Construction information memorandum (AECOM 2020). Adjusted to account for 90% Design.

Once the Proposed Project is complete, Vail Lake and Vail Dam would not require any part-time construction workers or full-time, dedicated RCWD staff on site. Revegetation of temporary impact areas would occur following construction, with maintenance and monitoring occurring over a 5-year period following plant installation.

2.2.1.10 Haul Routes

Materials and equipment will be brought to the site from contractor offices and yards and from one or more off-site aggregate quarries. In addition, cement and fly ash will be imported from off the site. As the contractor, aggregate, cement, and fly ash sources have not been selected, the exact haul routes are not known. From I-15 or other areas west of the site, materials and equipment would likely be transported via Temecula Parkway/SR-79, head north on Anza Road, and then east on De Portola Road to the Primary Entry Road (50 Acre Parcel). Materials and equipment may also

be transported from I-15 to Rancho California Road, then south via Anza Road and west on De Portola Road to the Primary Entry Road (50 Acre Parcel). While construction access would generally not be provided on Vail Lake Road and Vail Dam Road, it may be necessary to use this road for transporting the modular barges from SR-79 that would be used for dam demolition. Materials and equipment coming from east or southeast of the Project site (or the eastern portion of northern San Diego County) could access SR-79 from SR-76.

2.2.1.11 Construction Equipment

A variety of vehicles and equipment would be used during the Project. Equipment used would differ by Project phase, with the most intensive use occurring during RCC placement. Table 2.C presents a summary of the anticipated use of equipment and vehicles prepared in support of the 90% Design Report.

Table 2.C: Summary of Anticipated Construction Equipment

Equipment Description	Estimated Operating Hours[1]	Total Estimated Legal Load Highway Trips[2]
Excavator	3,280	
Front End Loader	8,320	
Tractor with Bulldozer	3,640	
Motor Grader	2,600	
Compactor	2,160	
Truck Articulated Off Highway	10,360	
Truck Trailer for Equipment/Materials[3]	3,680	940
Truck Trailer for Aggregates[4,5]	22,296	19,386
Truck Trailer for Cement or Fly Ash[6]	2,268	1,680
Truck Trailer for Removal of Dam Debris	840	210
Truck Water	6,040	
Truck Service	8,080	
Truck Ready Mix Concrete[7]	1,364	682
Rock Drills	5,040	
Generator Sets	4,000	
Crane	5,800	
Crush and Screen Plant[8]	720	
Concrete Batch Plant	1,080	
Grout Mix and Pump	2,240	
Chipper	560	
Pickup	17,920	
TOTAL		**18,248**

Source: Construction information memorandum (AECOM 2020). Adjusted to account for 90% Design.

[1] Estimated 40 hours/week except for Roller Compacted Concrete (RCC) Placement where 90 hours/week was assumed.

[2] Highway trips include inbound and outbound trips (e.g., one truck load requires two trips).

[3] Highway trips estimated to bring in equipment and materials at 8 hours/load.

[4] Highway trips are estimated assuming truck load of 13 cubic yards for 5,300 cubic yards of road aggregates.

[5] Highway trips are estimated assuming truck load of 21 tons for 195,500 tons of RCC aggregates.

[6] Highway trips are estimated assuming truck load of 20 tons for 16,800 tons of cement and fly ash.

[7] Highway trips are estimated assuming 8 cubic yard ready mix trucks.

[8] Fuel consumption for crusher is in generator set.

2.2.1.12 Vail Lake Water Storage

The replacement dam would be constructed so the resultant storage capacity and maximum reservoir level would be equal to the capacity and elevation prior to the water level restriction. Currently, water levels are restricted to between a high of 1,457.6 ft NAVD88 (15 ft below the spillway crest) and a low of 1,437.6 ft NAVD88. Remediation of seismic and hydrologic hazards at Vail Dam would allow for the removal of the water level restrictions. Specifically, the reservoir water level could be increased up to the spillway elevation (1,472.6 ft NAVD88). However, RCWD would not manually fill the reservoir to more than 1,457.6 ft NAVD88 (15 ft below the spillway crest) to allow capacity for rainfall inflow.

As stated previously, the operating level of the reservoir is dependent on a variety of factors, including restrictions on pumping into the reservoir to prevent introduction of quagga mussel, requirements to recharge groundwater to reduce evaporation of stored water, and the amount of precipitation. As such, the reservoir would continue to be subject to semiregular fluctuations in water level. Figure 2-6 depicts the extent of the lake when the water is at the spillway elevation.

As required by DSOD, vegetation maintenance would continue within the spillway area to remove vegetation that could obstruct flows (large trees and shrubs) and clear all vegetation within 10 ft of concrete structures.

2.3 PROJECT OBJECTIVES

The Project is intended to achieve the following primary objectives:

1. Ensure that Vail Dam will pass the PMF through the spillway without overtopping.
2. Ensure that Vail Dam will withstand the MCE without resulting in catastrophic dam failure.
3. Maintain the current capacity of Vail Lake to ensure adequate water supply and maintain reliability throughout RCWD's service area.
4. Utilize RCWD resources in a cost-effective and responsible manner.
5. Maintain a locally based and cost-effective water supply that continues to support local agriculture.
6. Provide a climate change buffer with both the ability to capture less frequent, but more intense, storms and act as a buffer against drought conditions.
7. Provide passive flood control for downstream Temecula Creek.

2.3.1 Required Permits and Approvals

The dam construction would require approvals from local agencies and from federal, State, and local regulatory agencies.

Additionally, Project improvements would affect resources subject to the jurisdiction of the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and the Regional Water Quality Control Board and have the potential to affect threatened or endangered species and historic resources. Table 2.D indicates the anticipated permits and authorizations required for this Project.

Table 2.D: Anticipated Permits and Authorizations

Agency	Permit/Authorization
U.S. Army Corps of Engineers (USACE)	• CWA 404 Individual Permit • Rivers and Harbors Act Section 10 Permit
California Department of Fish and Wildlife (CDFW)	• FGC Section 1600 Lake or Streambed Alteration Agreement
Regional Water Quality Control Board (RWQCB)	• CWA 401 Water Quality Certification • Waste Discharge Requirements, if applicable • Dewatering Permit
State Water Resources Control Board (SWRCB)	• Construction General Permit
Western Riverside County Regional Conservation Authority (WRC RCA)	• Certificate of Inclusion and Incidental Take Statement
State Historic Preservation Officer (SHPO)	• NHPA Section 106 Consultation
California Department of Water Resources, Division of Safety of Dams (DSOD)	• Approval of Plans and Specifications for the Construction or Enlargement of a Dam and Reservoir
County of Riverside	• Encroachment Permit for new driveway off De Portola Road

Source: Compiled by LSA (2022).
CWA = Clean Water Act
FGC = California Fish and Game Code
NHPA = National Historic Preservation Act

3.0 ENVIRONMENTAL IMPACT ANALYSIS

OVERVIEW OF ENVIRONMENTAL SETTING

Vail Dam and Vail Lake are located in unincorporated southwestern Riverside County, east of the City of Temecula, in Southern California (see Figures 2-1 and 2-2). Vail Dam spans Temecula Creek, a northwesterly draining tributary of the Santa Margarita River that drains the north side of Palomar Mountain. The watershed for Vail Lake is approximately 318 square miles. Vail Lake is a reservoir fed by Temecula Creek, Wilson Creek, Kolb Creek, and Arroyo Seco.

Rancho California Water District (RCWD) acquired approximately 7,700 acres of the Vail and Sundance Ranch properties surrounding Vail Lake in 2014 (RCWD 2016). Including Vail Lake, RCWD land holdings total 8,444 acres in the vicinity of Vail Lake; this area is referred to as the Vail Property in the Property Guidance Document prepared by RCWD in 2016 (RCWD 2016). The Vail Property is located approximately 3 miles east of the City limits of Temecula and approximately 7 miles east of Interstate 15 (I-15). State Route 79 (SR-79) traverses the southern portion of the property. The areas surrounding Vail Lake consist of a mix of land uses including open-space conservation, open-space habitat, open-space recreation, and rural residential.

Existing land uses on the RCWD property include the Vail Lake Village and RV Resort, the Vail Lake Marina facilities, numerous hiking, equestrian, and mountain biking trails located within the property, and Vail Dam facilities including pipelines and other appurtenances.

CHAPTER FORMAT

This chapter contains 15 sections, and each section addresses one environmental topic listed in Appendix G of the Guidelines for the California Environmental Quality Act (*State CEQA Guidelines*) (California Code of Regulations [CCR] Title 14, Chapter 3, Section 1500–15397).

For each environmental impact issue analyzed, the Environmental Impact Report (EIR) includes a detailed explanation of the existing conditions, thresholds of significance that will be applied to determine whether the Project's impacts are significant or less than significant, analysis of the environmental impacts, and a determination of whether the Project would have a significant impact if implemented. A "significant impact" or "significant effect" means "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora fauna, ambient noise, and object of aesthetic significance. An economic or social change by itself shall not considered to be a significant effect on the environment." (14 CCR Section 15382). Each environmental topic section in Chapter 3.0 also includes a discussion of the cumulative effects of the Project when considered in combination with other projects, causing related impacts, as required by *State CEQA Guidelines* Section 15130.

Each of the sections includes an introductory paragraph and is organized into 10 subsections, as follows:

- **Scoping Process** briefly summarizes any relevant comments that were received during the scoping process.

- **Existing Environmental Setting** describes the relevant physical conditions that exist at the time of the issuance of the Initial Study/Notice of Preparation (IS/NOP) that may influence or affect the issue under investigation. This section focuses on physical site characteristics that are relevant to the environmental topic being analyzed.

- **Regulatory Setting** lists and discusses the laws, ordinances, regulations, plans, and policies that relate to the specific environmental topic and how they apply to the Proposed Project.

- **Methodology** describes the approach and methods employed to complete the environmental analysis for the issue under investigation.

- **Thresholds of Significance** sets forth the thresholds that are the basis of the conclusions regarding significance, which are primarily the criteria in Appendix G to the *State CEQA Guidelines* and the RCWD Initial Study/Environmental Checklist.

- **Project Impacts** describes the potential environmental changes to the existing physical conditions that may occur if the Proposed Project is implemented. Evidence is presented to show the cause-and-effect relationship between the Proposed Project and potential changes in the environment. In accordance with *State CEQA Guidelines* Section 15126.2(a), this EIR is required to "identify and focus on the significant environmental effects" of the Proposed Project. The magnitude, duration, extent, frequency, and range or other parameters of a potential impact are ascertained to the extent feasible to determine whether impacts may be significant. In accordance with CEQA, potential project impacts, if any, are classified as follows for each of the environmental topics discussed in this EIR.

    - **Significant and Unavoidable Impact:** If the Proposed Project is approved with significant and unavoidable impacts, the decision-making body is required to adopt a statement of overriding considerations pursuant to *State CEQA Guidelines* Section 15093 explaining why the project benefits outweigh the unavoidable adverse environmental effects caused by those significant and unavoidable environmental impacts.

    - **Less Than Significant Impact with Mitigation Incorporated:** This classification refers to potentially significant environmental impacts that can be feasibly mitigated to a less than significant level or level of insignificance. If the Proposed Project is approved, the decision-making body is required to make findings pursuant to *State CEQA Guidelines* Section 15091 that significant impacts have been mitigated to the extent feasible through implementation of mitigation measures.

    - **Less Than Significant Impact:** Less than significant impacts are environmental impacts that have been identified but are not potentially significant. No mitigation is required for less than significant impacts.

    - **No Impact:** A "no impact" determination is made when the Proposed Project is found to have no environmental impact.

- **Cumulative Impacts** refers to potential environmental changes to the existing physical conditions that may occur as a result of Project implementation together with all other reasonably foreseeable, planned, and approved future projects in the vicinity of the Project site that produce related impacts. *State CEQA Guidelines* Section 15355 defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Cumulative impacts may result from individually minor but collectively significant projects taking place over a period of time. Projects that have progressed to the stage where CEQA review has been initiated are normally treated as foreseeable probable future projects. For each of the environmental topics considered in this EIR, the geographic scope of the cumulative analysis is defined.

- **Level of Significance Prior to Mitigation** summarizes the potentially significant impacts of the Project, if any, prior to mitigation.

- **Mitigation Measures** are Project-specific measures that avoid, minimize, rectify, reduce, eliminate, or compensate for a potentially significant impact.

    - **Regulatory Compliance Measures** may be identified in some sections. Regulatory Compliance Measures describe any relevant and applicable laws or regulations that must be followed with respect to the construction or operation of the Proposed Project and would reduce or lessen potential impacts related to a particular issue area. They are not considered mitigation.

- **Level of Significance After Mitigation** describes the significance of potential impacts after implementation of mitigation measures. Potential significant unavoidable impacts are clearly stated in this section.

THRESHOLDS OF SIGNIFICANCE

The threshold questions used in this EIR are consistent with Appendix G of the *State CEQA Guidelines* and RCWD's CEQA Guidelines (2022).

RELATED PROJECTS

In accordance with *State CEQA Guidelines* Section 15130, cumulative impacts are anticipated impacts of the Proposed Project along with reasonably foreseeable growth. Reasonably foreseeable growth may be based on either:

- A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or

- A summary of projections contained in the adopted General Plan or related planning document, or in a prior environmental document that has been adopted or certified, and that described or evaluated regional or areawide conditions contributing to the cumulative impact.

For the purposes of the EIR, a list of past, present, and probable future projects is used in the evaluation of potential cumulative impacts. All proposed, recently approved, under construction,

and reasonably foreseeable projects that could produce a related or cumulative impact on the local environment when considered in conjunction with the Proposed Project are evaluated in an EIR. As stated above, an analysis of the cumulative impacts associated with these related projects and the Proposed Project is provided in the cumulative impacts discussion under each individual impact category in Chapter 3.0.

In coordination with the RCWD, the City of Temecula, and the County of Riverside, a list of past, present, and probable future projects was developed. As shown in Table 3.A, the projects include various land uses, such as residential, commercial, office, and mixed-use. Although some projects on the list have been completed since issuance of the Notice of Preparation (NOP), they remain on the list because they are part of the cumulative analysis for the EIR.

It is noted that some of the related projects may not be completed by 2025 (the Proposed Project's anticipated buildout year), may never be built, or may be approved and built at reduced densities. However, to provide a conservative forecast, the future baseline forecast assumes that all of the related projects will be fully built out by 2025.

The discussion of cumulative impacts "should be guided by the standards of practicality and reasonableness" (*Environmental Protection Info. Center v. Department of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 524). A proposal that has not crystallized to the point that it would be reasonable and practical to evaluate its cumulative impacts need not be treated as a probable future project (*City of Maywood v. Los Angeles Unified School District* (2012) 208 Cal.App.4th 362, 397). Rather, a potential future project qualifies for inclusion in an analysis of cumulative impacts only to the extent the future project is "both probable and sufficiently certain to allow for meaningful cumulative impact analysis" (*Id*. at 398; see *City of Long Beach v. Los Angeles Unified School Dist*. (2009) 176 Cal.App.4th 889, 902 [when "review[ing] the agency's decision to include information in the cumulative impacts analysis[,] ... [w]e determine whether inclusion was reasonable and practical"]).

Of the related projects shown in Table 3.A, only those proposed or under development by RCWD and within Riverside County include projects that are located on or in proximity to the Project site. While many residential and commercial projects are within the City of Temecula, they are generally too distant from the Project site to result in cumulative impacts in combination with the Proposed Project. Combined impacts could occur for those environmental topics where the Proposed Project impacts would not be limited to the Project site, such as air quality, greenhouse gas emissions, noise, and transportation.

Table 3.A: Summary of Related Projects

Project Name	Location	Status	Project Description
Rancho California Water District[1]			
Zone of Benefit No. 8 Hacienda Drive Pipeline Extension	Within RCWD service area, within the unincorporated area of Riverside County, along Hacienda Drive terminating approximately 1,250 feet southwest of the intersection with Alta Cresta Circle.	RCWD filed Notice of Exemption 3/31/2020	Construction of 600 feet of 8-inch-diameter water pipeline to provide services to existing and planned customers in the Santa Rosa Division.
Recycled Water Accelerated Retrofit Program	Within RCWD's service area in the Cities of Temecula and Murrieta.	RCWD filed Notice of Exemption 3/31/2020	The Program provides incentives to qualified participants within RCWD's service area who wish to retrofit their irrigation systems for recycled water use. The Program is designed to advance recycled water retrofit projects to achieve potable water offsets and incorporates streamlined business processes, technical support, and financing mechanisms to expedite the permitting, design, and construction of retrofit sites.
Temecula Parkway Recycled Water Pipeline Replacement	Temecula Parkway, from Bedford Court to approximately 600 lineal feet west of Avenida De Missiones.	RCWD filed Notice of Exemption 4/30/2020, project is complete	Replacement of approximately 7,700 lineal feet of 20-inch-diameter PVC recycled water pipeline to replace an existing 20-inch-diameter cement mortar lined and cement mortar coated welded steel waterline.
Potable Water Main Replacement – Overland Drive and Margarita Road	Along Overland Drive, between Ynez Road and Margarita Road, and along Margarita Road, between Overland Drive and Solana Way.	RCWD filed Notice of Exemption 5/19/2020, project is complete	Replacement of approximately 2,400 linear feet of 16-inch-diameter potable water pipeline and associated appurtenances.
Miscellaneous Water Valve & Appurtenance Replacement Installations	Various locations within RCWD service area, including City of Temecula and unincorporated Riverside County.	RCWD filed Notice of Exemption 6/5/2020	Installation and replacement of varying appurtenances, including isolation valves, fire hydrants, air release valves, and valve can/risers, along RCWD's existing water distribution systems.
Upper Valle De Los Caballos (UVDC) Regional Pump Station	South of De Portola Road; east of Pauba Road; and along/east of Conquistador Place; portions of De Portola Road.	Approved by RCWD Board of Directors 6/11/2020	Increasing capacity of UVDC Regional Pump Station to augment capacity in the 1305 and 1380 Pressure Zones, which includes the following components: import of fill material to raise the site pad above existing ground elevation; chlorine contact tank for groundwater disinfection; on-site sodium hypochlorite generation and feed system; wet well and transition pipeline to direct flow from the contact tank to the pump station; extension of the exiting ammonia feed facility; discharge piping; vertical turbine pumps; and two new wells.
New Well No. 172 and Monitoring Well No. 512	Within Basin U-2 of the UVDC Recharge Basins; east of De Portola Road.	RCWD filed Notice of Exemption 7/19/2022	Installation and operation of new production and monitoring well as part of the Supplemental Water Supply Program.
Pipeline Joint Repair and Adams Avenue Flow Diversion Rehabilitation	City of Temecula on Diaz Road east of intersection with Winchester Road, and City of Murrieta at intersection of Adams Avenue and Elm Street.	RCWD filed Notice of Exemption 7/11/2022	Rehabilitation and reconstruction of existing sanitary sewer manholes and conveyance.

Table 3.A: Summary of Related Projects

Project Name	Location	Status	Project Description
Pipeline Joint Repair SRWRF Manhole Installation	Santa Rosa Water Reclamation Facility, 26266 Washington Avenue, Murrieta.	RCWD filed Notice of Exemption 6/17/2022	Santa Rosa Regional Resources Authority project to install new manhole access points for inspection and maintenance of existing 24-inch-diameter plant sewer.
Fiscal Year 2021/2022 Reservoir Recoats	Various locations in RCWD service area (unincorporated Riverside County, City of Temecula, City of Murrieta).	RCWD filed Notice of Exemption 9/2/2021	Recoating exterior and/or interior surfaces of four existing steel water storage tanks and on-site appurtenances.
Cole Creek Pond Relining	42533 Tenaja Road, Murrieta.	RCWD filed Notice of Exemption 4/2/2021	Replacement of existing geomembrane liner for Cole Creek Recycled Water Seasonal Storage Pond.
El Calamar Road and Via Escalon 24-inch Potable Water Pipeline Project	Primarily within and adjacent to El Calamar Road and Via Escalon, with segment along driveway to Carancho Pump Station/ Reservoir.	RCWD filed Notice of Exemption 3/15/2021, project is complete	Installation of 24-inch-diameter potable water pipeline to replace existing 12-inch water pipeline.
Riverside County[2]			
Riverside County Project No. CUP02303R1	East of Pauba Road; North of SR-79.	LDC review 7/9/2015	Proposal to include special occasion facility.
Riverside County Project No. PPT190022	De Portola Road.	Applied 7/30/2019	Propose a new pavilion building, convert a portion of the storage building into a kitchen, convert existing barn into a private wine tasting room.
Riverside County Project No. PPT190036	De Portola Road.	Applied 11/12/2019	Modify existing winery into a class 5 including special events.
Riverside County Project No. PP21447R1	De Portola Road.	Approved 11/14/2012	Add 3-story wine tasting/storage/ofc building and 10,708 sq. ft. wine storage cave/tunnel with 2 meeting rooms and a bathroom.
Riverside County Project No. PP22263R02	De Portola Road.	Approved 2/28/2019	Add new 8,100 sf detached cold storage building for Renzoni Vineyard.
Riverside County Project No. PP26360	On Pauba Road, north of SR-79.	Approved 10/13/2017	Class II winery for wine processing - no tasting.
Riverside County Project No. PPT170001	On Pauba Road, north of SR-79.	Approved 12/12/2017	Proposal to operate a class II winery within an existing metal building, including a tasting room that will be open to the public on a 10.0-gross-acre parcel. The existing metal structure is 5,056 sq. ft. Approximately 0.82 acres (35,800 sq. ft.) of the site will be developed; approximately 3 acres (130,941 sq. ft.) of the site will be planted with vineyards. The remaining area, approximately 6 acres, will be undisturbed due to topography of the project site and the protection of existing trees.
Riverside County Project No. PPT180019	De Portola Road.	Approved 6/21/2018	Plot plan for class V winery phase I (tasting room, production facility, and restaurant with monument sign) phase ii (hotel, restaurant, and spa).
Riverside County Project No. TR37254	West of Via Anita Road.	Approved 1/31/2017	Sched d 8 lots from 51.52 ac.
City of Temecula[3]			
Woodspring Suites	Located on the west side of Madison Avenue between Buecking Drive and McCabe Court.	Unknown	Development Plan for an approximately 60,600-square-foot, four-story, 130-room Woodspring Suites Hotel.

Table 3.A: Summary of Related Projects

Project Name	Location	Status	Project Description
Harveston Residential Overlay	Located on both the north and south sides of Date Street, between Ynez Road and I-15.	Approved	A Specific Plan Amendment to allow an overlay over commercially designated property to allow up to 1,000 residential units.
Heirloom Farms	Located on the corner of Date Street and Ynez Road.	Approved/Under Construction	Development Plan to allow for the construction of a 321-unit single-family community on 27.86 acres consisting of detached homes, attached townhomes, and duplexes.
Arrive @ Rancho Highlands	Adjacent to the Temecula Duck Pond, southeast of Rancho California Road on Ynez Road.	Approved/Under Construction	Development Plan for a 247-unit multi-family community adjacent to the Temecula Duck Pond.
Solana Assisted Living	Located on the southeast corner of Margarita Road and Solana Way.	Approved/Under Construction	Development Plan for the construction of an approximately 91,002-square-foot, two-story, 107-unit assisted living and memory care facility.
Roripaugh Ranch - Wingsweep Tract Maps	TTM 37925 (PA10); TTM 37928 (PA33A).	Applied/In Review	Three Tentative Tract Maps (TTM) for the remaining three non-entitled residential planning areas of the Roripaugh Ranch Specific Plan: TTM 37925 (PA10) for the creation of 13 single-family lots, 1 open space lot, and a water quality basin; TTM 37928 (PA33A) for the creation of 15 single-family lots, 5 open space lots, and a water quality basin.
MS Mountain View Industrial Buildings	Located on individual lots along Avenida Alvarado.	Buildings in various stages of approval and construction. See list to the right.	Development Plans for separate industrial buildings. Building 1: 15,641 SF – Under construction Building 2: 14,544 SF – Under construction Building 3: 15,944 SF – Under construction Building 7: 11,824 SF – Under construction Building 5: 23,788 SF – Under construction Building 6: 19,769 SF – Under construction Building 10: 19,336 SF – Under construction Building 11: 17,503 SF – Under construction Building 12: 38,714 SF – Approved Building 13: 19,727 SF – Approved Building 20: 9,867 SF – Approved Building 14: 21,793 SF – Applied/In Review Building 18: 11,369 SF – Applied/In Review Building 19: 22,769 SF – Applied/In Review
Sommers Bend Home Product Review	Located in PAs 22, 23A, and 24.	Approved/Under Construction/Occupied	The second phase of a single-family residential home product review for Sommers Bend. This phase is all age-qualified homes and encompasses three villages for a total of 192 units.
Sommers Bend Home Product Review	Located in PAs 14, 16A, 16B, and 31B.	Occupied	The first phase of a single-family residential home product review for Sommers Bend. The first phase encompasses four villages for a total of 246 units.
Sommers Bend Age Qualified Private Recreation Center	Located within PA23B at Sommers Bend.	Approved/Occupied	Development Plan for the Sommers Bend age-qualified private recreation center consisting of an approximately 11,159-square-foot clubhouse building (including a fitness center, multi-purpose room, and kitchen), pool, spa, pickleball courts, bocce ball, group BBQ, yoga lawn, cabanas, and 45 parking spaces.

Table 3.A: Summary of Related Projects

Project Name	Location	Status	Project Description
Sommers Bend Private Recreation Center	Located east of Butterfield Stage Road.	Occupied	Development Plan and Conditional Use Permit for the Sommers Bend (formerly Roripaugh Ranch) Private Recreation Center containing an approximately 5,615-square-foot clubhouse, 3,364-square-foot multi-purpose "barn," 7,563-square-foot pool house, and three bungalows. The recreation center also contains three pools, a tot lot, event lawn, spa, cabanas, two fire pits, outdoor kitchen area, and parking.
Lantern Crest Temecula	The project is located at the southeast corner of Date Street and Ynez Road.	Approved	Modification to a previously approved Development Plan (PA17-0328) for an approximately 526,762-square-foot, four-story, 494-unit, independent and assisted living community; and a Minor Exception for a 4'-9" increase in allowable building height for architectural elements.
Temecula Hyundai	Located at 27430 Ynez Road.	Approved	The City is processing a Modification for the construction of an approximately 5,382-square-foot two-story building on the rear portion of the existing Temecula Hyundai site to include new service bays, parts storage, and offices.
Temecula Valley Lexus	Located at 42081 DLR Drive.	Occupied	The City is processing a Development Plan for Temecula Valley Lexus for an approximately 54,383-square-foot automobile dealership that includes sales, service, and parts storage.
Trinity Lutheran Church	Church located at 30470 Pauba Road.	Approved/Under Construction	Modification for the construction of a 9,530-square-foot preschool building, a new 16,478-square-foot fellowship hall, and 103 new parking spaces developed in two phases at the existing Trinity Lutheran.
Winchester/ Jefferson Hotel	The project is located behind the existing Rancho Car Wash on the corner of Jefferson Avenue and Winchester Road at APN 910-282-002.	Approved	Development Plan for the construction of a three-story, over enclosed podium parking, 39,294-square-foot hotel (61 rooms) with a second story pool/spa and deck area.
4th St. Hotel	The project is located approximately 50 feet southwest of Mercedes Street on the south side of 4th Street.	Approved	A Development Plan Application to construct a four-story, 73,768-square-foot hotel with underground parking. The fourth floor is designated as residential condominium units.
American Tire Depot	Located at the southwest corner of Ynez Road and DLR Drive.	Under Construction	Development Plan to allow for American Tire Depot to construct a 7,450-square-foot building for the primary purpose of providing tire sales, as well as alignments, brake service, shocks, tune-ups, and oil changes.
Hilton Garden Inn	The site is located approximately 900 feet north of Rancho California Road on Jefferson Avenue.	Occupied	Development Plan to allow for the construction of a three-story 66,200-square-foot hotel with underground parking. The hotel consists of 104 rooms.
Temecula Village Apartments	The project is located on Rancho California Road, 660 ft west of Cosmic Drive.	Occupied	Development Plan to allow for the construction of a 160-unit apartment community.

Table 3.A: Summary of Related Projects

Project Name	Location	Status	Project Description
Altair Specific Plan	Located south and west of the intersection of Ridge Park Drive and Vincent Moraga; west of Pujol Street and Murrieta Creek; and north of Santa Margarita River.	Approved (pending litigation)	A Specific plan allowing up to 1,750 residential units.
Las Haciendas Development Plan	Located at 28715 Las Haciendas Street.	Under Construction	A Development Plan for a 77-unit affordable multi-family housing community consisting of two residential buildings, a community building, and tuck-under parking.
Art Gaitan's Mexico Cafe CUP	44500 Pechanga Pky.	Under Construction	A Conditional Use Permit to allow for a Type 47 ABC license (on-sale general beer/wine/distilled spirits) at a proposed restaurant located approximately 1,300 feet south of the Temecula Parkway and Pechanga Parkway intersection on the east side of Pechanga Parkway) (APN: 961-440-015).
Staybridge Suites Development Plan	27500 Jefferson Ave.	Occupied	A Development Plan for an approximately 90,832-square-foot, 4-story, 125-room Staybridge Suites hotel located at 27500 Jefferson Avenue.
Remington Industrial Development Plan	42006 Remington Ave.	Occupied	A Development Plan for a 53,574-square-foot concrete tilt-up 2-story shell industrial building located at 42006 Remington Ave.
City of Temecula Project No. PA15-1894	The project is generally located at the northeast intersection of Pechanga Parkway and Loma Linda Road.	Occupied	A General Plan Amendment to revise the General Plan designation from Professional Office (PO) to Medium (M) Density residential; PA15-1895, a Planned Development Overlay/Zone Change to revise the Zoning designation from Professional Office (PO) to Planned Development Overlay 15; PA15-1893, a Tentative Tract Map to allow for the creation of two lots from three; and PA15-1892, a Development Plan to allow for 245 residential market rate units consisting of detached and attached cluster units, and duplex/triplex units totaling approximately 439,341 square feet, the conversion of 0.67 acres of an off-site existing concrete drainage ditch into a landscaped infiltration basin, improvements to Pala Park, and additional off-site landscape improvements north of the project site along Pechanga Parkway.
City of Temecula Project Nos. PA14-2696 and PA14-2698	Generally located on the southwest corner of De Portola Road and Campanula Way.	Occupied	A Development Plan and Conditional Use Permit applications to allow for the construction and operation of a 92-unit, 67,146-square-foot single-story skilled nursing and memory care center divided into two structures.

Table 3.A: Summary of Related Projects

Project Name	Location	Status	Project Description
City of Temecula Project No. PA17-0109	Generally located along the south side of 3rd Street between Old Town Front Street and Mercedes Street.	Approved	A Specific Plan Amendment to relocate a portion of the Hotel Overlay within the Old Town Specific Plan. PA16-0270, a Development Plan application for a six-story, approximately 175,677-square-foot hotel. The hotel will contain 151 guest rooms. A parking structure will also be constructed directly across 3rd Street. The parking structure will total approximately 86,117 square feet and contain approximately 2,846 square feet of ground floor commercial space and 213 parking spaces that will provide valet parking for hotel guests. PA17-1020 a Minor Exception to allow for an increase in building height for the parking garage.
Vine Creek Apartments Affordable Housing Development (City of Temecula Project No. PA18-0081)	Located approximately 130 feet north of the Main Street and Pujol Street intersection, on the east Side of Pujol Street (APNs 922-053-021, 922-053-048, 922-053-047).	Approved	A Development Plan to allow a three-story affordable multi-family project totaling sixty units with fifteen units available for special needs occupants (twelve units for autism and three units for sensory); PA18-1230, a Minor Exception for parking to reduce the off-street parking requirement from 113 to 102 spaces; PA18-0497, a Tentative Parcel Map to create one lot from three; and PA18-0692, a Certificate of Historical Appropriateness for the location of the former railroad turntable.
City of Temecula Project No. PA19-0081	Generally located on the southwest corner of Village Road and Landings Road.	Approved	A Development Plan application to allow for an approximately 27,514-square-foot, three-story building comprised of a congregate care facility, retail, and restaurant uses
Winchester & Diaz Industrial Buildings: Winchester & Diaz Industrial DP	Approximately 250 feet west of the Winchester and Diaz Road intersection.	Applied/In Plan Review	A Development Plan application for two industrial buildings totaling about 69,000 square feet (41,805 square feet and 26,890 square feet) on 3.95 acres.
Mountainview Building 4 DP	On the south side of Avenida Alvarado about 1,000 feet west of Tierra Alta Way on APNs 909-290-006, -007.	Approved	A Development Plan for the construction of an approximately 33,636-square-foot industrial building.
Sommers Bend Home Product Review	PA15, PA18C, PA20A, PA31A.	Approved/Under Construction	Product review of single-family homes for the Sommers Bend residential development project. Project consists of three Planning Areas including PA15, PA18C, PA20A, PA31A and consists of 193 single-family homes.
City of Temecula Project No. PA21-0987	26478 Ynez Road.	Undetermined	A Development Plan to construct an approximately 6,240-square-foot express carwash.
City of Temecula Project No. PA20-1025	The project is located at 28500 Old Town Front Street.	Undetermined	A Development Plan application to construct an approximately 18,630-square-foot building totaling three stories.
Everhome Suites	West side of Madison Avenue between Buecking Drive and McCabe Court.	Approved	Development Plan for an approximately 65,600-square-foot, four-story, 117-room Everhome Suites Hotel.

Table 3.A: Summary of Related Projects

Project Name	Location	Status	Project Description
Temecula Hyundai, Project No. PA22-0293	27430 Ynez Road.	Applied/In Review	The City is processing a Modification to a Development Plan for the addition of approximately 3,824 square feet to the vehicle showroom and service area, a new approximately 674-square-foot vehicle delivery canopy area, elevation revisions to adhere to new corporate colors, and a new vehicle display pad at the entry driveway located at 27430 Ynez Road. (This is different than the Hyundai project listed earlier in the table.)
Temecula Village Phase II (PAs 20-0323, 20-0324, 20-0325, 20-0326)	The project is located on the south side of Rancho California Road, approximately 150 feet west of Cosmic Drive.	Applied/In Review	The City is processing a Development Plan for a 134-unit multi-family community built on 7.61 acres; a Tentative Tract Map (TTM 38043) to combine eight existing contiguous parcels into a single parcel; a General Plan Amendment to amend the underlying General Plan Land Use designation of the project site from Professional Office (PO) to Medium Density Residential (M); a Planned Development Overlay Amendment for PDO-5, (Temecula Village). The City has worked with a consultant to prepare a fiscal impact analysis and with an environmental consultant to prepare an environmental document.
Paseo Del Sol Tentative Tract Map No. 36483 (PA14-0087)	Located at the northwest corner of Temecula Parkway and Butterfield Stage Road.	Applied/In Review	The City is processing a Tentative Tract Map (No. 36483) for 168 single-family homes and 11 open space lots.
Sanborn/Jefferson Gas Station (PAs 21-0075, 21-0076)	Located at 41480 Sanborn Avenue.	Applied/In Review	The City is processing a Development Plan and Conditional Use Permit for an approximately 10,000-square-foot gas station consisting of 12 fueling pumps, convenience store, quick service restaurant, and multi-tenant retail building.
Winchester Hills Development Agreement Amendment (PA21-0128)	Located within portions of Planning Area 12 of the Harveston Specific Plan.	Applied/In Review	The City is processing a Second Amendment to the Development Agreement by and between the City of Temecula and Lennar Homes, Inc., a California Corporation, and Winchester Hills I LLC, a California Limited Liability Company, to rescind the First Amendment to the Development Agreement and reinstate the original term of the Development Agreement for the Winchester Property.
Firenze (PA21-1023)	The project is located approximately 665 feet north of Rancho California Road on the east side of Jefferson Avenue.	Applied/In Review	The City is processing a Development Plan application for an approximately 498,557-square-foot hotel and apartment project. The approximately 148,545-square-foot, five-story, 224-room hotel includes a conference center, restaurant, wine market multi-tenant space, and outdoor courtyard dining space. The approximately 350,012-square-foot, seven-story, 121-unit apartment building includes a roof top area that contains a pool/spa, cabanas, fire pit, media wall, kitchen, fitness area, and lawn/game area. The parking for the project is located on the interior of the apartment building that is wrapped with the residential units.

Table 3.A: Summary of Related Projects

Project Name	Location	Status	Project Description
Jefferson/Buecking Apartments (PA21-1454)	Located on the north and south side of Buecking Drive at the Jefferson Avenue intersection.	Applied/In Review	The City is processing a Development Plan application for a 260-unit apartment community.
Temecula Valley Hospital Master Plan Update (PA21-1525)	The project is located at 31700 Temecula Parkway.	Applied/In Review	The City is processing a Modification to the previously approved Temecula Valley Hospital Master Plan. The updated Master Plan at buildout will include the existing 237,305-square-foot hospital building and 5,180-square-foot storage building along with an approximately 130,000-square-foot, four-story Behavioral Health Building in Phase 2, an approximately 10,000-square-foot expansion to the emergency department, a 125,000-square-foot, five-story second hospital tower, an 80,000-square-foot medical office building, and a 14,000-square-foot utility plant in Phase 3, and an approximately 125,000-square-foot, five-story third hospital tower, an 80,000-square-foot, three-story medical office building, and a four-story parking structure with the existing helipad relocated to the roof of the structure in Phase 4. A public scoping meeting for the Subsequent Environmental Impact Report was held on March 23, 2022, at the Ronald H. Roberts Library.
Temecula Resort and Spa (PAs 22-0035, 22-0037)	Located on the east side of Front Street between 1st Street and 2nd Street.	Applied/In Review	The City is processing a Development Plan and Tentative Parcel Map for an approximately 474,137-square-foot, seven-story, 90-foot-high full-service hotel that includes a parking garage, conference facilities/ballrooms, gallery/event space, full-service spa, restaurants, bars/lounges, retail outlets, workout facility, outdoor pool area, and a wedding garden.
Solana Winchester	Located at the terminus of Date St. approximately 900 feet south of Ynez Rd.	Approved	A Development Plan for a 349-unit apartment community built on 15.1 acres.
Prado	Located at the terminus of Equity Dr. on the west side of Ynez Road.	Approved	A Development Plan for a 237-unit single-family residential community built on 27.5 acres.

Sources:

[1] Rancho California Water District. 2022. Website: https://www.ranchowater.com/127/CEQA-Compliance (accessed on August 25, 2022) and personal correspondence September 13, 2022.

[2] Correspondence with County of Riverside Transportation Department. August 25, 2020.

[3] Correspondence with City of Temecula Planning Department. August 28, 2020; July 6, 2022; and July 18, 2022.

3.1 AIR QUALITY

This section evaluates the potential impacts to air quality conditions from implementation of the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project). The analysis in this section is based in part on the *Air Quality, Energy, and Greenhouse Gas Technical Analysis* (LSA 2022a) (Appendix B) that was prepared for the Proposed Project and that is included in this Environmental Impact Report (EIR).

3.1.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. One of the letters, provided by the South Coast Air Quality Management District (SCAQMD), included comments related to air quality.

In the letter, SCAQMD requests a copy of the Draft EIR, technical studies related to air quality, health risk, and greenhouse gas analyses, and electronic versions of modeling files. The letter provides guidance related to the agency's California Environmental Quality Act (CEQA) Air Quality Handbook, subsequent guidance, the CalEEMod software, significance thresholds, available guidance on mitigation measures, permit requirements, and available data sources.

3.1.2 Existing Environmental Setting

The following discussion provides an overview of existing air quality conditions in the region and in Riverside County. Ambient air quality standards and the regulatory framework are summarized, and climate, air quality conditions, and typical air pollutant types and sources are also described.

3.1.2.1 Air Pollutants and Health Effects

The Project site is located in unincorporated southwestern Riverside County, east of Temecula, which is part of the South Coast Air Basin (Basin) and is under the jurisdiction of SCAQMD. Both the State and the federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants. As detailed in Table 3.1.A, these pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in size (PM_{10}), particulate matter less than 2.5 microns in size ($PM_{2.5}$), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Long-term exposure to elevated levels of criteria pollutants may result in adverse health effects. However, emission thresholds established by an air quality district are used to manage total regional emissions within an air basin based on the air basin's attainment status for criteria pollutants. These emission thresholds were established for individual projects that would contribute to regional emissions and pollutant concentrations and could adversely affect or delay the projected attainment target year for certain criteria pollutants.

Because of the conservative nature of the thresholds and the basin-wide context of individual project emissions, there is no known direct correlation between a single project and localized air quality-related health effects. One individual project that generates emissions exceeding a threshold does not necessarily result in adverse health effects for residents in the project vicinity. This

condition is especially true when the criteria pollutants exceeding thresholds are those with regional effects, such as O_3 precursors like nitrogen oxides (NO_X) and volatile organic compounds (VOCs).

Ozone. Rather than being directly emitted, O_3 (smog) is formed by photochemical reactions between NO_x and VOCs. O_3 is a pungent, colorless gas. Elevated O_3 concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, the elderly, and young children. O_3 levels peak during the summer and early fall months.

Carbon Monoxide. CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. CO passes through the lungs into the bloodstream, where it interferes with the transfer of oxygen to body tissues.

Particulate Matter. Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles are those that are 10 microns or less in diameter, or PM_{10}. Fine, suspended PM with an aerodynamic diameter of 2.5 microns or less, or $PM_{2.5}$, is not readily filtered out by the lungs. Nitrates, sulfates, dust, and combustion particulates are major components of PM_{10} and $PM_{2.5}$. These small particles can be directly emitted into the atmosphere as byproducts of fuel combustion; through abrasion, such as tire or brake lining wear; or through fugitive dust (wind or mechanical erosion of soil). They can also be formed in the atmosphere through chemical reactions. Particulates may transport carcinogens and other toxic compounds that adhere to the particle surfaces and can enter the human body through the lungs.

Nitrogen Dioxide. NO_2 is a reddish-brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, NO_2 also contributes to other pollution problems, including a high concentration of $PM_{2.5}$, poor visibility, and acid deposition. NO_2 may be visible as a coloring component on high-pollution days, especially in conjunction with high O_3 levels. NO_2 decreases lung function and may reduce resistance to infection.

Sulfur Dioxide. SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels in the region. SO_2 irritates the respiratory tract, can injure lung tissue when combined with $PM_{2.5}$, and reduces visibility and the level of sunlight.

Lead. Leaded gasoline (phased out in the United States beginning in 1973), paint (on older houses and cars), smelters (metal refineries), and the manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere. Lead has multiple adverse neurotoxic health effects, and children are at special risk. Some lead-containing chemicals cause cancer in animals. Lead levels in the air have decreased substantially since leaded gasoline was eliminated. Ambient lead concentrations are only monitored on an as-warranted, site-specific basis in California. On October 15, 2008, the U.S. Environmental Protection Agency (EPA) strengthened the National Ambient Air Quality Standard for lead by lowering it from 1.5 to 0.15 micrograms per cubic meter ($\mu g/m^3$). The EPA revised the monitoring requirements for lead in December 2010. These requirements focus on airports and large urban areas, resulting in an increase in 76 monitors nationally.

Volatile Organic Compounds. VOCs (also known as reactive organic gases [ROGs] and reactive organic compounds [ROCs]) are formed from the combustion of fuels and the evaporation of organic solvents. VOCs are not defined as criteria pollutants; however, because VOCs accumulate in the atmosphere more quickly during the winter, when sunlight is limited and photochemical reactions are slower, they are a prime component of the photochemical smog reaction. There are no attainment designations for VOCs.

Visibility Reducing Particles. Visibility is often characterized by "visual range" (VR). VR is the maximum distance at which a person can barely perceive a dark object. The ability to perceive an object is determined by the difference in contrast between the object and the background. A 2 percent contrast is considered barely perceptible, and typically at least 5 percent change in contrast is needed. The less water vapor, sea salt particulate, and pollutants in the air, the greater the VR. VRs of up to approximately 150 miles can occur in clean desert areas where there is very low relative humidity. In coastal regions, however, the occurrence of sea salt particulate and water vapor significantly reduces the maximum VR that could occur. The annual average VR in the Proposed Project area is approximately 57 miles as measured at the Aqua Tibia Wilderness Area, approximately 10 miles east of the Project site.

Toxic Air Contaminants. In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated by the EPA and the California Air Resources Board (CARB). Some examples of TACs include benzene, butadiene, formaldehyde, and hydrogen sulfide. The identification, regulation, and monitoring of TACs is relatively recent compared to that for criteria pollutants.

TACs do not have AAQS but are regulated by the EPA and CARB. In 1998, CARB identified particulate matter from diesel-fueled engines as a TAC. CARB has completed a risk management process that identified potential cancer risks for a range of activities and land uses that are characterized by use of diesel-fueled engines (CARB 2000). High-volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (distribution centers and truck stops) were identified as posing the highest risk to adjacent receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, high-volume transit centers, and schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

Although diesel particulate matter (DPM) is not specifically monitored, recent studies indicate that exposure to it may contribute significantly to a cancer risk (a risk of approximately 500 to 700 in 1,000,000) that is greater than all other measured TACs combined (CARB 2000). CARB's Diesel Risk Reduction Plan is intended to substantially reduce DPM emissions and associated health risks through introduction of ultra-low-sulfur diesel fuel—a step already implemented—and cleaner-burning diesel engines. The technology for reducing DPM emissions from heavy-duty trucks is well established, and both State and federal agencies are moving aggressively to regulate engines and emission control systems to reduce and remediate diesel emissions. CARB anticipates that by 2020, average statewide DPM concentrations will decrease by 85 percent from levels in 2000 with full implementation of the Diesel Risk Reduction Plan, meaning that the statewide health risk from DPM is expected to decrease from 540 cancer cases in 1,000,000 to 21.5 cancer cases in 1,000,000.

Table 3.1.A presents a summary of State and federal AAQS, and Table 3.1.B summarizes the primary health effects and sources of common air pollutants.

Table 3.1.A: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal 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/m³)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM_{10})[9]	24-Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		–		
Fine Particulate Matter ($PM_{2.5}$)[9]	24-Hour	-		35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	–	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m³)		–	–	
Nitrogen Dioxide (NO_2)[10]	Annual Arithmetic Mean	0.03 ppm (57 µg/m³)	Gas Phase Chemi-luminescence	53 ppb (100 µg/m³)	Same as Primary Standard	Gas Phase Chemi-luminescence
	1-Hour	0.18 ppm (339 µg/m³)		100 ppb (188 µg/m³)	-	
Lead (Pb)[12,13]	30-Day Average	1.5 µg/m³	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average[9]	–		0.15 µg/m³		
Sulfur Dioxide (SO_2)[11]	24-Hour	0.04 ppm (105 µg/m³)	Ultraviolet Fluorescence	0.14 ppm (for certain areas)	–	Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method)
	3-Hour	–		–	0.5 ppm (1,300 µg/m³)	
	1-Hour	0.25 ppm (655 µg/m³)		75 ppb (196 µg/m³)[11]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[11]	–	
Visibility-Reducing Particles[12]	8-Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No Federal Standards		
Sulfates	24-Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24-Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Table notes are provided on the following page.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, 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 the 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 3 years, is equal to or less than the standard. For PM_{10}, 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 1. For $PM_{2.5}$, 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 the EPA for further clarification and current national policies.

[3] Concentration is expressed first in the 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 that can be shown to the satisfaction of CARB 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 annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ 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 PM_{10} 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 sulfur dioxide 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 sulfur dioxide national standards (24-hour and annual) remain in effect until 1 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] CARB 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 1 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, CARB 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.

Source: Ambient Air Quality Standards (CARB 2016).
$\mu g/m^3$ = micrograms per cubic meter
°C = degrees Celsius
CARB = California Air Resources Board
EPA = U.S. Environmental Protection Agency
mg/m^3 = milligrams per cubic meter
ppb = parts per billion
ppm = parts per million
SO_2 = sulfur dioxide

Table 3.1.B: Summary of Health Effects of the Major Criteria Air Pollutants

Pollutant	Health Effects	Examples of Sources
Particulate matter ($PM_{2.5}$ and PM_{10}: less than or equal to 2.5 or 10 microns, respectively)	• Hospitalizations for worsened heart diseases • Emergency room visits for asthma • Premature death	• Cars and trucks (especially diesels) • Fireplaces and woodstoves • Windblown dust from roadways, agriculture, and construction
Ozone (O_3)	• Cough, chest tightness • Difficulty taking a deep breath • Worsened asthma symptoms • Lung inflammation	• Precursor sources:[1] motor vehicles, industrial emissions, and consumer products
Carbon monoxide (CO)	• Chest pain in heart patients[2] • Headaches, nausea[2] • Reduced mental alertness[2] • Death at very high levels[2]	• Any source that burns fuel, such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Nitrogen dioxide (NO_2)	• Increased response to allergens	• See CO sources
Toxic air contaminants	• Cancer • Chronic eye, lung, or skin irritation • Neurological and reproductive disorders	• Cars and trucks (especially diesels) • Industrial sources, such as chrome platers • Neighborhood businesses, such as dry cleaners and service stations • Building materials and products

Source: ARB Fact Sheet: Air Pollution and Health (CARB 2009).

[1] O_3 is not generated directly by these sources. Rather, chemicals emitted by these precursor sources react with sunlight to form ozone in the atmosphere.

[2] Health effects from CO exposures occur at levels considerably higher than ambient.

CARB = California Air Resources Board
CO = carbon monoxide

3.1.2.2 Existing Climate and Air Quality

The following provides a discussion of the local and regional air quality and climate in the Project area.

Climate/Meteorology. Air quality in the planning area is affected not only by various emission sources (e.g., mobile and industry) but also by atmospheric conditions (e.g., wind speed, wind direction, temperature, and rainfall). The combination of topography, low mixing height, abundant sunshine, and emissions from the second-largest urban area in the United States gives the Basin some of the worst air pollution in the nation.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological/meteorological station closest to the site with complete weather data is the Elsinore Station, which provides sufficient data for average temperatures in the Project area. The Elsinore Station (WRCC 2020) shows that the monthly average maximum temperature recorded ranged from 65.4°F in January to 98.1°F in August, with an annual average maximum of 80.6°F. The monthly average minimum temperature recorded at this station ranged from 36.4°F in January to 59.8°F in August, with an annual average minimum of 47.2°F. January is typically the coldest month, and July and August are typically the warmest months in this area of the Basin.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin and along the coastal side of the mountains. Elsinore Station monitored precipitation shows that average monthly rainfall varied from 2.54 inches in February to 0.51 inch or less from May to October, with an annual total of 12.01 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by mid-morning.

Winds in the vicinity of the Project area blow predominantly from the south-southwest, with relatively low velocities. Wind speeds in the Project area average about 3 miles per hour (mph). Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north, or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. The Santa Ana conditions tend to last for several days at a time.

The nearest representative meteorological station that provides American Meteorological Society/ Environmental Protection Agency Regulatory Model (AERMOD)-ready meteorological data is the Meteorological Station at Lake Elsinore, about 15 miles northwest from the Project site (SCAQMD 2018). Figure 3.1-1 shows the wind rose from data measured at this station and shows the wind patterns for the Project area. A wind rose is a graphic tool used by meteorologists to give a succinct view of how wind speed and direction are typically distributed at a particular location. The frequency of winds over a time period is plotted by wind direction, with color bands showing wind speed ranges. The direction of the longest spoke shows the wind direction with the greatest frequency. Low wind speeds are marked in red to yellow. Higher wind speeds are marked in green to blue. The Lake Elsinore wind rose indicated the dominant wind directions and the direction of strongest wind speeds are from the north-northwest direction.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly on shore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are CO and NO_X because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_X to form photochemical smog.

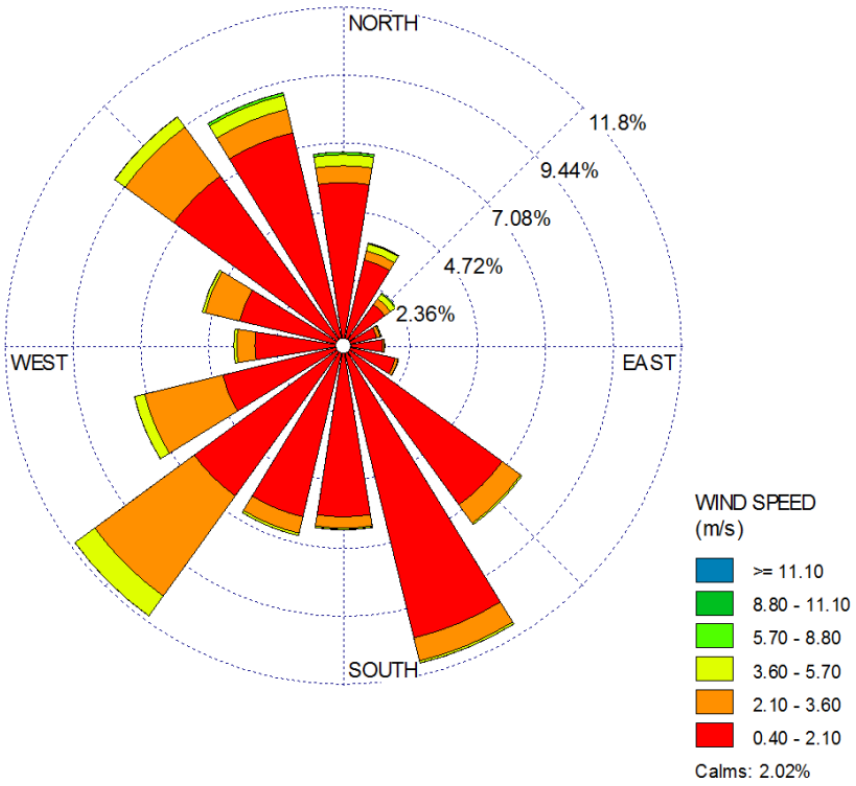


Figure 3.1-1: Project Area Wind Patterns

Air Pollution Constituents and Attainment Status. CARB oversees activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the EPA and local air districts. CARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. Data collected at these stations are used by CARB and the EPA to classify air basins as attainment, nonattainment, nonattainment-transitional, or unclassified, based on air quality data for the most recent 3 calendar years compared with the AAQS.

Attainment areas may be one of the following:

- *Attainment/unclassified ("unclassifiable" in some lists).* Such areas have never violated the air quality standard of interest or do not have enough monitoring data to establish attainment or nonattainment status.

- *Attainment/maintenance (national ambient air quality standards [NAAQS] only).* Such areas had violated a NAAQS that is currently in use (were nonattainment) in or after 1990 but now attain the standard and are officially redesignated as attainment by the EPA with a maintenance State Implementation Plan (SIP).

- *Attainment (usually for California Ambient Air Quality Standards [CAAQS] but sometimes for NAAQS).* Such areas have adequate monitoring data to show attainment, have never been nonattainment, or, for NAAQS, have completed the official maintenance period.

Nonattainment areas are imposed with additional restrictions as required by the EPA. The air quality data are also used to monitor progress in attaining air quality standards. Table 3.1.C lists the attainment status for the criteria pollutants in the Basin.

Table 3.1.C: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O_3	Nonattainment (1-hour) Nonattainment (8-hour)	Extreme Nonattainment (1-hour) Extreme Nonattainment (8-hour)
PM_{10}	Nonattainment (24-hour & Annual)	Attainment/Maintenance (24-hour)
$PM_{2.5}$	Nonattainment (Annual)	Serious Nonattainment (24-hour) Serious Nonattainment (Annual)
CO	Attainment (1-hour & 8-hour)	Attainment/Maintenance (1-hour & 8-hour)
NO_2	Attainment (1-hour & Annual)	Attainment/Unclassified (1-hour) Attainment/Maintenance (Annual)
SO_2	Attainment (1-hour & 24-hour)	Designations Pending (1-hour) Attainment/Unclassified (24-hour & Annual)
Lead	Attainment[1] (30-day average)	Attainment[1] (3-month rolling)
All Others	Attainment/Unclassified	N/A

Source: State and Federal Area Designations (CARB 2019).
[1] Only in Los Angeles County. All other counties in California are in attainment.
CO = carbon monoxide
N/A = not applicable
NO_2 = nitrogen dioxide
O_3 = ozone
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SO_2 = sulfur dioxide

Local Air Quality. The SCAQMD, together with CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the site is the Lake Elsinore Monitoring Station, which monitors criteria air pollutant data. The air quality trends from this station are used to represent the ambient air quality in the Project area. The pollutants monitored are CO, O_3, PM_{10}, $PM_{2.5}$, NO_2, and SO_2 (EPA 2019a; CARB 2019). The ambient air quality data in Table 3.1.D show that NO_2, SO_2, and CO levels are within the applicable State and federal standards. As detailed in Table 3.1.D, the State 1-hour O_3 standard was exceeded 2 times per year in the past 3 years. The State and federal 8-hour O_3 standard was exceeded 3 to 20 times per year in the past 3 years.

Table 3.1.D: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard	2019	2020	2021
Carbon Monoxide (CO)—Lake Elsinore Monitoring Station				
Maximum 1-hour concentration (ppm)		1.3	0.9	0.9
Number of days exceeded:	State: >20 ppm	0	0	0
	Federal: >35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		0.7	0.8	0.8
Number of days exceeded:	State: ≥9.0 ppm	0	0	0
	Federal: ≥9.0 ppm	0	0	0
Ozone (O_3)—Temecula Monitoring Station				
Maximum 1-hour concentration (ppm)		0.085	0.104	0.087
Number of days exceeded:	State: >0.09 ppm	ND	2	0
Maximum 8-hour concentration (ppm)		0.075	0.080	0.078
Number of days exceeded:	State: >0.07 ppm	ND	20	3
	Federal: >0.07 ppm	3	20	3
Coarse Particulates (PM_{10})—Lake Elsinore Monitoring Station				
Maximum 24-hour concentration (µg/m^3)		93.8	192.4	90.0
Number of days exceeded:	State: >50 µg/m^3	ND	ND	ND
	Federal: >150 µg/m^3	0	1	0
Annual arithmetic average concentration (µg/m^3)		19.7	23.7	22.4
Exceeded for the year:	State: >20 µg/m^3	ND	ND	ND
Fine Particulates ($PM_{2.5}$)—Lake Elsinore Monitoring Station				
Maximum 24-hour concentration (µg/m^3)		17.6	41.6	28.8
Number of days exceeded:	Federal: >35 µg/m^3	0	ND	0
Annual arithmetic average concentration (µg/m^3)		ND	7.2	6.9
Exceeded for the year:	State: >12 µg/m^3	ND	No	No
	Federal: >15 µg/m^3	ND	No	No
Sulfur Dioxide (SO_2) —Riverside-Rubidoux Monitoring Station				
Maximum 1-hour concentration (ppm)		0.0018	0.0022	0.0021
Number of days exceeded:	State: >0.25 ppm	0	0	0
Maximum 24-hour concentration (ppm)		0.0009	0.001	0.0011
Number of days exceeded:	State: >0.04 ppm	0	0	0
	Federal: >0.014 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.00042	0.00034	0.00051
Exceeded for the year:	Federal: >0.030 ppm	No	No	No
Nitrogen Dioxide (NO_2)—Lake Elsinore Monitoring Station				
Maximum 1-hour concentration (ppb)		38.0	43.0	43.0
Number of days exceeded:	State: >180 ppb	0	0	0
Annual arithmetic average concentration (ppb)		6.0	7.0	7.0
Exceeded for the year:	State: >30 ppb	No	No	No
	Federal: >53 ppb	No	No	No

Sources: Air Data: Air Quality Data Collected at Outdoor Monitors across the U.S. (EPA 2021); iADAM Air Quality Data Statistics (CARB 2021).

µg/m^3 = micrograms per cubic meter
CO = carbon monoxide
ND = insufficient data
NO_2 = nitrogen dioxide
O_3 = ozone
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ppb = parts per billion
ppm = parts per million
SO_2 = sulfur dioxide

3.1.2.3 Existing Sensitive Land Uses in the Project Area

Sensitive receptors are segments of the population susceptible to poor air quality such as children, the elderly, and those with preexisting health problems. Examples of sensitive receptors include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. The Project site is surrounded primarily by rural residential uses (i.e., single-family homes), agricultural land uses, conservation areas, Vail Lake, and open spaces. The areas adjacent to the Project site include the following uses:

- **North:** NexStar Ranch (horse ranch, residential), agricultural areas, and undeveloped areas; equestrian trails north of and outside of the Upper Valle De Los Caballos (VDC) Recharge Basins to the Secondary Entry Road and via RCWD property along the south side of the NexStar Ranch property to Oak Mountain Road

- **East:** Vail Lake, including boat launch

- **South:** Rancho Pacifica Ranch (horse ranch, residential), Vail Lake Village and RV Resort and associated recreational facilities

- **West:** Residential (single-family homes) west of De Portola Road

For four construction phases (i.e., Mobilization, Site Reclamation and Demobilization, Access Road and Staging Areas, and Roller-Compacted Concrete Placement), the closest sensitive receptors near De Portola Road, Primary Entry Road (50 Acre Parcel), Secondary Entry Road, and the temporary concrete batch plant area at the Flyers Field are the rural residential land uses (i.e., single-family homes) located approximately 60 feet (ft) to the northeast, 560 ft to the northwest, and 700 ft to the southwest of the Project boundary. For all other construction phases, there are no sensitive receptors within 1 mile of the construction emission sources.

3.1.3 Regulatory Setting

This section describes the applicable federal, State, regional, and County regulations.

3.1.3.1 Federal Regulations

Federal Clean Air Act. Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established the NAAQS. The NAAQS were established for six major pollutants, termed “criteria” pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health.

Data collected at permanent monitoring stations are used by the EPA to classify regions as attainment or nonattainment, depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the Basin.

In April 2003, the EPA was cleared by the White House Office of Management and Budget to implement the 8-hour ground-level O_3 standard. The EPA issued the proposed rule implementing the 8-hour O_3 standard in April 2003. The EPA completed final 8-hour nonattainment status on April 15, 2004. The EPA revoked the 1-hour O_3 standard on June 15, 2005, and lowered the 8-hour O_3 standard from 0.08 parts per million (ppm) to 0.075 ppm on April 1, 2008.

The EPA issued the final $PM_{2.5}$ implementation rule in fall 2004. The EPA lowered the 24-hour $PM_{2.5}$ standard from 65 to 35 $\mu g/m^3$ and revoked the annual PM_{10} standard on December 17, 2006. The EPA issued final designations for the 2006 24-hour $PM_{2.5}$ standard on December 12, 2008.

3.1.3.2 State Regulations

California Clean Air Act. In 1988, the California Clean Air Act (CCAA) required that all air districts in the State endeavor to achieve and maintain California Ambient Air Quality Standards (CAAQS) for CO, O_3, SO_2, and NO_2 by the earliest practical date. The CCAA provides districts with the authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each nonattainment district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the State standards for these pollutants are more stringent than the national standards.

Assembly Bill 2588, Air Toxics "Hot Spots" Information and Assessment Act. Under Assembly Bill (AB) 2588, stationary sources of air pollutants are required to report the types and quantities of certain substances their facilities routinely released into the air. The goals of the Air Toxics "Hot Spots" Information and Assessment Act are to collect emission data, identify facilities having localized impacts, determine health risks, and notify nearby residents of significant risks.

3.1.3.3 Regional Regulations

South Coast Air Quality Management District. The SCAQMD attains and maintains air quality conditions in the Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the SCAQMD includes preparation of plans for attainment of AAQS, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The SCAQMD also inspects stationary sources of air pollution; responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the CAA, CAAA, and CCAA. Air quality plans applicable to the Proposed Project are discussed below.

> ***Air Quality Management Plan.*** The SCAQMD and SCAG are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the Basin. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. The SCAQMD prepares a new AQMP every 3 years (SCAQMD 2017). CARB approved the plan on March 10, 2017, and forwarded the AQMP to the EPA.

The Final 2016 AQMP incorporates the latest scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)[1] and updated emission inventory methodologies for various source categories. The Final 2016 AQMP includes the new and changing federal requirements, implementation of new technology measures, and continued development of economically sound, flexible compliance approaches. The AQMP also provides policies and measures to guide responsible agencies in achieving federal standards for healthful air quality in the Basin. It also incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources.

The SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to project construction or operation. For example, SCAQMD Rule 403 requires the implementation of the best available fugitive dust control measure during active construction periods capable of generating fugitive dust emissions from on-site earthmoving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads (SCAQMD 2005).

Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate the air quality issues associated with new development projects within the Basin, such as the Proposed Project. Instead, the SCAQMD published the *CEQA Air Quality Handbook* (SCAQMD 1993) to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of projects proposed in the Basin. The *CEQA Air Quality Handbook* provides standards, methodologies, and procedures for conducting air quality analyses in Environmental Impact Reports (EIRs) and was used extensively in the preparation of this analysis. SCAQMD is currently in the process of replacing the *CEQA Air Quality Handbook* with the *Air Quality Analysis Guidance Handbook* (SCAQMD 2019a).

The latest plan is the 2016 AQMP, which incorporates the latest scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source categories. The 2016 AQMP included the integrated strategies and measures needed to meet the NAAQS, implementation of new technology measures, and demonstrations of attainment of the 1-hour and 8-hour O_3 NAAQS as well as the latest 24-hour and annual $PM_{2.5}$ standards. Key elements of the 2016 AQMP include the following:

- Calculation and credit for cobenefits from other planning efforts (e.g., climate, energy, and transportation)
- A strategy with fair-share emission reductions at the federal, State, and local levels
- Investment in strategies and technologies meeting multiple air quality objectives

[1] On May 7, 2020, The Southern California Association of Government's Regional Council adopted Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy) for federal transportation conformity purposes only.

- Identification of new partnerships and significant funding for incentives to accelerate deployment of zero and near-zero technologies
- Enhanced socioeconomic assessment, including an expanded environmental justice analysis
- Attainment of the 24-hour $PM_{2.5}$ standard in 2019 with no additional measures
- Attainment of the annual $PM_{2.5}$ standard by 2025 with implementation of a portion of the O_3 strategy
- Attainment of the 1-hour O_3 standard by 2022 with no reliance on "black box" future technology (CAA Section 182(e)(5) measures)

The SCAQMD is preparing an update to the 2016 AQMP, the 2022 AQMP, which will represent a comprehensive analysis of emissions, meteorology, regional air quality modeling, regional growth projections, and the impact of existing and proposed control measures.

Rules and Regulations. All projects are subject to SCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction anticipated under the Proposed Project would include the following:

- **Regulation IV—Prohibitions.** This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air pollutant emissions, fuel contaminants, start-up/ shutdown exemptions, and breakdown events. These prohibitions will apply to future development facilitated by approval of the Proposed Project.
- **Rule 401—Visible Emissions.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in visible emissions. Specifically, the rule prohibits the discharge of any air contaminant into the atmosphere by a person from any single source of emission for a period or periods aggregating more than 3 minutes in any 1 hour that is as dark or darker in shade than that designated as No. 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.
- **Rule 402—Nuisance.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in a public nuisance. Specifically, this rule prohibits any person from discharging quantities of air contaminants or other material from any source such that it would result in an injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. Additionally, the discharge of air contaminants would also be prohibited where it would endanger the comfort, repose, health, or safety of any number of persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.
- **Rule 403—Fugitive Dust.** This rule is intended to reduce the amount of PM entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring

actions to prevent, reduce, or mitigate fugitive dust emissions. This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remains visible beyond the emission source property line. Rule 403 applies to any activity or man-made condition capable of generating fugitive dust and requires best available control measures to be applied to earth moving and grading activities. These requirements include submittal of a dust control plan, maintaining dust control records, and designating a SCAQMD-certified dust control supervisor.

- **Regulation XI—Source Specific Standards.** Regulation XI sets emissions standards for different sources:

  - **Rule 1157—PM_{10} Emissions from Aggregate and Related Operations.** This rule is intended to reduce fugitive dust emissions from the aggregate and related haul road operations. Rule 1157 applies to any activity or man-made condition capable of generating fugitive dust and requires best available control measures to be applied to aggregate processing activities.

  - **Rule 1186—PM_{10} Emissions from Unpaved Roads.** This rule is intended to reduce fugitive dust emissions from unpaved surface roads. Rule 1186 applies to any activity or man-made condition capable of generating fugitive dust and requires best available control measures to be applied to motor vehicle activities on unpaved surface roads.

- **Rule 1196—Clean On-Road Heavy-Duty Public Fleet Vehicles.** This rule requires public fleet operators of heavy-duty vehicles operating in the SCAQMD's jurisdiction to acquire alternative-fuel, dual-fuel, or dedicated gasoline heavy-duty vehicles when procuring or leasing these vehicles for use within the SCAQMD's jurisdiction to reduce air toxics and criteria pollutant emissions. This rule applies to all government agencies (such as federal, State, regional, county, and city governments) with 15 or more heavy-duty vehicles, any special districts (such as water, air, sanitation, and transit districts) with 15 or more heavy-duty vehicles, and school districts with 15 or more heavy-duty vehicles.

- **SCAQMD Rule 1403—Asbestos Emissions from Demolition/Renovation Activities.** The purpose of this rule is to limit emissions of asbestos, a toxic air contaminant, from structural demolition/renovation activities. The rule requires people to notify the SCAQMD of proposed demolition/renovation activities and to survey these structures for the presence of asbestos-containing materials. The rule also includes notification requirements for any intent to disturb asbestos-containing materials; emission control measures; and asbestos-containing material removal, handling, and disposal techniques. All proposed structural demolition activities associated with Proposed Project construction would need to comply with the requirements of Rule 1403.

Toxic Air Contaminants. At the local level, air pollution control or management districts may adopt and enforce CARB control measures. Under SCAQMD Regulation XIV (Toxics and Other Non-Criteria Pollutants), and in particular Rule 1401 (New Source Review), all sources that possess the potential to emit TACs are required to obtain permits from SCAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with

applicable regulations, including new source review standards and Airborne Toxic Control Measures (ATCMs). The SCAQMD limits emissions and public exposure to TACs through a number of programs. The SCAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. The Air Toxics Control Plan (March 2000; current version revised March 26, 2004) (SCAQMD 2004) is a planning document designed to examine the overall direction of the SCAQMD's air toxics control program. It includes development and implementation of strategic initiatives to monitor and control air toxics emissions. Control strategies that are deemed viable and are within the SCAQMD's jurisdiction will each be brought to the SCAQMD Board for further consideration through the normal public review process. Strategies that are to be implemented by other agencies will be developed in a cooperative effort, and the progress will be reported back to the Board periodically.

Cancer Risk Trends. In September 2008, the SCAQMD completed the Multiple Air Toxics Exposure Study (MATES) III (SCAQMD 2008a). MATES III is a monitoring and evaluation study conducted in the Basin and is a follow-up to previous air toxics studies. The study consists of several elements, including a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize risk across the Basin. The study focuses on the carcinogenic risk from exposure to air toxics. However, it does not estimate mortality or other health effects from particulate exposures. MATES III shows that the immediate region around the Project area has an estimated carcinogenic risk ranging from 93 to 112 in a million.

In 2015, the SCAQMD published an in-depth analysis of the TACs and the resulting health risks for all of Southern California, MATES IV (SCAQMD 2015), which showed that the cancer risk has decreased less than 50 percent since MATES III. Based on the MATES IV Estimated Risk model, the geographic grid containing the Project site is predicted to have an excess cancer risk of ranging from 188 to 210 in 1 million. DPM is included in this cancer risk along with all other TAC sources. DPM accounts for 68 percent of the total risk shown in MATES IV. Cumulative Project-generated TACs are limited to DPM.

3.1.3.4 Local Regulations

Riverside County General Plan. Riverside County addresses air quality in the Air Quality Element of the General Plan (County of Riverside 2015a). The Air Quality Element sets policies that are designed to establish a regional basis for improving air quality. The policies relate to multi-jurisdictional cooperation, sensitive receptors, mobile pollution sources, stationary pollution sources, energy efficiency and conservation, jobs and housing, business development, jobs-to-housing ratio, trip reduction, special events, transportation systems management, traffic flow, transportation facility development, particulate matter, monitoring, and control measures.

3.1.4 Methodology

The air quality analysis is based on the Construction Information for the Vail Dam Rehabilitation Project (AECOM 2020, updated to account for 90% design), which provides assumptions and estimates for heavy equipment use, personnel requirements, truck traffic, and grading, materials handling, import, and soil storage for each construction component and scenario. Project-specific data, including construction equipment lists and the construction schedule, were used to develop

and evaluate the maximum daily and total construction emissions estimates for construction of the Proposed Project. Construction was divided into 14 phases.

After the new dam is fully operational, potential air quality impacts would be associated with routine maintenance and operation of the reservoir, and recreational use at the site. Motor vehicles and boats would be the primary source of emissions associated with the new dam and reservoir operations. However, these activities at the new dam and reservoir would remain unchanged from existing conditions. Additional description of analysis methodology is provided in the air quality technical report.

3.1.5 Thresholds of Significance

The thresholds for air quality impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to air quality if it would:

Threshold 3.1.1: Conflict with or obstruct implementation of the applicable air quality plan

Threshold 3.1.2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard

Threshold 3.1.3: Expose sensitive receptors to substantial pollutant concentrations

Threshold 3.1.4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

The Initial Study, included as Appendix A, substantiates that impacts associated with Threshold 3.1.4 would be less than significant because the proposed uses are not anticipated to generate objectionable odors during operation. Further, construction odors would be temporary, would not result in long-term odor impacts, and would not affect a substantial number of people. Therefore, this threshold will not be addressed in the following analysis.

As stated in Appendix G of the *State CEQA Guidelines*, where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make determinations about a project's impacts. This Draft EIR uses the adopted thresholds of the SCAQMD, the local air quality management district.

3.1.5.1 Regional Thresholds for Construction and Operational Emissions

According to the SCAQMD, if an individual project results in emissions of criteria air pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then the project would also result in a cumulatively considerable net increase of these criteria pollutants.

The SCAQMD has established daily emissions thresholds for construction and operation of a project in the Basin. The emissions thresholds were established based on the attainment status of the Basin with regard to air quality standards for specific criteria pollutants. Because the concentration

standards were set at a level that protects public health with an adequate margin of safety (by the EPA), these emissions thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

Projects in the Basin with operational emissions that exceed any of the SCAQMD's emission thresholds identified in Table 3.1.E are considered to be significant under SCAQMD guidelines. These thresholds, which apply throughout the Basin and were developed by the SCAQMD, apply as both project and cumulative thresholds. If a project exceeds these standards, it is considered to have a project-specific and cumulative impact.

3.1.5.2 Thresholds for Localized Impacts Analysis

The SCAQMD has developed a set of mass emissions rate lookup tables that can be used to evaluate localized impacts that may result from construction-period emissions. If the onsite emissions from proposed construction activities are below the localized significance threshold (LST) emission levels found in the LST mass rate lookup tables for a project site's source receptor area, then project emissions would not have the potential to cause a significant localized air quality impact (SCAQMD 2008c).

When mass emissions for LST analysis are quantified, only emissions that occur on site are considered. Consistent with SCAQMD LST guidelines, emissions related to offsite activity and truck trips are not considered in the evaluation of localized impacts. The use of SCAQMD LST analysis is applicable to projects that must undergo an environmental analysis pursuant to CEQA, that are 5 acres or less, and for which the nearest receptor distance is within 500 meters (m) (or 1,640 ft).

Because the size of the Proposed Project area is greater than 5 acres and the nearest receptors are located more than 500 m (1,640 ft) from the Vail Dam, the LST analysis is not applicable for the Proposed Project. Therefore, a Project-specific modeling analysis was performed.

3.1.5.3 Toxic Air Contaminants Thresholds

The SCAQMD has established thresholds of significance that account for site-specific factors such as gasoline throughput and the locations of nearby receptors. If the analysis indicates that the cancer risk at a nearby receptor location (i.e., an area where persons reside, work, or attend school—not including streets or sidewalks) is less than one case per million persons, the risk is considered less than significant, and no mitigation is required. If the analysis results indicate that the lifetime cancer risk is between 1 and 10 cases per million, the impact is considered less than significant with the application of the best available control technology for toxics (T-BACT). If the analysis indicates that the cancer risk is greater than 10 cases per million, the impact is considered significant, and the SCAQMD would further constrain a proposed project's operations in order to stay below a cancer risk of 10 cases in a million or for which the noncancer risk Hazard Index (HI) exceeds 1 for the maximally exposed individual.

Table 3.1.E: South Coast Air Quality Management District Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NO_X	100 lbs/day	55 lbs/day
VOCs	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants and Odor Thresholds		
TACs	Maximum Incremental Cancer Risk ≥10 in 1 million Cancer Burden >0.5 excess cancer cases (in areas ≥1 in 1 million) Chronic and Acute Hazard Index ≥1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHGs	10,000 MT CO_2e/yr for industrial facilities	
Ambient Air Quality for Criteria Pollutants		
NO_2 1-hour average Annual average	The SCAQMD is in attainment; a project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (State) 0.03 ppm (State) and 0.0534 ppm (federal)	
PM_{10} 24-hour average Annual average	 10.4 µg/m^3 (construction) & 2.5 µg/m^3 (operation) 1.0 µg/m^3	
$PM_{2.5}$ 24-hour average	 10.4 µg/m^3 (construction) & 2.5 µg/m^3 (operation)	
SO_2 1-hour average 24-hour average	 0.25 ppm (State) & 0.075 ppm (federal—99th percentile) 0.04 ppm (State)	
Sulfate 24-hour average	 25 µg/m^3 (State)	
CO 1-hour average 8-hour average	The SCAQMD is in attainment; a project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (State) and 35 ppm (federal) 9.0 ppm (State/federal)	
Lead 30-day average Rolling 3-month average	 1.5 µg/m^3 (State) 0.15 µg/m^3 (federal)	

Source: South Coast AQMD Air Quality Significance Thresholds (SCAQMD 2019b).

µg/m^3 = micrograms per cubic meter
CO = carbon monoxide
GHGs = greenhouse gases
lbs/day = pounds per day
MT CO_2e/yr = metric tons of carbon dioxide equivalent per year
NO_2 = nitrogen dioxide
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ppm = parts per million
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
SO_X = sulfur oxides
VOCs = volatile organic compounds

3.1.6 Project Impacts

Threshold 3.1.1: Conflict with or obstruct implementation of the applicable air quality plan

Less Than Significant Impact. A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. A consistency determination fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans.

The AQMP is based on regional growth projections developed by SCAG. The Proposed Project would remediate seismic and hydrologic hazards associated with the existing Vail Dam, a concrete arch dam, by constructing a new straight-axis gravity concrete dam. The Proposed Project would not house any persons, occupy more than 40 acres of land, or encompass more than 650,000 square feet of floor area. Thus, the Proposed Project would not be defined as a regionally significant project under CEQA; therefore, it does not meet SCAG's Intergovernmental Review criteria.

Pursuant to the methodology provided in the SCAQMD *CEQA Air Quality Handbook*, consistency with the Basin 2016 AQMP is affirmed when a project (1) would not increase the frequency or severity of an air quality standards violation or cause a new violation and (2) is consistent with the growth assumptions in the AQMP. Consistency review is presented as follows:

1. With mitigation, the Proposed Project would result in short-term construction and long-term operational pollutant emissions that are all less than the CEQA significance emissions thresholds established by the SCAQMD, as demonstrated below; therefore, with mitigation, the Proposed Project would not result in an increase in the frequency or severity of an air quality standards violation or cause a new air quality standard violation.

2. The *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities. RCWD proposes to remediate seismic and hydrologic hazards associated with the existing Vail Dam, a concrete arch dam, by constructing a new straight-axis gravity concrete dam[2] immediately downstream of the existing dam. The Proposed Project is not defined as a significant project as defined by the SCAQMD *CEQA Air Quality Handbook*.

Based on the consistency analysis presented above, the Proposed Project would be consistent with the regional AQMP. Impacts would be less than significant, and no mitigation is required.

[2] A gravity dam is designed to hold back water primarily by using the weight of the dam material to resist the horizontal water pressure. Each gravity dam section is designed to be stable and independent of any other dam section.

Threshold 3.1.2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard

Less Than Significant Impact with Mitigation Incorporated. The Basin is currently designated nonattainment for the federal and State standards for O_3 and $PM_{2.5}$. In addition, the Basin is in nonattainment for the PM_{10} standard. The Basin's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the SCAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is not necessary. The following analysis assesses the potential project-level air quality impacts associated with construction and operation of the Proposed Project.

Construction Air Quality Impacts. Due to the nature of the Proposed Project, most air quality impacts would occur during construction due to the release of particulate emissions generated by material handling activities and fugitive sources. Emissions from construction equipment are also anticipated and would include VOCs, NO_x, CO, sulfur oxides (SO_x), $PM_{2.5}$, and PM_{10}.

Construction of the Proposed Project would occur in 14 phases, including the following: Phase 1: Mobilization Layout Work for the New Concrete Gravity Dam; Phase 2: Access Road and Staging Areas; Phase 3: Demolition of Facilities at the New Dam; Phase 4: Foundation Excavation; Phase 5: Temporary Energy Dissipation Vault; Phase 6: Armor Spillway; Phase 7: Foundation Treatment and Grouting; Phase 8: Roller-Compacted Concrete Placement; Phase 9: Outlet Tower; Phase 10: Dam Drainage Facilities; Phase 11: Dam Instrumentation; Phase 12: Permanent Energy Dissipation Vault; Phase 13: Demolition of the Existing Facilities; and Phase 14: Site Reclamation and Demobilization. Each phase of construction would generate emissions associated with equipment operations, truck traffic, material handling, stationary sources, and fugitive dust emissions.

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, as well as cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction. The Proposed Project would be required to comply with SCAQMD Rule 403 to control fugitive dust. During construction of the Proposed Project, best available control measures identified in Rule 403 would be required to minimize fugitive dust emissions from proposed earth-moving and grading activities. These measures would include site prewatering and rewatering as necessary to maintain sufficient soil moisture content. All access roads, including the Primary Entry Road, Secondary Entry Road, Pond

Access Road, and Canyon Access Road, would be watered at least 3 times daily during active construction to reduce dust impact to nearby sensitive receptors, including nearby residential units and horse ranches. The dust-control methods for the Proposed Project would be specified in the dust-control plan that must be submitted to the SCAQMD per Rule 403.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate VOCs, NO_x, CO, SO_x, and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles idle in traffic. These emissions would be temporary in nature and limited to the immediate area surrounding the construction site.

RCWD has developed a detailed Project construction schedule that provides heavy equipment estimates, personnel requirements, truck traffic estimates, and estimates of required grading/materials handling/import/export for each of the individual construction stages of the Proposed Project. Emission estimates have been prepared for each phase of construction listed above to evaluate the maximum construction emissions. To evaluate the maximum daily and total construction emissions for the Project, the construction schedule, which provides month-by-month estimates of Project construction and equipment requirements, was used to develop calculations of total emissions from the individual components of the Project that will be undergoing construction simultaneously.

Emission estimates were based on emission factors from CARB's OFFROAD2017 model and equipment ratings and load factors from the SCAQMD's *CEQA Air Quality Handbook* (SCAQMD 1993). The analysis utilizes emission factors from CARB's OFFROAD model and EMFAC2017 for off-road equipment and on-road vehicles, respectively. In addition, emission factors for aggregate processing, rock blasting, and additional sources of fugitive dust were determined based on methodology found in the EPA's AP-42 (EPA 2011), and the *CEQA Air Quality Handbook* (SCAQMD 1993).

The emission factors that were developed for each piece of equipment are multiplied by maximum number of hours that a piece of equipment could operate in 1 day or in 1 year to estimate worst-case emissions. Peak daily and annual emissions were calculated based on the emission factors provided by the EPA, CARB, and the SCAQMD, and construction data were provided by the design engineers (AECOM 2020).

The quantity of emissions generated would depend on how much aggregate would be excavated, the equipment used, the dam construction area layout, and how far vehicles would travel to transport aggregate and concrete material. This analysis assumes maximum allowable quantities would be moved and is based on the estimated emissions for the equipment to be used.

The emission calculations were based on the assumption that equipment would be operating on site between the hours of 6:00 a.m. and 5:00 p.m. for an average of 8 hours per day, 5 days per week. For the roller compacted concrete placement activities, it is assumed that the equipment will be operating 16 hours per day, 6 days a week for up to 12 weeks. Emission rates for employee vehicles

and heavy truck operations were developed from SCAQMD references available at http://www.aqmd.gov/ceqa/hdbk.html.

EMFAC2017 emission factors for the 2023 calendar year were assumed to be the worst-case emission rates for on-road vehicle emissions. For off-road equipment engines, consistent with the CARB's off-road emission regulations promulgated in the CCR Title 13 Section 2423, all off-road construction equipment would be required to meet the minimum application of EPA Tier 2 engines and install CARB-approved diesel particulate filter devices to control and minimize emissions.

Project-specific construction emission analysis is broken into subsections and is detailed in Table 3.1.F below. In addition, analysis is also provided for overlapping phases in Table 3.1.G.

Table 3.1.F: Estimated Construction Equipment and Fugitive Dust Emissions (lbs/day)

Emission Source	VOCs	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Phase 1 — Mobilization - Months 1 and 4						
Fugitive Dust—Material Handling	–	–	–	–	0.00	0.00
Fugitive Dust—Unpaved Roads	–	–	–	–	3.70	2.11
Vehicle, Equipment, and Truck Emissions	0.05	0.53	1.21	0.01	0.01	0.01
TOTAL	**0.05**	**0.53**	**1.21**	**0.01**	**3.71**	**2.12**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 2 — Access Roads and Staging Areas - Months 2 to 8						
Fugitive Dust—Material Handling	–	–	–	–	0.49	0.10
Fugitive Dust—Unpaved Roads	–	–	–	–	10.56	6.02
Vehicle, Equipment, and Truck Emissions	2.57	17.32	28.92	0.08	0.86	0.81
TOTAL	**2.57**	**17.32**	**28.92**	**0.08**	**11.91**	**6.93**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 3 — Demolition of Facilities at the New Dam - Months 5 to 9						
Fugitive Dust—Material Handling	–	–	–	–	9.40	0.82
Fugitive Dust—Unpaved Roads	–	–	–	–	5.81	3.31
Vehicle, Equipment, and Truck Emissions	1.96	14.01	18.44	0.05	0.66	0.60
Dam Demolition Haul Trucks	0.03	0.52	1.89	<0.01	2.15	0.37
TOTAL	**1.99**	**14.53**	**20.33**	**0.05**	**18.02**	**5.10**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 4 — Foundation Excavation - Months 5 to 16						
Fugitive Dust—Material Handling	–	–	–	–	1.33	0.56
Fugitive Dust—Unpaved Roads	–	–	–	–	6.34	3.61
Vehicle, Equipment, and Truck Emissions	2.74	21.83	27.12	0.07	0.96	0.90
TOTAL	**2.74**	**21.83**	**27.12**	**0.07**	**8.63**	**5.07**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3.1.F: Estimated Construction Equipment and Fugitive Dust Emissions (lbs/day)

Emission Source	VOCs	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Phase 5 — Temporary Energy Dissipation Vault - Months 5 to 9						
Fugitive Dust—Material Handling	–	–	–	–	0	0
Fugitive Dust—Unpaved Roads	–	–	–	–	6.34	3.61
Vehicle, Equipment, and Truck Emissions	0.77	4.41	9.95	0.02	0.30	0.27
TOTAL	**0.77**	**4.41**	**9.95**	**0.02**	**6.64**	**3.88**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 6 — Armor Spillway - Months 8 to 10						
Fugitive Dust—Material Handling	–	–	–	–	0.84	0.46
Fugitive Dust—Unpaved Roads	–	–	–	–	6.86	3.91
Vehicle, Equipment, and Truck Emissions	0.98	7.65	12.07	0.03	0.38	0.35
TOTAL	**0.98**	**7.65**	**12.07**	**0.03**	**8.08**	**4.72**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 7 — Foundation Treatment and Grouting - Months 10 to 15						
Fugitive Dust—Material Handling	–	–	–	–	0.84	0.46
Fugitive Dust—Unpaved Roads	–	–	–	–	5.28	3.01
Vehicle, Equipment, and Truck Emissions	1.76	15.39	17.42	0.05	0.67	0.63
TOTAL	**1.76**	**15.39**	**17.42**	**0.05**	**6.79**	**4.1**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 8 — Roller-Compacted Concrete Placement - Months 13 to 20						
Fugitive Dust—Material Handling	–	–	–	–	20.33	4.13
Fugitive Dust—Unpaved Roads	–	–	–	–	91.88	52.37
Vehicle, Equipment, and Truck Emissions	11.30	81.82	97.79	0.29	3.87	3.61
TOTAL	**11.30**	**81.82**	**97.79**	**0.29**	**116.08**	**60.11**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 9 — Outlet Tower - Months 17 to 23						
Fugitive Dust—Material Handling	–	–	–	–	0	0
Fugitive Dust—Unpaved Roads	–	–	–	–	7.39	4.21
Vehicle, Equipment, and Truck Emissions	0.85	4.70	12.03	0.03	0.32	0.29
TOTAL	**0.85**	**4.70**	**12.03**	**0.03**	**7.71**	**4.5**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 10 — Dam Drainage Facilities - Months 18 to 22						
Fugitive Dust—Material Handling	–	–	–	–	0	0
Fugitive Dust—Unpaved Roads	–	–	–	–	3.70	2.11
Vehicle, Equipment, and Truck Emissions	1.27	10.07	13.35	0.04	0.50	0.46
TOTAL	**1.27**	**10.07**	**13.35**	**0.04**	**4.20**	**2.57**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 11 — Dam Instrumentation - Months 22 to 24						
Fugitive Dust—Material Handling	–	–	–	–	0	0
Fugitive Dust—Unpaved Roads	–	–	–	–	2.11	1.20
Vehicle, Equipment, and Truck Emissions	1.26	9.85	13.33	0.03	0.50	0.46
TOTAL	**1.26**	**9.85**	**13.33**	**0.03**	**2.61**	**1.66**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*

Table 3.1.F: Estimated Construction Equipment and Fugitive Dust Emissions (lbs/day)

Emission Source	VOCs	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Phase 12 — Permanent Energy Dissipation Vault - Months 23 to 25						
Fugitive Dust—Material Handling	–	–	–	–	0	0
Fugitive Dust—Unpaved Roads	–	–	–	–	6.86	3.91
Vehicle, Equipment, and Truck Emissions	0.85	4.7	12.03	0.03	0.32	0.29
TOTAL	**0.85**	**4.7**	**12.03**	**0.03**	**0.32**	**0.29**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 13 — Demolition of the Existing Facilities - Months 25 to 29						
Fugitive Dust—Material Handling	–	–	–	–	9.40	0.82
Fugitive Dust—Unpaved Roads	–	–	–	–	9.51	5.42
Vehicle, Equipment, and Truck Emissions	0.10	2.20	5.87	8.48	0.03	0.34
TOTAL	**0.10**	**2.20**	**5.87**	**8.48**	**7.18**	**4.2**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 14 — Site Reclamation and Demobilization - Months 30 to 31						
Fugitive Dust—Material Handling	–	–	–	–	0	0
Fugitive Dust—Unpaved Roads	–	–	–	–	4.75	2.71
Vehicle, Equipment, and Truck Emissions	0.91	6.05	10.97	0.02	0.36	0.33
TOTAL	**0.91**	**6.05**	**10.97**	**0.02**	**18.94**	**6.58**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*

Source: Compiled by LSA.
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SO_X = sulfur oxides
VOCs = volatile organic compounds

Table 3.1.F presents a summary of construction emissions (i.e., equipment and fugitive dust) for each individual phase of the Proposed Project. To evaluate the maximum daily and total annual construction emissions for the Proposed Project, the construction schedule, which provides week-by-week estimates of Project construction and equipment requirements, was used to develop calculations of total emissions from the individual phases of the Proposed Project that would be undergoing construction simultaneously.

The construction schedule drafted by AECOM indicated which construction phases would likely be conducted simultaneously. Because it is necessary to estimate maximum daily construction activity to estimate maximum daily emissions associated with Project construction, the construction schedule was consulted to identify the time period in which the maximum simultaneous construction activity would occur. Based on the construction contractor's proposed schedule, the maximum activity would occur during Phases 8, 9, and 10 of construction, assumed to be in the year 2023. To address a maximum daily emissions scenario, the schedule was reviewed and the maximum construction scenario was identified, in which the following construction phases would overlap and occur during Phases 8, 9, and 10:

- Phase 8: Roller-Compacted Concrete Placement
- Phase 9: Outlet Tower
- Phase 10: Dam Drainage Facilities

Table 3.1.G presents a summary of maximum peak daily construction emissions.

Table 3.1.G: Maximum Peak Daily Construction Equipment and Fugitive Dust Emissions (lbs/day)

Emission Source	VOCs	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Phase 8 — Roller-Compacted Concrete Placement - Months 13 to 20						
Fugitive Dust—Material Handling	–	–	–	–	20.33	4.13
Fugitive Dust—Unpaved Roads	–	–	–	–	63.37	36.12
Vehicle, Equipment, and Truck Emissions	11.3	81.82	97.79	0.29	3.87	3.61
Phase 9 — Outlet Tower - Months 17 to 23						
Fugitive Dust—Material Handling	–	–	–	–	0	0
Fugitive Dust—Unpaved Roads	–	–	–	–	7.39	4.21
Vehicle, Equipment, and Truck Emissions	0.85	4.7	12.03	0.03	0.32	0.29
Phase 10 — Dam Drainage Facilities - Months 18 to 22						
Fugitive Dust—Material Handling	–	–	–	–	0	0
Fugitive Dust—Unpaved Roads	–	–	–	–	3.70	2.11
Vehicle, Equipment, and Truck Emissions	1.27	10.07	13.35	0.04	0.50	0.46
TOTAL	**13.42**	**96.59**	**123.17**	**0.36**	**99.48**	**50.93**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	***Yes***	*No*	*No*	*No*

Source: Compiled by LSA.
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SO_X = sulfur oxides
VOCs = volatile organic compounds

As shown in Tables 3.1.F and 3.1.G, construction emissions associated with the Proposed Project would not exceed the SCAQMD thresholds for VOC, CO, SO_X, PM_{10}, and $PM_{2.5}$. However, as identified in Table 3.1.G above, daily regional construction emissions would exceed the daily SCAQMD thresholds for NO_X during overlapping phases of Project construction. Therefore, construction of the Proposed Project could result in emissions that would result in a cumulatively considerable net increase of a criteria pollutant for which the Project is in nonattainment under an applicable federal or State ambient air quality standard. Therefore, construction-related air quality impacts would be potentially significant, and mitigation would be required. Mitigation Measure AQ-1, which requires all off-road construction equipment to meet EPA Tier 4 engine standards or equivalent, would reduce Project construction-related NO_x emissions to a less than significant level.

Fugitive Dust Emissions. In addition to the construction period thresholds of significance, the Proposed Project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best-available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a

nuisance off site. With compliance with SCAQMD Rule 403, fugitive dust impacts to nearby sensitive receptors, including nearby residential units and horse ranches, would be reduced to a less than significant level.

Blasting Emissions. During the dam foundation excavation phase, blasting of hard rock will occur as part of the excavation. Based on the information from AECOM, it was estimated that approximately 34,000 cubic yards of rock material will need to be blasted. With the explosive factor of 1.0 pound of dynamite per cubic yard of rock blasted, it is assumed that approximately 17 tons of dynamite would be utilized. There will be no more than five blasts per day, up to a 5-month period, and the acreage blasted at any one time can range from one-sixteenth of an acre to one-half of an acre. In order to assess the potential impacts on ambient air quality of blasting activities, the EPA AP-42 emission factors were used to assess the impact of gases released during the blast. The gaseous pollutants created by the explosives (i.e., CO, NO_2, and SO_2) were calculated. Particulate emissions associated with blasting (i.e., dust created by physical agitation of soil and rock and combustion-related particulates) are already included in the on-site Project activities discussed in the preceding sections. Particulate impacts from blasting were calculated with the AP-42 emission factors as discussed previously. The blasting emission results are contained in Appendix B.

Blasting at the site would be conducted using dynamite. The EPA has published emission factors for dynamite explosives in AP-42, Chapter 13.3 Explosive Detonation (EPA 1995). The emission factors are 104 pounds of CO per ton of dynamite, 53 pounds of NO_X (assumed NO_2) per ton of dynamite, and 1 pound of SO_2 per ton of dynamite exploded. The Proposed Project's blasting activities would occur approximately eight times per day, and each blast will use 37.6 pounds of dynamite. (The value of 10 blasts per day is the maximum.)

The blasting impacts were not added to the point of maximum impacts (PMI) of operational activities because they occur at the dam construction location, approximately 12,000 ft (2.2 miles) east from the nearest sensitive receptor (i.e., NexStar Ranch).

There is also the possibility that some gases could be trapped below the surface and migrate through cracks or fissures below ground. Carefully designed blasting patterns would minimize the potential for trapped gases. In addition, the geology of the proposed quarry is not conducive to such migration. Finally, the blasting would occur at a considerable distance from any residences or other structures that could be impacted. Thus, there would not be potential adverse effects from potential underground migration of blasting gases.

In addition to the CO, NO_2, and SO_2 emissions identified by the EPA in AP-42, Chapter 13.3, there is a possibility of some of the dynamite not being completely combusted in the blast. However, none of the dynamite is listed as an air toxic in California or by the EPA. Furthermore, carefully designed blasts would consume all of the dynamite. Therefore, potential adverse impacts related to blasting combustion are considered to be less than significant.

A common method of dust control for blasting operations is to wet down the entire blasting area prior to initiating the blast. This procedure minimizes dust being entrained into the air from the blasting activity by allowing it to adhere to the wet surfaces (NIOSH 2012). Because these

standard practices would be applied as control measures, it is unlikely that airborne dust from blasting would be a cause of concern. Therefore, impacts would be less than significant.

Operational Air Quality Impacts. Long-term air pollutant emission impacts are those associated with mobile sources (e.g., vehicle trips), energy sources (e.g., electricity), and area sources (e.g., landscape maintenance equipment use). Once the new dam is fully operational, potential air quality impacts would be associated with routine maintenance and operation of the Vail Dam reservoir, and recreational use at the site. Motor vehicles and boats would be the primary source of emissions associated with reservoir operations. Operational and maintenance activities would include monitoring reservoir levels and outlet discharges, monitoring dam instrumentation, maintaining appropriate records, and maintaining mechanical and electrical equipment according to the equipment manufacturers' requirements. Power would be used for lighting, security cameras, gate actuators, trash rack hoists, and monitoring and control systems. However, energy emissions would be minimal and would not exceed thresholds established by the SCAQMD. In addition, these activities would not result in additional employees or maintenance requirements compared to operation of the existing dam. Employee traffic for reservoir operations would not be appreciably different than the existing condition scenario.

Therefore, once operational, implementation of the Proposed Project would not result in an increase in air pollutant emissions. Operation of the Proposed Project would not result in emissions that would result in a cumulatively considerable net increase of any criteria pollutant for which the project is in nonattainment under an applicable federal or State ambient air quality standard. Therefore, no air quality impacts associated with Project operation would occur.

Long-Term Microscale (CO Hot Spot) Analysis. Construction-related vehicular trips associated with the Proposed Project would contribute to congestion at intersections and along roadway segments in the Project vicinity. Localized air quality impacts could occur when emissions from vehicular traffic increase as a result of the Proposed Project. The primary mobile-source pollutant of local concern is CO, a direct function of vehicle idling time and, thus, of traffic flow conditions. CO transport is extremely limited; under normal meteorological conditions, it disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels, affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

An assessment of Project-related impacts on localized ambient air quality requires that future ambient air quality levels be projected. Existing CO concentrations in the immediate Project vicinity are not available. Ambient CO levels monitored at the Lake Elsinore Monitoring Station, the closest station with complete monitored CO data, showed a highest recorded 1-hour concentration of 1.6 ppm (the State standard is 20 ppm) and a highest 8-hour concentration of 0.8 ppm (the State standard is 9 ppm) during the past 3 years (Table 3.1.D). The highest CO concentrations would normally occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis.

In 2007, the SCAQMD was designated as in attainment for CO under both the CAAQS and NAAQS. As identified within the SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide, peak CO concentrations in the Basin were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. A CO hot spot analysis was conducted at four busy intersections in the Basin at the peak morning and afternoon periods and did not predict a violation of CO standards.[3] Since the SCAQMD modeled intersections do not exceed the CO standards, all intersections within the Proposed Project area with less volumes of traffic and under less extreme conditions would not exceed the CO standards. Conditions with implementation of the Proposed Project are expected to be similar to those under existing conditions, as the Project would not result in additional employees or maintenance requirements. Therefore, implementation of the Proposed Project would not increase the volume of traffic required to generate a CO hot spot. Given the extremely low level of CO concentrations in the Project area and the lack of traffic impacts at any surrounding intersections, the Project is not expected to contribute significantly to CO concentrations exceeding the State or federal CO standards. Because no CO hot spot would occur, Project-related impacts on CO concentrations would be less than significant.

Long-Term Microscale (CO Hot Spot) Analysis. The Proposed Project is located in Riverside County, which is among the counties found to have serpentine and ultramafic rock in their soils (CDC 2019). However, according to the California Geological Survey, no such rock has been identified in the Project vicinity. Therefore, the potential risk for naturally occurring asbestos during Project construction is negligible. No impact would occur.

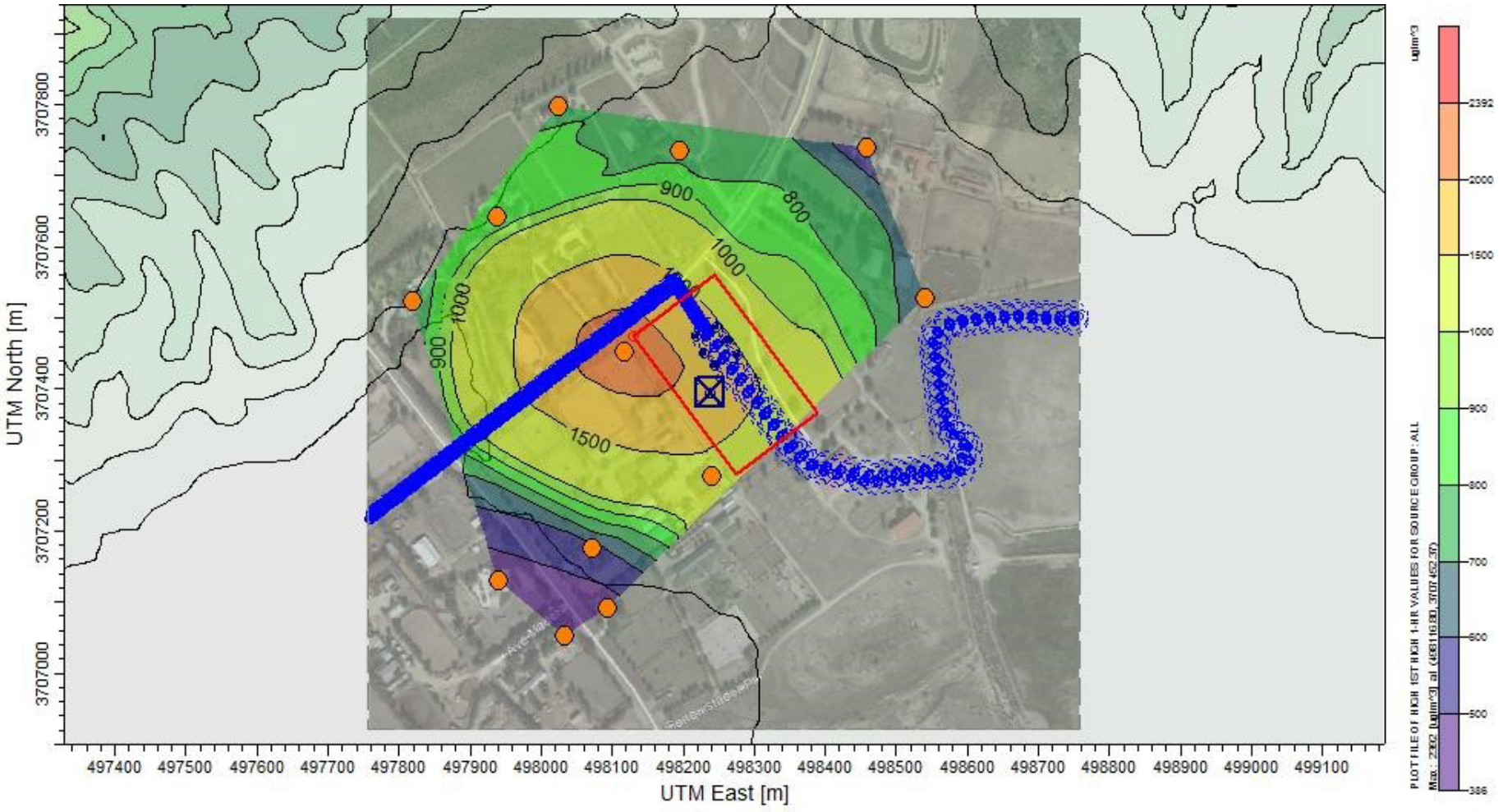
Threshold 3.1.3: Expose sensitive receptors to substantial pollutant concentrations

Less Than Significant Impact. Cancer risk probability is often expressed as the number of cases of cancer that could occur if 1 million persons were exposed. This is calculated by multiplying the cancer risk times 1 million. Cancer risks less than 1 in 1 million, or 10 in 1 million with T-BACT, are considered acceptable by the SCAQMD under Rule 1401.

Table 3.1.H shows the results of the conservative modeling for carcinogenic and chronic inhalation health risks at the maximum individual sensitive receptor. Even with the conservative modeling technique used (assuming that an adult stays outdoors at his or her residence 24 hours per day for 30 years and a child stays outdoors at his or her residence 24 hours per day for 9 years, which are the State-required periods of time that all HRAs must assess), model results indicate that no sensitive receptor would be exposed to an unmitigated inhalation cancer risk greater than 0.03 in 1 million, which is less than the threshold of 10 in 1 million. Figure 3.1-2 shows the area's 30-year residential exposure carcinogenic risk levels. The 9-year child exposure risk levels would all be lower than the 30-year levels; thus, they would cover an area smaller than shown in Figure 3.1-2. Appendix B provides the HARP modeling reports and AERMOD information.

[3] The four intersections were Long Beach Boulevard/Imperial Highway, Wilshire Boulevard/Veteran Avenue, Sunset Boulevard/Highland Avenue, and La Cienega Boulevard/Century Boulevard. The busiest intersection evaluated (Wilshire Boulevard/Veteran Avenue) had a daily traffic volume of approximately 100,000 vehicles and level of service (LOS) E in the morning peak hour and LOS F in the evening peak hour.

This page intentionally left blank



LSA

FIGURE 3.1-2

LEGEND

Sensitive Receptors

Construction Access Route

NOT TO SCALE

Vail Dam Seismic and Hydrologic Remediation Project

Location of Discrete Sensitive Receptors

I:\RCW1902\G\Sensitive_Receptors.ai (8/23/22)

This page intentionally left blank

The results for concrete batch plant activities are shown in Table 3.1.H for HI and for cancer risk. The chronic and acute HIs are less than 1.0, and the cancer risk is much less than 10 in 1 million. The results in Table 3.1.H for the MEI off-site worker are overstated by a very large margin, as the maximum impacted receptors, NexStar Ranch and Rancho Pacifica Ranch, are not continuously operated. Therefore, the worker exposure adjustment factor is much less than 0.20.

Table 3.1.H: Maximum Long-Term Health Risk Impact from Project Operation

Risk	Maximum Cancer Risk (risk per million)	Maximum and 8-hour Chronic Risk (Hazard Index[1])	Maximum Acute Risk (Hazard Index[1])
SCAQMD Threshold	10.0	1.0	1.0
9-Year Child Exposure	0.03	2.7×10^{-5}	1.6×10^{-6}
30-Year Residential Exposure	0.02		
25-Year Worker Exposure	0.008		
Significant?	*No*	*No*	*No*

Source: Compiled by LSA (2020).

[1] The Hazard Index is the unitless ratio of the estimated long-term level of exposure to a toxic air contaminant for a potential maximum exposed individual to its reference exposure level.

SCAQMD = South Coast Air Quality Management District

As shown in Table 3.1.H, the greatest chronic HI at a sensitive receptor would be 2.7×10^{-5}, which is below the threshold of 1.0. These are conservative health risk levels, meaning they are much higher than are reasonably expected to occur. In addition, Table 3.1.H shows the noncancer acute inhalation health risks from all Project-related sources to the nearest residents and shows that the maximum acute HI from the Proposed Project's on-site truck activity and roadway traffic would be 1.6×10^{-6}, which is also below the threshold of 1.0. Therefore, the potential for short-term chronic and acute exposure would be less than significant.

In addition, once operational, potential air quality impacts would be associated with routine maintenance and operation of the Vail Dam reservoir, and recreational use at the site. Motor vehicles and boats would be the primary source of emissions associated with reservoir operations. Operational and maintenance activities would include monitoring reservoir levels and outlet discharges, monitoring dam instrumentation, maintaining appropriate records, and maintaining mechanical and electrical equipment according to the equipment manufacturers' requirements. These activities would not result in additional employees or maintenance requirements compared to operation of the existing dam. Employee traffic for reservoir operations would not be appreciably different than the existing condition scenario. As such, the Proposed Project would not be a significant source of long-term operational emissions.

As such, all health risk levels to the nearest residents from Project construction and operational emissions of TACs would be well below SCAQMD's thresholds. No significant health risk would occur from Project-related activities. As such, impacts would be less than significant, and no mitigation is necessary.

3.1.7 Cumulative Impacts

As defined in Section 15130 of the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for air quality. The cumulative impact area for air quality related to the Proposed Project is the South Coast Air Basin.

Air pollution is inherently a cumulative type of impact measured across an air basin. The discussion under Threshold 3.1.2, above, includes an analysis of the Proposed Project's contribution to cumulative air impacts. To summarize the conclusion with respect to that analysis, the incremental effect of projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively considerable. With implementation of Mitigation Measure AQ-1, the Proposed Project's construction- and operation-related regional daily emissions are less than the SCAQMD significance thresholds for all criteria pollutants. In addition, adherence to SCAQMD rules and regulations, including Rule 403, would substantially reduce potential impacts associated with the Proposed Project and basin-wide air pollutant emissions. Therefore, with mitigation, the Proposed Project would not have a cumulatively considerable increase in emissions and the Proposed Project's air quality impacts would not be cumulatively considerable.

3.1.8 Level of Significance Prior to Mitigation

Prior to mitigation, construction of the Proposed Project would result in a potentially significant impact. Implementation of Mitigation Measure AQ-1 would be required to reduce Project construction-related NO_x emissions.

3.1.9 Regulatory Compliance Measures and Mitigation Measures

The following RCM is an existing regulation that is applicable to the Proposed Project and is considered in the analysis of potential impacts related to air quality. RCWD considers this requirement mandatory; therefore, it is not a mitigation measure.

RCM AQ-1

Dust Control. The Proposed Project would be required to comply with SCAQMD Rule 403 to control fugitive dust. During construction of the Proposed Project, best available control measures identified in Rule 403 would be required to minimize fugitive dust emissions from proposed earth-moving and grading activities. These measures would include site prewatering and rewatering as necessary to maintain sufficient soil moisture content. All access roads, including the Primary Entry Road, Secondary Entry Road, Pond Access Road, and Canyon Access Road, would be watered at least 3 times daily during active construction to reduce dust impact to nearby sensitive receptors, including nearby residential units and horse ranches. The dust-control methods for the Proposed Project would be specified in the dust-control plan that must be submitted to the SCAQMD per Rule 403.

The following mitigation measure is proposed to reduce impacts associated with construction-related emissions.

Mitigation Measure AQ-1 During construction of Phase 8, Phase 9, and Phase 10, all off-road construction equipment shall meet the minimum application of EPA Tier 4 engine standards or equivalent. The Construction Contractor shall provide documentation of compliance with this measure, which will be verified by the RCWD's Resident Engineer or designee.

3.1.10 Level of Significance After Mitigation

Table 3.1.I presents a summary of mitigated peak daily construction emissions.

Table 3.1.I: Mitigated Peak Daily Construction Equipment and Fugitive Dust Emissions (lbs/day)

Emission Source	VOCs	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Phase 8 — Roller-Compacted Concrete Placement - Months 13 to 20						
Fugitive Dust—Material Handling	–	–	–	–	20.33	4.13
Fugitive Dust—Unpaved Roads	–	–	–	–	63.37	36.12
Vehicle, Equipment, and Truck Emissions	5.01	65.35	19.60	0.26	0.41	0.38
Phase 9 — Outlet Tower - Months 17 to 23						
Fugitive Dust—Material Handling	–	–	–	–	0	0
Fugitive Dust—Unpaved Roads	–	–	–	–	7.39	4.21
Vehicle, Equipment, and Truck Emissions	0.52	4.19	5.46	0.03	0.07	0.07
Phase 10 — Dam Drainage Facilities - Months 18 to 22						
Fugitive Dust—Material Handling	–	–	–	–	0	0
Fugitive Dust—Unpaved Roads	–	–	–	–	3.70	2.11
Vehicle, Equipment, and Truck Emissions	0.61	8.94	1.11	0.04	0.05	0.04
TOTAL	**6.14**	**78.48**	**26.17**	**0.33**	**95.31**	**47.06**
Significance Threshold	75	550	100	150	150	55
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*

Source: Compiled by LSA.
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SO_X = sulfur oxides
VOCs = volatile organic compounds

With the utilization of Tier 4 diesel-powered construction equipment during construction of the Proposed Project, all criteria pollutants would be below the SCAQMD thresholds.

Accordingly, implementation of the Tier 4 mitigation would reduce the Proposed Project's construction-related impacts to below a level of significance. Construction-related emissions would not exceed the SCAQMD thresholds for any criteria pollutant during construction after mitigation. Therefore, impacts would be less than significant with mitigation incorporated.

This page intentionally left blank

3.2 BIOLOGICAL RESOURCES

This section evaluates the potential impacts to biological resources from implementation of the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project). The analysis in this section is based in part on the *Western Riverside County Multiple Species Habitat Conservation Plan Consistency Analysis and Biology Report* (LSA 2022f) (Biology Report) (Appendix C) that was prepared for the Proposed Project and is included in this Environmental Impact Report (EIR).

3.2.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. No comment letters included comments related to biological resources.

3.2.2 Existing Environmental Setting

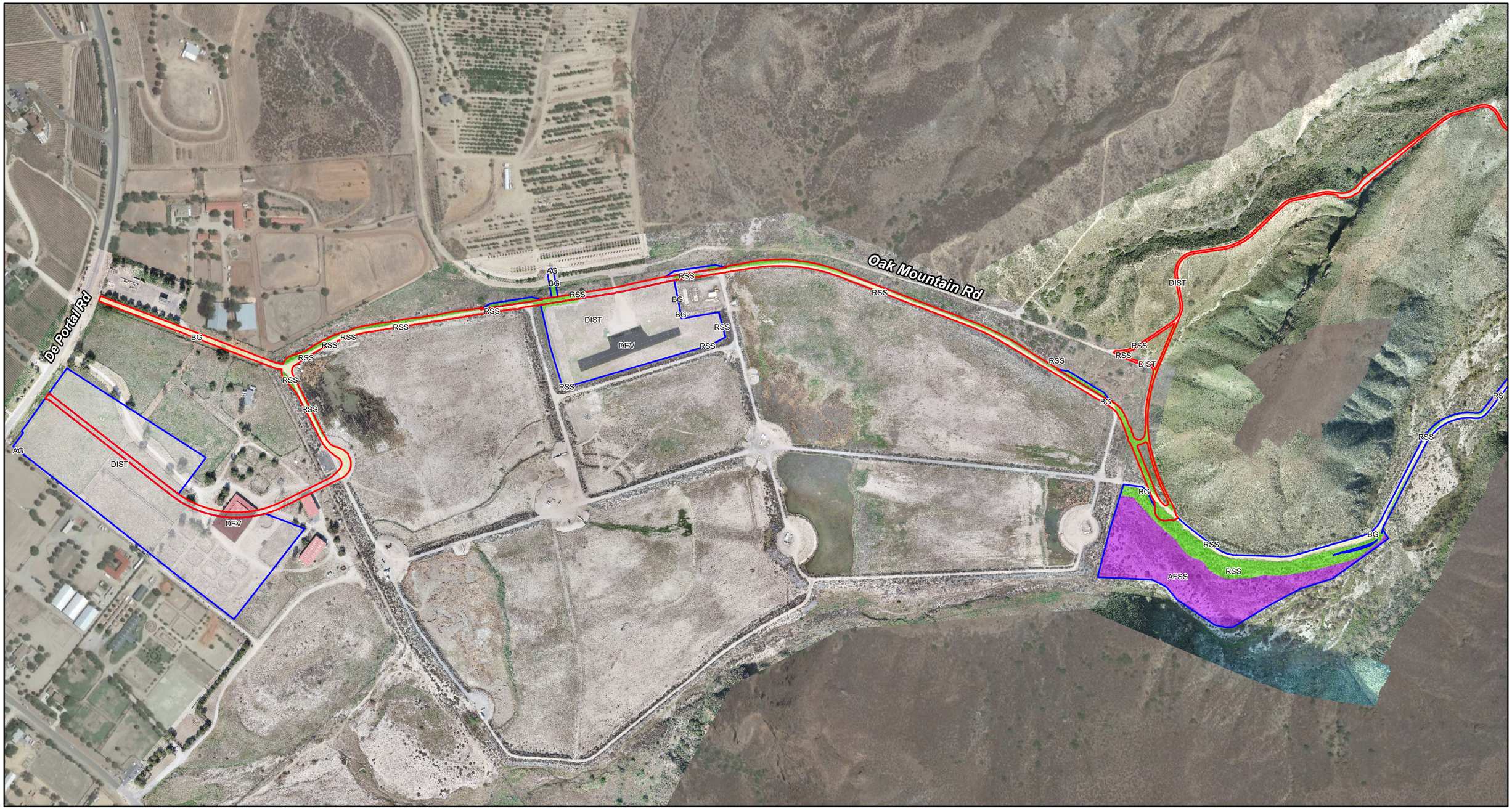
Vail Dam spans Temecula Creek, a northwesterly draining tributary of the Santa Margarita River that drains the north side of Palomar Mountain. The watershed for Vail Lake is approximately 318 square miles, and the lake is fed by Temecula Creek, Wilson Creek, Kolb Creek, and Arroyo Seco.

In addition to the lake, the surrounding terrain includes nearly flat stream valleys, step-like alluvial fan and terrace deposits, canyons, steep-sided river gorges, and moderate to steep mountain slopes. The topography slopes in all directions from various peaks and canyons in the vicinity of the lake. Vail (Oak) Mountain is located on the western portion of the Vail Property owned by RCWD, and the area generally separates the Lancaster and Aguanga Valleys on the east from the Pauba and Temecula Valleys on the west.

3.2.2.1 Vegetation

The vegetation/land cover within the biological study area (BSA) includes upland and riparian/ riverine areas, as well as disturbed and developed areas. The BSA includes the area around the Project features as well as the area surrounding Vail Lake, up to approximately the spillway elevation. Areas mapped within the BSA are shown in Table 3.2.A. Upland areas include non-native grassland, Riversidian sage scrub, and chaparral vegetation communities. Disturbed and developed areas include agriculture, bare ground, disturbed habitat, and developed areas and are located mainly within uplands. Riparian and riverine areas include alluvial fan sage scrub, riparian forest, and riparian scrub vegetation communities, as well as unvegetated areas associated with the lakeshore, open water, and streambed. Figure 3.2-1 depicts the vegetation communities within the Project impact limits. The Biology Report, included as Appendix C, provides descriptions of vegetation communities, vegetation mapping within the BSA, and a compendium of floral and faunal species observed.

This page intentionally left blank



LSA

LEGEND

Permanent Impact Area
Temporary Impact Area

Vegetation

Agriculture (AG)
Alluvial Fan Sage Scrub (AFSS)
Bare Ground (BG)
Developed (DEV)
Disturbed (DIST)
Lakeshore (LAKE)
Open Water (OW)
Riparian Scrub (RS)
Riversidian Sage Scrub (RSS)

0 225 450
FEET

SOURCE: Google Maps (2020); LSA UAV Imagery (2/2020 and 3/2020)

I:\RCW1902\GIS\MXD\EIR-EIS\Impacts_to_Vegetation_SH1.mxd (8/23/2022)

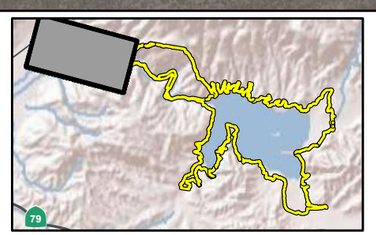


FIGURE 3.2-1
Sheet 1 of 2

Vail Dam Seismic and Hydrologic Remediation Project

Impacts to Vegetation

This page intentionally left blank

LSA

LEGEND

Permanent Impact Area

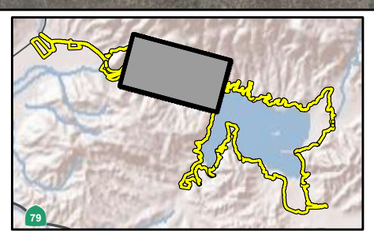
Temporary Impact Area

Vegetation

- Agriculture (AG)
- Alluvial Fan Sage Scrub (AFSS)
- Bare Ground (BG)
- Developed (DEV)
- Disturbed (DIST)
- Lakeshore (LAKE)
- Open Water (OW)
- Riparian Scrub (RS)
- Riversidian Sage Scrub (RSS)

0 225 450

FEET



SOURCE: Google Maps (2020); LSA UAV Imagery (2/2020 and 3/2020)

I:\RCW1902\GIS\MXD\EIR-EIS\Impacts_to_Vegetation_SH2.mxd (8/23/2022)

FIGURE 3.2-1

Sheet 2 of 2

Vail Dam Seismic and Hydrologic Remediation Project

Impacts to Vegetation

This page intentionally left blank

Table 3.2.A: Summary of Vegetation/Land Cover in the Biological Study Area

Vegetation Community/Land Cover[1]	Project Area	Area Surrounding Vail Lake	Total within Study Area (acres)
Upland Areas			
Chaparral	0.30	-	0.30
Non-Native Grassland	-	18.01	18.01
Riversidian Sage Scrub	24.92	17.23	42.14
Developed/Disturbed Areas			
Bare Ground	8.84	-	8.84
Developed	2.88	0.04	2.91
Disturbed	25.57	4.17	29.75
Agriculture	0.01	-	0.01
Riparian/Riverine Areas			
Alluvial Fan Sage Scrub	14.61	0.00	14.61
Riparian Forest	-	280.10	280.10
Riparian Scrub	7.97	227.02	235.00
Open Water[2]	0.67	1.31	1.98
Streambed	-	18.80	18.80
Lakeshore	0.15	28.40	28.56
Total	**85.92**	**595.10**	**681.02**

Source: LSA (2022).
Values rounded to nearest hundredth of an acre. Values of 0.00 indicate impacts that are less than 0.005 acre. Totals may not equal sums due to rounding.

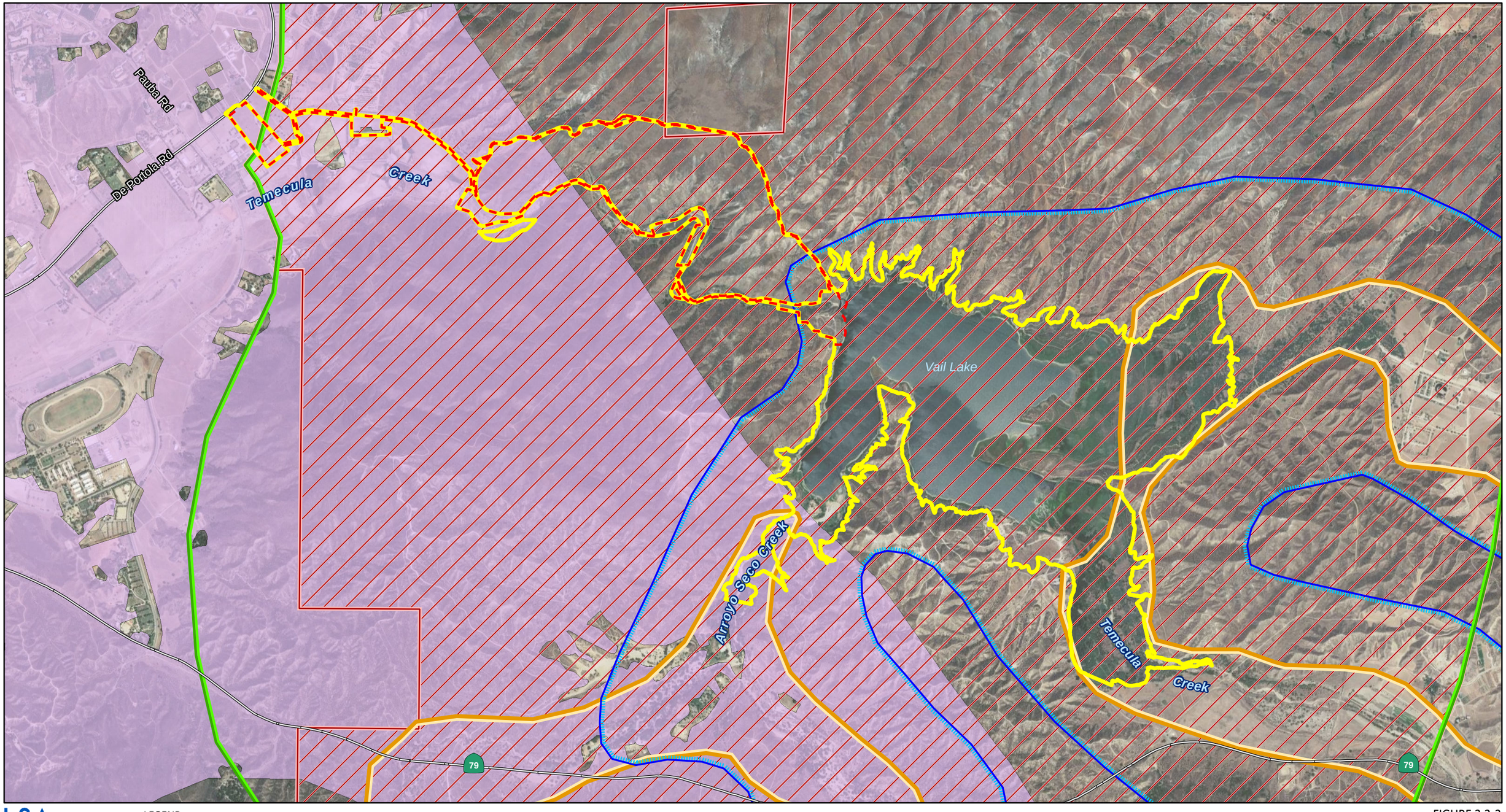
[1] Areas of chaparral, unvegetated streambed, and riparian forest were mapped within the study area; however, no impacts would occur in these areas.

[2] The total open water mapped within the study area excludes most of Vail Lake, as biological studies were conducted primarily within terrestrial areas. However, the jurisdictional delineation included the entirety of the lake.

3.2.2.2 Special-Status Species

The Biology Report, included as Appendix C, provides a description of survey procedures and results along with information related to special-status species, including those determined to have a low potential to occur or be absent within the BSA. Table 3.2.B presents the special-status species covered under the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) (Riverside County Transportation and Land Management Agency 2003) with a moderate or high potential to occur within the BSA. Table 3.2.C presents the special-status species not covered under the MSHCP with a moderate or high potential to occur within the BSA. The BSA is located within several MSHCP Survey Areas, shown on Figure 3.2-2. Threatened and endangered species observed during surveys and U.S. Fish and Wildlife Service (USFWS) Critical Habitat areas are shown on Figure 3.2-3.

This page intentionally left blank



LSA

LEGEND

- Biological Study Area
- Project Site

Western Riverside County MSHCP

- Amphibian Survey Area
- Burrowing Owl Survey Area
- Mammal Survey Area
- Narrow Endemic Plant Species Survey Area (NEPSSA)
- Criteria Area Species Survey Area (CASSA)

0 1000 2000
FEET

FIGURE 3.2-2

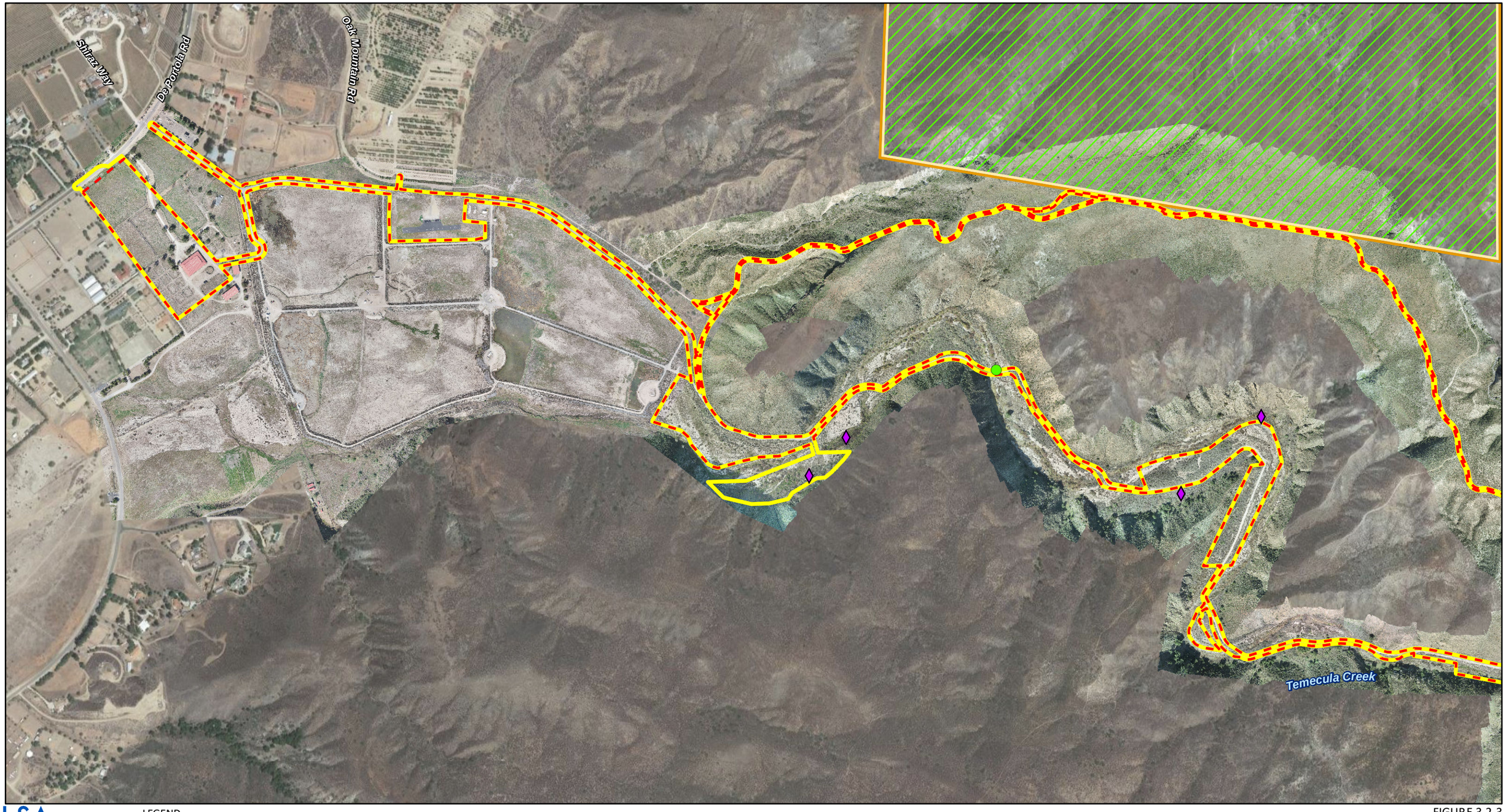
Vail Dam Seismic and Hydrologic Remediation Project

MSHCP Survey Areas

SOURCE: Google Maps (2020); Western Riverside County Regional Conservation Authority (2021)

I:\RCW1902\GIS\MXD\Bio\MSHCP Report\MSHCP_SurveyAreas.mxd (8/23/2022)

This page intentionally left blank



LSA

LEGEND

Biological Study Area
Project Site

Plant Survey Results
Nevin's Barberry

Arroyo Toad Survey Results
Arroyo Toad

Riparian Bird Survey Results
Coastal California Gnatcatcher
Least Bell's Vireo
Southwestern willow flycatcher
Tricolored blackbird

Crititcal Habitat
Arroyo Toad
Coastal California Gnatcatcher
Quino Checkerspot Butterfly

0 400 800
FEET

SOURCE: Google Maps (2019); LSA UAV Imagery (2/2020 and 3/2020)

I:\RCW1902\GIS\MXD\Bio\MSHCP Report\Survey_Results.mxd (8/23/2022)

FIGURE 3.2-3
Sheet 1 of 3

Vail Dam Seismic and Hydrologic Remediation Project

Threatened and Endangered Species Observations and Critical Habitat

This page intentionally left blank

Temecula Creek

Vail Lake

Wilson Creek

LSA

LEGEND

Biological Study Area

Project Site

Plant Survey Results

Nevin's Barberry

Arroyo Toad Survey Results

Arroyo Toad

Riparian Bird Survey Results

Coastal California Gnatcatcher

Least Bell's Vireo

Southwestern willow flycatcher

Tricolored blackbird

Crititcal Habitat

Arroyo Toad

Coastal California Gnatcatcher

Quino Checkerspot Butterfly

N

0 400 800

FEET

SOURCE: Google Maps (2019); LSA UAV Imagery (2/2020 and 3/2020)

I:\RCW1902\GIS\MXD\Bio\MSHCP Report\Survey_Results.mxd (8/23/2022)

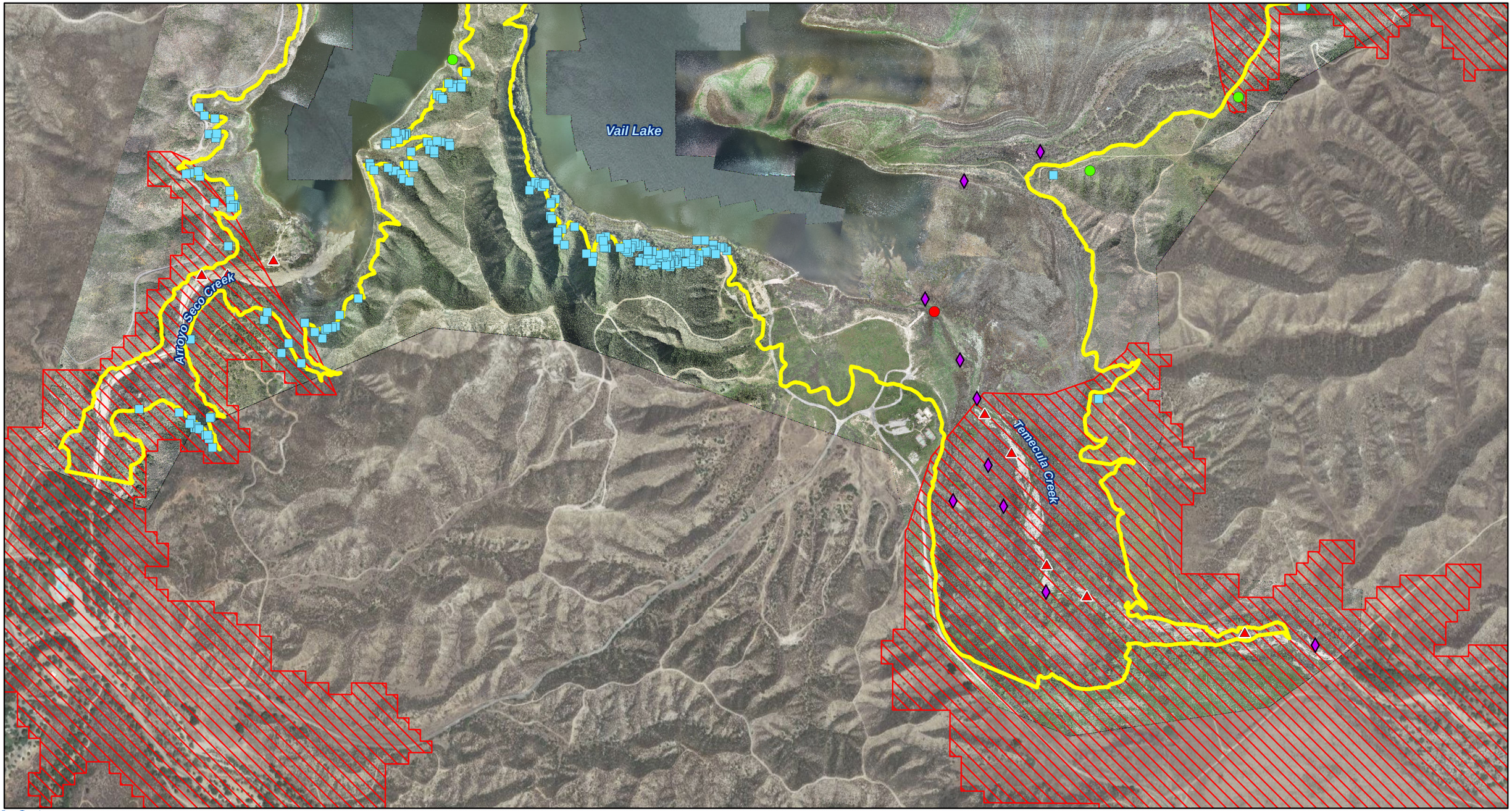
FIGURE 3.2-3

Sheet 2 of 3

Vail Dam Seismic and Hydrologic Remediation Project

Threatened and Endangered Species Observations and Critical Habitat

This page intentionally left blank



LSA

LEGEND

Biological Study Area
Project Site

Plant Survey Results
Nevin's Barberry

Arroyo Toad Survey Results
Arroyo Toad

Riparian Bird Survey Results
Coastal California Gnatcatcher
Least Bell's Vireo
Southwestern willow flycatcher
Tricolored blackbird

Crititcal Habitat
Arroyo Toad
Coastal California Gnatcatcher
Quino Checkerspot Butterfly

0 400 800
FEET

SOURCE: Google Maps (2019); LSA UAV Imagery (2/2020 and 3/2020)

I:\RCW1902\GIS\MXD\Bio\MSHCP Report\Survey_Results.mxd (8/23/2022)

FIGURE 3.2-3
Sheet 3 of 3

Vail Dam Seismic and Hydrologic Remediation Project

Threatened and Endangered Species Observations and Critical Habitat

This page intentionally left blank

Table 3.2.B: Potentially Occurring MSHCP-Covered Species

Common Name	Scientific Name	Status		
		Federal	California	MSHCP
PLANTS				
Nevin's barberry	*Berberis nevinii*	US: FE	CA: SE	MSHCP: S
Long-spined spineflower	*Chorizanthe polygonoides* var. *longispina*	US: –	CA: 1B	MSHCP: C
Smooth tarplant	*Centromadia pungens* ssp. *laevis*	US: –	CA: 1B	MSHCP: C
INVERTEBRATES				
Quino checkerspot butterfly	*Euphydryas editha quino*	US: FE	CA: SA	MSHCP: C
FISH				
Arroyo chub	*Gila orcuttii*	US: –	CA: SSC	MSHCP: C
AMPHIBIANS				
Arroyo toad	*Anaxyrus californicus*	US: FE	CA: SSC	MSHCP: S
Western spadefoot	*Spea hammondii*	US: –	CA: SSC	MSHCP: C
REPTILES				
Orange-throated whiptail	*Aspidoscelis hyperythra*	US: –	CA: SA	MSHCP: C
Coastal western whiptail	*Aspidoscelis tigris stejnegeri*	US: –	CA: SSC	MSHCP: C
Red-diamond rattlesnake	*Crotalus ruber*	US: –	CA: SSC	MSHCP: C
Western pond turtle	*Emys marmorata*	US: –	CA: SSC	MSHCP: C
Coast horned lizard	*Phrynosoma blainvillii* (*coronatum*)	US: –	CA: SSC	MSHCP: C
BIRDS				
Least Bell's vireo	*Vireo bellii pusillus*	US: FE	CA: SE	MSHCP: S
Southwestern willow flycatcher	*Empidonax traillii extimus*	US: FE	CA: SE	MSHCP: S
Coastal California gnatcatcher	*Polioptila californica californica*	US: FT	CA: SSC	MSHCP: C
Bald eagle	*Haliaeetus leucocephalus* (nesting and wintering)	US: FD	CA: SE/CFP	MSHCP: C
Tricolored blackbird (nesting colony)	*Agelaius tricolor*	US: –	CA: ST/SSC (breeding)	MSHCP: C
Cooper's hawk (nesting)	*Accipiter cooperii*	US: –	CA: SA	MSHCP: C
Sharp-shinned hawk (nesting)	*Accipiter striatus*	US: –	CA: SA	MSHCP: C
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	US: –	CA: SA	MSHCP: C
Golden eagle (nesting and wintering)	*Aquila chrysaetos*	US: –	CA: CFP	MSHCP: C
Great blue heron (nesting colony)	*Ardea herodias*	US: –	CA: SA	MSHCP: C
Bell's sage sparrow	*Artemisiospiza* (*Amphispiza*) *belli belli*	US: –	CA: SA	MSHCP: C
Burrowing owl (burrow sites)	*Athene cunicularia*	US:	CA: SSC	MSHCP: S
Ferruginous hawk (wintering)	*Buteo regalis*	US: –	CA: SA	MSHCP: C
Coastal cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	US: –	CA: SSC	MSHCP: C
White-tailed kite (nesting)	*Elanus leucurus*	US: –	CA: CFP	MSHCP: C
California horned lark	*Eremophila alpestris actia*	US: –	CA: SA	MSHCP: C
American peregrine falcon (nesting)	*Falco peregrinus anatum*	US: –	CA: CFP	MSHCP: C
Yellow-breasted chat (nesting)	*Icteria virens*	US: –	CA: SSC	MSHCP: C
Loggerhead shrike (nesting)	*Lanius ludovicianus*	US: –	CA: SSC	MSHCP: C
Black-crowned night-heron (nesting colony)	*Nycticorax nycticorax*	US: –	CA: SA	MSHCP: C

Table 3.2.B: Potentially Occurring MSHCP-Covered Species

Common Name	Scientific Name	Status		
		Federal	California	MSHCP
Double-crested cormorant (nesting colony)	*Phalacrocorax auritus*	US: –	CA: SA	MSHCP: C
Purple martin (nesting)	*Progne subis*	US: –	CA: SSC	MSHCP: C
Yellow warbler (nesting)	*Setophagia petechia*	US: –	CA: SSC	MSHCP: C
MAMMALS				
Stephens' kangaroo rat	*Dipodomys stephensi*	US: FE	CA: ST	MSHCP: C
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	US: –	CA: SSC	MSHCP: C
Brush rabbit	*Sylvilagus bachmani*	US: –	CA: –	MSHCP: C
Northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	US: –	CA: SSC	MSHCP: C
Aguanga kangaroo rat	*Dipodomys merriami collinus*	US: –	CA: –	MSHCP: S
San Diego desert woodrat	*Neotoma lepida intermedia*	US: –	CA: SSC	MSHCP: C
Los Angeles pocket mouse	*Perognathus longimembris brevinasus*	US: –	CA: SSC	MSHCP: S

Source: LSA (2022).

US: Federal Classifications

FE Listed as endangered.
FT Listed as threatened.
FDR Federally delisted (recovered).

CA: State Classifications

SE State-listed as endangered.
ST State-listed as threatened.
SC Candidate for listing as threatened or endangered.
CFP California Fully Protected. Refers to animals protected under Fish and Game Code sections 3511, 4700, 5050, and 5515.
SSC Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.
SA Special Animal. Refers to any other animal monitored by the California Natural Diversity Database (CNDDB), regardless of its legal or rarity status.

MSHCP: Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Status

C Species is covered and adequately conserved under the MSHCP.
S Species is covered and adequately conserved under the MSHCP, but surveys are required within indicated habitats and/or survey areas.

Table 3.2.C: Potentially Occurring Special-Status Species Not Covered Under MSHCP

Common Name	Scientific Name	Status		
		Federal	California	MSHCP
PLANTS				
Chaparral sand-verbena	*Abronia villosa* var. *aurita*	US: –	CA: 1B	MSHCP: NC
White rabbit-tobacco	*Pseudognaphalium leucocephalum*	US: –	CA: 2B	MSHCP: NC
INVERTEBRATES				
Crotch bumble bee	*Bombus crotchii*	US: –	CA: – formerly SC	MSHCP: NC
REPTILES				
Southern California legless lizard	*Anniella stebbinsi*	US: –	CA: SSC	MSHCP: NC
California glossy snake	*Arizona elegans occidentalis*	US: –	CA: SSC	MSHCP: NC
Coast patch-nosed snake	*Salvadora hexalepis virgultea*	US: –	CA: SSC	MSHCP: NC
Two-striped garter snake	*Thamnophis hammondii*	US: –	CA: SSC	MSHCP: NC
BIRDS				
Great egret (nesting colony)	*Ardea alba*	US: –	CA: SA	MSHCP: C
Lark sparrow	*Chondestes grammacus* (nesting)	US: –	CA: SA	MSHCP: NC
Snowy egret	*Egretta thula* (nesting colony)	US: –	CA: SA	MSHCP: NC
Least bittern (nesting)	*Ixobrychus exilis*	US: –	CA: SSC	MSHCP: NC
Nuttall's woodpecker (nesting)	*Picoides nuttallii*	US: –	CA: SA	MSHCP: NC
Summer tanager (nesting)	*Piranga rubra*	US: –	CA: SSC	MSHCP: NC
Allen's hummingbird	*Selasphorus sasin* (nesting)	US: –	CA: SA	MSHCP: NC
Lawrence's goldfinch	*Spinus lawrencei* (=*Carduelis l.*) (nesting)	US: –	CA: SA	MSHCP: NC
Black-chinned sparrow	*Spizella atrogularis* (nesting)	US: –	CA: SA	MSHCP: NC
MAMMALS				
Western mastiff bat	*Eumops perotis californicus*	US: –	CA: SSC	MSHCP: NC
Western red bat	*Lasiurus blossevillii*	US:	CA: SSC	MSHCP: NC
Hoary bat	*Lasiurus cinereus*	US:	CA: SA	MSHCP: NC
Yuma myotis	*Myotis yumanensis*	US: –	CA: SA	MSHCP: NC
Pocketed free-tailed bat	*Nyctinomops femorosaccus*	US: –	CA: SSC	MSHCP: NC
Dulzura pocket mouse	*Chaetodipus californicus femoralis*	US: –	CA: SSC	MSHCP: NC

Source: LSA (2022).

US: Federal Classifications

FD Federally delisted.

CA: State Classifications

1B California Rare Plant Rank 1B – rare, threatened or endangered in California and elsewhere.

2B California Rare Plant Rank 2B – rare, threatened or endangered in California, but more common elsewhere.

SSC Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.

SA Special Animal. Refers to any other animal monitored by the California Natural Diversity Database (CNDDB), regardless of its legal or rarity status.

MSHCP: Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Status

NC Species is not covered under the MSHCP.

3.2.2.3 Wildlife Movement Corridors and Nursery Sites

The Project site occurs at the existing Vail Lake Dam and the area downstream, within portions of Temecula Creek and along existing roads and residential and agricultural areas. Current wildlife movement is mostly unrestricted within the BSA with the exception of the western portion of the Project site where adjacent residential and agricultural land uses and existing roads (e.g., De Portola Road) reduce or eliminate the ability for wildlife to move freely. The area provides suitable nursery sites for a wide variety of animal species.

The MSHCP provides for the assembly of a Conservation Area consisting of Core Areas and Linkages for the conservation of covered species. The Project site does not occur within an existing or proposed linkage as identified in the MSHCP, but it is within Proposed Core 7. Core areas provide nesting habitat/nursery sites for a variety of species. According to the MSHCP, Proposed Core 7 is comprised of a mosaic of upland and wetland habitat types in the Vail Lake, Sage, and Wilson Valley areas. The proposed large intact habitat blocks provide live-in habitat for a number of planning species and movement for species connecting to other core areas located in the Agua Tibia Wilderness, the San Bernardino National Forest, and the Beauty Mountain Management Area. This core supports Quino checkerspot butterfly, coastal California gnatcatcher, Stephens' kangaroo rat, least Bell's vireo, bobcat (*Lynx rufus*), mountain lion (*Felis concolor*), and several narrow endemic plant species occurring on Travers-Willow-Domino soil series. Maintenance of large intact interconnected habitat blocks and wetland functions and values of Vail Lake and portions of Tucalota Creek, Temecula Creek, Tule Creek, Cottonwood Creek, Arroyo Seco Creek, Kolb Creek, and Wilson Creek is important for these species.

Proposed Linkage 24 identified in the MSHCP occurs to the west of the Project site along Temecula Creek and Linkages 17 and 18 occur to the south of the Project site along Kolb Creek and Arroyo Seco Creek, respectively. The Project site contains portions of Temecula Creek, which provides riparian habitat and connects to Proposed Linkage 24 outside of the Project site. Temecula Creek within the Project area provides a natural movement corridor for wildlife.

3.2.3 Regulatory Setting

3.2.3.1 Federal Regulations

Federal Endangered Species Act of 1973. The Federal Endangered Species Act (FESA) defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA, it is unlawful to "take" any listed species.

"Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to, or death of species, as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are

required to consult with the USFWS to ensure the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

The take of federally listed species can be authorized under Section 10(a) of the FESA, with development of a Habitat Conservation Plan (HCP) or as part of a Section 7 consultation between the USFWS and another federal agency if the project is subject to federal action (e.g., a Section 404 Permit). Upon development of an HCP, the USFWS can issue incidental take permits for listed species where the HCP specifies at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking that were considered by the applicant and the reasons why such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan. In certain instances, such as for the California gnatcatcher, take of a threatened species can be authorized by special rule (i.e., 4[d]). In the case of the California gnatcatcher, the 4(d) rule applies in jurisdictions that are participating in the State's Natural Communities Conservation Plan (NCCP) program dealing with coastal sage scrub plant communities.

Migratory Bird Treaty Act. The federal Migratory Bird Treaty Act (MBTA) governs take, possession, import, export, transport, selling, purchasing, or bartering of migratory birds and their eggs, parts, and nests, except as authorized under a valid permit. Section 704 of the MBTA states that the Secretary of the Interior is authorized and directed to determine if, and by what means, the take of migratory birds should be allowed and to adopt suitable regulations permitting and governing take while ensuring that take is compatible with protection of the species. Most bird species are protected under the MBTA.

In addition, under the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy any bird or the nests or eggs of any bird species except as otherwise provided in the California Fish and Game Code and regulations. This code also specifically protects raptors, including owls, and the California Department of Fish and Wildlife (CDFW) considers a disturbance that results in nest abandonment or loss of reproductive effort as take. Disturbances of active nesting territories should be avoided during the nesting season.

Section 404 of the Clean Water Act. The U.S. Army Corps of Engineers (USACE) regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria. The USACE regulatory jurisdiction pursuant to Section 404 of the federal Clean Water Act (CWA) is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or may be indirect, through a nexus identified in the USACE regulations. The following definition of waters of the United States is taken from the discussion provided in 33 Code of Federal Regulations (CFR) 328.3:

> The term waters of the United States means:
>
> (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce . . . ;
>
> (2) All interstate waters including interstate wetlands;
>
> (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams) . . . the use, degradation or destruction of which could affect interstate or foreign commerce . . . ;
>
> (4) All impoundments of waters otherwise defined as waters of the United States under the definition; and
>
> (5) Tributaries of waters defined in paragraphs (a) (1)–(4) of this section."

The USACE typically regulates as waters of the United States any body of water displaying an ordinary high water mark (OHWM). The landward limits of USACE jurisdiction in tidal waters of the United States extend to the high tide line, and USACE jurisdiction over nontidal waters of the United States extends laterally to the OHWM or beyond the OHWM to the limit of any adjacent wetlands, if present (33 CFR 328.4). The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area" (33 CFR 328.3). Jurisdiction typically extends upstream to the point where the OHWM is no longer perceptible.

The USACE and the U.S. Environmental Protection Agency (EPA) define wetlands as follows:

> Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions.

In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland characteristic to be met. Several parameters may be analyzed to determine whether the criteria are satisfied.

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is

based on compliance with the EPA's Section 404(b)(1) Guidelines (40 Code of Federal Regulations Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the EPA in conjunction with the USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a "least environmentally damaging practicable alternative" (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

3.2.3.2 State Regulations

California Endangered Species Act. The CDFW, via policies formulated by the California Fish and Game Commission (Commission), regulates species of plants and animals that are in danger of, or threatened with, extinction. The Commission has established a list of Endangered, Threatened, and candidate species that are regulated by the CDFW. Endangered species are native species or subspecies of plants and animals that are in serious danger of becoming extinct throughout all or a significant portion of their range. Threatened species are those species that, although not presently threatened with extinction, are likely to become Endangered species in the foreseeable future in the absence of special protection and management efforts. Candidate species are those species the Commission has formally noticed as being under review for addition to either the list of Endangered or Threatened species or a species proposed for listing.

California Environmental Quality Act. The California Environmental Quality Act (CEQA) requires evaluation of a project's impacts on biological resources and provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts. Furthermore, pursuant to *State CEQA Guidelines* Section 15380, CEQA provides protection for non-listed species that could potentially meet the criteria for State listing. For plants, CDFW recognizes that plants on Lists 1A, 1B, or 2 of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants in California may meet the criteria for listing and should be considered under CEQA. CDFW also recommends protection of plants, which are regionally important, such as locally rare species, disjunct populations of more common plants, or plants on CNPS List 3 or 4.

California Natural Diversity Database. The CDFW administers the California Natural Diversity Database (CNDDB), which maintains lists of special-interest plants, animals, and natural communities that occur within California. These particular natural communities, or habitat types, are designated as sensitive because of their rarity (e.g., very localized distribution, few scattered occurrences) and/or because of some threat (e.g., development, off-road vehicles) to this specific habitat type. The purpose of these listings is solely informational; there is no regulatory protection of these communities afforded by the CNDDB listings.

Sections 1600–1603 of the California Fish and Game Code. Pursuant to Division 2, Chapter 6, Sections 1600–1603 of the California Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife.

CDFW defines a stream (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or manmade reservoirs." CDFW also defines a stream as "a body of water that flows, or has flowed, over a given course during the historic hydrologic regime, and where the width of its course can reasonably be identified by physical or biological indicators."

It is important to note that the California Fish and Game Code defines fish and wildlife to include all wild animals, birds, plants, fish, amphibians, invertebrates, reptiles, and related ecological communities, including the habitat upon which they depend for continued viability (FGC Division 5, Chapter 1, section 45, and Division 2, Chapter 1, section 711.2(a), respectively).

Furthermore, Division 2, Chapter 5, Article 6, Section 1600 et seq. of the California Fish and Game Code does not limit jurisdiction to areas defined by specific flow events, seasonal changes in water flow, or presence/absence of vegetation types or communities.

Fish and Game Code Section 3503. Sections 3503, 3503.5, and 3513 protect native birds. Mitigation for avoidance of impacts to nesting birds is typically necessary to comply with these sections of the California Fish and Game Code in CEQA and other permitting documents. Specifically, Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit the take, possession, or destruction of birds, their nests, or eggs.

California Native Plant Society. The CNPS is a nonprofit organization whose purpose is to promote the preservation of native California plants. The CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. The list serves as the candidate list for listing as Threatened and Endangered by the CDFW.

Section 401 of the Clean Water Act. Section 401 of the CWA requires any applicant for a Section 404 permit to obtain certification from the State that the discharge (and the operation of the facility being constructed) will comply with the applicable effluent limitation and water quality standards. In California, this 401 certification is obtained from the Regional Water Quality Control Board (RWQCB). The USACE, by law, cannot issue a Section 404 permit until a 401 certification is issued or waived. Areas subject to RWQCB jurisdiction typically coincide with those of the USACE (i.e., waters of the United States, including any wetlands). The RWQCB also asserts authority over waters of the State under waste discharge requirements pursuant to the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act), but this mechanism is typically not invoked in cases where the USACE asserts permitting authority pursuant to the CWA.

3.2.3.3 Regional Regulations

Western Riverside County Multiple Species Habitat Conservation Plan. The MSHCP is a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in Western Riverside County. The MSHCP serves as an HCP pursuant to Section 10(a)(1)(B) of FESA and as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The

MSHCP allows the participating jurisdictions to authorize "Take" of plant and wildlife species identified within the MSHCP area. The USFWS and CDFW have authority to regulate the Take of threatened and endangered species. Under the MSHCP, these agencies have granted "Take Authorization" for otherwise lawful actions in exchange for the assembly and management of a coordinated MSHCP Conservation Area. The approval of the MSHCP and execution of the Implementing Agreement (IA) by the USFWS and CDFW allowed them to issue Take Authorizations to the signatories of the IA. Issuance of Take Authorization to the local jurisdictions will allow MSHCP participants to implement land use decisions consistent with the MSHCP without project-by-project review and permitting by the USFWS and CDFW.

RCWD is not a signatory to the IA. However, the MSHCP provides a mechanism by which non-signatories can obtain coverage under the MSHCP on a project-by-project basis as a Participating Special Entity. This process requires adhering to the requirements of the MSHCP in terms of studies and reports, submittal of an application, and payment of impact fees.

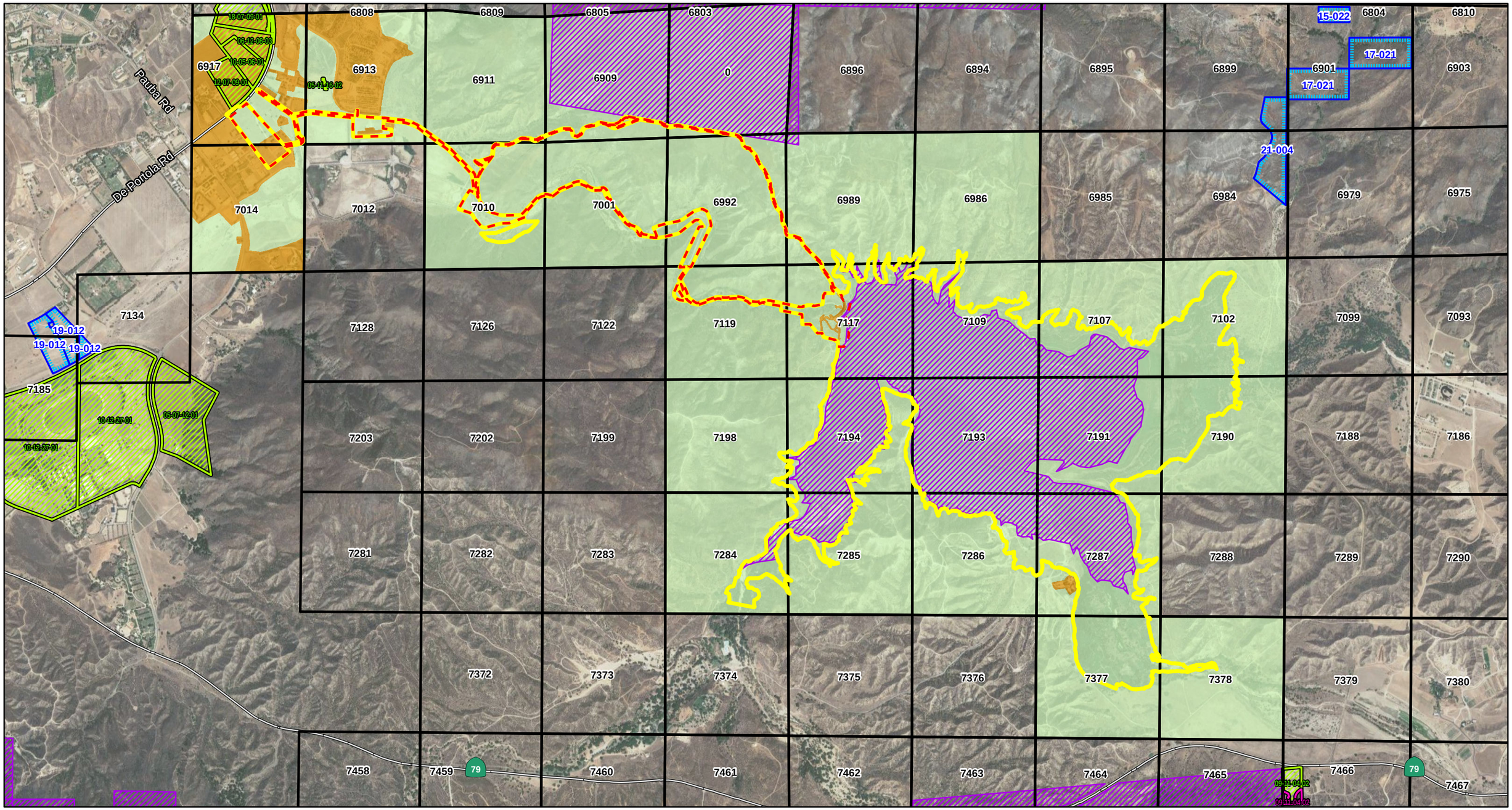
The MSHCP provides for the assembly of a Conservation Area consisting of Core Areas and Linkages for the conservation of covered species. The Conservation Area is to be assembled from portions of the MSHCP Criteria Area, which consist of quarter-section (i.e., approximately 160-acre) Criteria Cells, each with specific criteria for the species conservation within that cell. The Project site is located within the MSHCP Southwest Area Plan in Cell Groups C and D. Cell Groups C and D are part of the Vail Lake Subunit (Subunit 3) of the Southwest Area Plan. Therefore, the Project is required to meet specific conservation objectives for the Planning Species, Biological Issues and Considerations, and Criteria for the conservation objectives of the Southwest Area Plan. Figure 3.2-4 depicts the Project impact area relative to the MSHCP Criteria Cells.

The Project will also be required to meet the Global Biological Objectives of the MSHCP, including the protection of narrow endemic, criteria area, mammal, and amphibian species; species associated with riverine/riparian habitat, wetlands, or vernal pool habitat; and upland and wetland habitat quality. These objectives also include additional survey needs (e.g., burrowing owl, arroyo toad, narrow endemic plants, and criteria area plants) and procedures such as the MSHCP Standard best management practices (BMPs) described in Appendix C of Volume 1 of the MSHCP.

MSHCP Mitigation Fee Implementation Manual. The Western Riverside County Regional Conservation Authority (RCA) periodically issues the *MSHCP Mitigation Fee Implementation Manual*, with the most recent release in February 2022 (RCA 2022). The manual provides direction to local jurisdictions under the MSHCP concerning their obligations under the MSHCP and permits regarding the imposition, collection, accounting, remittance, and calculation of the Local Development Mitigation Fee. The manual also addresses RCA's fees and procedures for Participating Special Entities (PSEs). Mitigation fee requirements for non-linear projects are based on the size of the project, currently calculated at $16,358 per gross project acre.

Stephens' Kangaroo Rat Habitat Conservation Plan (SKR HCP). The *Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County, California* (Riverside County Habitat Conservation Agency 1996) describes the regional conservation, mitigation, and monitoring measures allowing take of the species for regional projects compliant with the HCP.

This page intentionally left blank



LSA

LEGEND

- Biological Study Area
- Project Site

Riverside County MSHCP

- Criteria Cells
- PQP Conserved Lands
- RCA Conserved Lands

- Developed Land
- Undeveloped Land

JPR Sites

- Proposed Development
- Proposed MSHCP Conservation

0 1000 2000
FEET

SOURCE: Google Earth (2020); Western Riverside County Regional Conservation Authority (2021)

I:\RCW1902\GIS\MXD\Bio\MSHCP Report\Reserve_Assembly.mxd (8/23/2022)

FIGURE 3.2-4

Vail Dam Seismic and Hydrologic Remediation Project

Reserve Assembly

This page intentionally left blank

Riverside County Ordinance No. 663 establishes the fee payment requirements for projects located within the boundaries of a Fee Assessment Plan pursuant to the SKR HCP, up to $500 per acre.

3.2.3.4 Local Regulations

Riverside County Tree Removal Ordinance. Riverside County Ordinance No. 559 requires a permit for the removal of trees above 5,000 feet (ft) in elevation. The Project site is substantially below that elevation; therefore, this ordinance is not applicable.

3.2.4 Methodology

LSA conducted an MSHCP consistency analysis and general biological resources study for the Proposed Project. The study was conducted to address compliance with the MSHCP, CEQA, and the National Environmental Policy Act (NEPA). Studies included an approximately 681-acre BSA.[1] The Biology Report, included as Appendix C, provides detailed information regarding methods, including field mapping and survey protocols. LSA completed the following:

- A literature review to investigate the potential occurrence of special-status species within the BSA or in the vicinity, using the California Natural Diversity Database, the USFWS Information for Planning and Consultation (IPac) Website, the CNPS Online Inventory, and prior biological studies conducted in the Project vicinity;

- Vegetation mapping using a two-step process whereby aerial photography collected by an unmanned aerial vehicle (UAV) was interpreted and field-verified in June 2020, with subsequent site visits in August 2021, March 2022, and June 2022 to supplement mapping and verify site conditions;

- A formal jurisdictional delineation in June and July 2020 to identify the extent of State and federal jurisdiction within the study area potentially subject to regulation by the USACE, the RWQCB, and the CDFW according to routine wetland delineation procedures described in the USACE's 2008 Regional Supplement and in consideration of applicable State regulations pertaining to wetlands and riparian areas;

- An assessment of riparian/riverine areas as defined in MSHCP Section 6.1.2, *Riparian/Riverine Areas and Vernal Pools*, in June and July 2020, consisting of identifying and mapping plant communities as well as any riparian/riverine features and the open water associated with Vail Lake, surveys for vernal pools, and reviewing seasonally appropriate aerial photographs (Google Earth) from 1996 through 2018;

- Protocol-level surveys for fairy shrimp in 2020 and 2021, including a dry season survey, wet season survey, and laboratory hatching study;

- Protocol-level surveys for least Bell's vireo and southwestern willow flycatcher from April through July 2020;

[1] The biological study area includes both the Project site as well as the area surrounding Vail Lake.

- Focused surveys for special-status plants in suitable habitat within the BSA and an approximately 100 ft buffer, including slender-horned spineflower (*Dodecahema leptoceras*), many-stemmed dudleya (*Dudleya multicaulis*), Nevin's barberry, Vail Lake ceanothus (*Ceanothus ophiochilus*), round-leaved filaree (*Erodium macrophyllum*), and other special-status plants, consisting of a habitat suitability assessment and transects from April through August 2020;

- Protocol-level surveys for arroyo toad in April, May, and June 2020 in suitable habitat within the MSHCP amphibian survey areas in the BSA and within suitable habitat associated with Temecula Creek downstream of the dam;

- Protocol-level surveys for burrowing owl in suitable habitat in April, May, and June 2020 in accordance with MSHCP and CDFW survey guidelines;

- Protocol presence/absence surveys for Los Angeles pocket mouse and Aguanga kangaroo rat in May and June 2020 within three areas surrounding Vail Lake where suitable habitat is present within the mammal species survey areas identified in the MSHCP; and

- Acoustic sampling for bat species, conducted opportunistically during arroyo toad surveys in April, May, and June 2020 using Anabat Walkabout and Anabat Swift full-spectrum ultrasound detectors, and Anabat Express zero-crossing acoustic detectors, with echolocation call sequences manually analyzed using SonoBat DataViewer 4.5 and Anabat Insight software for full-spectrum files, and AnalookW for zero-crossing files.

LSA prepared the Biology Report in accordance with the template available from the RCA, including assessing the Project's consistency with the MSHCP and potential impacts to reserve assembly, which were evaluated using Geographic Information Systems (GIS) software and current aerial photograph base maps, as well as the RCA Information Map (RCA 2021) and Vicinity Joint Projects Review (JPR) Data obtained from RCA in March 2021.

3.2.5 Thresholds of Significance

The thresholds for biological resources impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to biological resources if it would:

Threshold 3.2.1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service

Threshold 3.2.2: 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 Game or U.S. Fish and Wildlife Service

Threshold 3.2.3: 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

Threshold 3.2.4: 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

Threshold 3.2.5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

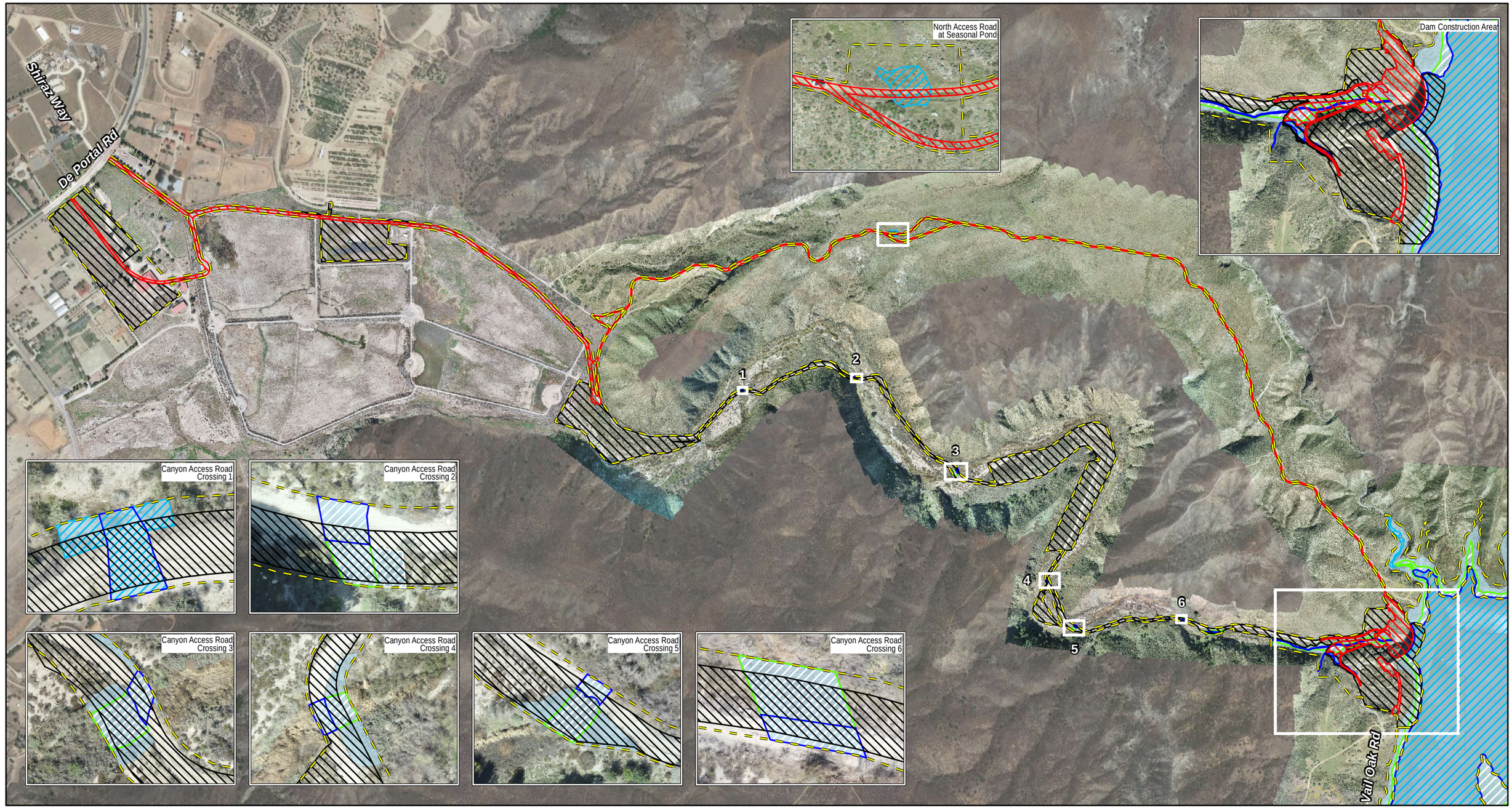
Threshold 3.2.6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

3.2.6 Project Impacts

This overview and characterization of the impacts that would result from the Proposed Project is presented to provide context for the discussion of specific thresholds of significance that follows. Project impacts to biological resources would occur during construction. Operation of the proposed dam would not change lake levels or maintenance activities compared to current conditions; no new sources of light, noise, air pollution, or water pollution would be introduced that could result in indirect effects; and the Project would comply with applicable Urban/Wildlands Interface Guidelines of the MSHCP (see Section 9 of the Biology Report). Therefore, no potentially significant impacts to biological resources are anticipated due to operation of the Project.

The Proposed Project would result in temporary and permanent impacts to vegetation communities (see Figure 3.2-1), including special-status species present therein, as well as jurisdictional areas. Impacts to jurisdictional areas are shown in Figure 3.2-5. Direct impacts during construction would consist of clearing vegetation within the Project limits, potentially placing clean rock within the six existing Canyon Access Road crossings of Temecula Creek to support equipment access, foundation preparation for the new dam, minor realignment of portions of the North Access Road and Canyon Access Road, and construction of Project features (proposed dam and ancillary structures, dissipator basin, realigned South Access Road, and embankment). This would result in loss of vegetation and habitat, potential direct mortality of slow-moving or ground-dwelling wildlife during vegetation clearing and grading, and loss of jurisdictional resources. Indirect impacts would consist of temporary increases to ambient noise during construction activities (including trucks hauling equipment, Roller Compacted Concrete [RCC], and excavated materials through the canyon; excavation; crusher plant operation; RCC batch plant operation; blasting; RCC placement; road construction), increased dust, increased lighting adjacent to staging/laydown areas and the dam, disturbance to wildlife from increased human activity, and temporary loss of habitat. Indirect impacts could disrupt wildlife movement as well as breeding activities.

This page intentionally left blank



LSA

LEGEND

- Biological Study Area
- Permanent Impacts to Potential Jurisdictional Resources
- Temporary Impacts to Potential Jurisdictional Resources
- Nonwetland Waters of the U.S
- Wetland Waters of the U.S
- Nonwetland Waters of the State
- Wetland Waters of the State
- CDFW/Riparian

N

0 450 900
FEET

SOURCE: Google Maps (2020); LSA UAV Imagery (2/2020 and 3/2020)

I:\RCW1902\GIS\MXD\EIR-EIS\Impacts_to_Jurisdictional_Areas.mxd (8/24/2022)

FIGURE 3.2-5

Vail Dam Seismic and Hydrologic Remediation Project

Impacts to Jurisdictional Areas

This page intentionally left blank

Table 3.2.D presents the temporary and permanent impacts to vegetation/land cover (see Figure 3.2-1). Native vegetation communities that occur within the temporary impact limits would be revegetated with appropriate native vegetation following construction. Immediately downstream of the dam, some revegetation would be out-of-kind due to changes in hydrology that will result from realigning Temecula Creek to accommodate the new dissipator basin location. Riparian habitat will be planted in locations where sufficient hydrology is anticipated to be available to support it.

Table 3.2.D: Impacts to Vegetation/Land Cover

Vegetation Community/Land Cover[1]	Permanent Impact Area (acres)[2]	Temporary Impact Area (acres)[3]	Total Impact Area (acres)
UPLAND AREAS			
Riversidian Sage Scrub	4.70	13.20	17.90
DEVELOPED/DISTURBED AREAS			
Bare Ground	2.70	4.64	7.34
Developed	0.67	2.01	2.68
Disturbed	3.19	18.95	22.14
Agriculture	-	0.01	0.01
RIPARIAN/RIVERINE AREAS			
Alluvial Fan Sage Scrub	-	14.31	14.31
Riparian Scrub	1.10	5.92	7.03
Open Water	-	0.67	0.67
Lakeshore	-	0.07	0.07
TOTAL			
Total	**12.37**	**59.78**	**72.15**

Source: LSA (2022).
Values rounded to nearest hundredth of an acre. Values of 0.00 indicate impacts that are less than 0.005 acre. Totals may not equal sums due to rounding.

[1] Areas of chaparral, non-native grassland, unvegetated streambed, and riparian forest were mapped within the study area; however, no impacts would occur in these areas.

[2] Permanent impacts include all construction areas that will not be restored following Project completion, such as the proposed dam, new and realigned access roads, and widened areas along access roads. Areas that would be graded and restored out-of-kind (i.e., areas of riparian scrub that would be revegetated with Riversidian sage scrub due to inadequate hydrology following Project construction) are included as permanent impacts.

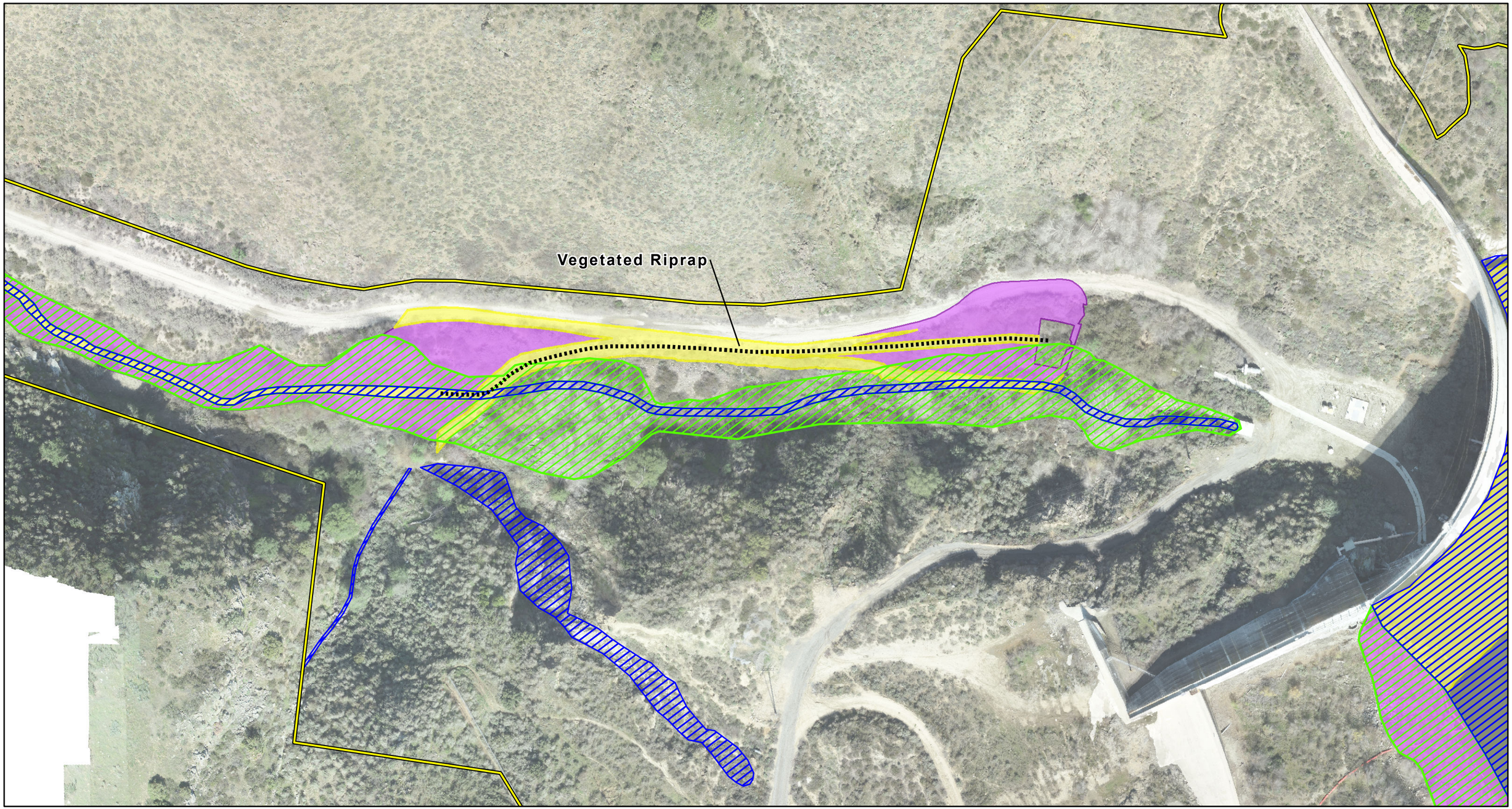
[3] Temporary impacts include all construction areas that will be restored to pre-Project conditions or better, such as staging/laydown areas, vehicle turnouts along the Canyon Access Road, and graded areas associated with the South Access Road realignment that would be revegetated in-kind.

Additionally, areas within the spillway will be planted with specific native plant palettes that do not include trees or other large shrubs, which will minimize obstruction of the spillway.

Table 3.2.E presents the temporary and permanent impacts to jurisdictional areas (see Figure 3.2-5). Temporary impact areas will be restored to approximate pre-existing contours and revegetated with appropriate native vegetation.

Impacts to jurisdictional features in the area downstream of the dam would be partially offset as a result of the realigned channel for Temecula Creek, which would originate at the dissipator basin approximately 38 ft north of the existing outlet (see Figure 3.2-6). The channel course would be altered as a result of the construction of an embankment supporting the realigned South Access Road. While jurisdictional features within the footprint of the embankment would be permanently

This page intentionally left blank



LSA

LEGEND

Biological Study Area

Existing Condition

Nonwetland Waters of the U.S

Wetland Waters of the U.S

Anticipated Final Condition

Nonwetland Waters of the U.S.

Wetland Waters of the U.S.

Approximate Location of Realigned Creek

N

0 37.5 75

FEET

SOURCE: LSA UAV Imagery (2/2020 and 3/2020); AECOM (12/2021)

I:\RCW1902\GIS\MXD\Bio\MSHCP Report\JDImpacts_Downstream_of_Dam_WOTUS.mxd (8/23/2022)

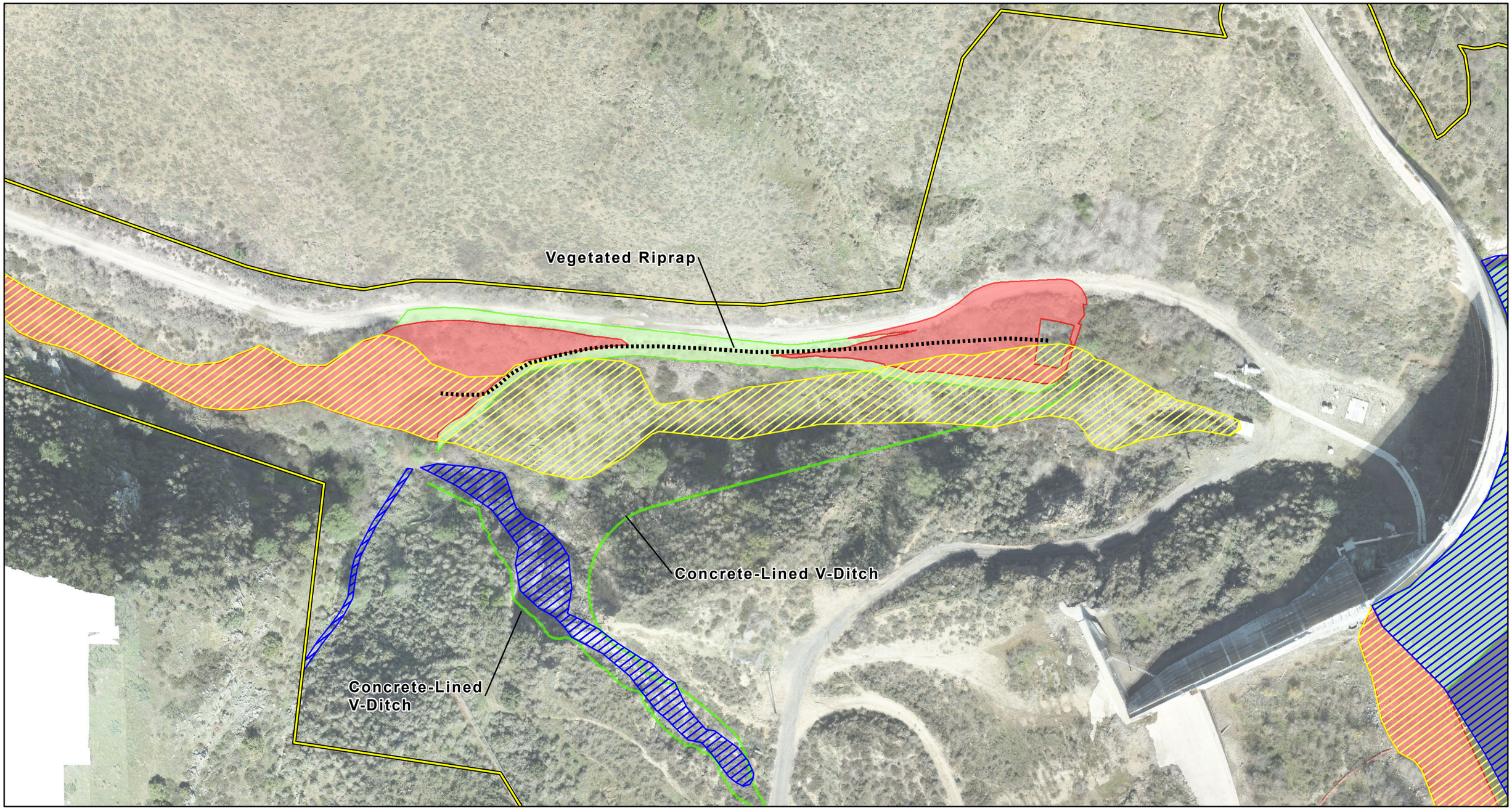
FIGURE 3.2-6

Sheet 1 of 3

Vail Dam Seismic and Hydrologic Remediation Project

Existing and Final Condition Downstream of Dam

This page intentionally left blank



LSA

LEGEND

Biological Study Area

Existing Condition

Nonwetland Waters of the State

Wetland Waters of the State

Anticipated Final Condition

Nonwetland Waters of the State

Wetland Waters of the State

Approximate Location of Realigned Creek

N

0 37.5 75
FEET

SOURCE: LSA UAV Imagery (2/2020 and 3/2020); AECOM (12/2021)

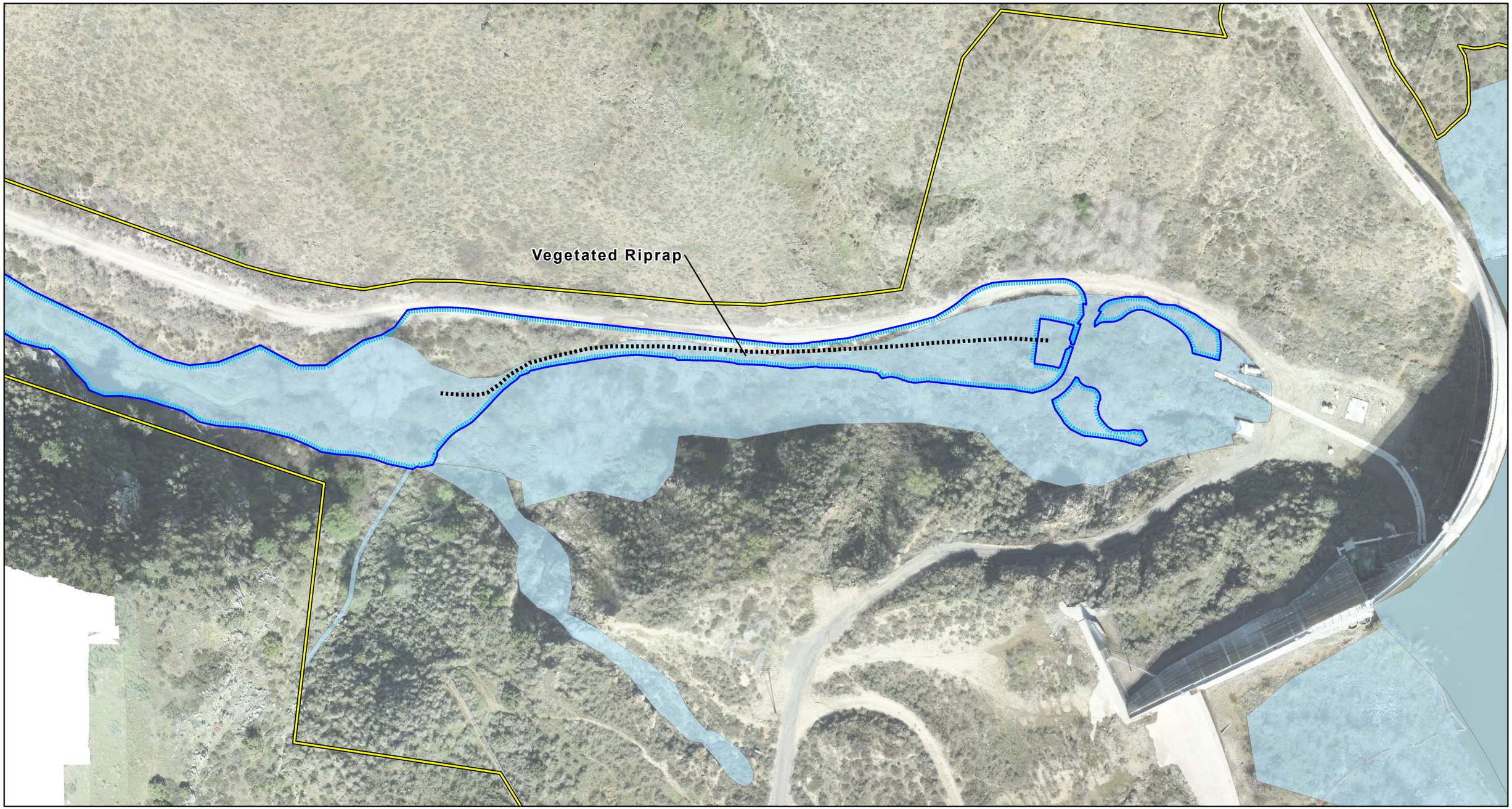
I:\RCW1902\GIS\MXD\Bio\MSHCP Report\JDImpacts_Downstream_of_Dam_WOTS.mxd (8/23/2022)

FIGURE 3.2-6
Sheet 2 of 3

Vail Dam Seismic and Hydrologic Remediation Project

Existing and Final Condition Downstream of Dam

This page intentionally left blank



LSA

LEGEND

Biological Study Area

Existing Condition

CDFW/Riparian

Anticipated Final Condition

CDFW/Riparian

Approximate Location of Realigned Creek

N

0 37.5 75
FEET

SOURCE: LSA UAV Imagery (2/2020 and 3/2020); AECOM (12/2021)

I:\RCW1902\GIS\MXD\Bio\MSHCP Report\JDImpacts_Downstream_of_Dam_CDFW.mxd (8/23/2022)

FIGURE 3.2-6
Sheet 3 of 3

Vail Dam Seismic and Hydrologic Remediation Project

Existing and Final Condition Downstream of Dam

This page intentionally left blank

Table 3.2.E: Impacts to Jurisdictional Areas

Jurisdictional Area	Permanent Impact Area (acres)[1]	Temporary Impact Area (acres)[2]	Total Impact Area (acres)
USACE JURISDICTION			
Non-Wetland Waters of the U.S.	0.07	0.75	0.82
Wetland Waters of the U.S.	0.54	1.10	1.63
Total USACE	**0.61**	**1.84**	**2.46**
RWQCB JURISDICTION			
Non-Wetland Waters of the State	0.19	0.68	0.87
Wetland Waters of the State	0.61	1.17	1.78
Total RWQCB	**0.80**	**1.85**	**2.66**
CDFW JURISDICTION			
Open Water	-	0.67	0.67
Riparian	1.09	2.68	3.78
Streambed	0.18	0.01	0.19
Total CDFW	**1.27**	**3.36**	**4.64**

Source: LSA (2022).
Values rounded to nearest hundredth of an acre. Values of 0.00 indicate impacts that are less than 0.005 acre. Totals may not equal sums due to rounding.

[1] Permanent impacts include all construction areas that will not be restored following Project completion, such as the proposed dam, new and realigned access roads, and widened areas along access roads. Areas that would be graded and restored out-of-kind (i.e., areas of riparian scrub that would be revegetated with Riversidian sage scrub due to inadequate hydrology following Project construction) are included as permanent impacts.

[2] Temporary impacts include all construction areas that will be restored to pre-Project conditions or better, such as staging/laydown areas, vehicle turnouts along the Canyon Access Road, and graded areas associated with the South Access Road realignment that would be revegetated in-kind.

CDFW = California Department of Fish and Wildlife
RWQCB = Regional Water Quality Control Board
USACE = U.S. Army Corps of Engineers

lost (upland vegetation would be planted on the slope), the realigned channel would result in some existing upland areas to wetlands and riparian habitat becoming jurisdictional features following revegetation. In addition, two concrete V-ditches near the South Access Road are anticipated to be considered non-wetland waters of the State, and total open water (non-wetland waters of the U.S., non-wetland waters of the State, and CDFW jurisdiction) would increase by approximately 0.66 acre once the hydrologic connection is made between the existing and proposed dam. The Determination of Biologically Equivalent or Superior Preservation (DBESP) and permit applications will consider and quantify the anticipated offsets to impacts to jurisdictional resources.

Threshold 3.2.1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service

Less Than Significant with Mitigation Incorporated. The USFWS and CDFW may list species as threatened or endangered under the Federal and California Endangered Species Acts, respectively. The USFWS can designate critical habitat that identifies specific areas, either occupied or unoccupied, that are essential to the conservation of a federally listed species. Critical habitat areas may require special management considerations or protections. The USFWS and CDFW have issued permits for the take of most threatened and endangered species within the MSHCP area. The MSHCP covers impacts to these species. However, if a project has the involvement of a federal

agency, that agency is required to address impacts to listed species and critical habitat by consulting with the USFWS. The USFWS has indicated in the permit issued for the MSHCP that, in such cases, the consultation will be expedited and that no restrictions will be imposed on the project beyond those specified in the MSHCP. Mitigation Measures BIO-1, BIO-2, and BIO-3 require RCWD to obtain Take Authorization for impacts to listed species as a PSE under the MSHCP, comply with the MSHCP Standard BMPs (Regulatory Compliance Measures RCM BIO-1 through RCM BIO-15), and prepare and implement a revegetation plan to restore temporary impact areas.

Critical Habitat. Critical habitat for Quino checkerspot butterfly and coastal California gnatcatcher occurs adjacent to the Project site (USFWS 2009, USFWS 2007). Critical habitat for arroyo toad is located in the Arroyo Seco Creek, Temecula Creek, and Wilson Creek drainages upstream of Vail Lake (USFWS 2011). Figure 3.2-3 depicts the location of critical habitat relative to the Project site. The Project would not affect adjacent critical habitat for Quino checkerspot butterfly or coastal California gnatcatcher. Project activities within mapped arroyo toad critical habitat are limited to access for construction equipment along existing roads and would not affect this species.

Threatened or Endangered Species. Least Bell's vireo and southwestern willow flycatcher were detected during focused surveys in 2020. These species are considered fully covered and adequately conserved under the MSHCP. Twelve of the sixteen least Bell's vireo observations were in riparian scrub to the east of Vail Lake, associated with the Wilson Creek and Temecula Creek drainages. Within or in proximity to the Project impact area, least Bell's vireo was detected primarily in riparian scrub along the Canyon Access Road near staging and laydown areas. Suitable habitat (riparian scrub) within the Project footprint is presumed to be occupied. As noted in Table 3.2.D, the Project would result in 1.10 acre of permanent impacts and 5.92 acres of temporary impacts. This suitable habitat has long-term conservation value for least Bell's vireo and will be addressed in the DBESP prepared pursuant to Mitigation Measure BIO-1. Mitigation Measures BIO-4 and BIO-5 would avoid and minimize impacts to nesting birds generally and least Bell's vireo specifically.

Southwestern willow flycatcher was detected in riparian scrub habitat at one location along Temecula Creek, upstream of Vail Lake (not within the Project site). The breeding status of this individual was undetermined; however, the Project would not result in direct impacts to riparian scrub habitat outside of the Project site. Therefore, no impacts to this species are anticipated.

Seven Nevin's barberry will be affected as part of Project activities within the Project site, located just downstream of Vail Lake Dam. This species is considered fully covered and adequately conserved under the MSHCP. Impacts to Nevin's barberry are subject to mitigation in a DBESP, which will be prepared in accordance with Mitigation Measure BIO-1. Mitigation would include replacing the affected plants at a minimum 10:1 ratio in suitable habitat outside of the Project impact limits as set forth in Mitigation Measure BIO-6. No impacts are anticipated to the 304 individuals observed upstream of the dam, as these are not within the Project impact area. In the event that additional Nevin's barberry become established adjacent to the Project site prior to construction, implementation of Mitigation Measure BIO-6 would avoid indirect impacts to Nevin's barberry.

Arroyo toad was detected during the 2020 protocol surveys upstream of Vail Lake. No evidence of arroyo toad was detected within the area downstream of Vail Dam. Construction of the Project

would not result in permanent or temporary impacts to any locations where arroyo toad was detected during surveys. Therefore, no impacts to this species are anticipated, and no mitigation is required.

Tricolored blackbird and coastal California gnatcatcher were observed on the Project site. Impacts to these species would include temporary loss of habitat and indirect impacts from noise, dust, and increased human activities. The Project site contains suitable habitat for Quino checkerspot butterfly. Impacts to Quino checkerspot butterfly would include temporary and permanent loss of larval habitat (Riversidian sage scrub with suitable food plants) as well as potential direct mortality of individuals during vegetation clearing and construction. All three of these species are fully covered and adequately conserved under the MSHCP. Mitigation Measures BIO-1, BIO-2, and BIO-3 address compliance with the MSHCP and the restoration of habitat following construction, and Mitigation Measures BIO-4 and BIO-5 address avoidance and minimization of impacts to nesting birds in general and coastal California gnatcatcher specifically. No further mitigation is required for impacts to these species.

Bald eagle was observed within the BSA during 2020 surveys. Suitable nesting habitat for this species is limited to areas around Vail Lake and does not occur within the Project impact area. Impacts to this species are not anticipated, and this species is fully covered and adequately conserved under the MSHCP. No further mitigation is required for impacts to this species.

Suitable habitat for Stephens' kangaroo rat occurs within the Project impact area, particularly along the Pond Access Road, and this species has a high potential to occur. Impacts to this species would include temporary and permanent habitat loss, potential direct mortality during construction, and disruption due to increased human activity during construction. This species is covered under the SKR HCP and the MSHCP, and compliance with the plans as outlined under Regulatory Compliance Measures RCM BIO-1 through RCM BIO-17 and Mitigation Measures BIO-1 through BIO-3 will provide adequate mitigation for impacts.

In summary, all of the threatened or endangered species with the potential to be affected by the Proposed Project are considered fully covered and adequately conserved under the MSHCP and/or SKR HCP. Compliance with these plans as outlined under Regulatory Compliance Measures RCM BIO-1 through RCM BIO-17 and Mitigation Measures BIO-1 through BIO-6 will reduce impacts to a level below significance.

Other Special-Status Species Covered Under the MSHCP. Other special-status species covered under the MSHCP may occur on the Proposed Project site. The CDFW, USFWS, local agencies, and special interest groups, such as the CNPS, maintain lists of species that they consider to be in need of monitoring. Legal protection for special-status species varies widely. Special-status species that were observed or that were determined to have a moderate or high likelihood of occurrence on the Project site and that are fully covered and adequately conserved under the MSHCP are listed in Table 3.2.B. Of the covered species that may occur, only burrowing owl has specific mitigation requirements identified in the MSHCP.

Mitigation Measures BIO-1, BIO-2, and BIO-3 address compliance with the MSHCP and the restoration of habitat following construction, and Mitigation Measures BIO-4 and BIO-5 address

avoidance and minimization of impacts to nesting birds. No further mitigation is required for impacts to these species.

Suitable habitat for burrowing owls occurs within the BSA. Areas suitable for burrowing owl include areas mapped as disturbed, non-native grassland, and bare ground. No burrowing owls, burrowing owl sign, or burrows or similar features suitable for burrowing owl occupation were identified in the survey areas, and impacts to this species are unlikely. However, because habitat suitable for burrowing owl is present, and because burrowing owl could occupy the site prior to construction, a pre-construction burrowing owl survey will be required no more than 30 days prior to ground disturbance as set forth in Mitigation Measure BIO-7.

Compliance with Regulatory Compliance Measures RCM BIO-1 through RCM BIO-17 and Mitigation Measures BIO-1 through BIO-5 and BIO-7 will reduce impacts to these species to a level below significance.

Other Special-Status Species Not Covered Under the MSHCP. Special-status species with a moderate or high potential to occur within the Project area that are not covered under the MSHCP are listed in Table 3.2.C.

Both chaparral sand-verbena and white rabbit tobacco were detected on the Project site. Approximately 100 chaparral sand-verbena and approximately 1,500 white rabbit tobacco individuals are anticipated to be impacted during Project activities. Since white rabbit tobacco is a perennial herb, individuals may also be translocated to areas outside the impact area. Mitigation Measure BIO-3 requires the preparation and implementation of a habitat restoration plan, which would include locally collected seeds or cuttings of sensitive plant species that would be cleared as a result of the Project.

Special status reptile species not covered by the MSHCP may be present on the Project site; two-striped garter snake was detected during surveys. Impacts to reptile species include temporary loss of habitat and indirect impacts from noise, dust, and increased human activities, as well as direct mortality during vegetation clearing and construction.

Special-status birds not covered by the MSHCP may be present on the site; lark sparrow, great egret, snowy egret, least bittern, Lawrence's goldfinch, Nuttall's woodpecker, summer tanager, and black-chinned sparrow were observed during surveys. Impacts to bird species include temporary loss of habitat and indirect impacts from noise, dust, and increased human activities. Impacts to nesting birds would be avoided and minimized with implementation of Mitigation Measure BIO-4. Direct loss of non-nesting birds is not anticipated as these species are highly mobile and capable of dispersing.

Special-status mammals not covered by the MSHCP that were observed during surveys include several bat species and Dulzura pocket mouse. Impacts to these species would include temporary loss of habitat and indirect impacts from noise, dust, and increased human activities, as well as potential direct mortality during vegetation clearing and construction as individuals might be below ground or roosting. Dulzura pocket mouse has a moderate probability of occurrence and was not detected during mammal surveys. It is unknown whether this species occurs within the Project

impact area. Impacts to a relatively small area of potentially suitable habitat adjacent to existing disturbed areas would not be significant as they would not substantially affect the overall availability of suitable habitat in the vicinity of the Project.

Several species of bats were detected within the Project area, and it is likely that roosts are present. California Fish and Game Code Section 4150 prohibits "take" of bat species. Impacts to maternal roosts during the breeding season or to roosting sites during the day could result in direct "take;" however, Mitigation Measure BIO-11 would avoid and minimize impacts to roosts. Mitigation Measure BIO-13 requires delineation of environmentally sensitive areas adjacent to the Project impact area to avoid impacts to nearby sensitive resources. Mitigation Measure BIO-3 requires revegetation of temporary impact areas, restoring potentially suitable habitat. With implementation of Mitigation Measures, along with implementation of the MSHCP Standard BMPs included as Regulatory Compliance Measures, impacts to special-status bats would be less than significant.

Although the species discussed in this section are not covered under the MSHCP, implementation of MSHCP Standard BMPs included as Regulatory Compliance Measures and Mitigation Measures BIO-1 through BIO-4 and BIO-11 through BIO-13 would avoid and/or minimize impacts to these species and their habitats. With implementation of these measures, impacts to special-status species not covered under the MSHCP would be less than significant.

Threshold 3.2.2: 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 Game or U.S. Fish and Wildlife Service

Less Than Significant with Mitigation Incorporated. Riparian habitats, oak woodlands, and vernal pools are among the natural communities of interest to the CDFW. Riparian habitats including alluvial fan sage scrub, riparian scrub, and riparian forest occur within the survey area. However, only alluvial fan sage scrub and riparian scrub are anticipated to be impacted as part of Project activities. Impacts to alluvial fan sage scrub consist of 14.31 acres of temporary impacts; impacts to riparian scrub include 5.92 acres of temporary impacts and 1.10 acre of permanent impacts. These two natural communities of interest are considered riparian/riverine under the MSHCP. The preparation of a DBESP will be required for impacts to MSHCP riparian/riverine (see Mitigation Measure BIO-1), which will provide appropriate mitigation to be approved by the resource agencies. Implementation of Mitigation Measure BIO-3 includes revegetation of temporary impact areas with appropriate native vegetation. Compliance with the requirements in Mitigation Measures BIO-1, BIO-2 (requiring adherence to Regulatory Compliance Measures RCM BIO-1 through RCM BIO-17), and BIO-3 will address impacts to riparian/riverine areas. Mitigation Measures BIO-8 through BIO-10 address the need for RCWD to obtain permits from regulatory agencies, which will require compensatory mitigation for permanent impacts to jurisdictional areas. Implementation of Mitigation Measures and Regulatory Compliance Measures RCM BIO-1 through RCM BIO-17 will reduce impacts to sensitive natural communities to a level below significance.

Threshold 3.2.3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means

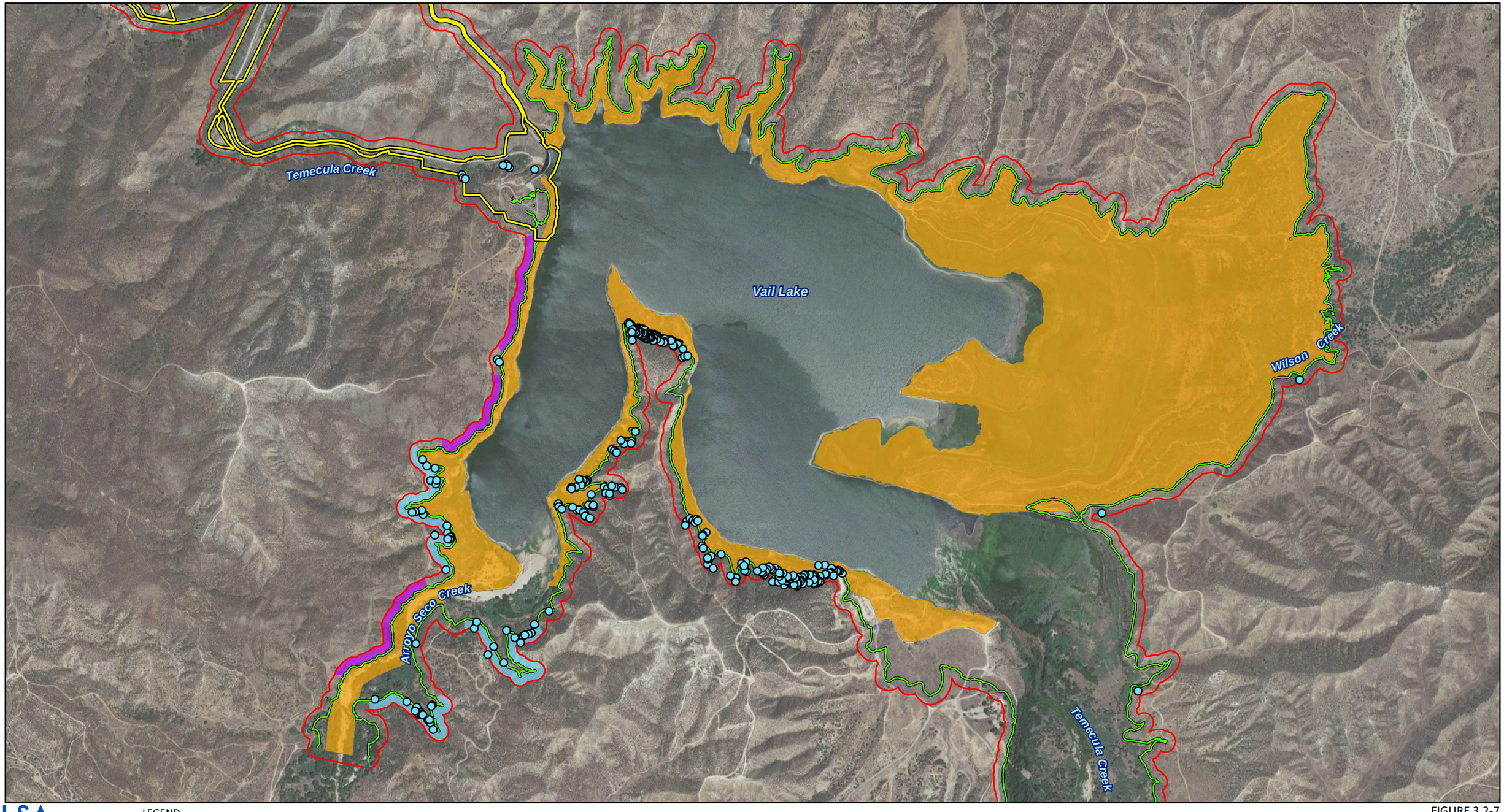
Less Than Significant with Mitigation Incorporated. Permanent and temporary impacts would occur to potential waters of the U.S., waters of the State, and CDFW jurisdiction. Most of these are located along the Temecula Creek drainage downstream of Vail Dam, although a small area of open water on Vail Lake would be temporarily affected, and the seasonal pool along the North Access Road (waters of the State) would be permanently affected (see Figure 3.2-5). Impacts associated with the Dam Construction Area and North Access Road would be permanent. Impacts to jurisdictional areas associated with the temporary widening of the Canyon Access Road (including turnouts), Staging and Laydown Areas, and portions of the South Access Road Construction Area would be temporary, with impact areas restored to approximate pre-construction contours and revegetated.

The South Access Road realignment would include a manufactured slope downstream of the dam that would result in permanent impacts to wetland and non-wetland waters of the U.S, wetland waters of the State, and CDFW riparian areas. The area affected consists of the Temecula Creek drainage downstream of the existing dam. After construction, water would still be released from the dam into Temecula Creek, but the streambed/channel alignment would shift 38 ft to the north and would be located between the embankment and the Canyon Access Road. Figure 3.2-6 illustrates the existing and anticipated final condition of this area.

Table 3.2.E displays the impacts to potentially jurisdictional areas. The DBESP and permit applications will quantify the net impacts accounting for the anticipated increase in potentially jurisdictional areas that would partially offset impacts, including the realigned channel of Temecula Creek and the additional lake area between the existing dam and proposed dam.

Impacts to jurisdictional areas are regulated under Sections 401 and 404 of the federal Clean Water Act and Section 1600 of the California Fish and Game Code. RCWD will obtain a Section 404 Permit from the USACE, a Section 401 Water Quality Certification from the RWQCB, and a Section 1602 Lake or Streambed Alteration Agreement from the CDFW and will comply with all measures stipulated in these agreements. It is anticipated that mitigation for impacts will be required and will consist of restoration of disturbed areas, habitat creation, enhancement, and/or preservation. Permanent impacts to wetland waters of the U.S. and wetland waters of the State will be offset by wetland creation at a minimum 1:1 ratio to satisfy the requirement for no net loss of wetlands. Mitigation Measures BIO-8 through BIO-10 address the need for obtaining permits and complying with the applicable provisions contained therein.

As required pursuant to Mitigation Measure BIO-1, mitigation for impacts to riparian/riverine resources as defined in the MSHCP will be addressed through a DBESP. The mitigation identified in the DBESP may be deemed sufficient by the USACE, RWQCB, and/or CDFW as mitigation for jurisdictional resources, or they may incorporate further requirements in their respective permits. One component of mitigation may include removal of exotic species, such as Mediterranean tamarisk (*Tamarix ramoissima*), in areas surrounding Vail Lake. Figure 3.2-7 depicts several areas dominated by tamarisk that would benefit from exotic species removal and revegetation with native species.



LSA

LEGEND

- Project Location
- Plant Survey Area
- Spillway Crest (1472.6' NAVD88)
- Tamarisk Removal Areas

Potential Nevin's Barberry Planting Locations

- Expanded Area
- Current Extent

Plant Survey Results

- Nevin's Barberry

0 500 1000
FEET

SOURCE: Google Imagery (2022)

I:\RCW1902\GIS\MXD\EIR-EIS\Mitigation Opportunities.mxd (11/23/2022)

FIGURE 3.2-7

Vail Dam Seismic and Hydrologic Remediation Project

Mitigation Opportunities

This page intentionally left blank

Implementation of the MSHCP Standard BMPs included as Regulatory Compliance Measures will minimize impacts to jurisdictional areas. Mitigation Measure BIO-3 requires the preparation and implementation of a habitat restoration plan for temporary impact areas, which includes potentially jurisdictional areas. Mitigation Measures BIO-8 through BIO-10 address the need for permits from regulatory agencies. With implementation of these measures, impacts to protected wetlands would be less than significant.

Threshold 3.2.4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

Less Than Significant with Mitigation Incorporated. Wildlife movement includes seasonal migration along corridors, as well as daily movements for foraging. Migration corridors may include areas of unobstructed movement of deer, riparian corridors providing cover for migrating birds, routes between breeding waters and upland habitat for amphibians, and between roosting and feeding areas for birds.

As noted in Section 3.2.2.3, the Project site occurs at the existing Vail Lake Dam and the area downstream, within portions of Temecula Creek and along existing roads and residential and agricultural areas. Current wildlife movement is mostly unrestricted with the exception of the western portion of the Project site where adjacent residential and agricultural land uses reduce or eliminate the ability for wildlife to move freely. The area provides suitable nursery sites for a wide variety of animal species.

Construction activities would not preclude overall wildlife movement throughout the area or use of the area as a nursery site, as ample vacant lands occur on either side of the impact area; however, Project activities may temporarily disrupt movement through the area particularly for terrestrial invertebrates, reptiles, and amphibians and would limit the use of areas within and immediately adjacent to the Project footprint as breeding/nesting habitat. Impacts to structures, rocky areas, and vegetation could affect the use of these areas as maternal roost sites by bats. Compliance with MSHCP Standard BMPs included as Regulatory Compliance Measures and Mitigation Measures BIO-1 through BIO-7 and BIO-11 through BIO-12 will avoid and minimize impacts to wildlife movement and nursery sites. Upon Project completion, no new barriers to wildlife movement would be introduced (the proposed dam would replace the existing dam, which is an existing barrier to aquatic wildlife movement along Temecula Creek). With implementation of Mitigation Measures and Regulatory Compliance Measures, impacts would be less than significant.

Threshold 3.2.5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

Less Than Significant Impact. The Riverside County Tree Preservation Ordinance (Ordinance No. 559) addresses trees above 5,000 ft in elevation and is not applicable to the Project site, which is well below that elevation. RCWD will comply with the requirements of Riverside County Ordinance 663 pertaining to payment of the SKR HCP fee (see Regulatory Compliance Measure RCM BIO-16). Impacts would be less than significant.

Threshold 3.2.6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Less Than Significant with Mitigation Incorporated. Section 10(a)(2)(A) of the 1973 Federal Endangered Species Act requires the preparation of a habitat conservation plan (HCP) for incidental take of threatened or endangered species when there is no federal agency involvement in a project. Continuing land development may cause incidental take of listed species and, therefore, HCPs have been prepared for areas within western Riverside County. The MSHCP and the Stephens' Kangaroo Rat (SKR) HCP are the principal habitat conservation plans in western Riverside County. The USFWS regional office maintains a current list of habitat conservation plans for the southern California region.

MSHCP. The Project site is located within the MSHCP *Southwest Area Plan* in Cell Groups C and D. Cell Groups C and D are part of the Vail Lake Subunit (Subunit 3) of the Southwest Area Plan (Riverside County Transportation and Land Management Agency 2003). As stated in Mitigation Measure BIO-1, RCWD shall obtain status as a Participating Special Entity of the MSHCP. As discussed in more detail in Section 3 of the Biology Report (Appendix C), the Proposed Project would not conflict with the target conservation levels for Cell Groups C or D (in Proposed Core 7) in the Vail Lake Subunit of the MSHCP Southwest Area Plan. Changes in developed areas are limited to the new dam and improvements to existing access roads, which would not substantially affect wildlife or habitat once the Project is completed. No new edge effects or barriers to wildlife movement would be introduced.

Consistent with the MSHCP Standard BMPs (included as Regulatory Compliance Measures RCM BIO-1 through RCM BIO-15; see also Mitigation Measure BIO-2), access to the Project site is proposed along existing roads wherever feasible, with permanent impacts to natural vegetation communities minimized, and temporary impact areas have been located in disturbed or developed areas where possible. Temporary staging and laydown areas within the canyon downstream of the dam have been located in areas that avoid, to the extent possible, the locations of sensitive biological resources. The Project supports the ongoing presence of water in Vail Lake by addressing the seismic and hydrologic hazards of the existing dam, reducing the risk of dam failure. No changes are proposed to lake or dam operations.

Permanent impacts to riparian and riverine areas will require mitigation and will be addressed in the DBESP for this Project. In addition, impacts to Nevin's barberry will be addressed in the DBESP. As noted earlier, one component of mitigation may include removal of exotic species, such as Mediterranean tamarisk, in areas surrounding Vail Lake. Figure 3.2-7 depicts several areas dominated by tamarisk that would benefit from exotic species removal and revegetation with native species. Additionally, Mitigation Measure BIO-6 requires off-site propagation of Nevin's barberry, to be planted in areas surrounding Vail Lake. Figure 3.2-7 also depicts potentially suitable areas where propagated plants could be planted.

As required under Mitigation Measure BIO-3, temporary impact areas will be revegetated with natural vegetation communities in accordance with a habitat restoration plan subject to regulatory agency approval, consistent with the MSHCP Standard BMPs.

Documentation of RCWD's compliance with the MSHCP as outlined under Mitigation Measure BIO-1 will be verified by the RCA prior to issuance of Take Authorization and granting of PSE status. No further mitigation is required to ensure consistency with the MSHCP.

SKR HCP. The Project site is within the SKR HCP fee area. Focused surveys for SKR will not be required for this Project; however, a fee associated with the SKR HCP is required. Suitable habitat occurs on the Project site, and this species is likely present. The Project site is not subject to any other adopted HCP. Prior to initiation of construction, RCWD will coordinate with the Riverside County Habitat Conservation Authority and/or the County of Riverside to pay the required fee (up to $500 per gross acre) in accordance with the requirements of the SKR HCP (see Regulatory Compliance Measure RCM BIO-17).

In summary, with implementation of Regulatory Compliance Measures RCM BIO-1 through RCM BIO-17 and Mitigation Measures BIO-1 through BIO-7 and BIO-13, impacts associated with habitat conservation plans would be less than significant.

3.2.7 Cumulative Impacts

Impacts from the Project are primarily associated with construction. Operations and maintenance activities are expected to be substantially similar following construction of the proposed dam; the Project is not anticipated to introduce new edge effects or habitat fragmentation. Construction impacts would include temporary and permanent loss of native vegetation communities (riparian scrub, alluvial fan sage scrub, Riversidian sage scrub), including some jurisdictional waters and wetlands. These impacts would be highly localized and would be mitigated through compliance with the MSHCP, on-site restoration of temporary impact areas, and compensatory mitigation as appropriate. Impacts to threatened and endangered species would occur, including direct loss of Nevin's barberry individuals and potentially direct mortality of Quino checkerspot butterfly larvae, loss of habitat for least Bell's vireo, coastal California gnatcatcher, and southwestern willow flycatcher, as well as other non-listed species. These impacts would be avoided and minimized to the extent practicable and are not anticipated to jeopardize the continued presence of these species within the area.

The MSHCP provides a comprehensive approach to the regional conservation of these habitats and, as a regional plan, serves to provide mitigation for cumulative impacts to covered species. Project compliance and consistency with the MSHCP ensures that any cumulative impacts to covered species are effectively mitigated. Special-status species that are not covered by the MSHCP also benefit from the surveys, conservation, and other measures of the MSHCP because they occupy many of the same habitats. Implementation of MSHCP Standard BMPs and mitigation measures will avoid and minimize impacts to sensitive biological resources. The Proposed Project would not preclude attainment of conservation goals within Proposed Core 7, nor would it adversely affect Public/Quasi-Public Lands consisting of Vail Lake (refer to Section 3.2 of the Biology Report for additional information). With mitigation, impacts from the Proposed Project would not be cumulatively considerable.

3.2.8 Level of Significance Prior to Mitigation

Impacts related to construction of the Proposed Project, including loss of habitat, impacts to species, and impacts to riparian habitat and jurisdictional areas, are potentially significant prior to mitigation. Impacts related to operation of the Proposed Project are less than significant.

3.2.9 Regulatory Compliance Measures and Mitigation Measures

3.2.9.1 Regulatory Compliance Measures

The following RCMs are existing regulations that are applicable to the Proposed Project and are considered in the analysis of potential impacts related to biological resources. RCWD considers these requirements mandatory; therefore, they are not mitigation measures.

MSHCP Standard BMPs. The Project is within MSHCP Criteria Cells and within and adjacent to Public/Quasi-Public Lands. Therefore, applicable best management practices specified in Appendix C of the MSHCP will be followed (as RCWD would be a Participating Special Entity for this Project, references to "Permittee" herein are interpreted to refer to the RCA).

RCM BIO-1 A condition shall be placed on grading permits requiring a qualified biologist to conduct a training session for Project personnel prior to grading. The training shall include a description of the species of concern and its habitats, the general provisions of the Endangered Species Act and the MSHCP, the need to adhere to the provisions of the Act and the MSHCP, the penalties associated with violating the provisions of the Act, the general measures that are being implemented to conserve the species of concern as they relate to the Project, and the access routes to and Project site boundaries within which the Project activities must be accomplished.

RCM BIO-2 Water pollution and erosion control plans shall be developed and implemented in accordance with RWQCB requirements.

RCM BIO-3 The footprint of disturbance shall be minimized to the maximum extent feasible. Access to sites shall be via pre-existing access routes to the greatest extent possible.

RCM BIO-4 The upstream and downstream limits of Project disturbance plus lateral limits of disturbance on either side of the stream shall be clearly defined and marked in the field and reviewed by the biologist prior to initiation of work.

RCM BIO-5 Projects should be designed to avoid the placement of equipment and personnel within the stream channel or on sand and gravel bars, banks, and adjacent upland habitats used by target species of concern.

RCM BIO-6 Projects that cannot be conducted without placing equipment or personnel in sensitive habitats should be timed to avoid the breeding season of riparian species identified in MSHCP Global Species Objective No. 7.

RCM BIO-7 When stream flows must be diverted, the diversions shall be conducted using sandbags or other methods requiring minimal instream impacts. Silt fencing of other

sediment trapping materials shall be installed at the downstream end of construction activity to minimize the transport of sediments offsite. Settling ponds where sediment is collected shall be cleaned out in a manner that prevents the sediment from reentering the stream. Care shall be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream.

RCM BIO-8 Equipment storage, fueling, and staging areas shall be located on upland sites with minimal risks of direct drainage into riparian areas or other sensitive habitats. These designated areas shall be located in such a manner as to prevent any runoff from entering sensitive habitat. Necessary precautions shall be taken to prevent the release of cement or other toxic substances into surface waters. Project-related spills of hazardous materials shall be reported to appropriate entities including but not limited to applicable jurisdictional city, USFWS, CDFW, and RWQCB and shall be cleaned up immediately and contaminated soils removed to approved disposal areas.

RCM BIO-9 Erodible fill material shall not be deposited into watercourses. Brush, loose soils, or other similar debris material shall not be stockpiled within the stream channel or on its banks.

RCM BIO-10 The qualified Project biologist shall monitor construction activities for the duration of the Project to ensure that practicable measures are being employed to avoid incidental disturbance of habitat and species of concern outside the Project footprint.

RCM BIO-11 The removal of native vegetation shall be avoided and minimized to the maximum extent practicable. Temporary impacts shall be returned to pre-existing contours and revegetated with appropriate native species.

RCM BIO-12 Exotic species that prey upon or displace target species of concern should be permanently removed from the site to the extent feasible.

RCM BIO-13 To avoid attracting predators of the species of concern, the Project site shall be kept as clean of debris as possible. All food related trash items shall be enclosed in sealed containers and regularly removed from the site(s).

RCM BIO-14 Construction employees shall strictly limit their activities, vehicles, equipment, and construction materials to the Proposed Project footprint and designated staging areas and routes of travel. The construction area(s) shall be the minimal area necessary to complete the Project and shall be specified in the construction plans. Construction limits will be fenced with orange snow screen. Exclusion fencing should be maintained until the completion of all construction activities. Employees shall be instructed that their activities are restricted to the construction areas.

RCM BIO-15 The Permittee [RCA] shall have the right to access and inspect any sites of approved projects including any restoration/enhancement area for compliance with project approval conditions including these BMPs.

Other Regulatory Compliance Measures. In addition to the measures outlined above, RCWD will comply with the following:

RCM BIO-16 RCWD shall pay the required fees associated with Riverside County Ordinance 663 for impacts within the Stephens' Kangaroo Rat Habitat Conservation Plan Fee Assessment Area.

RCM BIO-17 RCWD shall pay the required fees associated with the MSHCP Mitigation Fee Implementation Manual in accordance with the requirements of the Western Riverside County Regional Conservation Authority.

3.2.9.2 Mitigation Measures

The following mitigation measure is proposed to reduce impacts associated with construction of the Proposed Project.

BIO-1 RCWD shall apply for and obtain status as a Participating Special Entity of the MSHCP through the RCA. Prior to construction, all required surveys, reports, and other documentation shall be completed and submitted to the RCA to its satisfaction, and Take Authorization will be obtained. RCWD shall comply with any conditions of the Take Authorization stipulated by the RCA, in addition to complying with the requirements of the MSHCP as set forth in Section 6.1.2 (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools), Section 6.1.3 (Protection of Narrow Endemic Plant Species), Section 6.1.4 (Guidelines Pertaining to Urban/Wildlands Interface), Section 6.1.6 (Mitigation Responsibilities, Requirements for Participating Special Entities), Section 6.3.2 (Additional Survey Needs and Procedures), and Section 7.3.9 (Future Facilities) of Volume I. RCWD shall prepare a Determination of Biologically Equivalent or Superior Preservation (DBESP) for impacts to riparian/riverine resources, narrow endemic plant species, and criteria area species as required pursuant to the MSHCP.

BIO-2 RCWD shall adhere to all applicable BMPs outlined in Appendix C of Volume 1 of the MSHCP. RCWD shall verify that all relevant BMPs are stated where appropriate on the Project construction plans and shall be conveyed to all workers on site during pre-construction training sessions to be held prior to each phase of construction.

BIO-3 Prior to initiation of construction, RCWD shall retain a qualified restoration biologist to prepare a habitat restoration plan to restore to pre-Project conditions or better all upland and wetland temporary impact areas where vegetation removal will occur. To ensure the habitat restoration plan addresses all impact areas, RCWD's biologist shall review the final anticipated temporary and permanent impact areas as part of the plan preparation based on final construction plans, including any

changes in anticipated contractor staging configuration, utility work, disposal areas, access requirements, or revisions to construction methodology that could affect impact limits. The restoration plan will identify appropriate native vegetation communities to be installed based on existing and anticipated final conditions.

The plan shall include a plant palette using species native to the area that are appropriate for the habitat and should include locally collected seeds or cuttings of any sensitive plant species that will be cleared by the Project (e.g., chaparral sand-verbena, white rabbit-tobacco, and long-spined spineflower). The habitat restoration plan shall include specifications for planting methods, seed installation, and topsoil salvage and stockpiling, and will include a 5-year maintenance and monitoring schedule with specific target and ultimate performance criteria to be met, including the percentage of vegetative cover; native species diversity; exclusion of exotic, non-native species; restoration of disrupted functions and values; and use of the restored habitat by indicator wildlife species. The habitat restoration plan shall be subject to review and approval by the permitting agencies (e.g., USACE, RWQCB, CDFW, and RCA) and shall address any specific requirements for mitigation of impacts to Nevin's barberry identified by these agencies.

BIO-4 RCWD shall avoid vegetation clearing for the Project during the bird breeding season (typically February 1 through August 31) to the extent feasible. If vegetation clearing or initiation of construction activities is proposed during the breeding season, a qualified biologist shall be retained by RCWD to conduct a pre-construction survey of the impact area for nesting migratory birds not more than 3 days prior to vegetation clearing or initiation of construction activities. Should any nesting birds be detected within 100 ft of the impact area, a suitable buffer area (determined on a case-by-case, species-specific basis) shall be established by a qualified biologist within which no construction activity may take place until after a qualified biologist has determined that the young have fledged and the nest is no longer active. Nesting bird habitat within the Project site shall be resurveyed during the bird breeding season if there is a lapse in construction activities longer than 7 days.

BIO-5 Consistent with the requirements of the MSHCP, no construction or vegetation clearing shall take place within suitable habitat (riparian scrub) for least Bell's vireo during the breeding season (March 15 through September 15). Additionally, RCWD shall not clear occupied habitat (Riversidian sage scrub in proximity to species observations) for coastal California gnatcatcher during the breeding season (February 15 through August 15).

BIO-6 To offset impacts to the seven Nevin's barberry that are within the Project impact limits, RCWD shall retain a qualified habitat restoration expert with experience in collecting seeds and/or cuttings for this species. Prior to impacts to the Nevin's barberry, seeds and/or cuttings shall be collected from the seven individuals to be removed as well as other individuals in the vicinity of Vail Lake to be propagated off site. Once the propagated plants have reached a suitable size for transplant (as

determined by the habitat restoration expert and subject to agency approval), Nevin's barberry shall be planted in suitable areas around Vail Lake (as shown in Draft EIR Figure 3.2-7) at a minimum 10:1 ratio (i.e., 70 plants). These plantings shall be subject to maintenance and monitoring and agency sign-off consistent with the overall habitat restoration plan (see Mitigation Measure BIO-3).

To avoid impacts to any Nevin's barberry in proximity to the limits of construction, RCWD shall retain a qualified biologist to survey areas within 20 ft of the construction limits (as determined based on final Project plans) within 3 months prior to construction. If any Nevin's barberry are identified within this area, the following measure shall be implemented. Prior to the commencement of construction activities, orange Environmentally Sensitive Area fencing or similar highly visible material that delineates any locations of Nevin's barberry within 20 ft of impact areas along the Canyon Access Road and near the dam that are not within the impact area shall be placed by the construction contractor under the supervision of a qualified biologist retained by RCWD. The area within the fence line demarcating individual Nevin's barberry shall include an approximately 5 ft buffer.

BIO-7 RCWD shall retain a qualified biologist to conduct an MSHCP 30-day pre-construction survey for burrowing owl within suitable habitat prior to ground-disturbing activities to ensure that no burrowing owls have colonized the site. The pre-construction survey(s) shall be conducted no more than 30 days prior to the start of construction activities. If burrowing owls have colonized the Project site prior to the initiation of ground-disturbing activities, the Project proponent will immediately inform and coordinate with CDFW. A Burrowing Owl Protection and Relocation Plan may be necessary prior to initiating ground disturbance. If ground-disturbing activities occur but the site is left undisturbed for more than 30 days, a pre-construction survey will again be necessary to ensure the burrowing owl has not colonized the site since it was last disturbed. If burrowing owl is found, the same coordination described above will be necessary.

BIO-8 Prior to construction activities in proximity to jurisdictional waters of the U.S., RCWD shall apply for and obtain a Section 404 Nationwide Authorization or Individual Permit from the USACE. RCWD shall comply with all requirements stated in the Section 404 permit, including standard provisions and any additional special conditions such as specific mitigation standards or Project-specific BMPs. Permanent impacts to wetland waters of the U.S. will be offset by wetland creation at a minimum 1:1 ratio.

BIO-9 Prior to construction activities in proximity to jurisdictional waters of the State, RCWD shall apply for and obtain a Section 401 Water Quality Certification or Waste Discharge Requirements from the RWQCB. RCWD shall comply with all requirements stated in the Section 401 certification or Waste Discharge Requirements, including standard provisions and any additional special conditions such as specific mitigation standards or Project-specific BMPs. Permanent impacts

to wetland waters of the State will be offset by wetland creation at a minimum 1:1 ratio.

BIO-10 Prior to construction activities in proximity to CDFW jurisdictional areas, RCWD shall apply for and obtain a Lake or Streambed Alteration Agreement from CDFW. The Project proponent shall comply with all the requirements stipulated in the agreement, including standard provisions and any additional special conditions such as specific mitigation standards or Project-specific BMPs.

BIO-11 RCWD shall retain a CDFW-approved bat biologist to conduct a focused habitat assessment at buildings, rock outcrops, and mature trees and snags that will be subject to Project-related impacts. The focused habitat assessment shall be conducted prior to or during the maternity season (April 1 through August 31). At locations where suitable roosting habitat is identified, the CDFW-approved bat biologist retained by RCWD shall conduct follow-up nighttime surveys for roosting bats. The nighttime surveys shall include a combination of acoustic and exit count methods and shall take place during the bat maternity season to enable detection of maternity-roosting bats. If maternity roosts are identified within the Project area, the following measures shall be implemented:

- RCWD shall retain a CDFW-approved bat biologist to confirm the absence of roosting bats prior to removal of buildings or rock outcrops with potential to house roosting bats. If bats are found or if the absence of bats cannot be confirmed, the bat biologist shall install or directly supervise installation of humane eviction devices and exclusionary material or other method(s) to prevent bats from roosting in these areas. Implementation of the humane eviction/exclusions is typically performed in the fall (September or October) preceding construction activity at a given location to avoid impacts to hibernating bats during the winter months or during the maternity season (April through August 31), when nonvolant (flightless) young are present. Any humane eviction/exclusion methods shall be implemented at least 10 days prior to the demolition of a structure or rock outcrop housing bats to allow sufficient time for the bats to vacate the roost feature(s).

- Removal of mature trees and snags shall occur during the fall months (September or October) to the greatest extent feasible, to avoid the bat maternity season (April 1 through August 31) and avoid the potential for "take" of nonvolant (flightless) young. Trees and snags that have been identified as confirmed or potential roost sites require a two-step removal process and the involvement of a CDFW-approved bat biologist, retained by RCWD, to minimize the potential for roosting bat mortality during this activity. This two-step removal shall occur over two consecutive days as follows: on Day 1, branches and limbs not containing cavities, as identified by the CDFW-approved bat biologist, shall be removed. On Day 2, the remainder of the tree shall be removed without supervision by a bat biologist. The disturbance caused by limb

removal, followed by an interval of one evening, will allow bats to safely abandon the roost.

BIO-12 RCWD's biologist shall review the final anticipated temporary and permanent impact areas as part of the plan preparation based on final construction plans, including any changes in anticipated contractor staging configuration, utility work, disposal areas, access requirements, or revisions to construction methodology that could affect impact limits. In the event that impacts are reduced, RCWD may coordinate with applicable resource agencies to determine whether compensatory mitigation requirements should be reduced. In the event that work is proposed beyond the identified limits of impact, RCWD shall retain a qualified biologist to determine the potential for special-status resources to occur, including riparian/ riverine areas, special-status species, identified Critical Habitat, jurisdictional waters or wetlands, or CDFW jurisdictional riparian or streambed areas. Additional surveys for special-status species shall be conducted if required prior to initiation of construction activities in the area beyond the limits of impact. If additional special-status resources would be affected, compensatory mitigation shall be adjusted in coordination with appropriate resource agencies, including the RCA. Upon completion of construction and prior to habitat restoration, RCWD's biologist shall conduct a review of the final impact areas to determine whether total impacts differ from those identified in this report. If appropriate, compensatory mitigation totals shall be adjusted in consultation with appropriate resource agencies.

BIO-13 Prior to the start of construction activities, orange Environmentally Sensitive Area fencing or similar highly visible material that delineates sensitive biological resources that occur within 5 ft of Project impact areas shall be placed by the construction contractor under the supervision of a qualified biologist retained by RCWD. Such areas will be treated as "off-limits" during construction, in accordance with the MSHCP Standard BMPs.

3.2.10 Level of Significance After Mitigation

With implementation of the regulatory compliance measures and mitigation measures listed above, all impacts related to construction and operation of the Proposed Project would be less than significant.

3.3 CULTURAL RESOURCES

This section provides a discussion of the existing cultural resource environments and an analysis of potential impacts from implementation of the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project). Cultural resources are sites, buildings, structures, objects, and districts over 50 years old that may have traditional or cultural value for the historical significance they possess. This section summarizes information obtained from a record search at the Eastern Information Center (EIC) of the California Historical Resources Information System (CHRIS) and from an archaeological survey of the Project site. The results of the record search and the archaeological survey are contained in the Phase I Cultural Resources Assessment for the Proposed Project (LSA 2022d), which is provided as Appendix D of this Environmental Impact Report (EIR).

A 684.70-acre Project study area (which included the Project site and the area surrounding Vail Lake) was studied for this Phase I assessment, as it was initially thought that lowering the lake level would be required during demolition of the existing dam. Based on the identification of alternative construction/demolition methods, lowering the lake level is no longer proposed, and no changes to dam operations are proposed. As a result, the Project study area was refined to an 89.60-acre Project site. The record search, background search, and field survey studied the 684.70-acre Project study area. As such, the Phase I report summarizes the analysis of the larger Project study area but addresses impacts of the Proposed Project on the 89.60-acre Project site.

3.3.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. One comment letter included comments related to cultural resources.

The letter from the Native American Heritage Commission (NAHC) (June 30, 2020) recommended that an archaeological record search be conducted through the CHRIS and also recommended measures in the event of the discovery of human remains.

3.3.2 Existing Environmental Setting

The Project site was prehistorically occupied by Native Americans and is within the traditional boundaries of the Luiseño. Prior to the Spanish occupation of California, Luiseño territory extended from Agua Hedionda Creek in the southwest, Aliso Creek in the northwest, the Elsinore Valley and Palomar Mountain in the southeast, and the areas surrounding the Santa Ana River in the current cities of Riverside and Grand Terrace in the northeast. The Project site is currently mostly undeveloped, with the exception of unpaved access roads, Vail Dam itself, and features associated with Vail Dam and RCWD groundwater recharge operations (e.g., pump stations, wells, piping). Two precontact and two historic-period previously recorded cultural resources were identified in the Project study area as a result of the EIC record search, and 38 cultural resources have been previously recorded within 1.0 mile of the Project study area. The two historic-period cultural resources identified by the EIC record search are within the Project site.

Prior work within the Project site resulted in Vail Lake Dam (P-33-14912) and the remnants of an associated historic water pipeline (P-33-144913) being determined ineligible for inclusion in either the National Register of Historic Places (National Register) or the California Register of Historic Resources (California Register).

3.3.3 Regulatory Setting

3.3.3.1 Federal Regulations

The National Historic Preservation Act of 1966 (NHPA). The NHPA requires that the federal government list significant historic resources on the National Register. Federal agencies must consult the National Register when planning to undertake or grant approval through permits for a project. Prior to the issuance of any license or implementation of any project, the federal agency must consider the effects of a project or license on any historical buildings, sites, structures, or objects that are included on, or eligible for inclusion on, the National Register (16 United States Code [USC] Section 470(f)). This typically includes consultation with the federal agency responsible for the undertaking; the State Historic Preservation Officer (SHPO); local Native American groups and individuals; local and State historical societies and organizations; and relevant archival sources, including the appropriate facility of the CHRIS.

3.3.3.2 State Regulations

California Environmental Quality Act (CEQA) Requirements. CEQA defines a "historical resource" as a resource that meets one or more of the following criteria: (1) listed in, or determined eligible for listing in, the California Register; (2) listed in a local register of historical resources as defined in Public Resources Code (PRC) Section 5020.1(k); (3) identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (4) determined to be a historical resource by a project's Lead Agency (PRC Section 21084.1 and *State CEQA Guidelines* Section 15064.5(a)). A historical resource consists of:

> "Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California…. Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources." (*State CEQA Guidelines* Section 15064.5(a)(3))

In accordance with *State CEQA Guidelines* Section 15064.5(b), a substantial adverse change in the significance of a historical resource is a significant effect on the environment.

CEQA requires a Lead Agency to determine whether an archaeological cultural resource meets the definition of a historical resource, a unique archaeological resource, or neither (*State CEQA Guidelines* Section 15064.5(c)). Prior to considering potential impacts, the Lead Agency must determine whether an archaeological cultural resource meets the definition of a historical resource in *State CEQA Guidelines* Section 15064.5(c)(1). If the archaeological cultural resource meets the definition of a historical resource, it is treated like any other type of historical resource in

accordance with *State CEQA Guidelines* Section 15126.4. If the archaeological cultural resource does not meet the definition of a historical resource, then the Lead Agency determines whether it meets the definition of a unique archaeological resource as defined in PRC Section 21083.2(g). In practice, however, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource. Should the archaeological cultural resource meet the definition of a unique archaeological resource, it must be treated in accordance with PRC Section 21083.2. If the archaeological cultural resource does not meet the definition of a historical resource or an archaeological resource, the effects to the resource are not considered significant effects on the environment (*State CEQA Guidelines* Section 15064.5(c)(4)).

California Health and Safety Code (HSC) Section 7050.5. California HSC Section 7050.5 states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the Coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the Coroner's authority. If the human remains are of Native American origin, the County of Riverside (County) Coroner must notify the NAHC within 24 hours of this identification. The NAHC will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Public Resources Code Section 5097.5. PRC Section 5097.5 provides for the protection of cultural resources and prohibits the removal, destruction, injury, or defacement of archaeological features on any lands under the jurisdiction of State or local authorities.

California Register of Historical Resources (PRC Section 5020 et seq.). State law also protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources in CEQA documents. A cultural resource is an important historical resource if it meets any of the criteria found in *State CEQA Guidelines* Section 15064.5(a). These criteria are nearly identical to those for the National Register, which are listed above.

The SHPO maintains the California Register. Properties listed, or formally designated eligible for listing, on the National Register, are nominated to the California Register and then selected to be listed on the California Register, as are State Landmarks and State Points of Interest.

The California Register criteria are based on National Register criteria. For a property to be eligible for inclusion in the California Register, one or more of the following criteria must be met:

1. It is associated with the events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

2. It is associated with the lives of persons important to local, California, or national history;

3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; and/or

4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time has passed since a resource's period of significance to "obtain a scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of time needed to develop the perspective to understand the resource's significance (California Code of Regulations [CCR] 4852[d][2]).

The California Register also requires that a resource possess integrity, which is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California OHP 1999). To retain integrity, a resource should have its original location, design, setting, materials, workmanship, feeling, and association. Whichever of these factors is most important depends on the particular criterion under which the resource is considered eligible for listing (California OHP 1999).

3.3.3.3 Regional Regulations

There are no regional regulations that are applicable to cultural resources relevant to the Proposed Project.

3.3.3.4 Local Regulations

There are no local regulations that are applicable to cultural resources relevant to the Proposed Project.

3.3.4 Methodology

A cultural resources record search was completed on August 18, 2020, at the EIC of the CHRIS at the University of California, Riverside. It included a review of all prehistoric and historic archaeological sites within a 1.0-mile radius of the Proposed Project study area, as well as a review of known cultural resource survey and excavation reports in that area. The California State Historic Resources Inventory (HRI), the National Register, California Historical Landmarks (SHL), California Points of Historical Interest (SPHI), and various local historical registers were examined. Between April 20, 2020, and July 22, 2022, pedestrian field surveys of the Project study area were conducted by walking transects spaced approximately 10 meters apart where possible. See the Phase I Cultural Resources Assessment (LSA 2022d; Appendix D) for a more detailed description of the record search and survey methodologies and results.

3.3.5 Thresholds of Significance

The thresholds for cultural resources impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to cultural resources if it would:

Threshold 3.3.1: Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5

Threshold 3.3.2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5

Threshold 3.3.3: Disturb any human remains, including those interred outside of dedicated cemeteries

3.3.6 Project Impacts

Threshold 3.3.1: Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

No Impact. As previously discussed, a historical resource as defined in Section 15064.5 of the *State CEQA Guidelines* can include resources listed in a federal, State, or local register. Two precontact and two historic-period previously recorded cultural resources were identified in the Project study area as a result of the August 18, 2020, EIC record search. The two precontact resources identified by the EIC record search are within the Project study area (but not within the Project site) and, as such, do not need to be considered for status as a historical resource for the Proposed Project pursuant to Section 15064.5. The two historic-period resources identified by the EIC record search as within the Project study area are located within the Project site and are discussed below.

P-33-014912 (Vail Lake Dam). Historic-period Vail Lake Dam, located within the western construction area of the Project site, was recorded as site P-33-014912 in 2006. The concrete arch dam was constructed in 1948. In 2009, Vail Dam was evaluated as ineligible for listing in the National Register; however, this 2009 finding was not sent to the SHPO for concurrence. LSA Architectural Historian Casey Tibbet found no appreciable changes to the historic integrity of the site based on the April 2020 field survey and has determined that the 2009 evaluation remains valid for purposes of Section 106 compliance. Because the 2009 evaluation is more than 5 years old, Ms. Tibbet evaluated Vail Dam to address the California Register and Riverside County criteria for historical significance. It was determined that P-33-014912 is not eligible for listing in the California Register nor is it eligible for designation as a County Historic Landmark.

P-33-014913 (Concrete Irrigation Pipeline). The historic-period remnants of a concrete irrigation pipeline associated with Vail Lake Dam were recorded in 2006 and are located within the Project site. When this archaeological cultural resource was recorded, only disconnected remnants of the pipeline remained, likely moved by water from Temecula Creek. The pipeline remnants site was previously evaluated and determined to not be eligible for listing in the National Register or California Register under any criteria. This determination received SHPO concurrence on April 20, 2010. During the field survey conducted for this Proposed Project, it was determined that the site condition has remained unchanged since SHPO concurrence on the ineligibility of the site. As such, the finding of not eligible for listing in the National Register or the California Register remains valid.

Because neither P-33-014912 (Vail Lake Dam) nor P-33-014913 (Concrete Irrigation Pipeline) is a historical resource pursuant to Section 15064.5 of the *State CEQA Guidelines*, implementation of the Project would result in no impact to the significance of a historical resource pursuant to Section 15064.5, and no mitigation is required.

Threshold 3.3.2: Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less Than Significant with Mitigation Incorporated. As discussed above, the Phase I Cultural Resources Assessment prepared for the Proposed Project included a record search through the EIC at the University of California, Riverside, background research, and an archaeological field survey. Seven cultural resources were identified within the Project study area as a result of the record search and field survey. Of the seven cultural resources identified within the Project study area, only three cultural resources are within the Project site.

Two of the cultural resources identified within the Project site date to the historic period: P-33-014912 (Vail Lake Dam) and P-33-014913 (Concrete Irrigation Pipeline). Resource P-33-014912 is a built environment resource—not an archaeological resource—and does not need to be discussed further in this section. Archaeological resource P-33-014913 was determined to be not eligible for listing in the National Register or the California Register and is not considered a significant resource pursuant to Section 15064.5 of the *State CEQA Guidelines*.

A third cultural resource was identified within the Project site as a result of the archaeological field survey: LSA-RCW1902-S-3 (permanent primary number designation pending from the EIC). It is a precontact archaeological cultural resource and is discussed below.

LSA-RCW1902-S-3. Cultural resource LSA-RCW1902-S-3 (a bedrock milling feature) is located along the alignment of a design alternative that was initially proposed for the North Access Road. The alternative has been retained in Project plans pending coordination with the applicable resource agencies and is discussed in Section 4.0, Alternatives, in the EIR. As discussed in Section 4.4.2, if LSA-RCW1902-S-3 were to be impacted by Project implementation, the resource would be evaluated for eligibility in the California Register and for status as a unique archaeological resource.

Because P-33-014912 is not an archaeological resource and P-33-014913 is not a significant archaeological resource pursuant to Section 15064.5 of the *State CEQA Guidelines*, the Proposed Project would not cause a substantial adverse change in the significance of either of the two resources, and no mitigation is required to address either resource.

If the North Access Road design alternative is selected (refer to Section 4.0, Alternatives) and LSA-RCW1902-S-3 were to be impacted by Project work, Mitigation Measure CUL-1 requires that the resource be evaluated for eligibility in the California Register and for status as a unique archaeological resource if it cannot be avoided during construction. If the resource is determined to not be significant per CEQA, not be eligible for the California Register, and not be a unique archaeological resource, then the Proposed Project would not have a significant effect on an archaeological resource and no further mitigation would be required. If LSA-RCW1902-S-3 is determined to be significant per CEQA, determined to eligible for the California Register, or determined to be a unique archaeological resource, then avoidance or preservation in place (or mitigation of significant effects) would be required.

In addition, while approximately 95 percent of the Project site was surveyed for cultural resources with mostly negative findings for surficial cultural resources, because of the high number of

archaeological resources within 1.0 mile of the Project study area (more than 40, with nearly 30 having a precontact component), and given the proximity of the Project study area and Project site to the Temecula Massacre site (which is described in greater detail below), there is strong potential for subsurface Native American cultural resources that could be eligible for the California Register or significant per CEQA. As such, Mitigation Measure CUL-2 requires archaeological monitoring during ground-disturbing construction activities associated with Project implementation to avoid and/or mitigate for potential impacts to buried (unknown) archaeological resources. If archaeological resources are encountered during ground-disturbing work, construction activities in the area of the find would stop and the resource would be evaluated for significance. Pre-established procedures would be in place to address any significant finds.

When archaeological resources are assessed and/or protected as they are discovered, impacts to these resources would be less than significant. Implementation of Mitigation Measure CUL-1 and Mitigation Measure CUL-2 would reduce the impact of the Proposed Project on the significance of archaeological resources to a less than significant level.

Threshold 3.3.3: Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant with Mitigation Incorporated. No previously identified human remains are present on the Proposed Project site.

However, in the Battle of San Pasqual during the Mexican-American War (December 6, 1846), the Californios killed more than 20 United States soldiers. After the battle, some of the Californios went to a rancho in Pauma Valley, where 11 of them were kidnapped by Luiseño Indians who were sympathetic to Americans. The 11 Californios were eventually killed. In response to this event (known as the Pauma Massacre), a Mexican General ordered José del Carmen Lugo to capture the people responsible for the killing of the Californios. In January 1847, Lugo (along with some Cahuilla Indians) came to the Temecula Valley and killed Luiseño Indians in the canyon in the area of Vail Lake Dam. This event has been called the Temecula Massacre, during which an estimated 38 to 40 Luiseños were killed. The actual number of Luiseño victims of the massacre remains unknown as severe rain and flooding in the canyon soon after the massacre would have made recovery of the victims difficult (LSA 2022d). As such, undiscovered human remains may be present below the ground surface on the Project site.

Disturbing human remains could violate the California HSC as well as destroy the resource, which would be considered a significant impact. Mitigation Measure CUL-3 requires compliance with the California HSC for the treatment of human remains. As stated in Mitigation Measure CUL-3, in the event that human remains are encountered during any Project work, California HSC Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to California PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner would notify the NAHC within 24 hours (per *State CEQA Guidelines* Section 15064.5(e)), and the NAHC would determine and notify an MLD. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment within 48 hours of being

granted access to the site. The MLD recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

Implementation of Mitigation Measure CUL-3 would reduce the potential impact of the Proposed Project on human remains to less than significant.

3.3.7 Cumulative Impacts

Potential impacts of the Proposed Project to unknown cultural resources, when combined with the impacts of past, present, and reasonably foreseeable projects in the vicinity of the Proposed Project, could contribute to a cumulatively significant impact due to the overall loss of historical and archaeological artifacts unique to the region. As discussed above, the Proposed Project would not have an impact on historical resources.

There is, however, strong potential for subsurface archaeological resources within the Project site. This determination is based on the high number of archaeological resources within 1.0 mile of the Project study area (more than 40, with nearly 30 having a precontact component), and the proximity of the Project site to the Temecula Massacre site. Mitigation Measure CUL-2 requires archaeological monitoring during ground-disturbing construction activities associated with Project construction to avoid and/or mitigate for potential impacts to buried (unknown) archaeological resources. If archaeological resources are encountered during ground-disturbing work, construction activities in the area of the find will stop and the resource will be evaluated for significance. Pre-established procedures would be in place to address any significant finds.

All cumulative development projects would require similar review by RCWD, the County of Riverside, or the City of Temecula. If there were any potential for significant impacts to archaeological resources as a result of present or reasonably foreseeable projects, an investigation would be required to determine the nature and extent of the resources and identify appropriate mitigation measures. When archaeological resources are assessed and/or protected as they are discovered, impacts to these resources are less than significant.

As such, implementation of Mitigation Measures CUL-1 through CUL-3 would ensure that the Proposed Project, together with cumulative projects, would not result in a cumulative considerable impact to unique archaeological and historical resources.

3.3.8 Level of Significance Prior to Mitigation

No impacts to historical resources would occur. Prior to mitigation, the Proposed Project has the potential to result in significant impacts to archaeological resources and previously undiscovered human remains.

3.3.9 Mitigation Measures

The following mitigation measures are proposed to reduce impacts associated with construction-related impacts.

Mitigation Measure CUL-1

LSA-RCW1902-S-3. If possible, construction of the North Access Road will avoid impacts to LSA-RCW1902-S-3. In the event the North Access Road design alternative is selected and if LSA-RCW1902-S-3 would be impacted by Project work, LSA-RCW1902-S-3 shall be evaluated for eligibility in the California Register of Historical Resources (California Register) and for status as a unique archaeological resource prior to any ground-disturbing activity. If the resource is determined to not be significant per the California Environmental Quality Act (CEQA), not be eligible for the California Register, and not be a unique archaeological resource, then the Proposed Project would not have a significant effect on an archaeological resource and no further mitigation pertaining to LSA-RCW1902-S-3 shall be required. If LSA-RCW1902-S-3 is determined to be significant per CEQA or eligible for the California Register or is determined to be a unique archaeological resource, then avoidance or preservation in place (or mitigation of significant effects—such as, but not limited to, archaeological data recovery and/or relocation of the resource) shall be required.

Mitigation Measure CUL-2

Archaeological Monitoring. Prior to construction, an archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards for archaeology shall prepare a Cultural Resources Monitoring Plan for review and approval by Rancho California Water District (RCWD) and the Pechanga Band of Luiseño Indians. An archaeologist shall attend the pre-construction meeting and provide a Cultural Resources Awareness Training to construction personnel at the pre-grade meeting. An archaeologist shall be on site during ground-disturbing construction activities associated with Project implementation to conduct archaeological monitoring, with the intent to identify, avoid, and/or mitigate for potential impacts to previously unidentified archaeological resources in accordance with the protocols specified in the Cultural Resources Monitoring Plan. The archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards for archaeology shall oversee the archaeological monitoring and serve as Project Archaeologist. In the event that archaeological cultural resources are identified by the archaeological monitor during ground-disturbing Project activities, the nature of the find shall be assessed, and the Project Archaeologist shall determine if

additional cultural resources work is appropriate. Additional cultural resources work may include, but is not limited to, collection and documentation of artifacts, documentation of the cultural resources on State of California Department of Parks and Recreation (DPR) Series 523 forms, or subsurface testing. Upon completion of any cultural resources work for the Project (including archaeological monitoring), the Project Archaeologist shall prepare a report to document the methods and results of the work. This report should be submitted to RCWD, to any descendant community involved in the investigation(s) that requests a copy, and to the Eastern Information Center at the University of California, Riverside.

Mitigation Measure CUL-3

Human Remains. In the event that human remains are encountered during any Project work, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County of Riverside (County) Coroner has made a determination of origin and disposition pursuant to California Public Resources Code (PRC) Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner would notify the Native American Heritage Commission (NAHC) within 24 hours (per *State CEQA Guidelines* Section 15064.5(e)), and the NAHC would determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

3.3.10 Level of Significance After Mitigation

No impacts to historical resources would occur. Mitigation Measures CUL-1 through CUL-3 would reduce potential impacts to known and previously unknown archaeological resources and previously undiscovered human remains to a less than significant level. No significant unavoidable impacts to archaeological resources or human remains would occur with implementation of these measures.

3.4 ENERGY

This section evaluates the potential impacts to energy consumption and efficiency from implementation of the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project). The analysis in this section is based in part on the Air Quality, Energy, and Greenhouse Gas Technical Analysis (LSA 2022a) (Appendix B) that was prepared for the Proposed Project and that is included in this Environmental Impact Report (EIR).

The purpose of this energy analysis is to ensure that the energy implication is considered by Rancho California Water District (RCWD), as the Lead Agency, and to quantify anticipated energy usage associated with construction and operation of the Proposed Project; to determine if the usage amounts are efficient, typical, or wasteful for the land use type; and to emphasize avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

3.4.1 Scoping Process

RCWD received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. No mention of energy consumption or efficiency is included in either letter.

3.4.2 Existing Environmental Setting

The Project site is within the service territory of Southern California Edison (SCE). SCE provides electricity to more than 15 million people in a 50,000-square-mile (sq mi) area of Central, Coastal, and Southern California (SCE 2019). According to the California Energy Commission (CEC), total electricity consumption in the SCE service area in 2020 was 83,633 gigawatt-hours (GWh) (32,475 GWh for the residential sector and 51,158 GWh for the non-residential sector). Total electricity consumption in Riverside County in 2020 was 16,857 GWh (CEC 2021b).

The Southern California Gas Company (SoCalGas) is the natural gas service provider for the Project site. SoCalGas provides natural gas to approximately 21.8 million people in a 24,000 sq mi service area throughout Central and Southern California, from Visalia to the Mexican border (SoCalGas 2019). According to the CEC, total natural gas consumption in the SoCalGas service area in 2020 was 5,424.71 million therms. Total natural gas consumption in Riverside County in 2019 was 452.99 million therms (CEC 2021c).

Petroleum is also a nonrenewable fossil fuel. It is refined into a larger number of consumer products, primarily fuel oil and gasoline. Gasoline is the most-used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. In 2019, total gasoline consumption in California was 360,237 thousand barrels or 1,819.9 trillion British thermal units (BTUs). Of the total gasoline consumption, 343,677 thousand barrels or 1,771.6 trillion BTUs were consumed for transportation (EIA 2020).

3.4.3 Regulatory Setting

Federal and State agencies regulate energy use and consumption through various means and programs. On the federal level, the U.S. Department of Transportation, the U.S. Department of Energy, and the U.S. Environmental Protection Agency are three federal agencies with substantial

influence over energy policies and programs. Generally, federal agencies influence and regulate transportation energy consumption through establishment and enforcement of fuel economy standards for automobiles and light trucks, through funding of energy-related research and development projects, and through funding for transportation infrastructure improvements. On the state level, the California Public Utilities Commission (CPUC) and the CEC are two agencies with authority over different aspects of energy.

The CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies and serves the public interest by protecting consumers and ensuring the provision of safe, reliable utility service and infrastructure at reasonable rates, with a commitment to environmental enhancement and a healthy California economy.

The CEC is the State's primary energy policy and planning agency. The CEC forecasts future energy needs, promotes energy efficiency, supports energy research, develops renewable energy resources, and plans for/directs State response to energy emergencies. Some of the more relevant federal and State energy-related laws and plans are discussed below.

3.4.3.1 Federal Regulations

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 Updated (Public Law 110-140) seeks to provide the nation with greater energy independence and security by increasing the production of clean renewable fuels; improving vehicle fuel economy; and increasing the efficiency of products, buildings, and vehicles. It also seeks to improve the energy performance of the federal government. The Act sets increased Corporate Average Fuel Economy (CAFE) standards; the Renewable Fuel Standard; appliance energy efficiency standards; building energy efficiency standards; and accelerated research and development tasks on renewable energy sources (e.g., solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies), carbon capture, and sequestration.

3.4.3.2 State Regulations

Senate Bill 1389 (2002). In 2002, the State legislature passed Senate Bill (SB) 1389, which required the CEC to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emissions vehicles (ZEVs) and their infrastructure needs and encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

Renewable Portfolio Standard. SB 1078 established the California Renewable Portfolio Standards (RPS) program in 2002. SB 1078 initially required that 20 percent of electricity retail sales be served by renewable resources by 2017; however, this standard has become more stringent over time. In 2006, SB 107 accelerated the standard by requiring that the 20 percent mandate be met by 2010. In April 2011, SB 2 required that 33 percent of electricity retail sales be served by renewable resources

by 2020. In 2015, SB 350 established tiered increases to the Renewable Portfolio Standards of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. In 2018, SB 100 increased the requirement to 60 percent by 2030 and required that all of the State's electricity come from carbon-free resources by 2045. SB 100 took effect on January 1, 2019 (CPUC 2018).

California Long Term Energy Efficiency Strategic Plan. On September 18, 2008, the CPUC adopted California's first Long Term Energy Efficiency Strategic Plan, presenting a roadmap for energy efficiency in California (CPUC 2008). The plan articulates a long-term vision and goals for each economic sector and identifies specific near-term, mid-term, and long-term strategies to assist in achieving those goals. The plan also reiterates the following four specific programmatic goals known as the "Big Bold Energy Efficiency Strategies," established by the CPUC in Decisions D.07-10-032 and D.07-12-051:

- All new residential construction will be zero net energy (ZNE) by 2020.
- All new commercial construction will be ZNE by 2030.
- Fifty percent of commercial buildings will be retrofit to ZNE by 2030.
- Fifty percent of new major renovations of State buildings will be ZNE by 2025.

3.4.4 Methodology

Fuel consumption (diesel fuel and gasoline) associated with construction trucks and construction worker vehicles traveling to the Project site was based on the estimated number of vehicle and truck trips, estimated trip distances, and equipment operating hours that Project construction would generate and using the assumptions from the Construction Information Memo with the Anticipated Equipment Application and Construction Schedule (AECOM 2020).

3.4.5 Thresholds of Significance

The thresholds for energy impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to energy if it would:

Threshold 3.4.1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation

Threshold 3.4.2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

3.4.6 Project Impacts

Threshold 3.4.1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation

Less Than Significant.

Construction Energy Use. Construction of the Proposed Project would require energy for the manufacture and transportation of aggregate materials, preparation of the site for excavation and rock blasting activities, and construction of the dam. All or most of this energy would be derived from nonrenewable resources. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. Fossil fuels are nonrenewable materials extracted from the earth and burned to produce heat or power. Petroleum products derived from fossil fuel (crude oil) are typically used to power construction equipment. Crude oil, a complex mixture of hydrocarbons, can be refined for use as a fuel for internal combustion engines (e.g., gasoline or diesel fuel). Fossil fuels, specifically diesel fuel, are evaluated because they are the means by which most of the construction equipment used to raise the dam and build other components would be powered. Construction of the Proposed Project could require approximately 31 months total using a variety of heavy equipment and vehicles. In addition, electrical energy will be supplied to the construction site during construction activities through the operation of diesel-fired generators.

Transportation energy represents the largest energy use during construction and would occur from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction worker vehicles that would use petroleum fuels (e.g., diesel fuel and/or gasoline). Therefore, the analysis of energy use during construction focuses on fuel consumption. The use of energy resources would fluctuate according to the phase of construction. Most construction equipment would be gasoline-powered or diesel-powered, and the later construction phases would be electricity-powered. Construction trucks and vendor trucks hauling materials to and from the Project site would be anticipated to use diesel fuel, whereas construction workers traveling to and from the Project site would be anticipated to use gasoline-powered vehicles. Fuel consumption from transportation uses depends on the type and number of trips, VMT, fuel efficiency of vehicles, and travel modes.

Fuel use from construction trucks and construction worker vehicles traveling to the Project site was based on the estimated number of vehicle and truck trips and equipment operating hours that Project construction would generate and using the assumptions from the Construction Information Memo with the Anticipated Equipment Application and Construction Schedule (AECOM 2020). The length of the trip distances was previously discussed in Section 2.0, Project Description, of this Draft EIR.

During the construction period, an estimated 866,816 gallons (gal) of fuel would be consumed. As shown in Table 3.4.A, estimated diesel fuel consumption would be 849,376 gal from construction-related equipment and truck activities. For the construction worker vehicles, an estimated 17,920 gal of gasoline fuel would be consumed.

In 2019, 2.7 billion gal of fuel were consumed from vehicle trips in Riverside County based on EMFAC2017. Therefore, the peak annual fuel demand generated during construction would be less than 0.001 percent of the total annual gasoline and diesel fuel consumption in Riverside County.

Table 3.4.A: Construction Worker Vehicle Gasoline Fuel Use

Equipment Description	Estimated Hourly Fuel Consumption (gal)	Estimated Operating Hours	Total Fuel Consumption (gal)
Excavator	14	3,280	45,920
Front-End Loader	12	8,320	99,840
Tractor with Dozer Motor Grader	14	3,640	50,960
Moto Grader	10	2,600	26,000
Compactor	9	2,160	19,440
Truck Articulated Off Highway	14	10,360	145,040
Truck Trailer for Equipment/Materials	7	3,680	25,760
Truck Trailer for Aggregates	7	22,296	156,072
Truck Trailer for Cement of Fly Ash	7	2,268	15,876
Truck Trailer for Removal of Dam Debris	7	840	5,880
Truck Water	7	6,040	42,280
Truck Service	7	8,080	56,560
Truck Ready Mix Concrete	7	1,364	9,548
Rock Drills	7	5,040	35,280
Generator Sets	9	4,000	36,000
Crane	10	5,800	58,000
Cone Crush and Screen Plant (Electric)	0	720	0
Concrete Batch Plant	9	1,080	9,720
Grout Mix and Pump	4	2,240	8,960
Chipper	4	560	2,240
Pickup	1	17,920	17,920
		Total Diesel Fuel Consumption	**849,376**
		Total Gasoline Fuel Consumption	**17,920**

Source: *Construction Information Memo with the Anticipated Equipment Application and Construction Schedule* (AECOM 2020), adjusted for 90% Design.
gal = gallon/gallons

Impacts related to energy use during construction would be temporary and would be relatively small in comparison to Riverside County's overall usage and the State's available energy sources. For these reasons, Project construction would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Impacts would be less than significant, and no mitigation is required.

Operational Energy Use. Typically, energy consumption is associated with fuel used for vehicle trips and electricity and natural gas use. Once the new dam is fully operational, potential energy usage would be associated with routine maintenance and operation of the Vail Dam reservoir, and recreational use at the site. Operational and maintenance activities would include monitoring reservoir levels and outlet discharges, monitoring dam instrumentation, maintaining appropriate records, and maintaining mechanical and electrical equipment according to the equipment manufacturers' requirements. Operation of the Proposed Project would not result in a substantial increase in electricity or natural gas use. Operation and maintenance activities would result in fuel demand associated with worker trips to the reservoir. However, employee traffic for reservoir operations would not be appreciably different than the existing condition scenario. Routine

maintenance and operational activities at the dam and reservoir, and the use of the marina and reservoir, would result in negligible fuel demand.

Therefore, once operational, implementation of the Proposed Project would not result in an increase in energy usage. Operation of the Proposed Project would not result in energy demand that would be considered inefficient, wasteful, or unnecessary. Therefore, impacts would be less than significant, and no mitigation is required.

Threshold 3.4.2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

Less Than Significant. The CEC adopted the 2022 Integrated Energy Policy Report Update, which provides the results of the CEC's assessments of a variety of energy issues facing California. RCWD relies on the State integrated energy plan and does not have its own plan to address renewable energy or energy efficiency.

As indicated above, energy usage on the Project site during construction would be temporary in nature and would be relatively small in comparison to the overall use in the County. In addition, energy usage associated with operation of the Proposed Project would be relatively small in comparison to the overall use in Riverside County, and the State's available energy source. Therefore, energy impacts at the regional level would be negligible. Because California's energy conservation planning actions are conducted at a regional level, and because the Proposed Project's total impact on regional energy supplies would be minor, the Proposed Project would not conflict with or obstruct California's energy conservation plans as described in the CEC's Integrated Energy Policy Report. Additionally, as demonstrated above, the Proposed Project would not result in the inefficient, wasteful, and unnecessary consumption of energy. Therefore, the Proposed Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Impacts would be less than significant, and no mitigation is required.

3.4.7 Cumulative Impacts

The potential for cumulative impacts to energy resources was assessed based upon consideration of the Proposed Project in combination with all projects within the SCE and SoCalGas planning areas. Cumulative construction and building development activities throughout the Southern California region are likely to result in the demand for new systems or supplies or substantial alterations to the existing power or natural gas utilities. However, the Proposed Project is consistent with long range planning in the County of Riverside and the region as a whole, the County has policies that require coordination of new development with both SCE and SoCalGas, and both providers have indicated that they can serve the region. Future projects will undergo similar environmental review and coordination with the service providers to determine the extent of power demand. This continual coordination process, coupled with energy use reduction strategies designed to address greenhouse gas emissions, will ensure that the types of development considered are consistent with the service plans of both SCE and SoCalGas. As this Proposed Project is consistent with the County's long-range plans such as the County's General Plan and included in both the SCE and SoCalGas service area plans, the Project's incremental contribution to cumulative energy impacts would not be cumulatively considerable.

3.4.8 Level of Significance Prior to Mitigation

Prior to mitigation, construction and operation of the Project would result in less than significant impacts related to energy consumption and efficiency, including cumulative impacts.

3.4.9 Mitigation Measures

No mitigation measures are required to address energy-related impacts.

3.4.10 Level of Significance After Mitigation

No mitigation measures are required to address energy-related impacts; therefore, impacts would remain less than significant regardless of mitigation.

This page intentionally left blank

3.5 GEOLOGY AND SOILS

This section evaluates the potential impacts to geology and soils from implementation of the Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project). The analysis in this section is based in part on the *Preliminary Design Report* (AECOM 2019), the *Geotechnical Data Report, Vail Dam Seismic and Hydrologic Remediation Project* (AECOM 2017a), and the *Paleontological Resources Assessment* (LSA 2022c) that were prepared for the Proposed Project and are included as Appendices E and G, respectively, to this Environmental Impact Report (EIR). Publicly available geologic maps and reports were also reviewed. Information on the soils present in the Project area is from the U.S. Department of Agriculture's Natural Resources Conservation Service's Web Soil Survey.

3.5.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. No comment letters included comments related to geology and soils.

3.5.2 Existing Environmental Setting

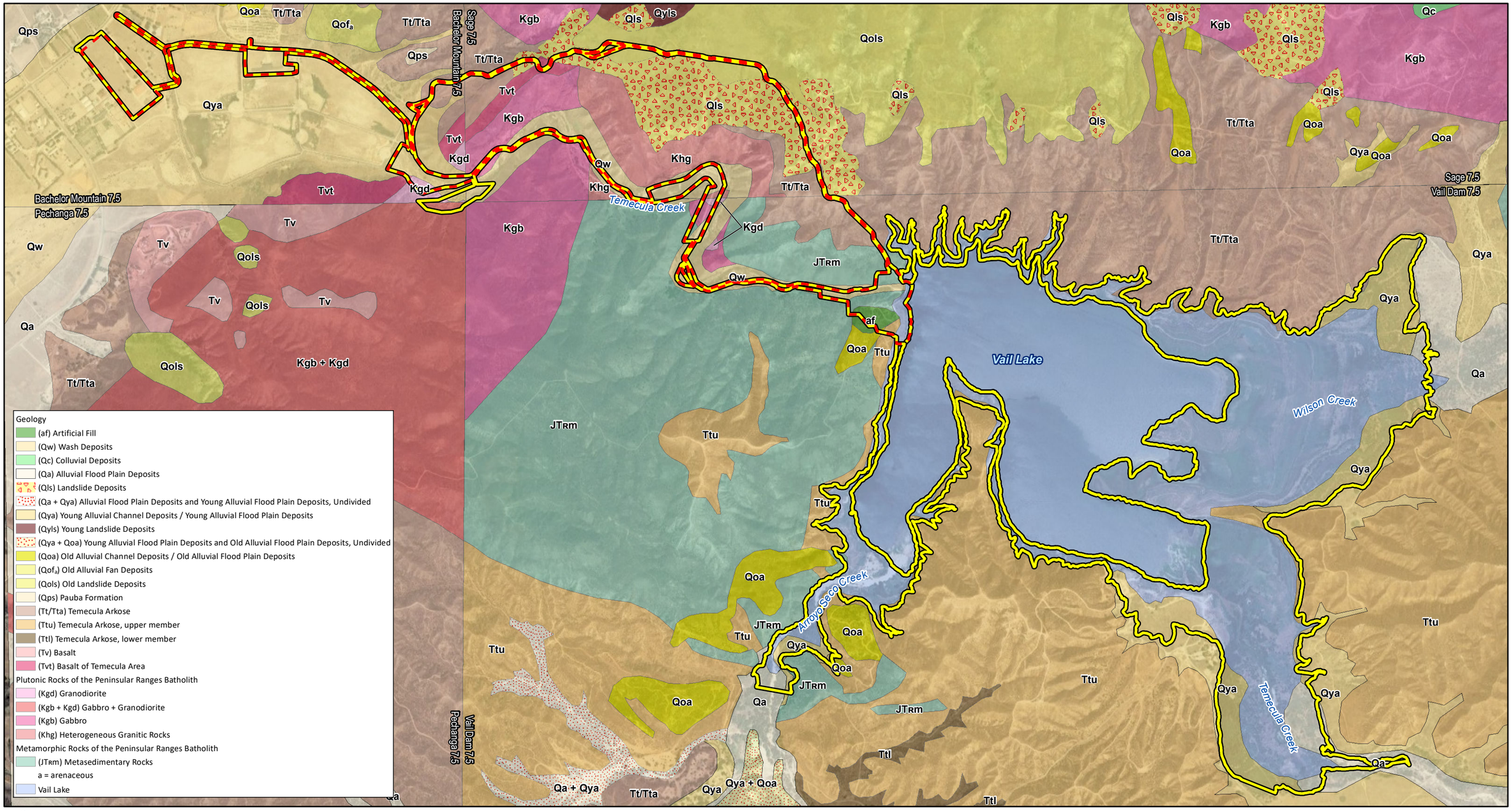
The existing environmental setting related to geology and soils is presented in this section.

3.5.2.1 Regional Geology

The Project area is located within the Peninsular Ranges Province, which is a 500-mile-long mountain range in southern California and Baja California that is formed by a continuous belt of Cretaceous gabbroic through granitic plutonic rocks that intruded late Paleozoic and Mesozoic metamorphic host rock. Vail Dam spans Temecula Creek, a northwesterly draining tributary of the Santa Margarita River that drains the north side of Palomar Mountain. Vail Lake inundates a portion of Butterfield Valley and a portion of the adjacent Lancaster Valley. Vail Lake, Butterfield Valley, and Lancaster Valley are surrounded by highland areas to the north (Oak Mountain), to the south (Wild Horse Peak/Palomar Mountain), and to the east (Cahuilla Mountain, Thomas Mountain). Collectively, these physiographic features comprise a rugged highland terrain that is dissected by Wilson Creek, Temecula Creek, and their tributaries.

The terrain in the vicinity of the Project area is underlain by regionally metamorphosed rocks of Jurassic to Cretaceous age, plutonic (intrusive igneous) rocks of Cretaceous age, volcanic rocks of Miocene age, the Pliocene age Temecula Arkose, and Holocene to Pleistocene age alluvial and landslide deposits. A regional geologic map showing the geologic units in the vicinity of the Project is presented as Figure 3.5-1. This map is a compilation of the Sage 7.5-minute Quadrangle (Morton and Kennedy 2005), the Vail Lake 7.5-minute Quadrangle (Kennedy 2003), the Oceanside 30-minute by 60-minute Quadrangle (Kennedy and Tan 2007), and the San Bernardino and Santa Ana 30-minute by 60-minute Quadrangle (Morton and Miller 2006). The descriptions of the geologic setting in the remainder of this section are based on the geologic map, as well as more detailed field mapping performed by AECOM during preliminary design for the Project. These deposits are described in detail in the following section.

This page intentionally left blank



LSA

LEGEND

Paleontological Survey Area

Project Site

N

0 750 1500

FEET

FIGURE 3.5-1

Vail Dam Seismic and Hydrologic Remediation Project

Regional Geology

SOURCE: Bachelor Mountain 7.5' map (Morton and Kennedy, 2003); Pechanga 7.5' map (Kennedy, 2000); Sage 7.5' (Morton and Kennedy, 2005); Vail Dam 7.5' map (Kennedy, 2014); AECOM (6/2022)

I:\RCW1902\GIS\MXD\EIR-EIS\Regional_Geology.mxd (8/23/2022)

This page intentionally left blank

The existing dam is founded on metamorphic rock that is described as undifferentiated meta-volcanic and metasedimentary rocks of Cretaceous and Jurassic age consisting of schist, gneiss, and quartzite that is commonly mixed with meta-granitic rock. In the vicinity of the dam site the metamorphic rock is entirely gneiss (KJm1) that has a well-developed metamorphic layering (foliation) that strikes northwesterly and dips steeply to both the northeast and southwest.

The Temecula Creek canyon downstream of the existing dam, which encompasses the proposed Canyon Access Road, the Staging and Laydown Areas within the canyon, and Disposal Area at the mouth of the canyon, is underlain primarily by wash deposits (Qw), with some artificial fill (af) immediately downstream of the dam. The proposed Dam Construction Area, Temporary Construction Area, South Access Road and Construction Area, and associated Staging and Laydown Area extend above the alluvial deposits underlying the canyon floor up the sides of the canyon through zones of fill, Temecula Arkose (Tt), and old alluvial flood plain deposits (Qoa).

The North Access Road is mostly underlain by old landslide deposits (Qols), Temecula Arkose, and gneiss. It is also underlain in parts by young channel deposits (Qya), basalt of Temecula area (Tvt), and Holocene landslide deposit (Qls).

The proposed Primary Entry Road (50 Acre Parcel), the Pond Access Road, the Secondary Entry Road, the Flyers Field, and the western Staging and Laydown Area are underlain by young channel and wash deposits.

3.5.2.2 Stratigraphy

Fill (af). Fill (af), sourced from the excavation of the existing dam foundation, is in the bottom of Temecula Creek in the area of the proposed replacement dam. These materials are up to 25 feet (ft) thick and are described as brown, silty, fine to coarse sand, with varying amounts of fine to coarse gravels based on borings performed in 2017. Some larger cobble-size clasts and possibly boulders were encountered in a few of the borings, primarily with increasing depth. The fill is thin near the base of the existing dam. The top of the fill mound rises until approximately 85 ft downstream where the fill is the thickest and then pinches out downstream in the channel bottom of Temecula creek. Fill was also encountered in a boring near the left abutment of the proposed new dam and next to the left gravity abutment of the existing dam. This fill was placed during the construction of the existing dam and was originally a platform used for the construction of the dam.

Quaternary Alluvial Deposits. Fine-grained lakebed deposits are expected to underlie the area upstream of Vail Dam. Wash Deposits (Qw), referred to as alluvium (Qal) in AECOM reports (2017a and 2019), were encountered in borings below the fill in the bottom of Temecula Creek near the dam site. The alluvium encountered in the borings ranged in thickness from about 10 to 20 ft. It is composed primarily of loose sands with some gravels and cobbles. These wash deposits have been mapped in Temecula Creek the entire length of the Project area and may be unconsolidated and contain boulders. Wash deposits also likely underlie the lakebed deposits.

Young channel deposits (Qya) are Holocene and late Pleistocene deposits of slightly to moderately consolidated and poorly sorted silts, sands, and gravels. Young channel deposits exist at the western side of the Project area, beyond the canyon below Vail Dam, where Temecula Creek exits Oak

Mountain. The Primary Entry Road (50 Acre Parcel), Secondary Entry Road, and Pond Access Road are primarily underlain by young axial-channel deposits. Additionally, the westernmost Staging and Laydown Area and Flyers Field area are completely underlain by these deposits. The western portions of the Canyon Access Road and North Access Road are also underlain by these deposits.

Old alluvial flood plain deposits (Qoa) have been mapped at the southeastern edge of the Project site and consist of moderately to well consolidated, poorly sorted, permeable clays, silts, sands, and gravels. The easternmost Staging and Laydown Areas, in the vicinity of the dam, are partially underlain by old alluvial flood plain deposits.

Quaternary Landslide Deposits. Landslide deposits (Qls, Qyls, Qols) have been mapped in the northern part of the Project area and along the area of the North Access Road as shown on Figure 3.5-1. These deposits are described on the regional geologic maps as highly fragmented to largely coherent landslides; many of the landslides originated in the Pleistocene (11,700 to 2.58 million years ago) and have been partially or completely reactivated.

The Oak Mountain Landslide, mapped as Old landslide deposits (Qols), is a late to middle Pleistocene landslide complex and underlies a portion of the North Access Road. This is an ancient landslide with locally reactivated zones consisting of gabbro debris.

Bedrock Deposits. The bedrock in the immediate area of the existing dam and proposed new dam is gneiss (KJm1). It is exposed on the canyon (abutment) walls, and it was encountered in geotechnical borings in the area of the proposed replacement dam footprint. The metamorphic rock exhibits gneissic layering (foliation) with the segregation of light and dark colored minerals. The rock mass in the dam area is pervasively fractured by a system of joints (discontinuities) that extend for at least several tens of feet below the surface, to the maximum depth explored. The weathering of the bedrock generally lessens with depth and is typically correlative to increasing rock strength.

The wash deposits in the canyon generally overlie gneiss to the east and gabbro to the west at the scale at which the geology has been mapped for Figure 3.5-1. However, more detailed field mapping found wash deposits overlying gneiss, Cretaceous tonalite (Kt), and Cretaceous-Jurassic migmatic gneiss (KJm2) on the canyon walls, approximately 0.9 miles west of Vail Dam.

Cretaceous gabbro (Kgb) bedrock is the main rock comprising Oak Mountain, and it forms the canyon walls and underlies the wash deposits in the central portion of Temecula Canyon. It is composed of dark gray to black, massive, coarse-grained to locally pegmatitic hornblende gabbro. Cretaceous granodiorite (Kgd) is also present in rock outcrops. It consists of light-gray to white, medium-to-very-coarse, heterogeneous biotite granodiorite with minor amounts of monzogranite and tonalite.

The basalt of Temecula area (Tvt) is a volcanic (extrusive igneous) rock that has been mapped locally within the gabbro. It exists as a sliver underlying a portion of the North Access Road. It is a vesicular basalt.

The Temecula Arkose (Tt) is a non-marine, fluvial sandstone that has been mapped in the Project area. It is mainly pale greenish yellow, medium to coarse grained sandstone. It is indurated but locally friable and contains thin beds of tuffaceous sandstone, siltstone, claystone, and pebble to cobble conglomerate. It underlies the Project site on the west side beneath a portion of the North Access Road. On the east side of the Project site, the upper Temecula Arkose member (Ttu) partially underlies the Staging and Laydown Areas. The upper Temecula Arkose member consists of pale yellowish brown to olive-gray dark yellowish brown, fine to coarse-grained sandstone, siltstone, and claystone.

3.5.2.3 Topography

Between De Portola Road and the mouth of Temecula Creek canyon, the Project area rises gradually from 1,250 to approximately 1,300 ft mean sea level (MSL). At the mouth of the canyon below, the alignment of the proposed North Access Road turns north and climbs to a maximum elevation of 2,008 ft MSL before turning south toward the existing dam. Maximum slopes along this road are approximately 28 percent. The alignment of the Canyon Access Road rises from approximately 1,300 to 1,375 ft MSL near the dam, with a maximum slope of approximately 8 percent. The elevation rises to about 1,513 ft MSL along the north facing slope of the canyon in the vicinity of the proposed South Access Road.

3.5.2.4 Groundwater

The groundwater levels at the proposed dam ranged from elevation 1,358 (21.8 ft below ground surface [bgs]) to 1,361 (12 ft bgs) ft NAVD88 in August and September 2017 (AECOM 2017). This does not represent a long-term record of groundwater levels. The groundwater levels will likely be higher during periods of increased precipitation and with higher reservoir levels than what existed in 2017.

The groundwater level in the western part of the Project area was measured at approximately 64 ft bgs (at elevation 1,205 ft NGVD 1929) in June 2019 in U.S. Geological Survey (USGS) well number 333010117003101 (USGS 2020b). This well is located in the wash deposits approximately 0.25 miles south of the Secondary Entry Road. In USGS well 333001117005702, which is approximately 0.3 miles south of the proposed Primary Entry Road (50 Acre Parcel) within the young channel deposits, water levels ranged from 295 to 306 ft bgs, at elevations 946 to 957 ft NAVD 1988, between June 2019 to May 2020 (USGS 2020b).

3.5.2.5 Seismicity

Ground shaking as a result of earthquakes is a potential hazard throughout California. The intensity of ground shaking at any particular site and relative potential for damage from this hazard depends on the earthquake magnitude, distance from the source (epicenter), and the site response characteristics (ground acceleration, predominant period, and duration of shaking).

The Project area, and southern California in general, lies in an active tectonic region. At the latitude of the study area, the interaction between the North American and Pacific plates is considered to take place across a wide area, extending from the San Andreas fault zone to the east, to tens of miles offshore to the west.

Faulting in the region generally consists of a number of northwest trending, predominately right-lateral, strike-slip faults at the boundary between the plates. In the general area of Vail Dam, the major elements of the plate boundary include the Elsinore fault zone (EFZ) and the San Jacinto fault zone (SJFZ), both of which are Alquist Priolo (AP) earthquake fault zones (active faults) located 6 and 14 miles from the Project area, respectively (CGS 2020). The AP Study Zones Act of 1972 defines active faults as those with evidence of displacement during the Holocene epoch (roughly the past 11,000 years) and requires that structures intended for human occupancy not be constructed over an active fault (CGS 2018a).

The Agua Tibia-Earthquake Valley fault system (ATEV) is considered to be an eastern strand of the EFZ and transfers slip from the northern EFZ to the southern EFZ. The Aguanga fault to the southeast of Vail Lake and the Murrieta Hot Springs fault in the Temecula area are nearby faults with some evidence of late Quaternary activity located at distances of approximately 4.3 and 3.3 miles, respectively. The Aguanga fault is the closest fault to the site considered conditionally active (URS 2013).

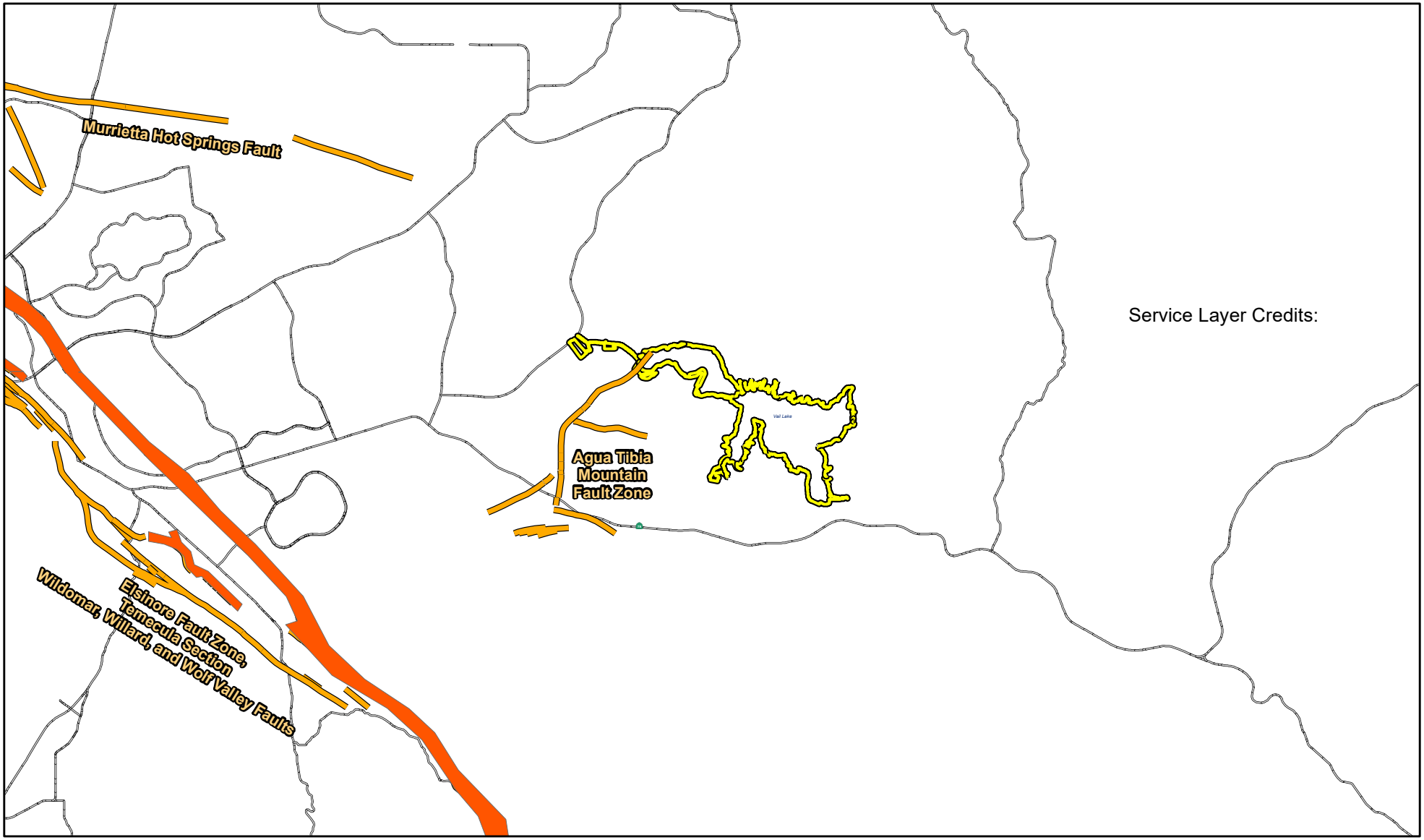
The Lancaster fault is mapped approximately 1 mile north of Vail Dam and is not considered conditionally active based on field investigations conducted as part of an assessment of local faulting in the Vail Dam area (URS 2013). Given the absence of active faults near Vail Dam, ground surface rupture is not likely to occur within or near the Project site as a result of an earthquake.

Based on the USGS Latest Earthquakes Database (USGS 2020a), the largest recorded earthquake within a 60-mile radius of the site was a magnitude 6.8 recorded in 1918 approximately 17 miles north of the Project area, possibly on the San Jacinto fault system. Seven other greater than magnitude 6 earthquakes have occurred within a 60-mile radius of the Project site, in addition to many less than magnitude 6 earthquakes, all of which are shown on Figure 3.5-2, Regional Faults.

3.5.2.6 Seismic and Geologic Hazards

Fill and alluvial soil exist within the canyon and floodplain, and there is a potential for shallow groundwater. Therefore, there is a potential for liquefaction-induced settlement within those materials within the Project area. Further, liquefaction zones exist from the mouth of the canyon below Vail Dam to the west within the alluvium (CGS 2020). However, the proposed dam will be supported on bedrock and will not be subjected to liquefaction or related effects such as seismic settlement of dry sands or lateral spreading. Associated equipment will be supported on the dam itself or at the toe of the dam close to the sides of the canyon where bedrock is shallow. There are no other structures or Project elements that would be negatively impacted by liquefaction or related effects.

Areas having the potential for earthquake-induced landslides generally occur within areas of previous landslide movement or where local topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements. Historic landslides have been identified in the Project area based upon a review of published geologic and topographic maps. Figure 3.5-1 shows the limits of mapped landslide areas. The potential for earthquake-



LSA

LEGEND

- Project Location
- Alquist-Priolo Earthquake Fault Zones
- Quaternary Faults (>6 Magnitude in Last 1.6 Million Years)

0 1 2
MILES

FIGURE 3.5-2

Vail Dam Seismic and Hydrologic Remediation Project

Regional Faults

SOURCE: Google Earth (2020); California Division of Mines and Geology (2010); USGS (2012)

I:\RCW1902\GIS\MXD\EIR-EIS\Regional_Faults.mxd (8/24/2022)

This page intentionally left blank

induced landslides in hillside terrain in the Project area is also present. Generally, these types of failures consist of rock falls, disrupted soil slides, rock slides, soil lateral spreads, soil slumps, soil block slides, and soil avalanches.

Neither expansive or collapsible soils were identified at the site during the geotechnical investigation (AECOM 2017a), and based on the soil types present, the potential for these phenomena to occur are considered low. Tsunamis are not considered to have a potential to reach the Project due to the distance to the coast. While a seiche could occur within the reservoir, the freeboard of Vail Dam above the reservoir level is sufficient to prevent overtopping of the dam.

3.5.2.7 Soils

According to the U.S. Department of Agriculture's Natural Resources Conservation Service's Web Soil Survey (NRCS 2020), the soil types shown on Figure 3.5-3, Regional Soils Map and in Table 3.5.A occur in the Project area.

3.5.3 Regulatory Setting

3.5.3.1 Federal Regulations

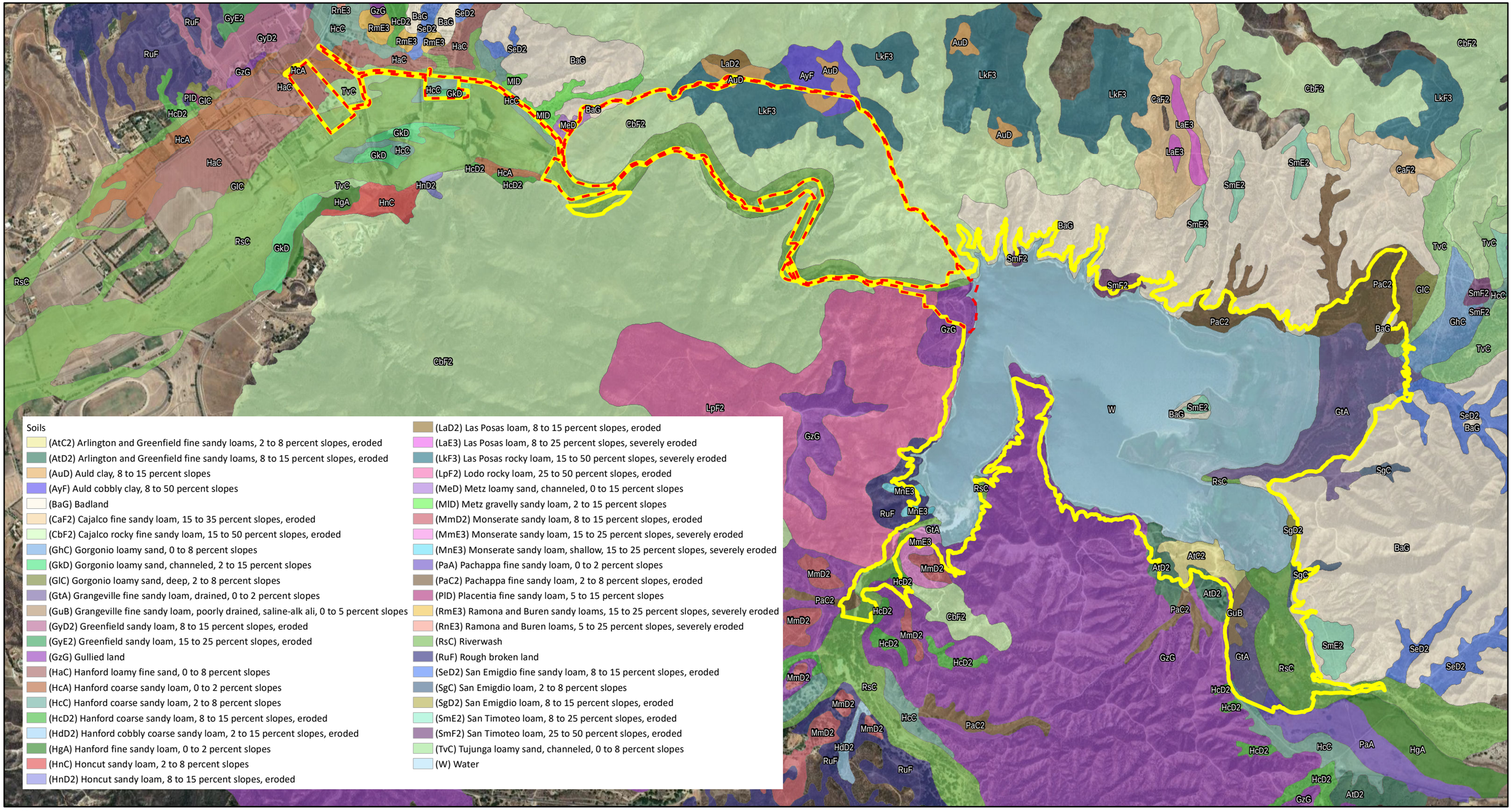
There are no federal regulations that relate to geology and soils for the Project.

3.5.3.2 State Regulations

California Department of Water Resources, Division of Safety of Dams. Modifications to Vail Dam are under the jurisdiction of the California Department of Water Resources (DWR), Division of Safety of Dams (DSOD). Since 1929, the State of California has regulated dams to prevent failure, safeguard life, and protect property. The California Water Code entrusts regulatory power to DSOD, who ensures dam safety by:

- Reviewing and approving dam enlargements, repairs, alterations, and removals to ensure that the dam appurtenant structures are designed to meet minimum requirements.
- Performing independent analyses to understand dam and appurtenant structures performance. These analyses can include structural, hydrologic, hydraulic, and geotechnical evaluations.
- Overseeing construction to ensure work is being done in accordance with the approved plans and specifications.
- Inspecting each dam on an annual basis to ensure it is safe, performing as intended, and is not developing issues. Roughly 1/3 of these inspections include in-depth instrumentation reviews of the dam surveillance network data.
- Periodically reviewing the stability of dams and their major appurtenances in light of improved design approaches and requirements, as well as new findings regarding earthquake hazards and hydrologic estimates in California.

This page intentionally left blank



Soils

- (AtC2) Arlington and Greenfield fine sandy loams, 2 to 8 percent slopes, eroded
- (AtD2) Arlington and Greenfield fine sandy loams, 8 to 15 percent slopes, eroded
- (AuD) Auld clay, 8 to 15 percent slopes
- (AyF) Auld cobbly clay, 8 to 50 percent slopes
- (BaG) Badland
- (CaF2) Cajalco fine sandy loam, 15 to 35 percent slopes, eroded
- (CbF2) Cajalco rocky fine sandy loam, 15 to 50 percent slopes, eroded
- (GhC) Gorgonio loamy sand, 0 to 8 percent slopes
- (GkD) Gorgonio loamy sand, channeled, 2 to 15 percent slopes
- (GlC) Gorgonio loamy sand, deep, 2 to 8 percent slopes
- (GtA) Grangeville fine sandy loam, drained, 0 to 2 percent slopes
- (GuB) Grangeville fine sandy loam, poorly drained, saline-alk ali, 0 to 5 percent slopes
- (GyD2) Greenfield sandy loam, 8 to 15 percent slopes, eroded
- (GyE2) Greenfield sandy loam, 15 to 25 percent slopes, eroded
- (GzG) Gullied land
- (HaC) Hanford loamy fine sand, 0 to 8 percent slopes
- (HcA) Hanford coarse sandy loam, 0 to 2 percent slopes
- (HcC) Hanford coarse sandy loam, 2 to 8 percent slopes
- (HcD2) Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
- (HdD2) Hanford cobbly coarse sandy loam, 2 to 15 percent slopes, eroded
- (HgA) Hanford fine sandy loam, 0 to 2 percent slopes
- (HnC) Honcut sandy loam, 2 to 8 percent slopes
- (HnD2) Honcut sandy loam, 8 to 15 percent slopes, eroded
- (LaD2) Las Posas loam, 8 to 15 percent slopes, eroded
- (LaE3) Las Posas loam, 8 to 25 percent slopes, severely eroded
- (LkF3) Las Posas rocky loam, 15 to 50 percent slopes, severely eroded
- (LpF2) Lodo rocky loam, 25 to 50 percent slopes, eroded
- (MeD) Metz loamy sand, channeled, 0 to 15 percent slopes
- (MID) Metz gravelly sandy loam, 2 to 15 percent slopes
- (MmD2) Monserate sandy loam, 8 to 15 percent slopes, eroded
- (MmE3) Monserate sandy loam, 15 to 25 percent slopes, severely eroded
- (MnE3) Monserate sandy loam, shallow, 15 to 25 percent slopes, severely eroded
- (PaA) Pachappa fine sandy loam, 0 to 2 percent slopes
- (PaC2) Pachappa fine sandy loam, 2 to 8 percent slopes, eroded
- (PlD) Placentia fine sandy loam, 5 to 15 percent slopes
- (RmE3) Ramona and Buren sandy loams, 15 to 25 percent slopes, severely eroded
- (RnE3) Ramona and Buren loams, 5 to 25 percent slopes, severely eroded
- (RsC) Riverwash
- (RuF) Rough broken land
- (SeD2) San Emigdio fine sandy loam, 8 to 15 percent slopes, eroded
- (SgC) San Emigdio loam, 2 to 8 percent slopes
- (SgD2) San Emigdio loam, 8 to 15 percent slopes, eroded
- (SmE2) San Timoteo loam, 8 to 25 percent slopes, eroded
- (SmF2) San Timoteo loam, 25 to 50 percent slopes, eroded
- (TvC) Tujunga loamy sand, channeled, 0 to 8 percent slopes
- (W) Water

LSA

LEGEND

- Biological Study Area
- Project Site

N

0 900 1800

FEET

SOURCE: Google Maps (2020); Esri SSURGO Soils (2021)

I:\RCW1902\GIS\MXD\EIR-EIS\Regional_Soils_Map.mxd (8/23/2022)

FIGURE 3.5-3

Vail Dam Seismic and Hydrologic Remediation Project

Regional Soils Map

This page intentionally left blank

Table 3.5.A: Summary of Mapped Soil Units

Soil Map Unit Name	Map Unit Symbol	Hydrologic Group	Soil Drainage Class	Approximate Percentage of Project Area
Arlington and Greenfield fine sandy loams, 2 to 8 percent slopes, eroded	AtC2	Arlington – C Greenfield - A	Well drained	2.7%
Arlington and Greenfield fine sandy loams, 8 to 15 percent slopes, eroded	AtD2	Arlington – C Greenfield - A	Well drained	1.4%
Auld clay, 8 to 15 percent slopes	AuD	C	Well drained	0.1%
Auld cobbly clay, 8 to 50 percent slopes	AyF	C	Well drained	0.1%
Badland	BaG	Not reported	Not reported	6.2%
Cajalco rocky fine sandy loam, 15 to 50 percent slopes, eroded	CbF2	D	Well drained	1.5%
Gorgonio loamy sand, 0 to 8 percent slopes	GhC	A	Somewhat excessively drained	0.1%
Gorgonio loamy sand, channeled, 2 to 15 percent slopes	GkD	A	Somewhat excessively drained	0.0%
Grangeville fine sandy loam, drained, 0 to 2 percent slopes	GtA	A/D	Moderately well drained	16.5%
Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes	GuB	B/D	Poorly drained	1.0%
Gullied land	GzG	Not reported	Not reported	5.7%
Hanford loamy fine sand, 0 to 8 percent slopes	HaC	A	Well drained	1.0%
Hanford coarse sandy loam, 0 to 2 percent slopes	HcA	A	Somewhat excessively drained	0.5%
Hanford coarse sandy loam, 2 to 8 percent slopes	HcC	A	Well drained	0.4%
Hanford coarse sandy loam, 8 to 15 percent slopes, eroded	HcD2	A	Somewhat excessively drained	0.2%
Las Posas rocky loam, 15 to 50 percent slopes, severely eroded	LkF3	D	Well drained	0.2%
Lodo rocky loam, 25 to 50 percent slopes, eroded	LpF2	D	Somewhat excessively drained	0.9%
Metz loamy sand, channeled, 0 to 15 percent slopes	MeD	A	Somewhat excessively drained	0.1%
Metz gravelly sandy loam, 2 to 15 percent slopes	MlD	B	Somewhat excessively drained	0.1%
Monserate sandy loam, 15 to 25 percent slopes, severely eroded	MmE3	C	Well drained	0.6%
Monserate sandy loam, shallow, 15 to 25 percent slopes, severely eroded	MnE3	D	Well drained	0.3%
Pachappa fine sandy loam, 0 to 2 percent slopes	PaA	B	Well drained	0.4%
Pachappa fine sandy loam, 2 to 8 percent slopes, eroded	PaC2	B	Well drained	7.8%
Riverwash	RsC	Not reported	Excessively drained	14.6%

Table 3.5.A: Summary of Mapped Soil Units

Soil Map Unit Name	Map Unit Symbol	Hydrologic Group	Soil Drainage Class	Approximate Percentage of Project Area
Rough broken land	RuF	Not reported	Not reported	1.0%
San Emigdio fine sandy loam, 8 to 15 percent slopes, eroded	SeD2	A	Well drained	0.2%
San Emigdio loam, 2 to 8 percent slopes	SgC	A	Well drained	0.4%
San Emigdio loam, 8 to 15 percent slopes, eroded	SgD2	A	Well drained	0.3%
San Timoteo loam, 8 to 25 percent slopes, eroded	SmE2	B	Well drained	0.4%
San Timoteo loam, 25 to 50 percent slopes, eroded	SmF2	B	Well drained	0.6%
Tujunga loamy sand, channeled, 0 to 8 percent slopes	TvC	A	Excessively drained	0.7%
Water	W	N/A	N/A	34.1%

Source: U.S. Department of Agriculture, Natural Resources Conservation Service (USDA, NRCS), 2020.

Alquist-Priolo Earthquake Fault Zoning Act of 1972 and Amendments. The Alquist-Priolo Earthquake Fault Zoning Act was implemented by the State of California to mitigate the potential for surface faulting to cause distress to buildings used for human occupancy (CGS 2018a). The Project area is not located within and does not cross an Alquist-Priolo earthquake fault zone (CGS 2020). The Project area would not be subject to requirements for construction within an earthquake fault zone.

Seismic Hazards Mapping Act of 1990. The Seismic Hazards Mapping Act is a companion to the Alquist-Priolo Earthquake Fault Zoning Act that addresses public safety in California as it relates to seismic hazards including strong ground shaking, liquefaction, landslides, and other hazards. The Seismic Hazards Mapping Act requires mitigation of earthquake hazards to an acceptable level of risk. The first Official Seismic Hazard Zone Maps showing areas of potential liquefaction and landslides were issued in 1997 (CGS 2018b).

California Building Code. The 2019 edition of the California Building Code (CBC) is based on the 2018 edition of the International Building Code (IBC), with revisions specifically tailored to geologic hazards in California.

Chapter 16, Structural Design requires structural designs to be based on geologic information for seismic parameters, soil characteristics, and site geology. Chapter 18, Soils and Foundations defines the criteria for preparation of a geotechnical report. It also sets requirements for excavations and fills, foundations, and retaining structures with regard to expansive soils, subgrade bearing capacity, and seismic parameters and also addresses waterproofing and damp-proofing foundations. Liquefaction potential at the site should be evaluated, if warranted.

3.5.3.3 Regional Regulations

The Project is within an unincorporated area of Riverside County and will require a grading permit from the County of Riverside Building & Safety Department. The County requires a grading permit for the following: clearing and grubbing, grading, excavation, stockpiling, earthwork construction

including fills and embankments, widening or construction of private roads, paving, re-paving of private roads and parking lots, exploratory excavations, rough grading, and precise grading. Additionally, the Building Official may require a Best Management Practices (BMP) permit to control the migration of sediment during construction.

3.5.3.4 Local Regulations

The Project is not subject to local regulations related to geology and soils.

3.5.4 Methodology

The environmental analysis for geology and soils was performed based on the results of the geotechnical and paleontological studies performed for the Project (AECOM 2017a, 2019; LSA 2022c), as well as a review of published geologic maps and reports and soils data from the U.S. Department of Agriculture and Natural Resources Conservation Service.

3.5.5 Thresholds of Significance

The thresholds for geology and soils impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to geology and soils if it would:

Threshold 3.5.1(i): Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42

Threshold 3.5.1(ii): Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic ground shaking

Threshold 3.5.1(iii): Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: seismic-related ground failure, including liquefaction

Threshold 3.5.1(iv): Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: landslides

Threshold 3.5.2: Result in substantial soil erosion or the loss of topsoil

Threshold 3.5.3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse

Threshold 3.5.4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property

Threshold 3.5.5: Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water

Threshold 3.5.6: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature

The Initial Study, included as Appendix A, substantiates that there would be no impacts associated with Threshold 3.5.5 as the Proposed Project does not require septic tanks or wastewater disposal systems. This threshold will not be addressed in the following analysis.

3.5.6 Project Impacts

Threshold 3.5.1(i): Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42

Less Than Significant Impact. Based on the California Geological Survey Maps, there are two Alquist-Priolo earthquake fault zones located in the vicinity of the Site (CGS 2020). The Elsinore fault zone is located approximately 6 miles to the west, and the San Jacinto fault zone is located approximately 14 miles east of the site. There are no faults within the Project footprint that are considered capable of producing ground rupture at the site. Therefore, the potential for ground surface rupture to impact the Project is considered very low.

Threshold 3.5.1(ii): Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic ground shaking

Less Than Significant Impact. The Project area is considered to have a potential to experience strong ground shaking due to a seismic event during the life of the Project. The dam would be designed to withstand seismic loads to reduce potential damage from seismic ground shaking due to an earthquake in accordance with DSOD requirements. The Peak Ground Acceleration (PGA) for the design Maximum Credible Earthquake (MCE) is 0.39g (percentage of gravity). Through design in accordance with DSOD requirements (see Regulatory Compliance Measure RCM GEO-1) and California Building Code, the Project would have a less than significant risk of loss, injury, or death as a result of strong seismic ground shaking since the Project would not expose people to hazardous conditions.

Threshold 3.5.1(iii): Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: seismic-related ground failure, including liquefaction

No Impact. Due to the presence of coarse-grained, unconsolidated fill and alluvium, as well as a potential for shallow groundwater, in the canyon and in the area of the Primary Entry Road (50 Acre

Parcel), Secondary Entry Road, and Pond Access Road, a potential exists for liquefaction to occur within the Project area. However, the proposed dam would be supported on bedrock and would not be impacted by seismic-related ground failure including liquefaction or related effects such as seismic settlement of dry sands or lateral spreading. There are no other structures or Project elements that would be negatively impacted by liquefaction or related effects. Therefore, there is not a potential for the Project to directly or indirectly cause risk of loss, injury, or death due to a seismic-related ground failure.

Threshold 3.5.1(iv): Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: landslides

Less Than Significant Impact. Active and ancient landslides are mapped along the alignment of the proposed North Access Road. There is a potential for down-slope movements to create distress within the road. However, the road will not be paved and can tolerate minor to moderate ground deformations, should they occur, while remaining operational. If more severe distress to the road occurs due to landslides, the road would be repaired. The dam would also be able to be accessed via the proposed South Access Road, and any temporary closures of the North Access Road would not negatively impact the Project. Therefore, the landslide potential that exists in the Project vicinity would result in a less than significant impact.

Threshold 3.5.2: Result in substantial soil erosion or the loss of topsoil

Less Than Significant Impact. Soil erosion and loss of topsoil would be controlled by Project design features provided during construction, including the Storm Water Pollution Prevention Plan and by revegetation completed after construction (refer to Regulatory Compliance Measure RCM WQ-1 in Section 3.8 for information regarding the Storm Water Pollution Prevention Plan and Regulatory Compliance Measure RCM BIO-11 in Section 3.2 for information regarding revegetation after construction). Therefore, impacts would be less than significant.

Threshold 3.5.3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse

Less Than Significant Impact. Recent and ancient landslides are mapped along the alignment of the proposed North Access Road. However, the minor grading proposed to modify the existing road is not considered sufficient to trigger landslide movement. While the potential for liquefaction exists within and beyond the canyon downstream of the dam, the dam would be constructed on bedrock and would not be impacted by the presence of liquefaction. Further, the potential for liquefaction or related effects would not be increased due to construction of the Project. Therefore, impacts to unstable soils or geologic units as a result of the Project would be less than significant.

Threshold 3.5.4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property

No Impact. No expansive soils are known to exist at the Project site, and therefore no impacts would occur.

Threshold 3.5.6: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature

Less Than Significant Impact with Mitigation Incorporated. According to the *Paleontological Resources Assessment* (LSA 2022c), the Project area contains a variety of geologic units, with no, low, and high paleontological sensitivity. Artificial Fill, the Basalt of Temecula Area, the Plutonic Rocks of the Peninsular Ranges Batholith (Granodiorite, Gabbro, and Heterogeneous Granitic Rocks), and the Metamorphic Rocks of the Peninsular Ranges Batholith (Metasedimentary Rocks) have no paleontological sensitivity. The Landslide Deposits and Old Landslide Deposits have low paleontological sensitivity. The Wash Deposits, Alluvial Flood Plain Deposits, and Young Alluvial Flood Plain Deposits/Young Alluvial Channel Deposits have low paleontological sensitivity from the surface to a depth of 10 ft and high paleontological sensitivity below that mark. Lastly, the Old Alluvial Flood Plain Deposits and Temecula Arkose have high paleontological sensitivity. No excavation is anticipated in the inundation area or the Secondary Entry Road. Excavation associated with the Primary Entry Road (50 Acre Parcel), Pond Access Road, Canyon Access Road, and South Access Road, as well as the associated staging areas, turnouts, and disposal area, is expected to be shallow and remain in geologic units that have no to low paleontological sensitivity. The majority of excavation is expected to occur in the vicinity of the new dam, spillway, and associated facilities, all of which are in areas mapped with no, low, or high paleontological sensitivity. Lastly, excavation for the North Access Road will occur in geologic units that have no, low, and high paleontological sensitivity. Although most Project excavation will remain in geologic units that have no or low paleontological sensitivity, some excavation in high sensitivity deposits will occur. As such, it is possible that ground-disturbing construction activities could impact significant previously undiscovered paleontological resources. To mitigate adverse impacts to unknown buried paleontological resources that may exist on site, Mitigation Measure PAL-1 requires that a qualified paleontologist be retained to develop a Paleontological Resources Impact Mitigation Program (PRIMP), which would identify methods used to protect paleontological resources. In addition, as specified in Mitigation Measure PAL-2, ground-disturbing activities in deposits with high paleontological sensitivity (i.e., Wash Deposits, Alluvial Flood Plain Deposits, Young Alluvial Channel Deposits/Young Alluvial Flood Plain Deposits below a depth of 10 ft; Old Alluvial Flood Plain Deposits; and the Temecula Arkose) shall be monitored by a qualified paleontological monitor following the preparation of a PRIMP. Implementation of Mitigation Measures PAL-1 and PAL-2 would ensure that impacts to paleontological resources are reduced below a level of significance.

3.5.7 Cumulative Impacts

As defined in the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for geology and soils. Typically, geology and soils impacts are specific to a particular project site and there is little, if any, cumulative relationship between the development of a project and development within a larger cumulative area. Moreover, while seismic conditions are regional in nature, seismic impacts on a given project site are site-specific.

For example, construction of the replacement dam and ancillary improvements within the Project site would not alter geologic events or soil features/characteristics (e.g., ground shaking, seismic intensity, or soil expansion or compression). Therefore, for geology and soils, the study area

considered for the cumulative impact of other projects consisted of (1) the area that could be affected by Proposed Project activities, and (2) the areas affected by other projects whose activities could directly or indirectly affect the geology and soils of the Project site. Improvements to the existing access roads and construction of the Primary Entry Road (50 Acre Parcel) would not result in substantial changes to on-site geology and soils. Therefore, in general, only projects occurring adjacent to or very close to the proposed dam were considered. None of the cumulative projects identified in Table 3.A (Section 3.0) are located adjacent to or in the immediate vicinity of the proposed dam, and therefore they would not contribute to cumulative geology and soils impacts.

In addition, the Proposed Project, as well as foreseeable projects, would be required to comply with the applicable State and local requirements, including but not limited to the CBC. Therefore, the Project-specific geology and soils impacts, as well as the impacts associated with other projects, would be reduced to a less than significant level.

Seismic impacts are a regional issue and are also addressed through compliance with applicable codes and design standards. For these reasons, the Project's contribution to geotechnical and soils impacts is not cumulatively considerable.

Potential impacts of the Proposed Project to unknown paleontological resources and unique geologic features, when combined with the impacts of past, present, and reasonably foreseeable projects in Riverside County, could contribute to a cumulatively significant impact due to the overall loss of paleontological remains unique to the region. However, each development proposal received by the County is required to undergo environmental review pursuant to CEQA. If there were any potential for significant impacts to paleontological resources or unique geologic features, an investigation would be required to determine the nature and extent of the resources and identify appropriate mitigation measures. When resources are assessed and/or protected as they are discovered, impacts to these resources are less than significant. For these reasons, the Project's contribution to paleontological resource impacts is not cumulatively considerable.

3.5.8 Level of Significance Prior to Mitigation

No impact would occur with respect to surface rupture, liquefaction, or expansive soil. The potential for strong seismic ground shaking, landslides, loss of topsoil, or other geologic hazards is less than significant, and no mitigation is required. The Proposed Project would have potential direct and cumulative impacts on paleontological resources prior to mitigation.

3.5.9 Regulatory Compliance Measures and Mitigation Measures

3.5.9.1 Regulatory Compliance Measure

The following RCM is an existing regulation that is applicable to the Proposed Project and is considered in the analysis of potential impacts related to geology and soils. RCWD considers this requirement mandatory; therefore, it is not a mitigation measure.

RCM GEO-1 RCWD shall submit the final design plans to the California Department of Water Resources Division of Safety of Dams (DSOD), who will confirm that they are in compliance with DSOD requirements.

3.5.9.2 Mitigation Measures

The following mitigation measures are proposed to reduce impacts associated with construction-related impacts to paleontological resources.

Mitigation Measure PAL-1 **Paleontological Resources Impact Mitigation Program.** Prior to commencement of construction activities, Rancho California Water District (RCWD) shall retain a qualified, professional paleontologist who meets the standards set by the Society of Vertebrate Paleontology (SVP) to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for the Project. The PRIMP shall be consistent with the guidelines of the SVP and shall include the methods that will be used to protect paleontological resources that may exist within the Project site, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a report at the conclusion of ground disturbance.

At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program. Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a museum repository.

Mitigation Measure PAL-2 **Paleontological Resources.** Ground-disturbing activities in deposits with high paleontological sensitivity (i.e., Wash Deposits, Young Alluvial Channel Deposits below a depth of 10 feet (ft); Old Alluvial Flood Plain Deposits; and the Temecula Arkose) shall be monitored by a qualified paleontological monitor, to be retained by Rancho California Water District (RCWD), following the preparation of a Paleontological Resources Impact Mitigation Program (PRIMP). No monitoring is required for excavations in geologic units with low or no paleontological sensitivity (i.e., Landslide Deposits; Old Landslide Deposits; Artificial Fill; Basalt of Temecula Area; Granodiorite; Gabbro; Heterogeneous Granitic Rocks; Metasedimentary Rocks), or from the surface to a depth of 10 ft in Wash Deposits or Young Alluvial Channel Deposits. If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find in order to

assess its significance. In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected and the paleontologist or paleontological monitor shall be contacted to assess the find for scientific significance. If determined to be scientifically significant, the fossil shall be collected from the field.

3.5.10 Level of Significance After Mitigation

With implementation of Regulatory Compliance Measure RCM GEO-1 and Mitigation Measures PAL-1 and PAL-2, potentially significant impacts related to geology, soils, and paleontological resources would be reduced below a level of significance. No other mitigation measures are required.

This page intentionally left blank

3.6 GREENHOUSE GAS EMISSIONS

This section evaluates the potential impacts to greenhouse gas emissions from implementation of the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project). The analysis in this section is based in part on the *Air Quality, Energy, and Greenhouse Gas Technical Analysis* (LSA 2022a) (Appendix B) that was prepared for the Proposed Project and that is included in this Environmental Impact Report (EIR).

3.6.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. One of the letters, provided by the South Coast Air Quality Management District (SCAQMD), included comments related to air quality and greenhouse gas (GHG) emissions.

In the letter, SCAQMD requests a copy of the Draft EIR, technical studies related to air quality, health risk, and greenhouse gas analyses, and electronic versions of modeling files. The letter provides suggestions on source materials for mitigation measures related to GHG emissions.

3.6.2 Existing Environmental Setting

Vail Dam and Vail Lake are located in unincorporated southwestern Riverside County, east of the City of Temecula, in Southern California. There are no existing substantial sources of on-site GHG emissions associated with the Vail Dam facilities, including pipelines and other appurtenances. Sources of operational emissions associated with the Vail Dam facilities are primarily from periodic worker vehicle trips to the site for inspection and maintenance purposes. Operation of the Vail Dam facilities does not involve any stationary equipment that would generate emissions. However, because worker staff visits are periodic and sporadic in nature and only consist of a single vehicle and/or boat on most occasions, the mobile emissions generated by Project operations are very minimal.

3.6.3 Regulatory Setting

This section describes regulations related to GHG at the federal, State, and local level.

3.6.3.1 Federal Regulations

The U.S. Supreme Court ruled on April 2, 2007, in *Massachusetts v. U.S. Environmental Protection Agency* (EPA), that carbon dioxide (CO_2) is an air pollutant, as defined under the Federal Clean Air Act (CAA), and that the EPA has the authority to regulate GHG emissions. After a thorough examination of the scientific evidence and careful consideration of public comments, the EPA announced on December 7, 2009, that GHGs threaten the public health and welfare of the American people. This action was a prerequisite to finalizing the EPA's final GHG emissions standards for light-duty vehicles, which were jointly proposed by the EPA and the U.S. Department of Transportation (USDOT) National Highway Traffic Safety Administration (NHTSA). The standards were established on April 1, 2010, for 2012 through 2016 model year vehicles and on October 15, 2012, for 2017 through 2025 model year vehicles.

Mandatory Reporting Rule of Greenhouse Gases. On January 1, 2010, the EPA started, for the first time, requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. This program covers approximately 85 percent of the nation's GHG emissions and applies to roughly 10,000 facilities. Fossil fuel and industrial GHG suppliers, motor vehicle and engine manufacturers, and facilities that emit GHGs equivalent to 25,000 metric tons (MT) or more of carbon dioxide equivalent (CO_2e) per year will be required to report GHG emissions data to the EPA annually. This reporting threshold is equivalent to the annual GHG emissions from approximately 4,600 passenger vehicles.

Corporate Average Fuel Economy Standards. The EPA and NHTSA have been working together on developing a national program of regulations to reduce GHG emissions and to improve fuel economy of light-duty vehicles. The EPA established the first-ever national GHG emissions standards under the CAA, and NHTSA established Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. On April 1, 2010, the EPA and NHTSA announced a joint Final Rulemaking that established standards for 2012 through 2016 model year vehicles. This was followed up on October 15, 2012, when the agencies issued a Final Rulemaking with standards for model years 2017 through 2025. On August 2, 2018, the agencies released a notice of proposed rulemaking—the Safer Affordable Fuel-Efficient Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks (SAFE Vehicles Rule). The purpose of the SAFE Vehicles Rule is "to correct the national automobile fuel economy and greenhouse gas emissions standards to give the American people greater access to safer, more affordable vehicles that are cleaner for the environment." The direct effect of the rule is to eliminate the standards that were put in place to gradually raise average fuel economy for passenger cars and light trucks under test conditions from 37 miles per gallon (mpg) in 2020 to 50 mpg in 2025.

On March 31, 2020, the EPA and the NHTSA issued the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule that increased the stringency of CAFE and CO_2 emissions standards by 1.5% each year through model year 2026. The current administration withdrew portions of the SAFE Rule, concluding that the SAFE Rule overstepped the agency's legal authority and finalized updated CAFE Standards for model years 2024 through 2026. The final rule establishes standards that would require an industry-wide fleet average of approximately 49 mpg for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025, and 10 percent annually for model year 2026. The agency projects the final standards will save consumers nearly $1,400 in total fuel expenses over the lifetimes of vehicles produced in these model years and avoid the consumption of about 234 billion gallons of gas between model years 2030 to 2050. The NHTSA also projects that the standards will cut greenhouse gases from the atmosphere, reduce air pollution, and reduce the country's dependence on oil.

3.6.3.2 State Regulations

The California Air Resources Board (CARB) is the lead agency for implementing climate change regulations in the State. Since its formation, CARB has worked with the public, the business sector, and local governments to find solutions to California's air pollution problems. Key efforts by the State are described below.

Assembly Bill 1493 (2002). In a response to the transportation sector's significant contribution to California's CO_2 emissions, Assembly Bill (AB) 1493 was enacted on July 22, 2002. AB 1493 requires CARB to set GHG emission standards for passenger vehicles and light-duty trucks (and other vehicles whose primary use is noncommercial personal transportation in the State) manufactured in 2009 and all subsequent model years. These standards (starting in model years 2009 to 2016) were approved by CARB in 2004, but the needed waiver of Clean Air Act Preemption was not granted by the EPA until June 30, 2009. CARB responded by amending its original regulation, now referred to as Low Emission Vehicle III, to take effect for model years starting in 2017 to 2025.

Executive Order S-3-05 (2005). Governor Arnold Schwarzenegger signed Executive Order (EO) S-3-05 on June 1, 2005, which proclaimed that California is vulnerable to the impacts of climate change. To combat those concerns, EO S-3-05 established California's GHG emissions reduction targets, which established the following goals:

- GHG emissions should be reduced to 2000 levels by 2010;
- GHG emissions should be reduced to 1990 levels by 2020; and
- GHG emissions should be reduced to 80 percent below 1990 levels by 2050.

The Secretary of the California Environmental Protection Agency (CalEPA) is required to coordinate the efforts of various State agencies in order to collectively and efficiently reduce GHGs. A biannual progress report must be submitted to the Governor and State Legislature disclosing the progress made toward GHG emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, the coastline, and forestry, and report possible mitigation and adaptation plans to address these impacts.

The Secretary of CalEPA leads the Climate Action Team (CAT) made up of representatives from State agencies as well as numerous other boards and departments. The CAT members work to coordinate statewide efforts to implement global warming emission reduction programs and the State's Climate Adaptation Strategy. The CAT is also responsible for reporting on the progress made toward meeting the statewide GHG targets that were established in EO S-3-05 and further defined under AB 32, the "Global Warming Solutions Act of 2006." The first CAT report to the Governor and Legislature was released in March 2006; it laid out 46 specific emission reduction strategies for reducing GHG emissions and reaching the targets established in EO S-3-05. The most recent CAT report to the Governor and Legislature was released in December 2010 (CalEPA 2010).

Assembly Bill 32 (2006), California Global Warming Solutions Act. California's major initiative for reducing GHG emissions is AB 32, which was passed by the State Legislature on August 31, 2006. This effort aimed at reducing GHG emissions to 1990 levels by 2020. CARB established the level of GHG emissions in 1990 at 427 million metric tons (MMT) CO_2e. The emissions target of 427 MMT requires the reduction of 169 MMT from the State's projected business-as-usual 2020 emissions of 596 MMT. AB 32 requires CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change. The Scoping Plan was approved by CARB on December 11, 2008, and contains the main strategies that California will implement to achieve the reduction of approximately 169 MMT CO_2e, or

approximately 30 percent, from the State's projected 2020 emissions level of 596 MMT CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10 percent from 2002–2004 average emissions). The Scoping Plan also includes CARB-recommended GHG reductions for each emissions sector of the State's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e);
- The Low-Carbon Fuel Standard (15.0 MMT CO_2e);
- Energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e); and
- A renewable portfolio standard for electricity production (21.3 MMT CO_2e).

The Scoping Plan identifies 18 emission reduction measures that address cap-and-trade programs, vehicle gas standards, energy efficiency, low carbon fuel standards, renewable energy, regional transportation-related GHG targets, vehicle efficiency measures, goods movement, solar roof programs, industrial emissions, high-speed rail, green building strategies, recycling, sustainable forests, water, and air. The measures would result in a total reduction of 174 MMT CO_2e by 2020.

On August 24, 2011, CARB unanimously approved the new supplemental assessment and reapproved its Scoping Plan, which provides the overall roadmap and rule measures to carry out AB 32. CARB also approved a more robust California Environmental Quality Act (CEQA) equivalent document supporting the supplemental analysis of the cap-and-trade program. The cap-and-trade took effect on January 1, 2012, with an enforceable compliance obligation that began on January 1, 2013.

CARB has not yet determined what amount of GHG reductions it recommends from local government operations and local land use decisions; however, the Scoping Plan states that land use planning and urban growth decisions will play an important role in the State's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions (meanwhile, CARB is also developing an additional protocol for community emissions). CARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. With regard to land use planning, the Scoping Plan expects an approximately 5.0 MMT CO_2e reduction due to implementation of Senate Bill (SB) 375.

In addition to reducing GHG emissions to 1990 levels by 2020, AB 32 directed CARB and the CAT to identify a list of "discrete early-action GHG reduction measures" that could be adopted and made enforceable by January 1, 2010. On January 18, 2007, Governor Schwarzenegger signed EO S-1-07, further solidifying California's dedication to reducing GHGs by setting a new Low Carbon Fuel Standard. EO S-1-07 sets a target to reduce the carbon intensity of California transportation fuels by at least 10 percent by 2020 and directs CARB to consider the Low Carbon Fuel Standard as a discrete early action measure. In 2011, U.S. District Court Judge Lawrence O'Neil issued an injunction

preventing implementation of the Low Carbon Fuel Standard, ruling that it is unconstitutional. In 2012, the Ninth Circuit Court of Appeals (Ninth Circuit) stayed the District Court's injunction, allowing implementation of the Low Carbon Fuel Standard. The Ninth Circuit decided to uphold the Low Carbon Fuel Standard.

In June 2007, CARB approved a list of 37 early-action measures, including three discrete early-action measures (Low Carbon Fuel Standard, Restrictions on GWP Refrigerants, and Landfill CH_4 Capture, CARB 2007b). Discrete early-action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, which is the date established by Health and Safety Code Section 38560.5. CARB adopted additional early-action measures in October 2007 that tripled the number of discrete early-action measures. These measures relate to truck efficiency, port electrification, reduction of perfluorocarbons (PFCs) from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and sulfur hexafluoride (SF_6) reductions from the non-electricity sector. The combination of early-action measures is estimated to reduce statewide GHG emissions by nearly 16 MMT (CARB 2007a).

CARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014 (CARB 2014). The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The First Update defines CARB climate change priorities until 2020 and also sets the groundwork to reach long-term goals set forth in EO S-3-05 and EO B-16-2012. The Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals as defined in the initial Scoping Plan. It also evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use. CARB released a Second Update to the Scoping Plan, the 2017 Scoping Plan (CARB 2017), to reflect the 2030 target set by EO B-30-15 and codified by SB 32.

CARB is currently working on an update to the 2017 Scoping Plan, which will be released this year. The 2022 Scoping Plan Update will assess progress toward achieving the SB 32 2030 target and lay out a path to achieve carbon neutrality no later than 2045.

Senate Bill 97 (2007). SB 97, signed by Governor Schwarzenegger in August 2007 (Chapter 185, Statutes of 2007; and Public Resources Code Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for mitigating GHG emissions or the effects of GHG emissions, as required by CEQA.

The California Natural Resources Agency adopted the amendments to the *State CEQA Guidelines* in November 2018, which then went into effect in December 2018. The amendments do not identify a threshold of significance for GHG emissions, nor do they prescribe assessment methodologies or specific mitigation measures. The amendments encourage lead agencies to consider many factors in performing a CEQA analysis but preserve the discretion granted by CEQA to lead agencies in making their own determinations based on substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs when they perform individual project analyses.

Senate Bill 375 (2008). Signed into law on October 1, 2008, SB 375 supplements GHG reductions from new vehicle technology and fuel standards with reductions from more efficient land use patterns and improved transportation. Under the law, CARB approved GHG reduction targets in February 2011 for California's 18 federally designated regional planning bodies, known as Metropolitan Planning Organizations (MPOs). CARB may update the targets every 4 years and must update them every 8 years. MPOs in turn must demonstrate how their plans, policies, and transportation investments meet the targets set by CARB through Sustainable Communities Strategy (SCS). The SCS are included with the Regional Transportation Plan (RTP), a report required by State law. However, if an MPO finds that its SCS will not meet the GHG reduction target, they may prepare an Alternative Planning Strategy (APS). The APS identifies the impediments to achieving the targets.

Executive Order B-30-15 (2015). Governor Jerry Brown signed EO B-30-15 on April 29, 2015, which added the immediate target of:

- GHG emissions should be reduced to 40 percent below 1990 levels by 2030.

All State agencies with jurisdiction over sources of GHG emissions were directed to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 targets. CARB was directed to update the AB 32 Scoping Plan to reflect the 2030 target and is therefore moving forward with the update process. The mid-term target is critical to help frame the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue reducing emissions.

Senate Bill 350 (2015) Clean Energy and Pollution Reduction Act. SB 350, signed by Governor Jerry Brown on October 7, 2015, updates and enhances AB 32 by introducing the following set of objectives in clean energy, clean air, and pollution reduction for 2030:

- Raise California's renewable portfolio standard from 33 percent to 50 percent; and
- Increase energy efficiency in buildings by 50 percent by the year 2030.

The 50 percent renewable energy standard will be implemented by the California Public Utilities Commission for private utilities and by the California Energy Commission for municipal utilities. Each utility must submit a procurement plan showing it will purchase clean energy to displace other non-renewable resources. The 50 percent increase in energy efficiency in buildings must be achieved through the use of existing energy efficiency retrofit funding and regulatory tools already available to State energy agencies under the existing law. The addition made by this legislation requires State energy agencies to plan for and implement those programs in a manner that achieves the energy efficiency target.

Senate Bill 32, California Global Warming Solutions Act of 2016, and Assembly Bill 197. In the summer of 2016, the Legislature passed and the Governor signed SB 32 and AB 197. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Governor Brown's April 2015 EO B-30-15. SB 32 builds on AB 32 and keeps California on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels, consistent with an Intergovernmental Panel on Climate Change analysis of the emissions trajectory that would stabilize

atmospheric GHG concentrations at 450 parts per million CO_2e and reduce the likelihood of catastrophic impacts from climate change.

AB 197, the companion bill to SB 32, provides additional direction to CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 meant to provide easier public access to air emissions data collected by CARB was posted in December 2016.

Senate Bill 100. On September 10, 2018, Governor Brown signed SB 100, which raises California's Renewables Portfolio Standard (RPS) requirements to 60 percent by 2030, with interim targets, and 100 percent by 2045. The bill also establishes a State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045. Under SB 100, the State cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Executive Order B-55-18. EO B-55-18, signed September 10, 2018, sets a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." EO B-55-18 directs CARB to work with relevant State agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions should be offset by equivalent net removals of CO_2e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Assembly Bill 75. AB 75 was passed in 1999 and mandates State agencies to develop and implement an integrated waste management plan to reduce GHG emissions related to solid waste disposal. In addition, the bill mandates that community service districts providing solid waste services report the disposal and diversion information to the appropriate city, county, or regional jurisdiction. Since 2004, the bill requires diversion of at least 50 percent of the solid waste from landfills and transformation facilities, and submission to the California Department of Resources Recycling and Recovery (CalRecycle; formerly known as the California Integrated Waste Management Board) of an annual report describing the diversion rates.

Assembly Bill 341. In 2011, the State Legislature enacted AB 341, increasing the diversion target to 75 percent statewide. AB 341 also requires the provision of recycling service to commercial and residential facilities that generate 4 cy or more of solid waste per week. In addition, multifamily apartments with five or more units are also required to implement a recycling program. The final regulation was approved by the Office of Administrative Law on May 7, 2012 and went into effect on July 1, 2012.

3.6.3.3 Regional Regulations

South Coast Air Quality Management District. In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the Basin. The Working Group developed several different options that are contained in the SCAQMD 2008 draft guidance document titled *Interim CEQA GHG Significance Threshold for*

Stationary Sources, Rules and Plans (SCAQMD 2008b) that could be applied by lead agencies. On September 28, 2010, SCAQMD Working Group Meeting #15 provided further guidance, including a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency (SCAQMD 2010). The SCAQMD has not presented a finalized version of these thresholds to the governing board.

The SCAQMD identifies the emissions level for which a project would not be expected to substantially conflict with any State legislation adopted to reduce statewide GHG emissions. As such, the utilization of a service population represents the rates of emissions needed to achieve a fair share of the State's mandated emissions reductions. Overall, SCAQMD identifies a GHG efficiency level that, when applied statewide or to a defined geographic area, would meet the year 2020 and post-2020 emissions targets as required by AB 32 and SB 32. If projects are able to achieve targeted rates of emissions per the service population, the State will be able to accommodate expected population growth and achieve economic development objectives, while also abiding by AB 32's emissions target and future post-2020 targets.

Southern California Association of Governments. SCAG is a regional council consisting of the following six counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. In total, the SCAG region encompasses 191 cities and over 38,000 square miles within Southern California. SCAG is the MPO serving the region under federal law and serves as the Joint Powers Authority, the Regional Transportation Planning Agency, and the Council of Governments under State law. As the Regional Transportation Planning Agency, SCAG prepares long-range transportation plans for the Southern California region, including RTP/SCS and the 2008 Regional Comprehensive Plan (RCP).

On September 3, 2020, SCAG adopted Connect SoCal–The 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (2020–2045 RTP/SCS) (SCAG 2020). In general, the SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle miles traveled (VMT) from automobiles and light-duty trucks and thereby reduce GHG emissions from these sources. For the SCAG region, CARB has set GHG reduction targets at 8 percent below 2005 per capita emissions levels by 2020, and 19 percent below 2005 per capita emissions levels by 2035. The RTP/SCS lays out a strategy for the region to meet these targets. Overall, the SCS is meant to provide growth strategies that will achieve the regional GHG emissions reduction targets. Land use strategies to achieve the region's targets include planning for new growth around high-quality transit areas and livable corridors and creating neighborhood mobility areas to integrate land use and transportation and plan for more active lifestyles (SCAG 2020). However, the SCS does not require that local General Plans, Specific Plans, or zoning be consistent with the SCS; instead, it provides incentives to governments and developers for consistency.

3.6.3.4 Local Regulations

Rancho California Water District 2017 Strategic Plan. The 2017 Strategic Plan is consistent with the 2014 California Water Action Plan, which furthers implementation of California's Climate Change Scoping Plan for reducing GHG emissions. The 2017 Strategic Plan underscores the importance of

continued implementation of RCWD's Water Shortage Contingency Plan, Water Use Efficiency Program, and Drought Communications Plan.

The measures proposed in RCWD's 2017 Strategic Plan build on inventory results and key opportunities prioritized by RCWD staff, other member agencies of the Western Riverside Council of Governments (WRCOG), and members of the public. The strategies in the plan consist of measures that identify the steps needed to support reductions in GHG emissions. All standards presented in the plan respond to the needs of development, avoiding unnecessary regulation, streamlining new development, and achieving a more efficient use of resources (RCWD 2017).

County of Riverside Climate Action Plan. The County of Riverside Climate Action Plan (CAP) (December 8, 2015) was designed under the premise that the County of Riverside, and the community it represents, is uniquely capable of addressing emissions associated with sources under Riverside County's jurisdiction and that Riverside County's emission reduction efforts should coordinate with the State strategies of reducing emissions in order to accomplish these reductions in an efficient and cost-effective manner. The County of Riverside Climate Action Plan Update, November 2019 (CAP Update) establishes GHG emission reduction programs and regulations that correlate with and support evolving State GHG emissions reduction goals and strategies. The CAP Update includes reduction targets for year 2030 and year 2050. These reduction targets require the County to reduce emissions by at least 525,511 MT CO_2e below the 1990 scenario by 2030 and at least 2,982,948 MT CO_2e below the 1990 scenario by 2050 (CAP Update, p.7-1) To evaluate consistency with the CAP Update, the County has implemented CAP Update Screening Tables (Screening Tables) to aid in measuring the reduction of GHG emissions attributable to certain design and construction measures incorporated in development projects. To this end, the Screening Tables establish categories of GHG Implementation Measures. Under each Implementation Measure category, mitigation or project design features are assigned point values that correspond to the minimum GHG emissions reduction that would result from each feature. Projects that yield at least 100 points are considered to be consistent with the GHG emissions reduction quantities anticipated in the County's GHG Technical Report and support the GHG emissions reduction targets established under the CAP Update. The potential for such projects to generate direct or indirect GHG emissions that would result in a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs would be considered less than significant. However, since the RCWD is the lead agency for the Proposed Project, not the County, the County's CAP would not apply.

3.6.4 Methodology

GHG emissions estimates are provided herein for informational purposes only, as there is no established quantified GHG emissions threshold. Bearing in mind that CEQA does not require "perfection" but instead "adequacy, completeness, and a good faith effort at full disclosure," the analysis below as derived from the technical report is based on methodologies and information available to RCWD at the time this analysis was prepared. Estimation of GHG emissions in the future does not account for all changes in technology that may reduce such emissions; therefore, the estimates are based on past performance and represent a scenario that is worse than that which is likely to be encountered (after energy-efficient technologies have been implemented). While information is presented below to assist the public and decision-makers in understanding the

Proposed Project's potential contribution to global climate change (GCC) impacts, the information available to RCWD is not sufficiently detailed to allow a direct comparison between particular Project characteristics and particular climate change impacts or between any particular proposed mitigation measure and any reduction in climate change impacts.

Construction and operation of the Proposed Project would generate GHG emissions, with the majority of energy consumption (and associated generation of GHG emissions) occurring during the Project's operation (as opposed to during its construction). Typically, more than 80 percent of the total energy consumption takes place during operation, and less than 20 percent of energy is consumed during construction (UNEP 2007). Overall, the following activities associated with the Proposed Project could directly or indirectly contribute to the generation of GHG emissions:

- **Construction Activities:** During construction of the Proposed Project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs (e.g., CO_2, methane [CH_4], and nitrous oxide [N_2O]). Furthermore, CH_4 is emitted during the fueling of heavy equipment.

- **Concrete Batch Plant:** During construction and operation of the batch plant, GHGs would be emitted during the curing of the concrete. Since cement is only a fraction of the constituents in concrete, manufacturing 1 cubic yard (cy) of concrete (about 3,900 pounds [lbs]) is responsible for emitting about 400 lbs of CO_2 (Climate Registry 2019). With an estimated production of 81,600 cy of concrete to be poured at the dam site, the Proposed Project would generate approximately 14,218 MT CO_2e.

- **Gas, Electricity, and Water Use:** Diesel gas use results in the emission of two GHGs—CH_4 and CO_2—from the combustion of diesel. Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy-intensive. Water-related electricity use is 48 terawatt-hours (TWh) per year and accounts for nearly 20 percent of California's total electricity consumption (CEC 2018a).

- **Solid Waste Disposal:** Solid waste generated by the Proposed Project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH_4 from the anaerobic decomposition of organic materials. CH_4 is 25 times more potent a GHG than CO_2. However, landfill CH_4 can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.

- **Motor Vehicle Use:** Transportation associated with the Proposed Project would result in GHG emissions from the combustion of fossil fuels in daily construction equipment, automobile, and truck trips.

3.6.5 Thresholds of Significance

The thresholds for greenhouse gas emissions impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to greenhouse gas emissions if it would:

Threshold 3.6.1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment

Threshold 3.6.2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases

3.6.6 Project Impacts

Threshold 3.6.1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment

Less Than Significant During Construction. During construction of the Proposed Project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs (e.g., CO_2, CH_4, and N_2O). Furthermore, CH_4 is emitted during the fueling of heavy equipment. The GHG emissions from construction activity would be temporary and would cease when construction is complete. Table 3.6.A lists the annual CO_2e emissions for each of the planned construction phases based on the results from CalEEMod.

As shown in Table 3.6.A, the Proposed Project would generate 3,280 MT CO_2e from construction equipment and vehicle exhaust activity and 14,218 MT CO_2e from the concrete process. With the amortized CO_2e, the Proposed Project would generate a total of 583.24 MT CO_2e/yr. The Proposed Project's emissions are less than the SCAQMD screening threshold of 2,280 MT CO_2e/yr.[1] Based on this GHG analysis, the Proposed Project's construction impacts would be less than significant.

No Impact During Operation. Long-term GHG emissions are typically generated from mobile and area sources as well as indirect emissions from sources associated with energy consumption. Mobile-source GHG emissions include project-generated vehicle trips to and from a project. Area-source emissions would be associated with activities such as landscaping and maintenance on a project site. Energy source emissions are typically generated at off-site utility providers as a result of increased electricity demand generated by a project. Waste source emissions include energy generated by land filling and other methods of disposal related to transporting and managing project-generated waste. In addition, water source emissions are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

Once the new dam is fully operational, potential GHG impacts would be associated with routine maintenance and operation of the Vail Dam reservoir and recreational use at the site. Motor vehicles and boats would be the primary source of emissions associated with reservoir operations.

[1] The SCAQMD screening threshold for the year 2020 was 3,000 MT; an adjusted threshold has been applied to account for the lapse of 2 years.

Table 3.6.A: Construction Greenhouse Gas Emissions

Construction Activities	Emissions (MT)				Total Emissions (MT/CO_2e)
	CO_2	CH_4	N_2O	CO_2e	
Construction Analysis Year 2022					
Phase 1 - Mobilization	8.18	0.00	0.13	8.31	131.72
Phase 2 - Access Roads and Staging Areas	121.53	0.60	1.28	123.41	
Construction Analysis Year 2023					
Phase 2 - Access Road and Staging Areas	121.53	0.60	1.28	123.41	1,318.38
Phase 3 - Demolition of Facilities at the New Dam	121.93	0.86	0.55	123.34	
Phase 4 - Foundation Excavation	298.84	2.05	0.89	301.78	
Phase 5 - Temporary Energy Dissipation Vault	55.14	0.30	0.39	55.83	
Phase 6 - Armor Spillway	30.89	0.17	0.27	31.32	
Phase 7 - Foundation Treatment and Grouting	219.91	1.38	0.72	222.00	
Phase 8 - Roller-Compacted Concrete Placement	454.54	2.54	3.62	460.70	
Construction Analysis Year 2024					
Phase 8 - Roller-Compacted Concrete Placement	454.54	2.54	3.62	460.70	1,619.24
Phase 9 - Outlet Tower	161.18	0.67	2.22	164.07	
Phase 10 - Dam Drainage	153.60	1.15	0.39	155.14	
Phase 11 - Dam Instrumentation	79.40	0.61	0.20	80.21	
Phase 12 - Permanent Energy Dissipation Vault	35.15	0.19	0.29	35.64	
Phase 13 - Demolition of the Existing Facilities	16.47	704.90	2.11	723.48	
Construction Analysis Year 2025					
Phase 13 - Demolition of the Existing Facilities	4.12	176.23	0.53	180.87	210.33
Phase 14 - Site Reclamation and Demobilization	29.12	0.19	0.16	29.46	
Construction Phase Totals					
Subtotal Construction Exhaust Emissions					3,279.67
Concrete Production GHG Emissions					14,217.74
Amortized over 30 Years					583.24
SCAQMD Interim GHG Threshold					3,000
Exceedance?					No

Source: Compiled by LSA (August 2020).

CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
GHG = greenhouse gas
MT = metric tons
MT/CO_2e = metric tons of carbon dioxide equivalent
N_2O = nitrous oxide
SCAQMD = South Coast Air Quality Management District

Operational and maintenance activities would include monitoring reservoir levels and outlet discharges, monitoring dam instrumentation, maintaining appropriate records, and maintaining mechanical and electrical equipment according to the equipment manufacturers' requirements. Power would be used for lighting, security cameras, gate actuators, trash rack hoists, and monitoring and control systems. However, energy emissions would be minimal and would not exceed thresholds established by the SCAQMD. In addition, these activities would not result in additional employees or maintenance requirements compared to the existing operation of the dam. Employee traffic for reservoir operations would not be appreciably different than the existing condition scenario. As such, routine maintenance and operational activities at the dam and reservoir, and the use of the marina and reservoir, would result in negligible GHG emissions. Therefore, the Proposed Project's operational impacts related to GHG emissions would result in no impact, and no mitigation would be required.

Threshold 3.6.2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

No Impact.

CARB Scoping Plan. California's major initiative for reducing GHG emissions is AB 32, passed by the State Legislature on August 31, 2006. AB 32 is aimed at reducing GHG emissions to 1990 levels by 2020. AB 32 requires CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to GCC. The AB 32 Scoping Plan has a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, market-based mechanisms (e.g., a cap-and-trade system), and an AB 32 implementation fee to fund the program.

EO B-30-15 added the immediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030. CARB released a second update to the Scoping Plan, the 2017 Scoping Plan (CARB 2017), to reflect the 2030 target set by EO B-30-15 and codified by SB 32. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reduction target of at least 40 percent below 1990 levels by 2030 contained in EO B-30-15. SB 32 builds on AB 32 and keeps California on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels. The companion bill to SB 32 (i.e., AB 197) provides additional direction to CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 that is intended to provide easier public access to air emissions data collected by CARB was posted in December 2016.

As identified above, the AB 32 Scoping Plan contains GHG reduction measures that work toward reducing GHG emissions, consistent with the targets set by AB 32 and EO B-30-15 and codified by SB 32 and AB 197. The measures applicable to the Proposed Project include energy efficiency measures, water conservation and efficiency measures, and transportation and motor vehicle measures, as discussed below.

Energy efficient measures are intended to maximize energy efficiency building and appliance standards, pursue additional efficiency efforts (including new technologies and new policy and implementation mechanisms), and pursue comparable investment in energy efficiency from all retail providers of electricity in California. In addition, these measures are designed to expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings. The existing dam facilities have overhead electrical service provided by SCE. The existing overhead service would need to be rerouted to accommodate the footprint of the new dam and outlet works facilities. New power poles would be provided to route the existing service up the downstream side of the right abutment to the new Dam Control Building. All new electrical utility facilities would be designed per SCE standards. Power is used for lighting, security cameras, gate actuators, trash rack hoists, and monitoring and control systems. The operation of the Dam Control Building would continue after Project construction; however, energy emissions would be minimal and would not conflict with any of the energy efficient measures.

Water conservation and efficiency measures are intended to continue efficiency programs and use cleaner energy sources to move and treat water. Increasing the efficiency of water transport and

reducing water use would reduce GHG emissions. The Proposed Project would remediate seismic and hydrologic hazards associated with the existing Vail Dam, a concrete arch dam, by constructing a new straight-axis gravity concrete dam immediately downstream of the existing dam. The Proposed Project would improve the existing dam and would not conflict with any of the water conservation and efficiency measures.

The goal of transportation and motor vehicle measures is to develop regional GHG emission reduction targets for passenger vehicles. Specific regional targets for transportation emissions would not directly apply to the Proposed Project. In addition, once operational, the Proposed Project is not expected to generate new vehicle trips. Therefore, the Proposed Project would not conflict with the identified transportation and motor vehicle measures.

For the reasons stated above, the Proposed Project would not conflict with existing State regulations adopted to achieve the overall GHG emissions reduction goals identified in AB 32 and would be consistent with applicable plans and programs designed to reduce GHG emissions. Therefore, the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and impacts would be less than significant. No mitigation is required.

SCAG's Regional Transportation Plan/Sustainable Communities Strategy. SCAG's 2020–2045 RTP/SCS was adopted on September 3, 2020. SCAG's RTP/SCS identifies that land use strategies that focus on new housing and job growth in areas served by high-quality transit and other opportunity areas would be consistent with a land use development pattern that supports and complements the proposed transportation network. The core vision in the 2020–2045 RTP/SCS is to better manage the existing transportation system through design management strategies, integrate land use decisions and technological advancements, create complete streets that are safe to all roadway users, preserve the transportation system, and expand transit and foster development in transit-oriented communities. The 2020–2045 RTP/SCS contains transportation projects to help more efficiently distribute population, housing, and employment growth, as well as a forecasted development pattern that is generally consistent with regional-level General Plan data. The forecasted development pattern, when integrated with the financially constrained transportation investments identified in the 2020–2045 RTP/SCS, would reach the regional target of reducing GHG emissions from autos and light-duty trucks by 8 percent per capita by 2020 and 19 percent by 2035 (compared to 2005 levels). The 2020–2045 RTP/SCS does not require that local General Plans, Specific Plans, or zoning be consistent with the 2020–2045 RTP/SCS but provides incentives for consistency for governments and developers.

Implementing SCAG's RTP/SCS will greatly reduce the regional GHG emissions from transportation, helping to achieve statewide emission reduction targets. The Proposed Project would remediate seismic and hydrologic hazards associated with the existing Vail Dam, a concrete arch dam, by constructing a new straight-axis gravity concrete dam immediately downstream of the existing dam. The Proposed Project would not conflict with the stated goals of the RTP/SCS; therefore, the Proposed Project would not interfere with SCAG's ability to achieve the region's GHG reduction targets at 8 percent below 2005 per capita emissions levels by 2020 and 19 percent below 2005 per capita emissions levels by 2035, and it can be assumed that regional mobile emissions will decrease in line with the goals of the RTP/SCS. Furthermore, the Proposed Project is not regionally significant

per *State CEQA Guidelines* Section 15206, and, as such, it would not conflict with the SCAG RTP/SCS targets, since those targets were established and are applicable on a regional level.

Based on the nature of the Proposed Project, it is anticipated that implementation of the Proposed Project would not interfere with SCAG's ability to implement the regional strategies outlined in the RTP/SCS. Therefore, the Proposed Project would not conflict with an adopted plan, policy, or regulation pertaining to GHG emissions, and impacts would be less than significant. No mitigation is required.

3.6.7 Cumulative Impacts

Cumulative impacts are the collective impacts of one or more past, present, or future projects, that when combined, result in adverse changes to the environment. Climate change is a global environmental problem in which: (a) any given development project contributes only a small portion of any net increase in GHGs, and (b) global growth is continuing to contribute large amounts of GHGs across the world. As such, the analysis of impacts related to GHG emissions is inherently cumulative. The Proposed Project would not conflict with applicable statewide, regional, and local climate action measures. Therefore, GHG emissions impacts associated with the Proposed Project would not be cumulatively considerable. No mitigation is required.

3.6.8 Level of Significance Prior to Mitigation

Prior to mitigation, construction of the Project would result in less than significant impacts related to GHG emissions and no impact during Project operation. The Project would have less than significant impacts related to consistency with GHG reduction plans and cumulative projects in the region.

3.6.9 Mitigation Measures

No mitigation measures are required to address GHG emissions impacts.

3.6.10 Level of Significance After Mitigation

No mitigation measures are required to address GHG emissions impacts; therefore, impacts would remain less than significant regardless of mitigation.

This page intentionally left blank

3.7 HAZARDS AND HAZARDOUS MATERIALS

This section addresses potential hazards and hazardous material impacts at the Project site and in the surrounding area that may result from implementation of the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project). Pertinent information and findings from the following report are summarized in this section:

- *Phase I Environmental Site Assessment Vail Dam Seismic and Hydrologic Remediation Project* (AECOM 2022c) (Phase I ESA)

The complete report is included in Appendix F.

3.7.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. No comment letters included comments related to hazards and hazardous materials.

3.7.2 Existing Environmental Setting

The Proposed Project site consists predominantly of undeveloped open space, with Vail Dam and associated infrastructure, Vail Lake, and the Vail Lake Resort campground in and around the eastern end and the Upper VDC Recharge Basins, rural residential areas, agricultural uses, and horse ranch facilities in and around the western end.

3.7.2.1 Hazardous Materials

In 2020, AECOM prepared a Phase I ESA covering the Project area. In 2022, AECOM prepared an updated Phase I ESA that incorporates Project changes in the 90 percent design and Project components consisting of:

- the existing entrances at the western end from De Portola Road (known as the Secondary Entry Road),
- portions of an approximately 50-acre former horse ranch property at the western end,
- portions of the Flyers Field currently leased to Temecula Valley Flyers and used as an airfield for remote-controlled (RC) aircraft,
- the Secondary Entry Road,
- the North Access Road,
- the Canyon Access Road,
- portions of the South Access Road, and
- the current Vail Dam and associated features at the eastern end.

No offsite sources of environmental concern were identified. The Proposed Project area was not identified in the site-specific environmental database report. No vapor encroachment conditions were identified during completion of a Tier 1 vapor encroachment screening following American Society for Testing and Materials (ASTM) Designation E2600-15, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions* dated October 2015 (ASTM E2600-15). No Recognized Environmental Conditions (RECs), controlled RECs, or historical RECs were identified in connection with the Proposed Project area.

The following *de minimis* conditions were identified in connection with the Proposed Project area:

- Low concentrations of select metals and organochlorine pesticides were detected in soil samples collected during the Phase II investigation conducted at the former horse ranch property in October 2015. Concentrations of these contaminants of concern were detected below their respective regulatory action levels. The previous report concluded that, if percolation ponds were to be installed during future site redevelopment, surface grading for these ponds would substantially reduce the presence of residual pesticide impacts at the site and recommended that, once grading is complete, the bottom of the ponds should be resampled to determine if very low or non-detect concentrations of pesticides exist. AECOM concurs with the previous conclusion and considers the presence of pesticides in soil on this property to present a *de minimis* condition in connection with the Proposed Project area.

- Based on the date of construction of the dam and associated ancillary structures (circa 1949), polychlorinated biphenyl (PCB)-containing dielectric fluids associated with on-site electrical equipment may be present, and PCBs may be present in paint and/or caulk (if present) on the stream release valve building. The presence of potentially PCB-containing electrical equipment and/or building materials within the stream release building or other areas within the Proposed Project area boundary is considered a *de minimis* condition in connection with the Proposed Project area, in AECOM's opinion.

- A portion of the RCWD-owned property is leased for use as an RC airfield. A Conex storage container used to store model airplanes and spare parts was observed in this area. A 1-gallon container of model engine fuel and a 2.5-gallon container of herbicide were observed on the unpaved ground beneath a folding table near the Conex storage container. AECOM considers the use and storage of small amounts (5 gallons or less) of petroleum products and/or hazardous materials a *de minimis* condition in connection with the Proposed Project area.

- The former horse ranch property reportedly utilized a septic tank; however, no other information on the location of the septic system and associated leaching fields was found. An approximately 3 foot (ft) by 5 ft hole with a large piece of plywood over the top and an adjacent sewer cleanout manhole were observed during the July 2022 site reconnaissance. The covered hole was located approximately 30 to 40 ft to the south, southwest of the former horse stable building. This may be the location of the septic tank, but this could not be confirmed. The septic system is reportedly no longer in use. Based on the historical use of this property as a horse ranch, it is likely that the on-site septic system was utilized for disposal and storage of sanitary wastes and possibly horse-related wastes. The presence of a former septic system on this

property does not represent an REC in connection to the Proposed Project area and is considered a *de minimis* condition, in AECOM's opinion.

Although not within the standard scope of the study, the following additional considerations were identified in connection with the Proposed Project area:

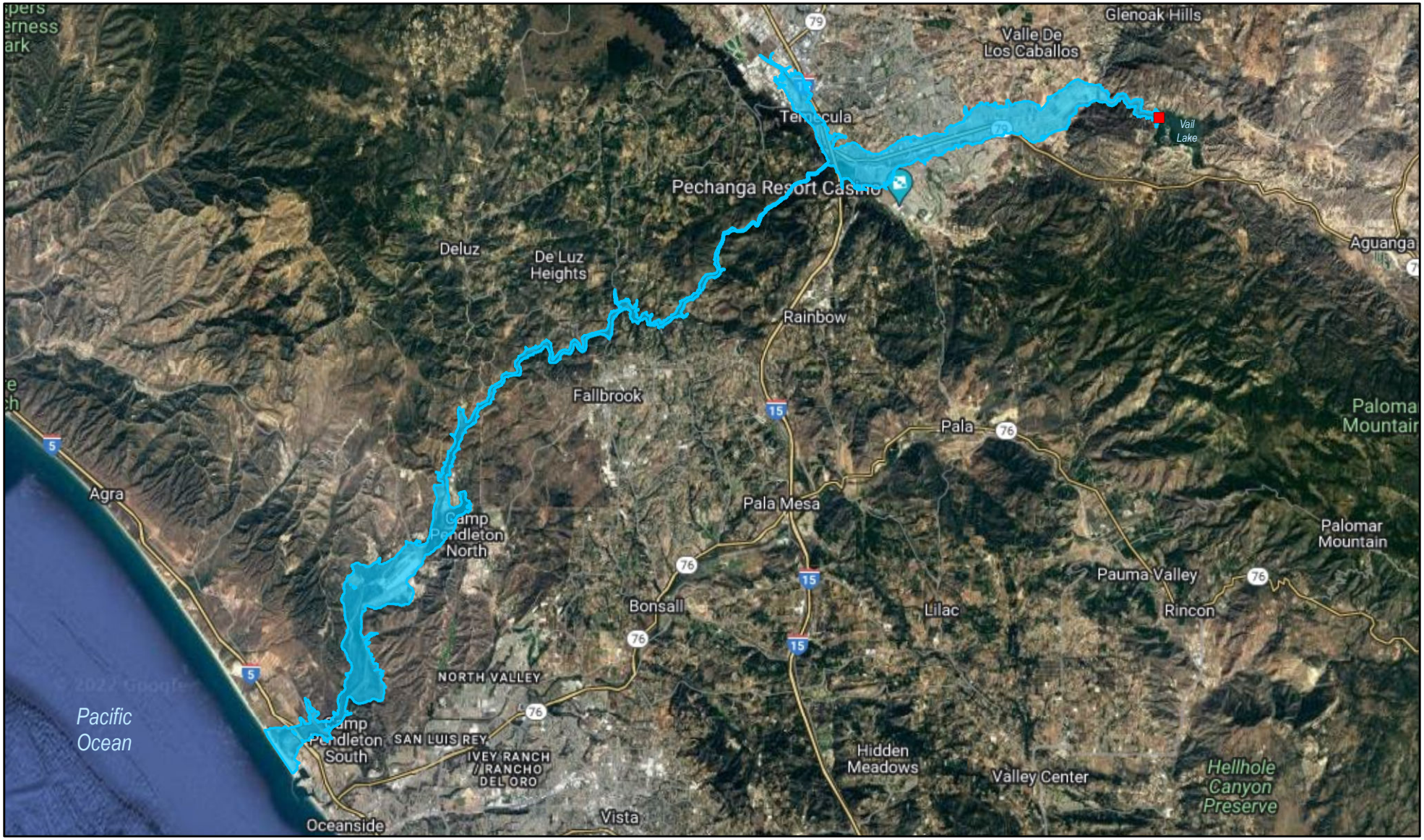
- Based on the date of construction of the dam and associated ancillary structures (circa 1949), asbestos-containing materials (ACMs) and lead-based paint (LBP) may be present in materials used during the original construction of the dam and associated ancillary structures. No asbestos or lead paint surveys were provided for review as part of this ESA, and ACM and LBP surveys were not included within the scope of the Phase I ESA. Based on the age of the buildings on the former horse ranch property (early 2000s), ACM and LBP are not expected to be present in these buildings.

3.7.2.2 Hazards

Vail Lake has the capacity to impound up to 42,680 acre-feet (ac-ft) of water with the reservoir at the spillway crest. As described in Chapter 2, the existing seismic and hydrologic deficiencies of Vail Dam make it susceptible to failure. As defined in the California State Hazard Mitigation Plan, dam failure is the "uncontrolled release of impounded water from behind a dam." Causes of dam failure include flooding, earthquake, blockage, landslide, lack of maintenance, improper operation, poor construction, vandalism and terrorism." Data from the National Inventory of Dams, which is updated annually by the U.S. Army Corps of Engineers (USACE), indicate that Vail Dam has as a "high" hazard potential, meaning that it stores more than 1,000 ac-ft of water, is higher than 150 ft tall, and has the potential for downstream damage and/or causing downstream evacuation. Dams with a high hazard potential are those where failure or improper operation would likely cause loss of human life. The Department of Safety of Dams classifies the downstream flooding hazard for Vail Dam as "extremely high," meaning it is "expected to cause loss of at least one human life and one of the following: result in an inundation area with a population of 1,000 or more; or, result in the inundation of facilities or infrastructure, the inundation of which poses a significant threat to public safety as determined by the department on a case-by-case basis." This classification does not reflect the condition of the dam or its appurtenant structures but is based solely on potential downstream impacts to life and property should the dam fail when operating with a full reservoir.

A dam failure event is extremely hazardous, as it will typically occur quickly and with little warning. Areas directly below the dam are at the greatest risk. The area downstream of a dam potentially at risk to flooding should the dam fail is called the "dam inundation zone." The zone is defined by a number of factors including downstream topography, soils, and the volume of water impounded by the dam on its upstream side in the associated reservoir. As water moves farther downstream and decreases in velocity and depth, the magnitude of the damage and potential risk to life and property decreases. The immediate effects of dam failure are downstream flooding and associated damage to or loss of life and property, and may also include power failures, downed power lines, damage to roads and other infrastructure, damage to communications facilities, and loss of agricultural crops and livestock. As indicated in the dam breach inundation map (see Figure 3.7-1), areas that would be affected by a failure of Vail Dam within the City of Temecula and the surrounding area include

This page intentionally left blank



LSA

LEGEND

Vail Dam Breach Inundation Area

Proposed Dam Location

FIGURE 3.7-1

0 2 4

MILES

SOURCE: Google Imagery (2022); CA DWR DSOD (2022)

I:\RCW1902\GIS\MXD\EIR-EIS\Dam_Inundation.mxd (8/23/2022)

Vail Dam Seismic and Hydrologic Remediation Project

Dam Breach Inundation Map

This page intentionally left blank

portions of State Route 79, Interstate 15 (I-15), Jefferson Avenue, and Diaz Road; Pauba Valley; and the Downtown shopping, business, and tourist district along I-15. These areas include homes, schools, hospitals and medical buildings, shopping centers, businesses, and agricultural uses. Downstream of Temecula, impacted areas continue along the Santa Margarita River, including portions of the Santa Margarita Ecological Reserve; areas within Marine Corps Base Camp Pendleton including an airfield, a shooting range, a water treatment plant, O'Neill Lake, portions of the I-5 freeway, and harbor and training facilities near the Santa Margarita River outlet to the Pacific Ocean.

3.7.3 Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage, and disposal of hazardous materials, substances, and waste as well as the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The Federal Emergency Management Agency (FEMA) is the primary federal agency involved with addressing hazards and emergency response, although the U.S. Bureau of Reclamation and the USACE also have programs related to monitoring and maintaining the safety of dams. The Governor's Office of Emergency Services (Cal OES) is the primary State agency related to emergency response and established and updates the Standardized Emergency Management System (SEMS) as needed in accordance with the California Emergency Services Act for emergency response and evacuation. SEMS facilitates response prioritization, interagency cooperation, and the efficient flow of resources and information.

SEMS incorporates the following:

- Incident Command System (field-level emergency response system)
- Interagency coordination for allocation of resources
- Mutual aid (providing emergency resources from non-affected jurisdictions)
- Operational Area Concept (coordinate damage information, resource requests and emergency response within the affected area)

Local agencies involved in emergency response and evacuation include the County of Riverside Emergency Management Department, the Riverside County Sheriff's Department, the Riverside County Fire Department, and the Riverside County Emergency Medical Services (EMS) Agency.

3.7.3.1 Federal Regulations

There are several federal laws regulating hazardous materials as well as pertaining to dam safety and emergency management. Federal laws and regulations potentially applicable to the Project site are listed below.

- The purpose of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) (42 U.S. Code [USC] Section 9601 et seq.), often referred to as "Superfund," is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised.

- The Resource Conservation and Recovery Act of 1976 (RCRA) 42 USC Section 6901 et seq.) provides for "cradle-to-grave" regulation of hazardous waste generated by operating entities.

- The Clean Air Act (CAA) (42 USC Section 7401 et seq.) protects the public from exposure to airborne contaminants known to be hazardous to human health. Under the CAA, the U.S. Environmental Protection Agency (EPA) established National Emissions Standards for Hazardous Air Pollutants.

- The Clean Water Act – National Pollutant Discharge Elimination System (Section 402[p]) (33 USC Section 1342[p]) regulates discharges and spills of pollutants, including hazardous materials, to surface waters and groundwater.

- The Safe Drinking Water Act (42 USC Section 300(f) et seq.) regulates discharges of pollutants to underground aquifers and establishes standards for drinking water quality.

- The Toxic Substances Control Act (15 USC Section 2601 et seq.) regulates manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials.

- The Federal Insecticide, Fungicide, and Rodenticide Act (7 USC Section 136 and 40 Code of Federal Regulations [CFR] Parts 152–171) regulates the manufacturing, distribution, sale, and use of pesticides.

- The Hazardous Materials Transportation Act (49 USC Section 5101 et seq. and 49 CFR, Parts 101, 106, 107, and 171–180) regulates the transport of hazardous materials by motor vehicles, marine vessels, and aircraft.

- The Hazardous Materials Transportation Uniform Safety Act of 1990 (Public Law 101-615) regulates the safe transport of hazardous material intrastate, interstate, and for foreign commerce.

- The Emergency Planning and Community Right to Know Act (42 USC Section 11001 et seq. and 40 CFR, Parts 350.1 et seq.) regulates facilities that use hazardous materials in quantities that require reporting to emergency response officials.

- The National Dam Inspection Act (Public Law 92-367) of 1972 authorized the USACE to undertake a national program of dam inspection, to create the National Inventory of Dams (NID), and to provide recommendations to Congress for dam safety policies. The NID was first published in 1975.

- In 1977, a memorandum from President Carter directed federal agencies to review their dam safety practices and established an ad hoc Interagency Committee on Dam Safety (ICODS).

- In 1978, the USACE established a National Dam Inspection Program and reported that one-third of the nonfederal dams inspected in the preliminary "Phase I Inspection Program" survey were unsafe. Subsequently, more states established or enhanced dam safety programs.

- The Dam Safety Act of 1986, Title XII of the Water Resources Development Act of 1986 (P.L. 99-662) authorized the USACE to distribute grants to state dam safety programs, provide inspection trainings, maintain and periodically publish an updated NID, establish a National Dam Safety Review Board (NDSRB) with seven members, and research dam safety.

- In 1987, FEMA published the *Model State Dam Safety Program*, a guideline for developing state dam safety programs. The Association of State Dam Safety Officials, established in 1983, worked with FEMA to develop this program to assist state officials in initiating or improving their state programs. The model outlines the key components of a dam safety program and provides guidance on the development of state programs, including legislative authorities, to minimize risks created by unsafe dams.

- The National Dam Safety Program Act, Section 215 of the Water Resources Development Act of 1996 (Public Law 104-303) established the National Dam Safety Program (NDSP) under FEMA by transferring many dam safety activity authorities from the USACE. The NDSP is a partnership of states, federal agencies, and other stakeholders to encourage and promote the establishment and maintenance of effective federal and state dam safety programs to reduce the risk to human life, property, and the environment from dam-related hazards. The Act also reauthorized grants to state dam safety programs, research, and training. It established the NDSRB under FEMA with 11 members and authorized the USACE to continue NID updates.

- The National Dam Safety and Security Act of 2002 (Public Law 107-310) reauthorized the NDSP, added national security considerations to the legal framework, and increased authorization of appropriations for grants to state dam safety programs and research.

- The Dam Safety Act of 2006 (Public Law 109-460) reauthorized the NDSP and increased the authorization of appropriations amount and also added condition assessment ratings to the NID.

- The Water Resources Reform and Development Act of 2014 (Public Law 113-121) reauthorized the NDSP and increased the authorization of appropriations amounts (including the NID). It also directed FEMA to implement a dam safety public awareness initiative and to add nongovernment organizations to the National Dam Safety Review Board.

- The Water Infrastructure Improvements for the Nation (WIIN) Act (Public Law 114-322) was enacted in 2016 and authorized FEMA to provide grants for design and construction assistance to nonfederal sponsors for rehabilitation, repair, or removal of eligible high hazard dams.

- The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Public Law 93-288 passed in 1988 (42 U.S.C. 5133), providing the legal authority for the federal government to provide assistance to states during declared major disasters and emergencies. The Stafford Act, itself an amendment to the Disaster Relief Act of 1974, authorizes the delivery of federal technical, financial, logistical, and other assistance to states and localities during declared major

disasters or emergencies. Relevant amendments to the Stafford Act include the Disaster Mitigation Act of 2000 (Public Law 106–390), which authorized a program for predisaster mitigation, and the Disaster Recovery Reform Act in 2018, which expanded the definition of management costs to include direct and indirect administrative expenses and required FEMA to reimburse Hazard Mitigation Grant Program management costs.

3.7.3.2 State Regulations

The State of California has established many laws and regulations that expand on federal laws and provide a framework for hazard mitigation, dam safety, and emergency response planning. State laws and regulations potentially applicable to the Project site are listed below.

- The California Public Resources Code (PRC) Section 21151.4 requires the lead agency to consult with any school district with jurisdiction over a school within 0.25 mile of a project about potential effects on the school if the project might reasonably be anticipated to emit hazardous air emissions or handle an extremely hazardous substance or a mixture containing an extremely hazardous substance.

- The Porter-Cologne Water Quality Control Act (California Water Quality Code, Section 13000 et seq.) regulates water quality through the State Water Resources Control Board and the Regional Water Quality Control Boards, including oversight of water monitoring and contamination cleanup and abatement.

- The Hazardous Materials Release Response Plans and Inventory Law (California Health and Safety Code, Section 25500 et seq.) requires facilities using hazardous materials to prepare Hazardous Materials Business Plans.

- The Hazardous Waste Control Act (California Health and Safety Code, Section 25100 et seq.) regulates the identification, generation, transportation, storage, and disposal of materials deemed hazardous by the State of California.

- The Safe Drinking Water and Toxic Enforcement Act (Proposition 65, California Health and Safety Code, Section 25249.5 et seq.) regulates the discharge of contaminants to groundwater.

- The Cortese List Statute (California Government Code, Section 65962.5) requires the Department of Toxic Substances Control (DTSC) to compile and maintain lists of potentially contaminated sites throughout the State and includes the Hazardous Waste and Substances Sites List.

- The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) (California Environmental Protection Agency [CalEPA] 2012) consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. CalEPA and other state agencies set the standards for their programs, while local governments implement the standards. These local implementing agencies are called Certified Unified Program Agencies (CUPA).

- The State of California Division of Oil, Gas, and Geothermal Resources Regulatory Program (DOGGR) supervises the drilling, operation, maintenance, and abandonment of oil, gas, and geothermal wells throughout the State. The regulatory program set forth by DOGGR for the management of these resources emphasizes the appropriate development of oil, natural gas, and geothermal resources in the State through sound engineering practices that protect the environment, prevent pollution, and ensure public safety.

- The California Emergency Services Act (California Government Code Section 8550-8668) provides the basic authority for conducting emergency operations following a proclamation of emergency by the governor and/or appropriate local authorities. Local government and district emergency plans are considered extensions of the California Emergency Plan, established in accordance with the Emergency Services Act. California Government Code Section 8589.5 established the Dam Safety Program run by the California Office of Emergency Services (Cal OES) – formerly known as the California Emergency Management Agency – which collects and reviews dam failure inundation maps and evaluated waivers from the inundation mapping requirement. It is also the designated repository of the official dam failure inundation maps.

- The California State Hazard Mitigation Plan (SHMP) represents the state's primary hazard mitigation guidance document – providing an updated analysis of the state's historical and current hazards, hazard mitigation goals and objectives, and hazard mitigation strategies and actions. The plan represents the state's overall commitment to supporting a comprehensive mitigation strategy to reduce or eliminate potential risks and impacts of disasters in order to promote faster recovery after disasters and, overall, a more resilient state. State Hazard Mitigation Plans are required to meet the Elements outlined in FEMA's State Mitigation Plan Review Guide (revised March 2015, effective March 2016). Upon approval, the SHMP is adopted by the State for implementation for the next 5 years.

- The Department of Water Resources (DWR) regulates dams and reservoirs in accordance with Section 6000 et seq. of the California Water Code, which assigns regulation of dam safety to the Department of Safety of Dams (DSOD). The DSOD, known then as the California Dam Safety Program, was initially established in 1929 with the primary purpose of safeguarding life and property and had responsibilities including examination and approval of existing and proposed dams, supervision of construction, and supervision over maintenance of all jurisdictional dams.

- Senate Bill (SB) 92, signed into law on June 27, 2017, set forth new requirements focused on dam safety. Dam owners must now submit inundation maps to DWR. After the maps are approved, the dam owner must submit an emergency action plan to Cal OES. The owner must submit updated plans and inundation maps every 10 years, or sooner under certain conditions. Cal OES will review and approve the emergency action plans. This legislation set forth additional provisions for emergency action plans including compliance requirements, exercises of the plan, and coordination with local public safety agencies. Specifically, California Water Code Section 335 (23 CCR Section 335) sets forth requirements related to inundation maps, emergency action plans, and updating requirements.

- Section 335.14, Submittals to the Department, outlines the standards for submittals of inundation maps to DWR/DSOD, including a color PDF of each inundation map and geospatial files for the inundation boundary, flood wave arrival time, maximum depth, and maximum velocity, in addition to the technical memorandum and model;

- Section 335.16, Updates to Inundation Maps and Supporting Documentation, states that inundation maps must be updated at least every 10 years from the map preparation date of the dam, and sooner in the case of a significant change to the dam or critical appurtenant structure or in the case of significant change to downstream development or terrain. A new model simulation is required if there is a significant change to the dam, critical appurtenant structures, downstream development or terrain, model assumptions, or inundation modeling state-of-practice.

- Section 335.20, Inundation Map and Emergency Action Plan (EAP) Requirements for New and Enlarged Dams, sets forth the following requirements for new or enlarged dams and their critical appurtenant structures that DWR classifies as significant, high, or extremely high hazard potential:

  (a) Inundation maps and the submittals required by section 335.14 shall be submitted before department approval of any construction or enlargement application, pursuant to section 310.

  (b) A Certificate of Approval authorizing storage to the elevation requested in the application shall not be issued until the inundation map(s) are approved by the department pursuant to section 335.18 and the dam owner has submitted an EAP pursuant to Government Code section 8589.5.

3.7.3.3 Regional Regulations

The County of Riverside implements state and federal regulations through the Emergency Operations Plan and Multi-Jurisdictional Local Hazard Mitigation Program, as described in more detail below.

- The County of Riverside Emergency Operations Plan (EOP) (County of Riverside Emergency Management Department 2019) is designed as a reference tool for coordinating emergencies ranging from localized events or a catastrophic disasters. The EOP serves as the foundation for response and recovery operations for the County of Riverside, as it establishes roles and responsibilities, assigns tasks, and specifies policies and general procedures. The plan includes critical elements of the Standardized Emergency Management System, the National Incident Management System, the Incident Command System, and the National Response Framework. The EOP assists with facilitating an effective response to any emergency by providing a platform that encourages collaboration between the County of Riverside Operational Area (OA) Emergency Operations Center (EOC), first responders, and support agencies.

- The County of Riverside Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP) (County of Riverside Emergency Management Department 2018) is designed to identify the County's

hazards, review and assess past disaster occurrences, estimate the probability of future occurrences, and set goals to mitigate potential risks to reduce or eliminate long-term risk to people and property from natural and man-made hazards. The plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 to achieve eligibility and potentially secure mitigation funding through FEMA Flood Mitigation Assistance, Pre-Disaster Mitigation, and Hazard Mitigation Grant Programs.

3.7.3.4 Local Regulations

The following plans and regulations are applicable specifically to Vail Lake.

- The Emergency Action Plan for Vail Dam (Vail Lake Reservoir) was prepared pursuant to SB 92 and was submitted to Cal OES. As required, it includes emergency notification flowcharts; describes the response processes to address various scenarios; describes the roles of various agencies and their actions in response to an emergency incident; describes preparedness activities – actions to be taken in advance of an emergency, such as surveillance and monitoring and community education; provides detailed inundation maps for different flooding scenarios; and includes records, forms, log sheets, and similar items as appendices. The Emergency Action Plan was last updated in October 2019.

- The *Interim Operation Restriction Plan Vail Dam (DSOD Dam No. 2028)* (URS 2014b) identified interim measures for RCWD to address seismic and hydrological risks by using its best efforts to maintain water levels between 1,437.6 ft and 1,457.6 ft (NAVD88). In the event water levels exceeded 1,457.6 ft (NAVD88), RCWD would reduce the water level by draining the reservoir as quickly as possible. In a letter dated June 2, 2015, DSOD indicated its acceptance of this approach, stating that the restriction would remain in effect until RCWD obtained written approval from DSOD authorizing a different level of water storage.

3.7.4 Methodology

The analysis in this section indicates whether potential hazards or hazardous materials impacts are present due to past or present use of the Project site and/or properties in the immediate vicinity of the Project site. This section analyzes the potential impacts of the Proposed Project as compared to existing conditions based on the setting described in the Phase I Environmental Site Assessment Vail Dam Seismic and Hydrologic Remediation Project (AECOM 2022c) (Phase I ESA). This section also analyzes the potential impacts of the Proposed Project related to emergency response plans and evacuation plans.

3.7.5 Thresholds of Significance

The thresholds for hazards and hazardous materials impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to hazards and hazardous materials if it would:

Threshold 3.7.1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials

Threshold 3.7.2: 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

Threshold 3.7.3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school

Threshold 3.7.4: 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

Threshold 3.7.5: Be 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

Threshold 3.7.6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan

Threshold 3.7.7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires

The Initial Study, included as Appendix A, substantiates that there would be no impacts associated with Threshold 3.7.3 as no schools are located within one-quarter mile of the Project, and Threshold 3.7.5 as the Project is not within an airport land use plan or within two miles of an airport. These thresholds will not be addressed in the following analysis.

3.7.6 Project Impacts

Threshold 3.7.1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials

Less Than Significant with Mitigation Incorporated.

Construction. Construction of all components of the Proposed Project would temporarily increase the regional transport, use, and disposal of construction-related hazardous materials and petroleum products (e.g., diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals). These materials are commonly used at construction sites, and the construction activities would be required to comply with applicable State and federal regulations for proper transport, use, storage, and disposal of excess hazardous materials and hazardous construction waste. In addition, Regulatory Compliance Measures WQ-1 and WQ-4 (refer to Section 3.8 of this EIR) require compliance with the waste discharge permit requirements to avoid potential impacts to water quality due to spills or runoff from hazardous materials used during construction.

Hazardous waste might also be generated during demolition, excavation, or other activities that require the removal of potential hazardous building materials (e.g., ACMs, lead-based paint, and PCBs) or unknown hazardous materials. The Phase I ESA identified the dam and associated ancillary

structures, including the stream release valve building, as locations where ACMs, lead-based paint, and/or PCBs may be present. The demolition of structures containing hazardous building materials requires specialized procedures and equipment and appropriately certified personnel. Procedures for handling and disposal of hazardous building materials are specified in Mitigation Measure H-1, Demolition Plan. The plan will specify how to appropriately contain, remove, and dispose of hazardous building materials to protect human health and the environment. Any suspect hazardous materials unearthed during construction would require work be stopped as well as notification to RCWD, which could require testing, removal, and disposal at appropriate facilities in accordance with State and federal regulations. Procedures for handling suspect or unknown hazardous materials are specified in Mitigation Measure H-2, Construction Contingency Plan. Therefore, with implementation of Mitigation Measures H-1 and H-2, impacts related to the routine transport, use, or disposal of hazardous materials during construction would be less than significant.

Operation. Operation and maintenance of the Project would involve transport, use, and disposal of small quantities of hazardous materials or wastes associated with routine maintenance of dam facilities and associated ancillary structures. RCWD is required to ensure that hazardous materials are used and stored in accordance with applicable regulations, and RCWD and contracted solid waste disposal providers are required to ensure that such materials are disposed of at appropriate facilities. Therefore, impacts related to the routine transport, use, or disposal of hazardous materials during operation and maintenance would be less than significant, and no mitigation is required.

Threshold 3.7.2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment

Less Than Significant with Mitigation Incorporated.

Construction. The Phase I ESA conducted by AECOM identified the potential for PCB-containing dielectric fluids associated with on-site electrical equipment, as well as in paint and/or caulk, of the dam and associated ancillary structures. In addition, asbestos-containing materials and lead-based paint may be present in materials used during the original construction of the dam and associated ancillary structures. Construction of the Proposed Project requires modifications to and demolition of many of the existing structures. Procedures for handling and disposal of hazardous building materials are specified in Mitigation Measure H-1, Demolition Plan. The plan will specify how to appropriately contain, remove, and dispose of hazardous building materials to protect human health and the environment. Additionally, as specified in Mitigation Measure H-2, Construction Contingency Plan, any suspect hazardous materials unearthed during construction would require work be stopped as well as notification to RCWD, which could require testing, removal, and disposal at appropriate facilities in accordance with State and federal regulations. In addition, Regulatory Compliance Measures WQ-1 and WQ-4 (refer to Section 3.8 of this EIR) require compliance with the waste discharge permit requirements to avoid potential impacts to water quality due to spills or runoff from hazardous materials used during construction. Therefore, with implementation of Mitigation Measures H-1 and H-2, impacts related to reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be less than significant.

Operation. As is the case for the existing dam, operation and maintenance of the gravity dam constructed as part of the Proposed Project would involve transport, use, and disposal of small quantities of hazardous materials or wastes associated with routine maintenance of dam facilities and associated ancillary structures. RCWD is required to ensure that hazardous materials are used and stored in accordance with applicable regulations. However, operation and maintenance of dam facilities and associated ancillary structures would not result in substantial reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment because these activities do not involve the use or handling of substantial quantities of hazardous materials or acutely hazardous materials. Furthermore, the Proposed Project would not appreciably change the types or quantities of hazardous materials required for operation and maintenance procedures compared with existing conditions. Therefore, impacts related to operation and maintenance would be less than significant, and no mitigation is required.

Threshold 3.7.4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment

Less Than Significant Impact. The Phase I ESA conducted by AECOM included a search of various governmental databases providing lists of hazardous materials sites. The site-specific environmental database report was reviewed to evaluate if soil and or groundwater from on-site and/or off-site sources of concern has the potential to impact the Proposed Project area. The Project site was not identified in the site-specific environmental database report. The RCWD Los Caballos Pump Station at 37205 De Portola Road is adjacent to the Project site and is listed in several databases which are compliance-related and not indicative of a release. Based on the nature of these listings, the property does not present a Recognized Environmental Condition (REC) to the Proposed Project. Additionally, there are unmapped/orphan listings for the Vail Lake Transmission Main and Pump Station at Pulgas Creek Road and a RCWD VCD Well registered at the 37100 block of De Portola Road. These database listings are also compliance in nature and do not represent an REC in connection with the Proposed Project. Because the surrounding site listings do not present an REC for the Proposed Project, there would not be a significant hazard to the public or the environment during construction or operation of the Proposed Project, and impacts would be less than significant. No mitigation is required.

Threshold 3.7.6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan

Less Than Significant with Mitigation Incorporated.

Construction. Construction of the Proposed Project would necessitate that construction vehicles use roadways that have been designated or would otherwise be required for use as Evacuation Routes. Construction traffic would consist of vehicles transporting workers and equipment as well as materials, including import of aggregate materials from an off-site quarry. As indicated in Section 3.12, Transportation, construction traffic would not interfere with or create unacceptable roadway operating conditions along public roads. The use of roads for construction traffic would not preclude the roads from serving as emergency evacuation routes. The primary access route through the canyon, the Canyon Access Road, will be widened to two lanes of traffic and is not anticipated to be

obstructed during construction. Mitigation Measure H-3 requires the contractor to prepare and implement a Construction Traffic Management Plan (CTMP), which would set forth measures to ensure emergency access is available at all times. As shown in Figure 2-12 in Chapter 2, there are multiple access routes to the dam. Construction of access roads would be phased such that emergency access to the dam and ancillary appurtenant structures and to all construction areas is maintained at all times, allowing evacuation of these areas if necessary. No additional elements of construction could impact emergency response or evacuations. For these reasons, with implementation of mitigation, construction of the Proposed Project would not substantially impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant.

Operation. RCWD operations at Vail Dam are not anticipated to substantially change following construction; however, the total area of the lake will increase slightly (by approximately 0.66 acre) through the addition of the area between the existing and proposed dam, and the new outlet facilities will improve RCWD's ability to implement emergency drawdowns. As required by SB 92 for a "significant change to the dam or critical appurtenant structure," the Vail Lake EAP will be updated including any corresponding changes to the emergency notification flowcharts, response process, responsibilities, and preparedness activities described therein. In addition, updated information regarding the dam facilities will be provided to the County of Riverside Emergency Management Department. Therefore, changes to emergency actions resulting from the Project would be addressed through updates to the Vail Lake EAP and, if appropriate, the County of Riverside LHMP. Therefore, with compliance with regulatory requirements, impacts to adopted emergency response plans or emergency evacuation plans from operation of the Proposed Project would be less than significant. No mitigation is required.

Threshold 3.7.7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires

***Less Than Significant with Mitigation Incorporated*.** Wildfire risks are discussed in more detail in Section 3.15, Wildfire.

Construction. During construction, the number of people present at the Project site, which is within moderate, high, and very high fire hazard severity zones, would be substantially increased. This would temporarily increase the number of people exposed to a risk of loss, injury, or death involving wildland fire. Areas of particular concern would be at the proposed dam construction area, along the Canyon Access Road and adjacent staging and laydown areas, along the North Access Road, and at the South Access Road realignment area. Project activities at the western end of the site, including the areas near the Upper VDC Recharge Basins and on the 50-acre parcel, would be in a lower fire risk area and would be more easily accessible in an emergency. The CTMP required by Mitigation Measure H-3 would set forth measures to ensure site access and emergency access is available at all times, including routes for emergency evacuation of on-site personnel. Impacts from construction of the Proposed Project related to the exposure of people or structures to a significant risk involving wildland fires would be less than significant with implementation of Mitigation Measure H-3.

Operation. The Proposed Project would not increase the risk of wildfire in the area. It is anticipated that Vail Lake would continue to serve as a water source for aerial firefighting operations in the region. As a concrete structure adjacent to a body of water, the proposed dam would not be subject to a significant risk of loss, as is the case with the existing dam. The number of personnel present on site would not appreciably change following construction. Operation of the Proposed Project would have no impact with respect to the exposure of people or structures to a significant risk involving wildland fires. No mitigation is required.

3.7.7 Cumulative Impacts

The cumulative study area related to hazardous materials is the Project site and immediately adjacent properties, as this reflects the area where potentially additive effects could occur as a result of releases of hazardous materials (e.g., spills of fuels, lubricants, and other substances used during construction; off-site herbicide or pesticide application that may be transported onto the Project site through runoff or subsurface flow). In general, only projects occurring adjacent to or very close to the Project site are considered due to the limited potential impact area associated with release of hazardous materials into the environment. The cumulative study area for hazards and emergency planning is the area within approximately 5 miles of Vail Lake as well as the area within the dam inundation zone for Vail Dam (see Figure 3.7-1).

In the existing condition, buildings to be demolished on the Project site may contain hazardous materials (PCBs, lead-based paint, or asbestos-containing materials), but these materials would not present a hazard until they are disturbed. Mitigation Measure H-1 addresses the procedures for handling and disposal of these materials prior to demolition activities. The 2022 Phase I ESA by AECOM did not identify any RECs for the Project site based on on-site or off-site conditions. Mitigation Measure H-2 includes standard procedures to address handling and disposal of any previously unknown hazardous materials encountered during excavation.

With the exception of hazardous materials transport, the Proposed Project would not create potential significant cumulative impacts off site. Transport of hazardous materials is closely regulated and, with implementation of Mitigation Measures H-1 and H-2, would be adequately monitored to ensure there would be no significant impact to the environment or to human health. In addition, the California Department of Transportation (Caltrans), the California Highway Patrol, and local police and fire departments are trained in emergency response procedures for safely responding to accidental spills of hazardous substances on public roads, further reducing potential impacts.

The Proposed Project would implement a CTMP as required in Mitigation Measure H-3 such that emergency response and evacuation would not be impaired.

For the reasons identified above, the Proposed Project would not result in a cumulatively considerable impact to hazards or hazardous materials impacts.

There are no known projects in the vicinity of the Project site that could be affected by on-site handling of hazardous materials or that could result in significant hazards or hazardous materials impacts at the Project site.

The transport of hazardous materials from and to the Project site during construction and operation has the potential to combine with impacts from transport of hazardous materials from other projects in adjacent cities on the State highway system. However, the transport of hazardous materials is subject to strict regulations, and local and State agencies are trained in emergency response procedures. Therefore, the temporary transport of existing hazardous materials and the future transport of household hazardous materials to and from the Project site do not present a cumulatively considerable impact.

Operation of the Proposed Project would not increase the exposure of people or structures to risks from wildland fires and would not therefore contribute to cumulative impacts. Although construction would temporarily increase the number of individuals on the Project site that could be exposed to risks from wildland fires, implementation of the CTMP required in Mitigation Measure H-3 would ensure adequate evacuation routes and emergency access. Due to the isolated nature of most of the Project site, the Project-related impacts are not anticipated to result in a cumulative impact in combination with other past, present, or future projects in the area. Therefore, the Project would not contribute to cumulative impacts associated with exposure of people or structures to risks from wildland fires.

The Project would reduce the risk of seismic and hydrologic hazards that could otherwise result in dam failure. Therefore, the Project would not contribute to cumulative impacts associated with dam inundation.

For the reasons outlined above, implementation of the Proposed Project would not result in a cumulatively considerable impact related to hazards or hazardous materials.

3.7.8 Level of Significance Prior to Mitigation

Impacts related to construction of the Proposed Project are potentially significant prior to mitigation. With adherence to regulatory compliance measures, impacts related to operation of the Proposed Project are less than significant.

3.7.9 Regulatory Compliance Measures and Mitigation Measures

The following RCMs are existing regulations that are applicable to the Proposed Project and are considered in the analysis of potential impacts related to hazards and hazardous materials. RCWD considers these requirements mandatory; therefore, they are not mitigation measures.

RCM H-1 **Vail Dam Emergency Action Plan Update.** Consistent with 23 CCR Sections 335.14, 335.16, and 335.20, RCWD shall provide an updated Emergency Action Plan including information about the proposed dam and appurtenant structures to DSOD for review and approval, which is required prior to DSOD approval of any construction or enlargement application. Following DSOD review and approval, RCWD shall provide the updated Vail Dam EAP, including any appropriate changes to emergency notification flowcharts, response process, responsibilities, preparedness activities, and inundation maps, to Cal OES for review and approval.

RCM H-2 **Coordination with County of Riverside Emergency Management Department.** Once the Vail Lake EAP update has been completed and submitted to Cal OES, RCWD shall transmit relevant information about the new dam, including the revised inundation maps, to the County of Riverside Emergency Management Department for inclusion in the next update to the Local Hazard Mitigation Plan (LHMP).

The following mitigation measures are proposed to address impacts associated with demolition, handling of hazardous materials/hazardous wastes during construction, and traffic control during construction.

Mitigation Measure H-1 **Demolition Plan**. Prior to the start of construction, the construction contractor shall provide a Demolition Plan to the RCWD Resident Engineer or designee for review and approval. The Demolition Plan shall include the procedures for pre-demolition surveys and testing for hazardous building materials such as asbestos, lead-based paint, and polychlorinated biphenyls, and removal and disposal of hazardous building materials. All inspections, surveys, and analyses shall be performed by appropriately licensed and qualified individuals in accordance with applicable regulations. All identified hazardous materials shall be removed, handled, and properly disposed of by appropriately licensed contractors according to all applicable regulations during demolition of structures. The construction contractor shall provide documentation (e.g., all required waste manifests, sampling, and air monitoring analytical results) to the RCWD Resident Engineer or designee showing that abatement of hazardous building materials has been completed in full compliance with all applicable regulations. The RCWD Resident Engineer or designee shall document that the Demolition Plan has been approved prior to authorizing construction initiation and that the requirements of the Demolition Plan have been implemented prior to authorizing the demolition of existing structures.

Mitigation Measure H-2 **Construction Contingency Plan.** Prior to any demolition or ground-disturbing activities, the construction contractor shall provide a Construction Contingency Plan to the RCWD Resident Engineer or designee for review and approval. The Construction Contingency Plan shall include provisions for emergency response in the event that unidentified hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes are discovered during construction activities. The Construction Contingency Plan shall address field screening, contaminant materials testing methods, mitigation and contaminant management requirements, and health and safety requirements for construction workers. The construction contractor

shall implement the Construction Contingency Plan during all construction activities. During construction, the construction contractor shall cease work immediately if an unexpected release of hazardous substances is found in reportable quantities. If an unexpected release of hazardous substances is found in reportable quantities, the construction contractor shall notify the National Response Center by calling 1-800-424-8802. The Construction Contractor shall clean up any unexpected releases under appropriate federal, State, and local agency oversight. The RCWD Resident Engineer or designee shall document that the Construction Contingency Plan has been approved and that the requirements of the Construction Contingency Plan have been implemented prior to final Project acceptance.

Mitigation Measure H-3

Construction Traffic Management Plan. Prior to commencement of grading activities, the construction contractor shall prepare a CTMP to the satisfaction of Rancho California Water District and shall ensure that the plan is implemented during construction with the goal of maintaining acceptable intersection LOS during peak traffic hours and ensuring that construction traffic does not queue on public roadways. The CTMP shall be consistent with the California Temporary Traffic Control Handbook (CATTCH) (previously known as the California Joint Utility Traffic Control Manual). At a minimum, the CTMP shall include, but not be limited to, the following:

- Provisions for temporary traffic control to improve traffic flow on public roadways and ensure the safe access into and out of the site (e.g., warning signs, lights and devices, and flag person).
- Prohibiting construction-related vehicles from parking on public streets.
- Providing safety precautions for pedestrians, equestrians, and bicyclists through such measures as alternate routing and protection barriers.
- Obtaining the required permits for truck haul routes from the City of Temecula and/or the California Department of Transportation (Caltrans).
- All emergency access to the Project site and adjacent areas shall be kept clear and unobstructed during all phases of demolition and construction.

- Flag persons shall be trained to assist in emergency response by restricting or controlling the movement of traffic that could interfere with emergency vehicle access.

3.7.10 Level of Significance After Mitigation

With implementation of the regulatory compliance measures and mitigation measures listed above, all impacts related to construction and operation of the Proposed Project would be less than significant.

3.8 HYDROLOGY AND WATER QUALITY

This section evaluates the potential impacts to hydrology and water quality conditions from implementation of the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project). The analysis in this section is based in part on the *Hydrology Study* (AECOM 2022e) (Appendix H), the *Preliminary Water Quality Management Plan* (AECOM 2022f) (Appendix H), the *Geotechnical Basis of Design Report* (AECOM 2017b) (Appendix E), and the *Geotechnical Data Report* (AECOM 2021) (Appendix E) that were prepared for the Proposed Project and are included in this Environmental Impact Report (EIR).

3.8.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. No comment letters included comments related to hydrology and water quality.

3.8.2 Existing Environmental Setting

3.8.2.1 Surface Waters

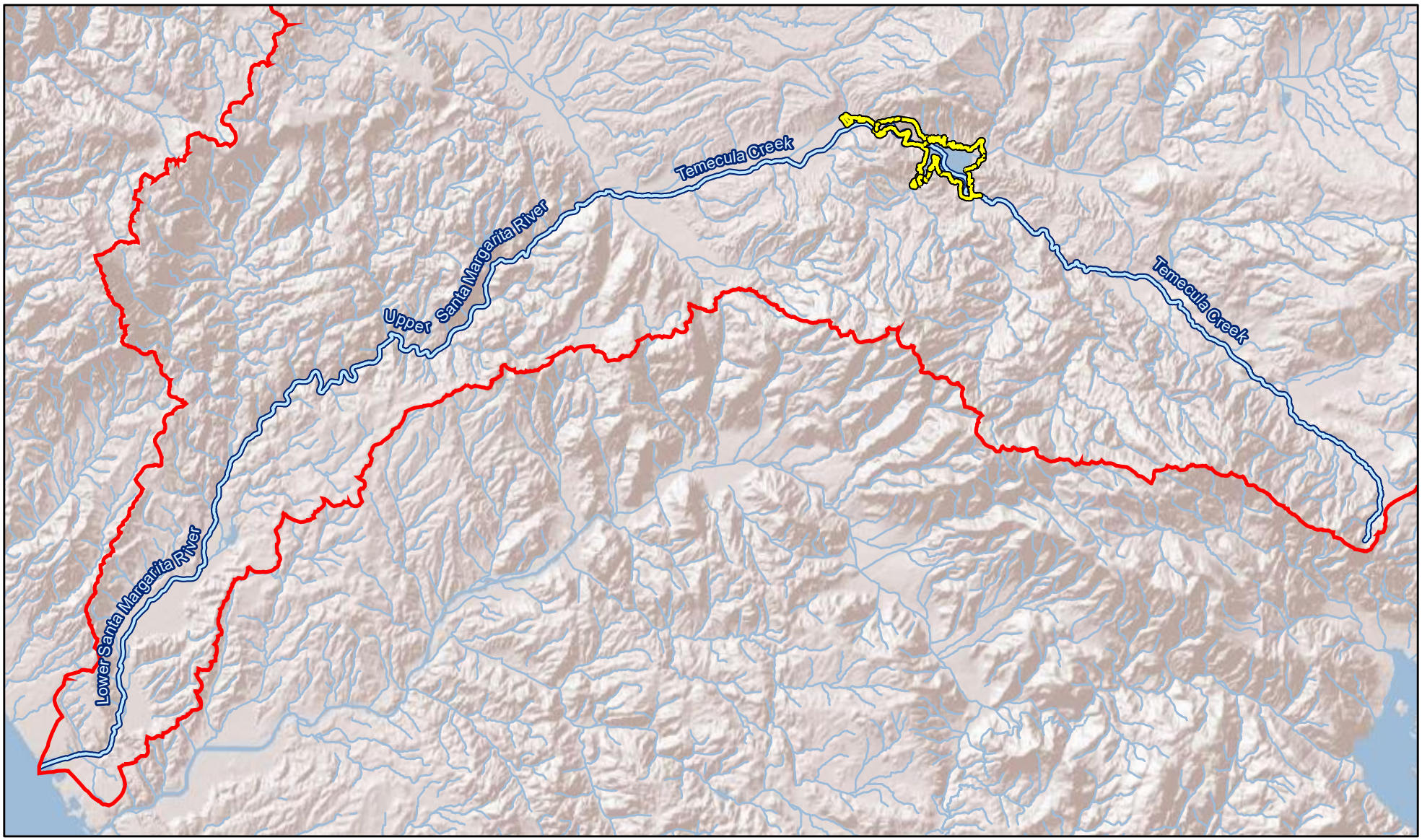
The Project site is located within the Santa Margarita Watershed. The Santa Margarita Watershed covers approximately 750 square miles in Riverside and San Diego Counties. The major surface water body within the Santa Margarita Watershed is the Santa Margarita River, which drains in a westerly direction from headwaters in Riverside County to the Santa Margarita Estuary and the Pacific Ocean. Major tributaries to the Santa Margarita River include Temecula Creek, Murrieta Creek, De Luz Creek, Sandia Creek, and Rainbow Creek. Project site receiving waters include Temecula Creek, Santa Margarita River (Upper), and Santa Margarita River (Lower). Figure 3.8-1 shows the Project's receiving waters.

The Project site is located within the jurisdictional boundary of the San Diego Regional Water Quality Control Board (RWQCB). For planning purposes, the San Diego RWQCB uses a watershed classification system that divides surface waters into hydrologic units (HUs), hydrologic areas (HAs), and hydrologic subareas (HSAs). As designated by the San Diego RWQCB, the Project site is located within the Santa Margarita HU, the Aguanga and Pechanga HAs, and the Vail and Pauba HSAs (RWQCB 1994).

3.8.2.2 On-Site Drainage

Drainage along the existing access roads generally sheet flows from the adjacent hillsides and drains toward Temecula Creek or Vail Lake. Drainage in the vicinity of the dam, including the dam face, also sheet flows from adjacent hillsides and the dam face to receiving waters (i.e., Temecula Creek, Santa Margarita River [Upper], and Santa Margarita River [Lower]).

This page intentionally left blank



LSA

LEGEND

Project Location

Surface Waters

Santa Margarita Watershed Subbasin

N

0 2 4

MILES

SOURCE:Esri (2021); AECOM (2/2021); FEMA (2018)

I:\RCW1902\GIS\MXD\EIR-EIS\Surface_Waters.mxd (8/23/2022)

FIGURE 3.8-1

Vail Dam Seismic and Hydrologic Remediation Project

Surface Waters within Project Vicinity

This page intentionally left blank

3.8.3 Surface Water Quality

As discussed in further detail in Section 3.8.3, the receiving waters for stormwater runoff from the Project site are listed as impaired on the 303(d) list for several constituents. Temecula Creek is impaired for chlorpyrifos, copper, indicator bacteria, total dissolved solids, toxicity, and phosphorus. Santa Margarita River (Upper) is impaired for indicator bacteria, iron, manganese, nitrogen, phosphorous, and toxicity. Lastly, Santa Margarita River (Lower) is impaired for indicator bacteria, benthic community effects, chlorpyrifos, nitrogen, phosphorous, and toxicity.

3.8.3.1 Groundwater

According to the California Department of Water Resources (DWR), the Project site is located partially within the Temecula Valley Groundwater Basin (DWR 2020). For management purposes, groundwater basins are designated in the San Diego RWQCB's Basin Plan using the same HUs, HAs, and HSAs as surface waters. The basin is bounded by nonwater-bearing crystalline rocks of the Peninsular Ranges. Groundwater recharge from the basin is derived from direct precipitation and percolation from the Warm Springs, Tucalota, Santa Gertrudis, Murrieta, and Pechanga Creeks and the Temecula River (DWR 2004).

According to the *Geotechnical Data Report* (AECOM 2021) and the *Geotechnical Basis of Design Report* (AECOM 2017b), vibrating wire pressure transducers (piezometers) were installed in two borings to measure groundwater levels, and the piezometer data indicate that the piezometric surface in the valley bottom is at an approximate elevation of 1,360 feet (ft) NAVD88 at the time of the readings and therefore the alluvium and the lower part of the fill in the valley bottom were saturated. The groundwater levels at the dam ranged from an elevation of 1,358 ft NAVD88 (21.8 ft below ground surface [bgs]) to 1,361 ft NAVD88 (12 ft bgs) in August and September 2017. This does not represent a long-term record of groundwater levels. The groundwater levels are likely higher during periods of increased precipitation and are likely currently higher than what existed in 2017 because of the higher reservoir levels. The groundwater level in the western part of the Project site was measured at approximately 64 ft bgs (at elevation 1,201.4 ft NAVD88) in June 2019 in U.S. Geological Survey (USGS) well number 333010117003101 (USGS 2020b). This well is located in the wash deposits approximately 0.25 miles south of the proposed Pond Access Road. In USGS well 333001117005702, which is approximately 0.3 miles south of the proposed Primary Entry Road (50 Acre Parcel) within the young channel deposits, water levels ranged from 295 to 306 ft bgs, at elevations 946 to 957 ft NAVD88, between June 2019 to May 2020 (USGS 2020b).

3.8.3.2 Groundwater Quality

Groundwater in the Temecula Valley Groundwater Basin is primarily sodium-bicarbonate based. In general, total dissolved solids (TDS) content in groundwater ranges from 240 milligrams per liter (mg/L) to 1,500 mg/L, with an average of 476 mg/L.

3.8.3.3 Floodplains

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06065C2745G, No. 06065C2775G, No. 06065C3310G, and No. 06065C3350G (December 28, 2009), the Project site is located within Zones A, X, and D (FEMA 2020). The Primary Entry Road (50 Acre Parcel), Secondary Access Road, Pond Access Road, and a small westernmost portion of the

North Access Road and the Canyon Access Road are within Zone A, which is classified as an area subject to inundation by the 1-percent-annual-chance flood event. A portion of the North Access Road and the Canyon Access Road would be located within Zone X, which is classified as an area of minimal flood hazard. The majority of the Project site, including the South Access Road and the majority of the North Access Road and the majority of the Canyon Access Road, lies within Zone D, an area of undetermined flood hazard. Figure 3.8-2 shows the FEMA floodplains within the Project site. In addition, according to the California Dam Breach Inundation Maps, the majority of the Project site is located within the inundation area in the event of catastrophic failure of Vail Lake Dam (refer to Figure 3.7-1) (DSOD 2021).

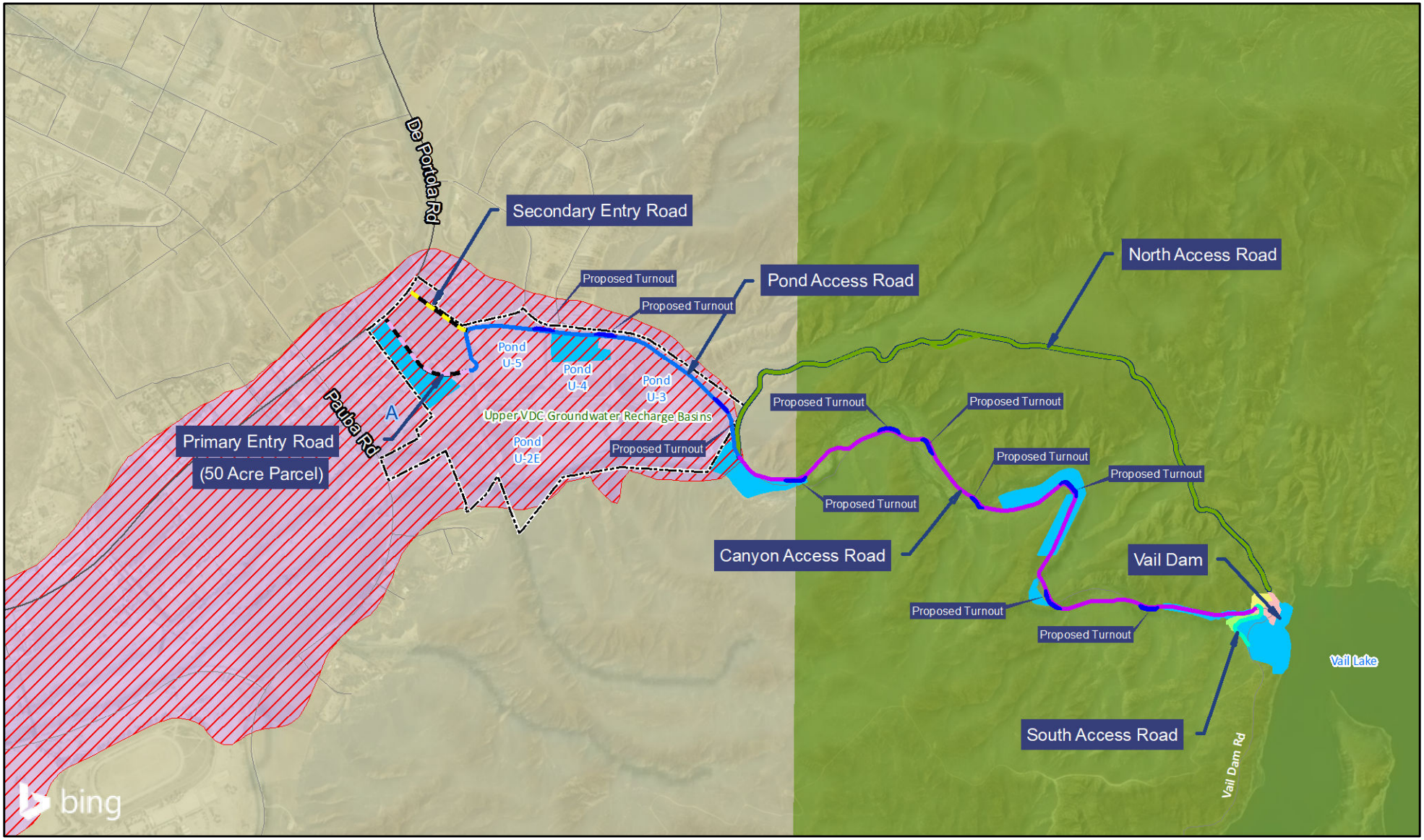
3.8.4 Regulatory Setting

3.8.4.1 Federal Regulations

Clean Water Act. In 1972, the Federal Water Pollution Control Act (now referred to as the Clean Water Act [CWA]) was amended to require that the discharge of pollutants into waters of the United States from any point source be effectively prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In 1987, the CWA was again amended to require that the U.S. Environmental Protection Agency (EPA) establish regulations for the permitting of stormwater discharges (as a point source) by municipal and industrial facilities and construction activities under the NPDES permit program. The regulations require that Municipal Separate Storm Sewer System (MS4) discharges to surface waters be regulated by an NPDES permit.

The CWA requires states to adopt water quality standards for water bodies and have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g., wildlife habitat, agricultural supply, fishing), along with water quality criteria necessary to support those uses. Water quality criteria are set concentrations or levels of constituents (e.g., lead, suspended sediment, and fecal coliform bacteria) or narrative statements that represent the quality of water that support a particular use. Because California had not established a complete list of acceptable water quality criteria for toxic pollutants, the EPA Region IX established numeric water quality criteria for toxic constituents in the form of the California Toxics Rule (CTR).

When designated beneficial uses of a particular water body are being compromised by water quality, Section 303(d) of the CWA requires identifying and listing that water body as impaired. Once a water body has been deemed impaired, a Total Maximum Daily Load (TMDL) must be developed for each impairing water quality constituent. A TMDL is an estimate of the total load of pollutants from point, nonpoint, and natural sources that a water body may receive without exceeding applicable water quality standards (often with a “factor of safety” included, which limits the total load of pollutants to a level well below that which could cause the standard to be exceeded). Once established, the TMDL is allocated among current and future dischargers into the water body.



LSA

LEGEND

- Canyon Access Road
- North Access Road
- North Access Road Design Alternative
- Primary Entry Road (50 Acre Parcel)
- Secondary Entry Road
- Pond Access Road
- South Access Road
- Proposed Truck Turnout
- Dam Construction Area
- South Access Road Construction Area
- Staging and Laydown Area
- Temporary Construction Area
- Property Boundary

FEMA FIRM and Flood Hazard Area

- 100-year Flood Zone
- D = (unstudied areas, hazards undetermined but possible)
- A = (1 % annual chance)
- X = (areas outside 1% annual chance or 1% chance with depths less than 1 ft, drainages less than 1 sq mi, or levee protected areas)

N

0 1000 2000

FEET

SOURCE: Bing Maps (2018); AECOM (2/2021); FEMA (2018)

I:\RCW1902\GIS\MXD\EIR-EIS\FEMA_Floodplains.mxd (8/23/2022)

FIGURE 3.8-2

Vail Dam Seismic and Hydrologic Remediation Project

FEMA Floodplains

This page intentionally left blank

Direct discharges of pollutants into waters of the United States are not allowed except in accordance with the NPDES program established in Section 402 of the CWA.

Clean Water Act, Section 303, List of Impaired Water Bodies. The State Water Resources Control Board (SWRCB), in compliance with Section 303(d) of the CWA, prepared a 2014/2016 list of impaired water bodies in California. The SWRCB approved the 2014/2016 California Integrated Report (CWA Section 303(d) List/305(b) Report) on October 3, 2017. On April 6, 2018, the EPA approved the 2014/2016 California 303(d) List of Water Quality Limited Segments (303[d] list). The 303(d) list includes a priority schedule for the development of TMDL implementation for each contaminant impacting the water body. As stated previously, Temecula Creek is impaired for chlorpyrifos, copper, indicator bacteria, total dissolved solids, toxicity, and phosphorus. Santa Margarita River (Upper) is impaired for indicator bacteria, iron, manganese, nitrogen, phosphorous, and toxicity. Lastly, Santa Margarita River (Lower) is impaired for indicator bacteria, benthic community effects, chlorpyrifos, nitrogen, phosphorous, and toxicity.

National Flood Insurance Act. Congress acted to reduce the costs of disaster relief by passing the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief efforts by restricting development in floodplains. FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in a floodplain. FEMA issues FIRMs of communities participating in the NFIP. These maps delineate flood hazard zones in the community. Riverside County Flood Control and Water Conservation District (RCFC&WCD) is responsible for regional flood control planning within Riverside County.

3.8.4.2 State Regulations

Porter-Cologne Water Quality Control Act of 1970. The federal CWA places the primary responsibility for the control of water pollution and planning the development and use of water resources with the states, although it does establish certain guidelines for the states to follow in developing their programs.

California's primary statute governing water quality and water pollution is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the SWRCB and the nine RWQCBs broad powers to protect water quality and is the primary vehicle for the implementation of California's responsibility under the federal CWA. The Porter-Cologne Act grants the SWRCB and RWQCBs the authority and responsibility to adopt plans and policies, to regulate discharges to surface water and groundwater, to regulate waste disposal sites, and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, oil, or petroleum product.

Each RWQCB must formulate and adopt a water quality plan for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that an RWQCB may include in its region a

regional plan with water discharge prohibitions applicable to particular conditions, areas, or types of waste. The Project site is within the jurisdictional boundaries of the San Diego RWQCB (Region 9).

California Toxics Rule. As stated previously, because California had not established a complete list of acceptable water quality criteria for toxic pollutants, EPA Region IX established numeric water quality criteria for toxic constituents in the form of the CTR. The CTR provides water quality criteria for certain potentially toxic compounds for inland surface waters, enclosed bays, estuaries, and waters designated for human health or aquatic life uses. The CTR is often used by the RWQCBs when establishing water quality objectives and TMDLs. Although the CTR criteria do not apply directly to discharges of stormwater runoff, they are utilized as benchmarks for toxics in urban runoff. The CTR is used as a benchmark to evaluate the potential ecological impacts of stormwater runoff to receiving waters. The CTR establishes acute and chronic surface water quality standards for certain water bodies. Acute criteria provide benchmarks for the highest permissible concentration below which aquatic life can be exposed for short periods of time without deleterious effects. Chronic criteria provide benchmarks for an extended period of time (i.e., 4 days or more) without deleterious effects. The acute CTR criteria have a shorter relevant averaging period (less than 4 days) and provide a more appropriate benchmark for comparison for stormwater flows.

CTR criteria apply to the receiving water body and are calculated based on the probable hardness values of the receiving waters. At higher hardness values for receiving waters, certain constituents (including copper, lead, and zinc) are more likely to be complexed (bound with) components in the water column. This in turn reduces the bioavailability and resulting potential toxicity of these metals.

California Water Code Sections 6160 and 6161. California Water Code Section 6160 states that the owner of a dam that is regulated by the State is responsible for emergency preparedness with regard to the potential for loss of life and property resulting from the failure of a dam. According to California Water Code Section 6161, an owner of a State jurisdictional dam, except an owner of a dam classified by the California Department of Water Resources, Division of Safety of Dams (DSOD), pursuant to Section 6160 as a low hazard dam, shall submit electronically to the DSOD an inundation map that shows the area that would be subject to flooding under various failure scenarios unique to the dam and the critical appurtenant structures of the dam. The California Code of Regulations (CCR), Title 23, Division 2, Chapter 1, Article 6 defines the specific requirements of the inundation maps.

General Construction Activity Storm Water Permit. The *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities,* Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ (Construction General Permit), adopted by the SWRCB, regulates construction activity that includes clearing, grading, and excavation resulting in soil disturbance of at least 1 acre of total land area. The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities.

The Construction General Permit requires that all developers of land where construction activities will occur over more than 1 acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three risk levels established in the General Permit;
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the United States;
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) that will reduce pollution in stormwater discharges to the Best Available Technology/Economically Achievable/Best Conventional Pollutant Control Technology standards;
- Perform inspections and maintenance of all BMPs; and
- Conduct stormwater sampling, if required based on risk level.

To obtain coverage under the Construction General Permit, a project applicant must electronically file all permit registration documents with the SWRCB prior to the start of construction. Permit registration documents must include a:

- Notice of Intent (NOI),
- Risk Assessment,
- Site map,
- SWPPP,
- Annual fee, and
- Signed certification statement.

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, and control pollutants from construction materials. The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

Sustainable Groundwater Management Act. The Sustainable Groundwater Management Act (SGMA) of 2014 is a comprehensive three-bill package that Governor Jerry Brown signed into California State law in September 2014. The SGMA provides a framework for sustainable management of groundwater supplies by local authorities, with a limited role for State intervention if necessary to protect the resource. The plan is intended to ensure a reliable groundwater supply for California for years to come.

The SGMA requires governments and water agencies of high- and medium-priority basins to halt overdrafts of groundwater basins. The SGMA requires the formation of local groundwater sustainability agencies (GSAs) that are required to adopt Groundwater Sustainability Plans to manage the sustainability of the groundwater basins. Part of the Project site is located within the Temecula Valley Groundwater Basin. The Temecula Valley Groundwater Basin is identified by the Department of Water Resources as a very low-priority basin (DWR 2020); therefore, development of a Groundwater Sustainability Plan is not required.

3.8.4.3 Regional Regulations

Water Quality Control Plans (Basin Plans). The San Diego RWQCB has adopted a Basin Plan for its region of responsibility that delineates water resource area boundaries based on hydrological features. For the purposes of achieving and maintaining water quality protection, specific beneficial uses have been identified for each of the surface waters and groundwater regions described in the Basin Plan. Once beneficial uses are designated, appropriate water quality objectives can be established, and programs that maintain or enhance water quality can be implemented to ensure the protection of beneficial uses.

Beneficial uses of surface receiving waters and groundwater for the Project site are shown in Table 3.8.A. As shown in Table 3.8.A, beneficial uses of surface receiving waters and groundwater for the Project site include: municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), industrial process supply (PROC), groundwater recharge (GWR), contact water recreation (REC1), non-contact water recreation (REC2), warm freshwater habitat (WARM), and wildlife habitat (WILD), cold freshwater habitat (COLD), and rare, threatened, or endangered species (RARE).

Table 3.8.A: Beneficial Uses of Surface Receiving Waters

Receiving Water	Beneficial Use										
	MUN	AGR	IND	PROC	GWR	REC1	REC2	WARM	COLD	WILD	RARE
Surface Waters											
Temecula Creek	●	●	●	●	●	○	●	●		●	
Santa Margarita River (Upper)	●	●	●			●	●	●	●	●	●
Santa Margarita River (Lower)	●	●	●	●		●	●	●	●	●	●
Groundwater											
Aguanga HA	●	●	●								
Pechanga HA	●	●	●								

Sources: *Water Quality Control Plan for the San Diego Basin* (San Diego RWQCB 1994, with amendments effective on or before May 17, 2016) and *Preliminary Water Quality Management Plan* (AECOM 2022f).

Note: ● = Existing Beneficial Use
○ = Potential Beneficial Use

AGR = agricultural supply
COLD = cold freshwater habitat
GWR = groundwater recharge
HA = hydrologic area
IND = industrial service supply
MUN = municipal and domestic supply
PROC = industrial process supply
RARE = rare, threatened, or endangered species
REC1 = contact water recreation
REC2 = non-contact water recreation
WARM = warm freshwater habitat
WILD = wildlife habitat

Basin Plans also establish implementation programs to achieve water quality objectives to protect beneficial uses and require monitoring to evaluate the effectiveness of the programs. These objectives must comply with the State antidegradation policy (State Board Resolution No. 68-16), which is designed to maintain high-quality waters while allowing some flexibility if beneficial uses are not unreasonably affected.

Basin Plans have established narrative and numeric water quality objectives for inland surface streams and groundwater. If water quality objectives are exceeded, the RWQCBs can use their regulatory authority to require municipalities to reduce pollutant loads to the affected receiving

waters. Relevant surface water quality objectives for all inland surface waters and groundwater under the jurisdiction of the San Diego RWQCB that are applicable to the receiving waters for the Project site are shown in Table 3.8.B.

Table 3.8.B: Water Quality Objectives

Constituent	Objective
Ammonia, Unionized	Discharge of wastes shall not cause concentrations of unionized ammonia to exceed 0.025 mg/L (as N [nitrogen]).
Bacteria, Coliform	In waters designated for REC1, the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a log mean of 200 organisms/100 mL, nor shall more than 10 percent of all samples collected during any 30-day period exceed 400 organisms/100 mL.
Bacteria, E. Coli	In fresh waters designated for REC1, the steady-state E. coli concentration shall not exceed 126 colonies/100 mL, the maximum concentration shall not exceed 406 colonies/100 mL at moderately or lightly used areas, and the maximum concentration shall not exceed 576 colonies/100 mL for infrequently used areas.
Bacteria, Enterococci	In fresh waters designated for REC1, the steady-state enterococci concentration shall not exceed 33 colonies/100 mL, the maximum concentration shall not exceed 108 colonies/100 mL at moderately or lightly used areas, and the maximum concentration shall not exceed 151 colonies/100 mL for infrequently used areas.
Biostimulatory Substances	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect the water for beneficial uses. Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those that stimulate algae and emergent plant growth. Threshold total phosphorus (P) concentrations shall not exceed 0.05 mg/L in any stream at the point where it enters any standing body of water, or 0.025 mg/L in any standing body of water. A desired goal in order to prevent plant nuisance in streams and other flowing waters appears to be 0.1 mg/L total P. These values are not to be exceeded more than 10 percent of the time unless studies of the specific water body in question clearly show that water quality objective changes are permissible and changes are approved by the San Diego RWQCB. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined by surveillance and monitoring and then upheld. If data are lacking, a ratio of N:P = 10:1 on a weight-to-weight basis shall be used.
Color	Waters shall be free of coloration that causes nuisance or adversely affects the water for beneficial uses. The natural color of fish, shellfish, or other resources in inland surface waters, coastal lagoons or bays and estuaries shall not be impaired.
Dissolved Oxygen	Dissolved oxygen levels shall not be less than 5 mg/L in inland surface waters with a designated WARM beneficial use. The annual mean dissolved oxygen concentration shall not be less than 7 mg/L more than 10 percent of the time.
Floating Materials	Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses.
pH	In inland surface waters, the pH shall not be depressed below 6.5 or raised above 8.5.
Oil and Grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, or that cause nuisance or otherwise adversely affect beneficial uses.
Pesticides	No individual pesticide or combination of pesticides shall be present in the water column, sediments, or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels that will bioaccumulate in aquatic organisms to levels that are harmful to human health, wildlife, or aquatic organisms.

Table 3.8.B: Water Quality Objectives

Constituent	Objective
Phenolic Compounds	Water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of phenolics in excess of 1.0 ug/L.
Radioactivity	Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
Sediment	Waters shall not contain suspended or settleable solids in concentrations that cause nuisance or adversely affect beneficial uses.
Suspended and Settleable Solids	Waters shall not contain suspended and settleable solids in concentrations that cause nuisance or adversely affect beneficial uses.
Taste and Odor	Waters shall not contain taste- or odor-producing substances in concentrations that cause a nuisance or that adversely affect beneficial uses. The natural taste and odor of fish, shellfish, or other regional water resources used for human consumption shall not be impaired for inland surface waters.
Temperature	The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the San Diego RWQCB that such alteration in temperature does not adversely affect beneficial uses. At no time or place shall the temperature of any COLD water be increased more than 5°F above the natural receiving water temperature.
Trihalomethanes	Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of trihalomethanes in excess of the criteria set forth in California Code of Regulations, Title 22, section 64439 which is incorporated by reference into this plan. This incorporation by reference is prospective including future changes to section 64439 as the changes take effect.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms; analyses of species diversity, population density, and growth anomalies; bioassays of appropriate duration; or other appropriate methods as specified by the San Diego RWQCB. Inland surface waters shall not contain toxic pollutants in excess of the numerical objectives applicable to California specified in the California Toxics Rule (40 CFR 131.36).
Turbidity	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

Source: *Water Quality Control Plan for the San Diego Basin* (San Diego RWQCB 1994, with amendments effective on or before May 17, 2016).

CFR = Code of Federal Regulations
COLD = cold freshwater habitat
mg/L = milligrams per liter
mL = milliliter
REC1 = contact water recreation
RWQCB = Regional Water Quality Control Board
ug/L = micrograms per liter
WARM = warm freshwater habitat

In addition to the water quality objectives applicable to all surface waters and groundwater, the San Diego RWQCB has designated site-specific water quality objectives for inland surface waters and groundwater. The site-specific inland surface water quality objectives for the Pauba HSA are:

- TDS = 500 mg/L
- Chloride = 250 mg/L
- Sulfate = 250 mg/L
- Percent Sodium = 60
- Iron = 0.3 mg/L

- Manganese = 0.05 mg/L
- Methylene Blue Active Substances = 0.5 mg/L
- Boron = 0.75 mg/L
- Turbidity = 20 nephelometric turbidity units (NTU)
- Color = 20 units
- Fluoride = 1 mg/L

The site-specific inland surface water quality objectives for the Aguanga HA are:

- TDS = 750 mg/L
- Chloride = 300 mg/L
- Sulfate = 300 mg/L
- Percent Sodium = 60
- Iron = 0.3 mg/L
- Manganese = 0.05 mg/L
- Methylene Blue Active Substances = 0.5 mg/L
- Boron = 0.75 mg/L
- Turbidity = 20 NTU
- Color = 20 units
- Fluoride = 1 mg/L

The site-specific groundwater quality objectives for the Pauba HSA are:

- TDS = 750 mg/L
- Chloride = 250 mg/L
- Sulfate = 250 mg/L
- Percent Sodium = 60
- Nitrate = 45 mg/L
- Iron = 0.3 mg/L
- Manganese = 0.05 mg/L
- Methylene Blue Active Substances = 0.5 mg/L
- Boron = 0.75 mg/L
- Turbidity = 5 NTU
- Color = 15 units
- Fluoride = 1 mg/L

The site-specific groundwater quality objectives for the Aguanga HA are:

- TDS = 500 mg/L
- Chloride = 250 mg/L
- Sulfate = 250 mg/L
- Percent Sodium = 60
- Nitrate = 45 mg/L
- Iron = 0.3 mg/L

- Manganese = 0.05 mg/L
- Methylene Blue Active Substances = 0.5 mg/L
- Boron = 0.75 mg/L
- Turbidity = 5 NTU
- Color = 15 units
- Fluoride = 1 mg/L

National Pollutant Discharge Elimination System Permit. Riverside County and the RCFC&WCD are co-permittees of the *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region* (Regional MS4 Permit), Order No. R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-0100 (NPDES No. CAS0109266). The Regional MS4 Permit regulates discharges into the MS4 system in the cities and county areas within San Diego County, Orange County, and Riverside County that are in the jurisdiction of the San Diego RWQCB. As discussed further below, the Regional MS4 Permit requires preparation of a Water Quality Management Plan (WQMP) and implementation of post-construction BMPs for new development and significant redevelopment projects that qualify as Priority Development Projects. The Proposed Project is considered a Priority Development Project because it is a redevelopment project that includes the addition or replacement of 5,000 square feet (sf) or more of impervious surface area.

Drainage Area Management Program. The Drainage Area Management Plan (DAMP) was created by RCFC&WCD and incorporated cities (permittees) and includes specific water pollutant requirements of the Riverside County Stormwater Program. The DAMP is the principal guidance and compliance document for the county-wide implementation of the Stormwater Program. It is the foundation for the permittees to implement model programs designed to prevent pollutants from entering receiving waters to the maximum extent practicable. Section 6 of the DAMP discusses issues relating to new developments and significant redevelopments.

Santa Margarita Region Hydromodification Management Plan. Pursuant to the requirements of the Regional MS4 Permit, the RCFC&WCD in cooperation with the Regional MS4 Permit co-permittees prepared the *Santa Margarita Region Hydromodification Management Plan (SMR HMP)* (County of Riverside 2014). All priority development projects that do not meet the exemption criteria are required to comply with hydromodification criteria in the HMP. The goal of hydromodification control is to integrate hydrologic controls into a proposed project so that post-project runoff discharge rates and durations do not exceed pre-project (naturally occurring) discharge rates and durations.

Groundwater Dewatering Permit. The San Diego RWQCB requires a permit for discharging wastes to surface waters from activities involving groundwater extraction. The *General Waste Discharge Requirements for Groundwater Extraction Discharges to Surface Waters within the San Diego Region (*Order No. R9-2015-0013, NPDES No. CAG919003) covers general waste discharge requirements for discharges to surface waters within the San Diego Region. Under this order, permittees are required to monitor their discharges of groundwater extraction waste from construction to ensure that effluent limitations for constituents are not exceeded.

Upper Santa Margarita Watershed Integrated Regional Water Management Plan. The Upper Santa Margarita Watershed Integrated Regional Water Management (IRWM) Planning Region was formed through a regional application process with the California Department of Water Resources in 2007. In the same year, the first Upper Santa Margarita Watershed IRWM Plan was prepared and adopted by RCWD, RCFC&WCD, and Riverside County, known as the Regional Water Management Group (RWMG). The RWMG jointly lead implementation of the Upper Santa Margarita Watershed IRWM Plan through a Memorandum of Understanding. A comprehensive update of the 2007 Upper Santa Margarita Watershed IRWM Plan began in October 2012. A collaborative stakeholder process helped to shape the 2014 Upper Santa Margarita Watershed IRWM Plan Update, which reflects the current and projected challenges, opportunities, goals, and strategies of the Upper Santa Margarita Watershed IRWM Region and meets new Department of Water Resources IRWM program requirements (RCWD et al. 2022).

3.8.4.4 Local Regulations

Jurisdictional Runoff Management Plan. The RCFC&WCD Jurisdictional Runoff Management Plan (JRMP) for the Santa Margarita Region is the principal guidance and compliance document specific to RCFC&WCD jurisdiction for compliance with the requirements of the Regional MS4 Permit within the Santa Margarita Watershed. The JRMP provides the description and details of water quality program implementation activities undertaken by the JRMP co-permittees. JRMP co-permittees include Riverside County, the City of Murrieta, the City of Temecula, and the City of Wildomar. The JRMP is designed to work in conjunction with the RCFC&WCD DAMP.

3.8.5 Methodology

Project impacts to hydrology and water quality are evaluated based on the Proposed Project's adherence to regional, State, and federal standards; the proposed land uses and Project design; changes in pre- and post-Project stormwater flows; and proposed BMPs for control of surface runoff and reduction of pollutants in stormwater runoff.

3.8.6 Thresholds of Significance

The thresholds for hydrology and water quality impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to hydrology and water quality if it would:

Threshold 3.8.1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality

Threshold 3.8.2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin

Threshold 3.8.3(i): 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: result in substantial erosion or siltation on- or off-site

Threshold 3.8.3(ii): 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: substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site

Threshold 3.8.3(iii): 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: 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

Threshold 3.8.3(iv): 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: impede or redirect flood flows

Threshold 3.8.4: In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation

Threshold 3.8.5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

3.8.7 Project Impacts

The Initial Study, included as Appendix A, substantiates that impacts related to Threshold 3.8.4, the release of pollutants in the event of inundation from flooding, tsunami, or seiche, would be less than significant during construction because RCWD is able to release water to reduce lake water levels and avoid overtopping of the spillway when necessary and during Project operations, because BMPs would reduce the potential for pollutants to occur on the site, and because any hazardous materials used on site would be properly stored and contained. Therefore, impacts related to the release of pollutants in the event of inundation from flooding, tsunami, or seiche would be less than significant. For a discussion of hazards associated with dam inundation, refer to Section 3.7, Hazards and Hazardous Materials.

Threshold 3.8.1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality

Less Than Significant Impact.

Construction. The Proposed Project consists of the construction of a new straight-axis gravity concrete dam to replace the existing concrete arch dam. The site development includes improvements to access roads, provision for construction staging and material disposal areas, and partial demolition of the existing dam to allow for hydraulic connection of the reservoir with the new outlet tower. The remainder of the existing arch dam would remain in place. As shown on

Figure 2-11, during partial demolition of the existing dam, the three central monoliths would be partially removed. The demolition would likely include saw cutting the arch monoliths into manageable sizes that can be removed with a barge-supported crane. Auxiliary barges would transport the demolition debris to the shoreline, likely to the spillway staging area. All the demolition debris will be removed from the site for off-site disposal via the Canyon Access Road. It is anticipated that the contractor would support the demolition equipment on a modular pontoon system that would be trucked to the site and then assembled to form a larger barge. Multiple barges may be required to transport equipment and demolition debris to/from the shoreline and the dam. The barges could be launched from the existing launch ramp (in the southeast part of the reservoir) or lofted into the reservoir with a crane located in the staging area planned in the spillway area.

Pollutants of concern during construction include, but are not limited to, sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction, approximately 72.1 acres of soil would be disturbed. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via stormwater runoff into receiving waters (i.e., Temecula Creek, Santa Margarita River [Upper], and Santa Margarita River [Lower], and ultimately the Pacific Ocean). Sediment from increased soil erosion and chemicals from spills and leaks have the potential to be discharged to downstream receiving waters during storm events, which can affect water quality and impair beneficial uses.

Because construction of the Proposed Project would disturb greater than 1 acre of soil, the Proposed Project is subject to the requirements of the Construction General Permit, as specified in Regulatory Compliance Measure RCM WQ-1. As also specified in RCM WQ-1, a SWPPP would be prepared and construction BMPs detailed in the SWPPP would be implemented during construction, in compliance with the requirements of the Construction General Permit. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. Compliance with the requirements of the Construction General Permit, including incorporation of construction BMPs to target and reduce pollutants of concern in stormwater runoff, would ensure that construction impacts related to Waste Discharge Requirements (WDRs), water quality standards, degradation of water quality, and alteration of receiving water quality would be less than significant.

According to the *Geotechnical Data Report* (AECOM 2021) that was prepared for the Proposed Project, groundwater levels at the dam ranged from an elevation of 1,358 ft NAVD88 (21.8 ft bgs) to 1,361 ft NAVD88 (12 ft bgs) in August and September 2017. However, the groundwater levels are likely higher during periods of increased precipitation and are likely currently higher than what existed in 2017 because of the higher reservoir levels. Deeper groundwater levels were encountered in the western part of the Project area, where groundwater was measured at approximately 64 ft bgs (at elevation 1,201.4 ft NAVD88) at USGS well number 333010117003101. In USGS well

333001117005702, which is approximately 0.3 miles south of the proposed Primary Entry Road (50 Acre Parcel), water levels ranged from 295 to 306 ft bgs, at elevations 946 to 957 ft NAVD88.

As excavation depths in the western portion of the Proposed Project near the access road, improvements would be relatively shallow; groundwater dewatering is not anticipated in this location. However, due to the shallower groundwater levels located beneath the proposed dam, groundwater dewatering would likely be required during construction of the dam. As also stated in the *Preliminary Design Report* (AECOM 2019), dewatering of the dam foundation would likely be required due to seeps within the foundation rock and drainage of groundwater from the fills and alluvium within the valley portion of the excavation. Groundwater may contain high levels of total dissolved solids, nitrate, sediment, selenium, or other constituents, or high or low pH levels that could be introduced to surface waters when dewatered groundwater is discharged to surface waters. Depending on the water quality of the discharge, groundwater dewatering activities during excavation would be conducted in accordance with the *General Waste Discharge Requirements for Groundwater Extraction Discharges to Surface Waters within the San Diego Region (*Order No. R9-2015-0013, NPDES No. CAG919003) (Groundwater Discharge Permit), as specified in Regulatory Compliance Measure RCM WQ-2. The Groundwater Discharge Permit would require testing and treatment (as necessary) of groundwater encountered during groundwater dewatering prior to release to surface waters to ensure that discharges do not exceed water quality limits specified in the permit. Compliance with the requirements of the Groundwater Discharge Permit, as specified in RCM WQ-2, would ensure impacts related to waste discharge requirements, water quality standards, and surface water quality would be less than significant during dewatering activities, and no mitigation would be required.

Infiltration of stormwater has the potential to affect groundwater quality in areas of shallow groundwater. However, according to the Hydrology Study (AECOM 2022e) prepared for the Project, soils near Vail Lake are categorized in hydrologic soil Group C/D (e.g., soils that have a low/very-low rate of infiltration). Therefore, any infiltration in this area would be minimal due to the low infiltration potential of the on-site soils. Soils within the area by the Canyon Access Road are categorized in hydrologic soil Group A (e.g., soils having a high rate of infiltration). Therefore, there is potential for infiltration of stormwater runoff in this area. As discussed above, groundwater could occur at varying depths throughout the Project site, ranging from 12 to 21.8 ft bgs at the proposed dam and from 64 to 306 ft bgs near the access road improvements. Pollutants in stormwater are generally removed by soil through absorption as water infiltrates. In areas of deep groundwater, there is more absorption potential and, as a result, less potential for pollutants to reach groundwater. As such, due to the depth to groundwater, it is not expected that any stormwater that may infiltrate during construction would affect groundwater quality because there is not a direct path for pollutants to reach groundwater. Furthermore, because the majority of the soils on the Project site are not favorable for infiltration, any infiltration during construction would be minimal. Therefore, Project construction activities would not substantially degrade groundwater quality and would result in a less than significant impact; no mitigation is required.

In conclusion, construction of the Proposed Project would comply with existing NPDES regulations (as specified in Regulatory Compliance Measure RCM WQ-1), which includes preparation of a SWPPP and Erosion and Sediment Control Plans and implementation of Construction BMPs to target

and reduce pollutants of concern in stormwater runoff, and with the requirements of the Groundwater Discharge Permit (as specified in Regulatory Compliance Measure RCM WQ-2), which includes testing and treatment (if required) of any groundwater prior to discharge to surface waters. Compliance with regulatory requirements would ensure that impacts related to violation of any water quality standards or waste discharge requirements, degradation of surface or ground water quality, and alteration of receiving water quality during construction would be less than significant, and no mitigation is required.

Operation. Expected pollutants of concern from long-term operation of the Proposed Project include nutrients (e.g., nitrogen and phosphorus), metals (e.g., copper, iron, and manganese), toxicity, bacteria and pathogens, and pesticides/herbicides. However, pollutants of concern would remain similar to existing conditions as the Proposed Project is not changing the use of the Project site, and the number of vehicle trips for site maintenance would not change from the existing condition.

The Proposed Project would be required to comply with the requirements of the Regional MS4 Permit and associated guidance documents. The Regional MS4 Permit requires that a WQMP be prepared for priority new development and redevelopment projects. WQMPs specify the Site Design, Source Control, Low Impact Development (LID), and Treatment Control BMPs that would be implemented to capture, treat, and reduce pollutants of concern in stormwater runoff. Site Design BMPs are stormwater management strategies that emphasize conservation and use of existing site features to reduce the amount of stormwater runoff and pollutant loading generated from a project site. Source Control BMPs are preventative measures that are implemented to prevent the introduction of pollutants into stormwater. LID BMPs mimic a project site's natural hydrology by using design measures that capture, filter, store, evaporate, detain, and infiltrate stormwater runoff rather than allowing runoff to flow directly to piped or impervious storm drains. Treatment Control BMPs are structural BMPs designed to treat and reduce pollutants in stormwater runoff prior to releasing it to receiving waters. The Proposed Project will incorporate stormwater BMPs, as described in more detail below, to address stormwater water quality from operation of the Proposed Project.

A *Preliminary Water Quality Management Plan* (WQMP) (AECOM 2022f) prepared for the Project specifies the Source Control, Site Design, and LID BMPs proposed for the Project (no Treatment Control BMPs are proposed). The *Preliminary WQMP* (AECOM 2022f) will be refined during final design based on the final site plans, as specified in Regulatory Compliance Measure RCM WQ-3. The Proposed Project BMPs are detailed below.

Proposed Site Design BMPs includes preservation of natural drainage patterns onsite; protection of existing vegetation; preservation and enhancement of natural infiltration capacity; minimization of impervious surface area; and dispersion of stormwater runoff to adjacent pervious areas or small collection areas. Proposed Structural Source Control BMPs include use of enclosures, containment structures, and impervious pavement; use of berms or grading to prevent run-on; and use of lined bins. Proposed LID principles include site grading; use of rock-lined ditches; and use of the energy dissipater basin.

The Proposed Project would generally conform to existing on-site drainage patterns, and it is not anticipated that implementation of the Project would change the overall hydrology of the Santa Margarita watershed. The *Preliminary WQMP* (AECOM 2022f) identifies four Drainage Management Areas (DMAs) in the proposed condition. DMA 1 consists of the proposed gravity dam area, dam crest, dam control building, and energy dissipater basin. The gravity dam and crest areas are located upstream of the energy dissipater basin. During a storm event, it is not anticipated that water would be released from the dam, and the energy dissipater basin would be utilized to capture stormwater runoff. In addition, the Project design includes a small rip rap area adjacent to the right (northern) abutment to limit scour, which will prevent downstream sedimentation. Stormwater runoff would sheet flow to the energy dissipater basin from the proposed gravity dam, and any runoff not draining into the energy dissipater basin would flow toward the existing pervious areas downstream of the proposed gravity dam. DMAs 2, 3, and 4 include the pervious unpaved access roads. Stormwater runoff in DMAs 2, 3, and 4 would sheet flow from the adjacent hillsides to the proposed access roads. The pervious unpaved access roads would be improved and graded in specific areas to reduce velocities of stormwater runoff and to minimize runoff and erosion. Specifically, unpaved access road improvements to the North Access Road, Canyon Access Road, Primary Entry Road (50 Acre Parcel), and South Access Road would include gravel surfacing to stabilize on-site soils and v-ditches on the slopes above and below the road to collect stormwater flow. The North Access Road would also include a rock-lined ditch. DMAs 2, 3, and 4 are considered self-treating areas since they are pervious, which allows for stormwater infiltration, and have adjacent pervious areas for overflow retention and therefore would not produce stormwater runoff. In combination, implementation of the proposed Site Design BMPs, proposed Structural Source Control BMPs, and proposed LID principles would reduce pollutants of concern from runoff from the Project site in compliance with the Regional MS4 Permit. In addition, as previously stated, pollutants of concern would be the same as those in the existing conditions because the Proposed Project is not changing the use of the Project site. Compliance with the requirements of the Regional MS4 Permit, including incorporation of operational BMPs to target pollutants of concern, would ensure that water quality impacts, degradation of water quality, and alteration of receiving water quality during Project operation would be less than significant.

As discussed previously, infiltration of stormwater could have the potential to affect groundwater quality in areas of shallow groundwater. Infiltration of stormwater near Vail Lake would be minimal due to the low infiltration potential of the on-site soils. However, soils by the proposed access road improvements have a high rate of infiltration. Although there is potential for infiltration of stormwater runoff in this area, the Proposed Project would not introduce new pollutants, and therefore, infiltration of stormwater would not change from the existing condition. Therefore, Project operation would not substantially degrade groundwater quality.

In conclusion, construction of the Proposed Project would comply with existing NPDES regulations (as specified in Regulatory Compliance Measure RCM WQ-3), which include preparation of a Final WQMP and implementation of operational BMPs to target and reduce pollutants of concern in stormwater runoff from the Project site. Compliance with regulatory requirements would ensure that impacts related to violation of any water quality standards or WDRs, degradation of surface water or groundwater quality, and alteration of receiving water quality during Project operation would be less than significant, and no mitigation is required.

Threshold 3.8.2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin

Less Than Significant Impact.

Construction. As stated in Threshold 3.8.1, according to the 90% Design Report (AECOM 2022a), dewatering of the dam foundation would likely be required during construction activities. However, groundwater dewatering would be localized and temporary, and the volume of groundwater removed would not be substantial. In addition, any volume of water removed during groundwater dewatering would be minimal compared to the size of the Temecula Valley Groundwater Basin, which has a surface area of 137 square miles and a storage capacity of 253,000 acre-ft (DWR 2004). RCWD is also responsible for preparing annual groundwater audits for the Temecula Valley Groundwater Basin and recommends groundwater production reports to ensure sustainable groundwater management of the basin (RCWD et al. 2014). Therefore, construction impacts related to a decrease in groundwater supplies or interference with groundwater recharge would be less than significant, and no mitigation is required.

Operation. Development of the Proposed Project would increase impervious surface area by approximately 0.97 acres within DMA 1 (the proposed gravity dam area, dam crest, dam control building, and energy dissipater basin), which would decrease on-site infiltration. According to the Hydrology Study (AECOM 2022e) prepared for the Project, soils near Vail Lake are categorized in hydrologic soil Group C/D (e.g., soils that have a low/very-low rate of infiltration). Therefore, any infiltration in this area would be minimal due to the low infiltration potential of the on-site soils. Soils within the area by the Canyon Access Road are categorized in hydrologic soil Group A (e.g., soils having a high rate of infiltration). Therefore, there is potential for infiltration of stormwater runoff in this area. Although there is potential for infiltration of stormwater runoff in this area, the Proposed Project would not add pervious surfaces to the access roads, and therefore, infiltration of stormwater would not change from the existing condition. Furthermore, as the majority of the soils on the Project site are not favorable for infiltration; existing on-site infiltration is minimal. Therefore, the additional impervious surface areas would not substantially decrease infiltration compared to existing conditions. Additionally, any decrease in infiltration would be minimal in comparison to the size of the Temecula Valley Groundwater Basin. Furthermore, neither groundwater extraction nor injection would occur during operation. For these reasons, impacts related to depletion of groundwater supplies or interference with groundwater recharge in a manner that may impede sustainable groundwater management would be less than significant, and no mitigation would be required.

Threshold 3.8.3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

(i) Result in substantial erosion or siltation on- or off-site?

Less Than Significant Impact.

Construction. During Project construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. As discussed above in Threshold 3.8.1, the Construction General Permit requires preparation of a SWPPP, as specified in Regulatory Compliance Measure RCM WQ-1. The SWPPP would detail Erosion Control and Sediment Control BMPs to be implemented during Project construction to minimize erosion and retain sediment on site. As also discussed in Threshold 3.8.1, portions of the three central monoliths of the existing dam would be removed to allow for hydraulic connection of the reservoir with the new outlet tower. With compliance with the requirements of the Construction General Permit and with implementation of the construction BMPs, construction impacts related to on- or off-site erosion or siltation would be less than significant, and no mitigation is required.

Operation. Approximately 14.54 acres (approximately 93 percent) of the Project site would consist of pervious surface area (the unpaved access roads) that would be subject to erosion. As described in Threshold 3.8.1, the pervious unpaved access roads in DMAs 2, 3, and 4 will be improved and graded in specific areas to reduce velocities of stormwater runoff and to minimize runoff and erosion. As the access roads have adjacent pervious areas for overflow retention, stormwater runoff would not occur in these areas. Therefore, on-site erosion and siltation impacts would be minimal in DMAs 2, 3, and 4.

The Proposed Project would increase impervious area on the Project site by approximately 0.97 acres within DMA 1 (by the proposed gravity dam area, dam crest, dam control building, and energy dissipater basin), which would result in a net increase in stormwater runoff that can lead to downstream erosion in receiving waters (i.e., Temecula Creek, Santa Margarita River [Upper], and Santa Margarita River [Lower]). However, as specified in the *Preliminary WQMP* (AECOM 2022f), the energy dissipater area within DMA 1 is classified as a self-retaining area and is designed to retain the design storm rainfall that reaches the area from the proposed gravity dam, which is classified as an area that drains to a self-retaining area, without producing any stormwater runoff. Therefore, on-site erosion or siltation impacts would be minimal in DMA 1.

As described in the *Preliminary WQMP* (AECOM 2020f), per Section 3.2.ii of the SMR HMP, the Proposed Project would be exempt from the Regional MS4 Permit hydromodification[1] requirements as the Project discharges stormwater runoff directly to an exempt reservoir (Vail Lake) and the drainage area for the Project is larger than 100 square miles and has a 100-year design flow higher than 20,000 cubic feet per second (cfs). Further, as described in the Hydrology Report, because of the negligible increase in stormwater runoff (less than a 1 percent increase), the Proposed Project would not substantially increase stormwater runoff to receiving waters. As specified in Regulatory Compliance Measure RCM WQ-4, a Final Hydrology Study would be prepared and would confirm

[1] Hydromodification is the alteration of the hydrologic characteristics of water bodies. Increased stream flows and changes in sediment transport caused by increased impervious areas from urbanization or other land use changes can result in increased stream flows, erosion, and changes in sediment transport.

that the energy dissipater basin is appropriately sized to accommodate the minor increase in peak stormwater flows based on the final design plans. Therefore, with implementation of Regulatory Compliance Measure RCM WQ-4, any increase in stormwater runoff from the Project site to receiving waters would not have a potential to result in downstream erosion or siltation. For these reasons, operational impacts related to substantial on- or off-site erosion or siltation would be less than significant, and no mitigation is required.

Threshold 3.8.3: 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:

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

Less Than Significant Impact.

Construction. As discussed in Threshold 3.8.1, Project construction would comply with the requirements of the Construction General Permit and would include the preparation and implementation of a SWPPP. The SWPPP would include construction BMPs to control and direct on-site surface stormwater runoff to ensure that stormwater runoff from the construction site does not result in flooding on site. Therefore, the Proposed Project would not substantially alter the existing drainage pattern during construction. With implementation of BMPs, construction impacts related to a substantial increase in the rate or amount of surface stormwater runoff that would result in flooding would be less than significant, and no mitigation is required.

Operation. As discussed in Threshold 3.8.1, the Proposed Project would generally conform to existing on-site drainage patterns. Stormwater runoff in DMA 1 would sheet flow to the energy dissipater basin from the proposed gravity dam, and any stormwater runoff not draining into the energy dissipater basin would flow toward the existing pervious areas downstream of the proposed gravity dam. Stormwater runoff in DMAs 2, 3, and 4 would sheet flow from the adjacent hillsides to the proposed access roads. Although the proposed drainage condition would remain similar to the existing condition, the Proposed Project would increase impervious area on the Project site by approximately 0.97 acres within DMA 1 (by the proposed gravity dam area, dam crest, dam control building, and energy dissipater basin), which would slightly increase stormwater runoff from the Project site. The Hydrology Study (AECOM 2022e) only included areas immediately downstream of the existing gravity dam within the Project condition peak flow analysis, as DMAs 2, 3, and 4 would remain entirely pervious. As previously stated, DMAs 2, 3, and 4 are considered self-treating areas since they are pervious, which allows for stormwater infiltration, and have adjacent pervious areas for overflow retention and therefore would not produce stormwater runoff.

For the area immediately downstream of the existing dam, the existing condition flow rate for the 100-year storm is 126.54 cfs and the proposed condition flow rate for the 100-year storm is 127.53 cfs. The peak flow for the 10-year storm would increase by approximately 0.62 cfs from the existing condition, and the peak flow for the 100-year storm would increase by approximately 0.99 cfs from the existing condition. Further, according to the Hydrology Study (AECOM 2022e), as these increases in peak flow for the 10-year and 100-year storms are each less than a 1 percent increase from the

existing condition, the increases in peak flow are considered negligible. The energy dissipater basin would also be designed to accommodate increased flows from the proposed dam, which would be the source of the highest increase in peak stormwater runoff. As the proposed condition peak flows for the 10-year and 100-year storms would each increase by less than 1 percent (or less than 1 cfs) from the existing condition, the Proposed Project would not be required to implement additional operational BMPs to reduce stormwater runoff and would not result in off-site flooding. In addition, as specified in Regulatory Compliance Measure RCM WQ-4, a Final Hydrology Study would be prepared and reviewed by RCFC&WCD. As demonstrated in the Hydrology Study (AECOM 2022e) and to be subsequently confirmed in the Final Hydrology Study, impacts related to an increase in the rate or amount of surface stormwater runoff in a manner that would result in on- or off-site flooding would be less than significant, and no mitigation is required.

Threshold 3.8.3: 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:

(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?

Less Than Significant Impact.

Construction. Stormwater runoff from the Proposed Project would not discharge to a stormwater drainage system; stormwater runoff would either infiltrate within DMAs 2, 3, and 4 or would discharge to receiving waters within DMA 1. As discussed above in response to Threshold 3.8.1, construction of the Proposed Project has the potential to introduce pollutants to receiving waters (i.e., Temecula Creek, Santa Margarita River [Upper], and Santa Margarita River [Lower], and ultimately the Pacific Ocean) from erosion, siltation, and accidental spills. However, as specified in Regulatory Compliance Measure RCM WQ-1, the Construction General Permit requires preparation of a SWPPP, which would identify construction BMPs to be implemented during construction to reduce impacts to water quality, including those impacts associated with soil erosion, siltation, and spills. In addition, any groundwater extracted during groundwater dewatering activities that is discharged to surface waters would be tested and treated (if necessary) to ensure that any discharges meet the water quality limits specified in the applicable NPDES permit (as specified in Regulatory Compliance Measure RCM WQ-2). Regulatory Compliance Measures RCM WQ-1 and RCM WQ-2 are existing NPDES requirements with which the Project is required to comply. These measures would prevent creation of substantial additional sources of polluted stormwater runoff being discharged to receiving waters through implementation of construction BMPs that target pollutants of concern in runoff from the Project site as well as testing and treatment (if required) of groundwater prior to its discharge to surface waters. Additionally, as discussed above in response to Threshold 3.8.3(ii), the SWPPP would include construction BMPs to control and direct surface stormwater runoff on site. For these reasons, construction impacts related to creation or contribution of stormwater runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff would be less than significant with implementation of Regulatory Compliance Measures RCM WQ-1 and RCM WQ-2, and no mitigation is required.

Operation. As discussed above in Threshold 3.8.1, expected pollutants of concern from long-term operation of the Proposed Project include nutrients (e.g., nitrogen and phosphorus), metals (e.g., copper, iron, and manganese), toxicity, bacteria and pathogens, and pesticides/herbicides. However, pollutants of concern would remain similar to existing conditions as the Proposed Project is not changing the use of the Project site, and the number of vehicle trips for site maintenance would not change from the existing condition. The only pollutant that is anticipated to increase during operation is soil erosion. However, as previously stated, the pervious unpaved access roads in DMAs 2, 3, and 4 would be improved and graded in specific areas to reduce velocities of stormwater runoff and to minimize runoff and erosion. As specified in Regulatory Compliance Measure RCM WQ-3, implementation of operational BMPs (i.e., the energy dissipater basin) would prevent substantial additional sources of polluted stormwater runoff being discharged to receiving waters and would target pollutants of concern in stormwater runoff from the Project site. Additionally, as discussed in response to Threshold 3.8.3(ii), the proposed condition peak flows for the 10-year and 100-year storms immediately downstream of the proposed dam would increase by less than 1 percent (or less than 1 cfs) from the existing condition. The energy dissipater basin would be designed to accommodate the negligible increase in stormwater flows from implementation of the proposed dam, which would be the source of the highest increase in peak stormwater runoff. As specified in Regulatory Compliance Measure RCM WQ-4, the Final Hydrology Report would confirm that the energy dissipater basin is appropriately sized to accommodate the minor increase in peak stormwater flows based on the final design plans. For these reasons, operational impacts related to creation or contribution of stormwater runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff would be less than significant with implementation of Regulatory Compliance Measures RCM WQ-3 and RCM WQ-4, and no mitigation is required.

Threshold 3.8.3: 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:

(iv) Impede or redirect flood flows?

Less Than Significant Impact. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06065C2745G, No. 06065C2775G, No. 06065C3310G, and No. 06065C3350G (December 28, 2009), the Project site is located within Zones A, X, and D. The Primary Entry Road (50 Acre Parcel), Secondary Access Road, Pond Access Road, and a small westernmost portion of the North Access Road and the Canyon Access Road is within Zone A, which is classified as an area subject to inundation by the 1-percent-annual-chance flood event. A portion of the North Access Road and the Canyon Access Road would be located within Zone X, which is classified as an area of minimal flood hazard. The majority of the Project site, including the South Access Road and the majority of the North Access Road and the majority of the Canyon Access Road, lies within Zone D, an area of undetermined flood hazard (refer to Figure 3.8-2). The portion of the Proposed Project located within Zone A would only include improvements to some of the existing access roads; no structures outside of those for temporary construction work and staging would be placed directly within Zone A. Specifically, the improvements to the Proposed Project located within Zone A would include construction of two travel lanes (25 ft total width) and gravel surfacing for the Primary Entry

Road (50 Acre Parcel) and gravel resurfacing of the existing Secondary Entry Road. While the Proposed Project would construct an entry road within an area mapped as the 100-year flood zone, the entry road would not raise flood flows as it would be at approximately the same elevation as the existing surface. Furthermore, the entry road will be surfaced with gravel, which would be pervious and which would allow stormwater to infiltrate the soil; the Project would not place permanent structures directly within a 100-year floodplain. Therefore, the Proposed Project would not impede or redirect flood flows, and impacts would be less than significant. No mitigation is required.

Vail Dam has provided passive downstream flood protection for the City of Temecula and the U.S. Marine Corps Base Camp Pendleton under more frequently recurring storms. Similar to the existing dam, the Proposed Project would continue to be used for passive flood protection. The proposed dam would control flood flows by impounding water behind the dam and utilizing the spillway to provide a controlled release of stormwater flows. As previously described, according to the California Dam Breach Inundation Maps, the majority of the Project site is located within the inundation area in the event of catastrophic failure of Vail Lake Dam (refer to Figure 3.7-1). However, per Regulatory Compliance Measure RCM H-1, the Vail Dam inundation map will be revised to reflect the changes to the inundation zone due to implementation of the Proposed Project. The revised inundation map would also demonstrate compliance with the requirement for an emergency drawdown.

Therefore, because the Project would not place permanent structures or improvements directly within a 100-year floodplain, the Project would not impede or redirect flood flows, and a less than significant impact would occur related to impeding or redirecting of flood flows. No mitigation is required.

Threshold 3.8.5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. The Project site is within the jurisdiction of the San Diego RWQCB. As discussed in Section 3.8.4.3, Regional Regulations, the San Diego RWQCB adopted a Basin Plan that designates beneficial uses for all surface and groundwater within its jurisdiction and establishes the water quality objectives and standards necessary to protect those beneficial uses. As summarized below, the Project would comply with the applicable NPDES permits and would implement construction and operational BMPs to reduce pollutants of concern in stormwater runoff.

As discussed in Threshold 3.8.1, during construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via stormwater runoff into receiving waters. As specified in Regulatory Compliance Measure RCM WQ-1, the Proposed Project would be required to comply with the requirements set forth by the Construction General Permit, which requires preparation of a SWPPP and implementation of construction BMPs to control stormwater runoff and discharge of pollutants. In addition, groundwater dewatering may be required during construction. Groundwater that is discharged to surface waters can introduce total dissolved solids, nitrates, and other constituents to surface waters. If groundwater is discharged to surface waters, coverage under the Groundwater

Dewatering Permit would be required, as also specified in Regulatory Compliance Measure RCM WQ-2.

As discussed in Threshold 3.8.1, the primary pollutants of concern during Project operations include nutrients (e.g., nitrogen and phosphorus), metals (e.g., copper, iron, and manganese), toxicity, bacteria and pathogens, and pesticides/herbicides. However, pollutants of concern would remain similar to existing conditions as the Proposed Project is not changing the use of the Project site, and the number of vehicle trips for site maintenance would not change from the existing condition. As discussed in Regulatory Compliance Measure RCM WQ-3, a Final WQMP would be prepared for the Project in compliance with the Regional MS4 Permit. The Final WQMP will detail the Site Design, LID, Source Control, and/or Treatment Control BMPs that would be implemented to treat stormwater runoff and reduce impacts to water quality during operation. The proposed BMPs would capture and treat stormwater runoff and reduce pollutants of concern in stormwater runoff.

The Proposed Project would comply with the applicable NPDES permits, which require preparation of a SWPPP, specify regulations for groundwater dewatering, require preparation of a Final WQMP, and include implementation of construction and operational BMPs to reduce pollutants of concern in stormwater runoff. As such, the Project would not result in water quality impacts that would conflict with San Diego RWQCB's Basin Plan. Impacts related to conflict with a water quality control plan would be less than significant, and no mitigation is required.

The Sustainable Groundwater Management Act (SGMA) was enacted in September 2014. SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft of groundwater basins. Specifically, SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs), which are required to adopt Groundwater Sustainability Plans (GSPs) to manage the sustainability of groundwater basins in California. Part of the Project site is located within the Temecula Valley Groundwater Basin. The Temecula Valley Groundwater Basin is identified by the Department of Water Resources as a very low-priority basin (DWR 2020); therefore, development of a Groundwater Sustainability Plan is not required. Because there is not an adopted Groundwater Sustainability Plan applicable to the groundwater basin within the Project area, the Project would not conflict with or obstruct the implementation of a sustainable groundwater management plan. However, RCWD is responsible for preparing annual groundwater audits for the Temecula Valley Groundwater Basin and recommends groundwater production reports to ensure sustainable groundwater management of the basin (RCWD et al. 2014). As discussed in Thresholds 3.8.1 and 3.8.2, the Proposed Project does not have the potential to impact groundwater quality, interfere with groundwater recharge, or decrease groundwater supplies with implementation of Regulatory Compliance Measures RCM WQ-1, RCM WQ-2, and RCM WQ-3. Therefore, with implementation of Regulatory Compliance Measures RCM WQ-1, RCM WQ-2, and RCM WQ-3, a less than significant impact would occur related to conflict with or obstruction of water quality control plans or sustainable groundwater management plans, and no mitigation would be required.

3.8.8 Cumulative Impacts

Potential impacts of the Proposed Project to water quality, when combined with the impacts of past, present, and reasonably foreseeable projects in the vicinity of the Proposed Project, could contribute to a cumulatively significant impact. The cumulative study area for water quality includes

development in the Santa Margarita Watershed, which is a continuation of the existing urban pattern of development that has already resulted in extensive modifications to watercourses in the area. The area's watercourses have been channelized, and drainage systems have been put into place to respond to the past urbanization that has occurred in this area. For the cumulative analysis related to hydrology and water quality, the cumulative projects being considered include the related projects discharging to the same watershed as the Proposed Project (i.e., Santa Margarita Watershed). Please refer to Table 3.A in Chapter 3.0, Environmental Impact Analysis, for the descriptions and locations of these related projects.

Many of the related projects identified by RCWD, the County, and the City of Temecula, as shown in Table 3.A, Summary of Related Projects, in Chapter 3.0, would likely discharge to the Project's receiving waters (i.e., Temecula Creek, Santa Margarita River [Upper], and Santa Margarita River [Lower]). Each of these related projects could potentially increase the volume of stormwater runoff and contribute to pollutant loading in stormwater runoff reaching the downstream storm drain system and Santa Margarita Watershed, thereby resulting in cumulative impacts to hydrology and surface water quality.

New development and redevelopment can result in increased stormwater runoff and increased urban pollutants in stormwater runoff from each of the related project sites. Each related project must include BMPs to reduce impacts to water quality and hydrology in compliance with local ordinances and plans adopted to comply with requirements of the various NPDES permits. Generally, the related projects that disturb 1 acre or more of soil must comply with the requirements of the Construction General Permit and the applicable NPDES MS4 Permit. The preparation and approval of a SWPPP (for construction) and a WQMP (for operation) would be required for each related project to determine appropriate BMPs to minimize water quality impacts. In addition, the preparation and approval of a hydrology report would be required to determine the hydrologic control required to minimize increases in stormwater runoff from each site so they do not exceed existing conditions or result in hydromodification impacts. In addition, the RCFC&WCD, in addition to the County and cities within the Santa Margarita Watershed, review all applicable development projects on a case-by-case basis to ensure that sufficient local and/or regional drainage capacity is available. For example, as specified in Regulatory Compliance Measure RCM WQ-1, a SWPPP would be prepared for the Proposed Project, and construction BMPs detailed in the SWPPP would be implemented during construction, in compliance with the requirements of the Construction General Permit. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. Then, as specified in Regulatory Compliance Measure RCM WQ-3, implementation of operational BMPs (i.e., the energy dissipater basin) would prevent substantial additional sources of polluted stormwater runoff being discharged to receiving waters and would target pollutants of concern in stormwater runoff from the Project site. Furthermore, site design measures, such as graveled (pervious) road surfaces, site grading, v-ditches, and an energy dissipator basin would address stormwater drainage at the Project site.

Each related project must consider impaired receiving waters and TMDLs for receiving waters. The TMDL program is designed to identify all constituents that adversely affect the beneficial uses of

water bodies and then identify appropriate reductions in pollutant loads or concentrations from all sources so that the receiving waters can maintain/attain the beneficial uses in the Basin Plan. Thus, by complying with TMDLs, a project's contribution to overall water quality improvement in the Santa Margarita Watershed in the context of the regulatory program is designed to account for cumulative impacts.

Regional programs and BMPs such as TMDL programs and the MS4 Permit Program have been designed under an assumption that the Santa Margarita Watershed would continue its pattern of urbanization. The regional control measures contemplate the cumulative effects of proposed development. Compliance with these State and regional programs and permits constitutes compliance with programs intended to address cumulative water quality impacts. As stated above, each related project would generally be required to develop a SWPPP, a WQMP, and a hydrology report and would be evaluated individually to determine appropriate BMPs and treatment measures to reduce project-specific impacts to surface water quality and hydrology as well as a project's contribution to cumulative water quality impacts during construction and operational activities.

Many local storm drain systems are currently at capacity. Other related projects that would discharge stormwater to the same storm drain system as the Proposed Project would have the potential to result in a cumulative impact related to storm drain capacity and flooding. However, stormwater runoff from the Proposed Project would not discharge to a stormwater drainage system; stormwater runoff would either infiltrate within DMAs 2, 3, and 4 or would discharge to receiving waters within DMA 1. The energy dissipater basin would be designed to accommodate the negligible increase in stormwater flows from implementation of the proposed dam within DMA 1, which would be the source of the highest increase in peak stormwater runoff. As specified in Regulatory Compliance Measure RCM WQ-4, the Final Hydrology Report would confirm that the energy dissipater basin is appropriately sized to accommodate the minor increase in peak stormwater flows based on the final design plans. Because the Proposed Project includes proposed operational BMPs and LID principles (i.e., the energy dissipater basin) that would be adequately sized and designed to reduce the negligible increase in stormwater runoff (less than a 1 percent increase), the Project's contribution to hydrologic impacts would not be cumulatively considerable.

In summary, because the Proposed Project and other related projects would comply with applicable NPDES requirements and would include construction and operational BMPs to reduce the volume of stormwater runoff and pollutants of concern in stormwater runoff, the cumulative hydrology and water quality impacts of the Proposed Project and the related projects would be less than significant. Therefore, the Proposed Project's incremental hydrology and water quality impacts would not be cumulatively considerable.

3.8.9 Level of Significance Prior to Mitigation

Construction and operational impacts related to hydrology and water quality would be less than significant with implementation of Regulatory Compliance Measures RCM WQ-1 through RCM WQ-4. No mitigation is required.

3.8.10 Regulatory Compliance Measures and Mitigation Measures

The following Regulatory Compliance Measures are existing regulations that are applicable to the Proposed Project and are considered in the analysis of potential impacts related to hydrology and water quality. RCWD considers these requirements mandatory; therefore, they are not mitigation measures.

RCM WQ-1 **Construction General Permit.** Prior to commencement of construction activities, Rancho California Water District (RCWD) shall obtain coverage under the *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit),* NPDES No. CAS000002, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ, or any other subsequent permit. This shall include submission of Permit Registration Documents (PRDs), including permit application fees, a Notice of Intent (NOI), a risk assessment, a site plan, a Stormwater Pollution Prevention Plan (SWPPP), a signed certification statement, and any other compliance-related documents required by the permit, to the State Water Resources Control Board via the Stormwater Multiple Application and Report Tracking System (SMARTS). Construction activities shall not commence until a Waste Discharge Identification Number (WDID) is obtained for the Project from the SMARTS and provided to the Riverside County Flood Control and Water Conservation District Chief Engineer, or designee, to demonstrate that coverage under the Construction General Permit has been obtained. Project construction shall comply with all applicable requirements specified in the Construction General Permit, including but not limited to, preparation of a SWPPP and implementation of construction site Best Management Practices (BMPs) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate risk level identified for the Project. The SWPPP shall identify the sources of pollutants that may affect the quality of stormwater and shall include BMPs (e.g., Sediment Control, Erosion Control, and Good Housekeeping BMPs) to control the pollutants in stormwater runoff. Upon completion of construction activities and stabilization of the Project site, a Notice of Termination shall be submitted via SMARTS.

RCM WQ-2 **Groundwater Dewatering Permit.** If groundwater dewatering is required during construction or excavation activities and the dewatered groundwater is discharged to the storm drain system, Rancho California Water District (RCWD) shall obtain coverage under the *General Waste Discharge Requirements for Groundwater Extraction Discharges to Surface Waters within the San Diego Region (*Order No. R9-2015-0013, NPDES No. CAG919003) (Groundwater Dewatering Permit), which covers general waste discharge requirements for discharges to surface waters within the San Diego region. This shall include submission of a Notice of Intent for coverage under the permit to the RWQCB at least 45 days prior to the start of dewatering. RCWD shall provide the Waste Discharge Identification Number (WDID) to the Riverside County Flood Control and Water Conservation District Chief Engineer, or designee, to demonstrate proof of coverage under the Groundwater

Dewatering Permit. Groundwater dewatering shall not be initiated until a WDID is received from the San Diego Regional Water Quality Control Board (RWQCB) and is provided to the Director of the Riverside County Flood Control and Water Conservation District Chief Engineer, or designee. Groundwater dewatering activities shall comply with all applicable provisions in the permit, including water sampling, analysis, treatment (if required), and reporting of dewatering-related discharges. Upon completion of groundwater dewatering activities, a Notice of Termination shall be submitted to the San Diego RWQCB.

RCM WQ-3 **Final Water Quality Management Plan.** Prior to the issuance of grading or building permits, Rancho California Water District (RCWD) shall submit a Final Water Quality Management Plan (WQMP) to the Riverside County Flood Control and Water Conservation District Chief Engineer, or designee, in compliance with the requirements of the *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region* (Regional MS4 Permit). The Final WQMP shall be prepared consistent with the requirements of the *Model Santa Margarita Region Water Quality Management Plan* (2018), or subsequent guidance manuals. The Final WQMP shall specify the BMPs to be incorporated into the Project design to target pollutants of concern in runoff from the Project area. RCWD shall ensure that the BMPs specified in the Final WQMP are incorporated into the final Project design.

RCM WQ-4 **Final Hydrology and Hydraulic Analysis.** Rancho California Water District (RCWD) shall submit a Final Hydrology Study to the Riverside County Flood Control and Water Conservation District Chief Engineer, or designee, prior to issuance of grading and building permits. The Final Hydrology Study shall be prepared consistent with the requirements of the *Riverside County Flood Control and Water Conservation District Hydrology Manual* (2018), or subsequent guidance manuals. The Final Hydrology Study shall demonstrate that the energy dissipater basin and on-site drainage facilities are designed in compliance with the hydromodification requirements of the *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region* Order No. R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-0100 (NPDES No. CAS0109266) (Regional MS4 Permit). The Final Hydrology Study shall also demonstrate that the energy dissipater basin is adequately sized to accommodate stormwater runoff from the design storm.

3.8.11 Level of Significance After Mitigation

Construction and operational impacts related to hydrology and water quality would be less than significant.

This page intentionally left blank

3.9 LAND USE AND PLANNING

This section describes the existing land uses on the Project site and in its vicinity and evaluates the compatibility of the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project) with surrounding land uses and relevant policy and planning documents. The consistency analysis presented in this section was prepared in compliance with *California Environmental Quality Act Guidelines* (*State CEQA Guidelines*) Section 15125(d). Information presented in this section is based on information provided in the following documents:

- County of Riverside General Plan:
  - Land Use Element (2021)
  - Circulation Element (2020)
  - Multipurpose Open Space Element (2015)
  - Safety Element (2021)
  - Noise Element (2015)
  - Air Quality Element (2018)
  - Healthy Communities Element (2021)
  - General Plan Southwest Area Plan (2021)
  - Appendix Q – Temecula Valley Wine Country Community Plan (Southwest Area Plan – GPA No. 1077) (2015)
- County of Riverside: Zoning Ordinance (2021)
- RCWD: Vail Property and Sundance Ranch Property Final Guidance Document (Property Guidance Document) Volume I (2016)
- County of Riverside Transportation and Land Management Agency: *Western Riverside County Multiple Species Habitat Conservation Plan* (MSHCP) (2003)
- Southern California Association of Governments (SCAG) *Final 2008 Regional Comprehensive Plan* (2008)
- SCAG *The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy of the Southern California Association of Governments Connect SoCal* (2020)
- RCWD, Riverside County Flood Control and Water Conservation District, County of Riverside, and Stakeholder Advisory Committee *Upper Santa Margarita Watershed Integrated Regional Water Management Plan Update* (2014)

3.9.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this Environmental Impact Report (EIR). No comment letters included comments related to land use.

3.9.2 Existing Environmental Setting

The Project site is located in unincorporated southwestern Riverside County, east of the City of Temecula, in Southern California. The Project site includes Vail Lake, Vail Dam, and areas downstream to De Portola Road (see Figures 2-1 and 2-2), in an area owned by RCWD and referred to as the Vail Property in the Property Guidance Document. The area is located approximately 3 miles east of the city limits of Temecula and approximately 7 miles east of Interstate 15. The Project site is located to the north of State Route 79 (SR-79) South. The Project site is located on portions of seven parcels, with Assessor's Parcel Numbers 927-150-018, 927-320-045, 927-150-048, 927-150-038, 929-320-039, 927-320-040, and 927-320-080.

Existing land uses on the site include Vail Dam facilities, including pipelines and other appurtenances, the Upper VDC Recharge Ponds, access roads, and other RCWD water infrastructure. Additional land uses on the Vail Property include the Vail Lake Village and RV Resort located generally south of Vail Lake and north of SR-79 South, the Vail Lake Marina facilities on the southeast portion of Vail Lake, and numerous hiking, equestrian, and mountain biking trails.

Land uses surrounding Vail Lake include undeveloped areas and conservation property (rural mountainous, open space – habitat, and open space – conservation), developed equestrian/ranch and agricultural properties (rural residential, agricultural), and recreational/campground uses (open space – recreation), as shown on Figure 2-3.

3.9.3 Regulatory Setting

Federal, State, regional, and local regulations provide guidance for conducting land use impact analyses. Specific federal land use regulations apply to federally owned, federally controlled, or federally protected lands, areas, or parcels. Because there are minimal federal lands, areas, or parcels within the immediate vicinity of the Project, the following discussion focuses primarily on State, regional, and local plans that are applicable and relevant to the Project.

Land use is regulated primarily at regional and local levels in accordance with State planning and zoning laws, Government Code Section 65000 et seq. Within Riverside County, the Southern California Association of Governments (SCAG) defines the regional vision and planning principles (such as integrating land use and transportation) but does not have land use approval authority. Riverside County defines and regulates local land uses through its general plan, area plans, and zoning. Locally, RCWD has developed the Property Guidance Document to guide land use surrounding Vail Lake. Other agencies also play a role in land use decisions, including the Western Riverside County Regional Conservation Authority (RCA), which implements the MSHCP.

3.9.3.1 Federal Regulations

There are no federal regulations applicable to land use and planning.

3.9.3.2 State Regulations

California State Planning and Zoning Law. This law, which is codified in California Government Code sections 65000-66037, delegates most of the State's local land use and development decisions to cities and counties. The California Government Code establishes specific requirements pertaining to

the regulation of land uses by local governments, including general plan requirements, specific plans, subdivisions, and zoning. California Government Code Section 65302 requires that all California cities and counties include the following seven elements in their general plan:

- Land Use
- Circulation
- Housing
- Conservation
- Open Space
- Noise
- Safety

Cities and counties that have identified disadvantaged communities must also address environmental justice in their general plans, including air quality.[1] The County of Riverside General Plan is a regional plan and is discussed in further detail below.

Sustainable Communities and Climate Protection Act of 2008 (Senate Bill 375). This statute requires California's regional planning agencies to include a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy in their Regional Transportation Plans (RTP). Senate Bill 375 (SB 375) was enacted to reduce greenhouse gas emissions from automobiles and light trucks through integrated transportation, land use, housing, and environmental planning. Under the law, California's regional planning agencies are required to include an SCS in their RTP. The SCS provides a plan for meeting the regional emissions reduction targets established by the California Air Resources Board (CARB). If the emissions reduction targets cannot be met through the SCS, an Alternative Planning Strategy (APS) may be developed that shows how the targets would be achieved through alternative development patterns, infrastructure, or additional transportation measures of policies. SB 375 also offers local governments regulatory and other incentives to encourage more compact new development and transportation alternatives.

The requirements of SB 375 are reflected in the 2020 RTP/SCS adopted by SCAG, which serves as the regional planning agency and as the federally designated Metropolitan Planning Organization (MPO) in the six-county metropolitan region composed of Orange, Los Angeles, Ventura, Riverside, San Bernardino, and Imperial Counties. SCAG regional planning documents are discussed in further detail below.

3.9.3.3 Regional Regulations

As the designated MPO, SCAG is mandated by the federal government to research and prepare plans for transportation, a growth forecast, hazardous waste, and air quality. The growth forecast

[1] Senate Bill 1000 (SB 1000), adopted in 2016, requires both cities and counties that have disadvantaged communities to incorporate environmental justice (EJ) policies into their general plans, either in a separate EJ element or by integrating related goals, policies, and objectives throughout the other elements. This update, or revision if the local government already has EJ goals, policies, and objectives, must happen "upon the adoption or next revision of two or more elements concurrently on or after January 1, 2018."

serves as the foundation of these plans. Several regional planning documents and programs have varying degrees of regulation over use of the Project site. However, because the scope of the Project is limited to the remediation of existing seismic and hydrologic hazards through the construction of a replacement dam, it would not affect land use, housing, population, or growth patterns on the site or within the surrounding area. Any impacts to air quality or transportation would be limited to the construction phase. Therefore, many aspects of regional planning documents and programs are not applicable, and they are not discussed in this section.

The Project is located within unincorporated Riverside County. The County of Riverside General Plan and Zoning Ordinance regulate land uses on the Project site. The Project is also located within the MSHCP Plan Area.

The following paragraphs explain regional regulations, plans, and policies that are potentially applicable to the Project.

SCAG.

Regional Comprehensive Plan and Guide. In 2008, SCAG adopted the Regional Comprehensive Plan (RCP) for the purpose of providing a comprehensive strategic plan for defining and solving housing, traffic, water, air quality, and other regional challenges. The 2008 RCP has two primary objectives in implementing this strategic plan: (1) integrating transportation, land use, and air quality planning approaches, and (2) outlining key roles for public and private sector stakeholders to implement reasonable policies regarding transportation, land use, and air quality approaches. While the 2008 RCP outlines several policies to inform local decision-makers within the SCAG region with respect to policy and planning decisions, these policies are considered recommendations and are not mandated by law.

With respect to land use policy, the 2008 RCP includes a Land Use and Housing chapter that aims to link land use and transportation planning decisions to the projected population and economic growth in the SCAG region. Specifically, the Land Use and Housing chapter of the 2008 RCP promotes sustainable planning for land use and housing in the SCAG region by maximizing the efficiency of the existing circulation network, providing a greater variety in housing types, promoting a diverse and growing economy, and protecting the existing natural environment. The 2008 RCP identifies 2% Strategy Areas as part of the Sustainability Planning Grant (formerly known as Compass Blueprint growth vision); however, these areas have since been updated and replaced by the High-Quality Transit Areas (HQTAs) identified in the 2016–2040 RTP/SCS.

Policies from the RCP that may be applicable to the Project include those related to water, energy, open space and habitat, and solid waste. These policies are listed and discussed further in Section 3.9.6.

Regional Transportation Plan/Sustainable Communities Strategy. On September 3, 2020, SCAG adopted the 2020–2045 RTP/SCS, Connect SoCal. Connect SoCal is a long-range planning document that provides a common foundation for regional and local planning, policymaking, and infrastructure goals in the SCAG region. The Core Vision of the plan is to build upon and expand land use and transportation strategies established over several planning cycles to

increase mobility options and achieve a more sustainable growth pattern. Connect SoCal includes new initiatives at the intersection of land use, transportation, and technology to close the gap and reach the greenhouse gas reduction goals. The policies and initiatives in Connect SoCal primarily relate to land use, transportation, and growth, and they do not directly apply to the Project.

County of Riverside General Plan. The County of Riverside General Plan contains goals, policies, and plans that are intended to guide land use and development decisions. The General Plan's structure is two-tiered: the General Plan covers the entire unincorporated portion of the County of Riverside and is augmented by 19 more detailed Area Plans. The General Plan is intended to manage the overall pattern of development. The Area Plans provide direction at the community level. The General Plan consists of a Land Use Map and the following elements, which together fulfill the State requirements for a General Plan:

- Land Use Element
- Circulation Element
- Multipurpose Open Space Element
- Safety Element
- Noise Element
- Housing Element
- Air Quality Element
- Healthy Communities Element
- Administration Element

The County of Riverside General Plan is the result of a comprehensive planning process, guided by the Vision Statement. The Vision Statement was further refined by a set of General Plan Principles, which provided further direction for a comprehensive planning process. The Land Use Element and General Plan Land Use Map reflect the outcome of this comprehensive planning process. The Land Use Element functions as a guide as to the ultimate pattern of development. It designates the general distribution, general location, and extent of land uses, such as housing, business, industry, open space, agriculture, natural resources, recreation, and public/quasi-public uses. The Land Use Element also discusses the standards of residential density and non-residential intensity for the various land use designations.

Of the general plan elements required by State law, the Land Use Element has the broadest scope. Since it governs how land is to be utilized, many of the issues and policies contained in other plan elements are linked in some degree to this element. For example, the Circulation Element defines policies for the accommodation of vehicular and other trips generated by the population and uses permitted by the Land Use Element. Similarly, the location and density of uses prescribed by this Element are influenced by policies for the protection of environmental resources prescribed by the Multipurpose Open Space Element.

The General Plan consists of two levels of policies that direct land use and development in the county: policies that apply countywide and those that are unique to a specific region. Countywide policies are applicable to the entire unincorporated area, are contained in the General Plan, and are

reflected on the General Plan Land Use Map. More focused policies that address specific regional or local issues are found in the individual area plans. The Project site is located within the Southwest Area Plan (SWAP). Policies from the General Plan and SWAP that may be applicable to the Project include those related to land use, circulation, multipurpose open space, safety, air quality, and healthy communities. These policies are listed and discussed further in Section 3.9.6.

SWAP. The SWAP planning area is bounded by San Diego County to the south, Orange and San Diego Counties to the west, Lake Elsinore to the northwest, and the vast mountain and desert area known the Riverside Extended Mountain Area Plan, or REMAP, to the east. The SWAP borders the Sun City/Menifee Valley and Harvest Valley/Winchester Area Plans.

Vail Lake is identified as a unique feature in the SWAP, which describes it as follows: "A haven for fishing and water activities as well as camping, hiking, bicycling, and equestrian trails, Vail Lake and the surrounding areas are recognized for significant biological and natural habitat resources. The considerable unspoiled landscape varies in topography and is accented by oak woodlands and riparian corridors." The area surrounding Vail Lake is within the Vail Lake Policy Area. According to the SWAP, the Vail Lake Policy Area recognizes: 1) the biological and aesthetic uniqueness of the property, including the steep slopes adjacent to much of the lake shore; 2) both the existing and the potential recreation uses of the lake and the land around the lake; and 3) the constraints imposed by limited availability of public facilities. The importance of accommodating the unique characteristics of the Vail Lake area is recognized by property owners, recreation enthusiasts, and environmental advocates. The Upper VDC Recharge Basins and areas to the west are within the Equestrian District of the Temecula Valley Wine Country Policy Area. The entire Project site is within Zone A of the Mount Palomar Nighttime Lighting Policy Area. Policies associated with the Temecula Valley Wine Country Policy Area (as set forth in the Wine Country Community Plan, Appendix Q of the General Plan) focus on land uses and are not directly applicable to the Proposed Project. SWAP policies that are potentially applicable to the Proposed Project are listed and discussed further in Section 3.9.6.

Land Use. The designated land use within the Project site is Rural Residential, Open Space Rural, and Open Space Water. Adjacent uses include Rural Mountainous and Conservation, and Agriculture. East of the Upper VDC recharge ponds, the site is within the Vail Lake Policy Area. The ponds and the three parcels west are within the Temecula Valley Wine Country Policy Area – Equestrian District.

The County of Riverside General Plan Land Use Element provides the following guidance for land use designations on the Project site:

> **Rural Residential (RR)**: The Rural Residential land use designation allows one single family residence per 5 acres, as well as limited animal-keeping and agricultural activities. Limited recreational uses, compatible resource development (not including the commercial extraction of mineral resources) and associated uses, and governmental uses are allowed within this designation. Neighborhood-serving small-scale commercial uses that are compatible with the surrounding uses are also allowed.

Open Space-Rural (OS-RUR): The Open Space-Rural land use designation is applied to remote, privately owned open space areas with limited access and a lack of public services. Single-family residential uses are permitted at a density of one dwelling unit per 20 acres. The extraction of mineral resources subject to an approved surface mining permit may be permissible, provided that the proposed project can be undertaken in a manner that is consistent with maintenance of scenic resources and views from residential neighborhoods and major roadways and that the project does not detract from efforts to protect endangered species.

Open Space-Water (OS-W): Open Space-Water designated areas include bodies of water and major floodplains and natural drainage corridors. Ancillary structures or uses may be permitted for flood control or recreational purposes. The extraction of mineral resources subject to an approved surface mining permit may be permissible, provided that the proposed project can be undertaken in a manner that does not result in increased flooding hazards and that is consistent with maintenance of long-term habitat and riparian values.

Zoning. The County of Riverside administers its General Plan primarily through its Zoning Ordinance. While the General Plan identifies land use designations in the long-term, zoning identifies specific, immediate uses of land. All of the parcels within the Project site are zoned R-R (Rural Residential), according to the Riverside County Zoning Ordinance (Ordinance No. 348.4913). Adjacent areas include some parcels zoned A-2 (Heavy Agriculture), R-A-10 (Residential Agriculture), R-A-20 (Residential Agriculture), WC-E (Wine Country – Equestrian), and WC-W (Wine Country – Winery). Section 5.1 (B) of the Zoning Ordinance includes the following public utility uses related to the Project as allowable uses within properties designated as R-R (County of Riverside 2021c):

B. PUBLIC UTILITY USES.

1. Structures and installations necessary to the conservation and development of water such as dams, pipelines, water conduits, tanks, canals, reservoirs, wells and the necessary pumping and water production facilities.

2. Structures and the pertinent facilities necessary and incidental to the development and transmission of electrical power and gas such as hydroelectric power plants, booster or conversion plants, transmission lines, pipelines and the like.

MSHCP. The MSHCP is a comprehensive, multi-jurisdictional Habitat Conservation Plan (HCP) focusing on conservation of species and their associated habitats in Western Riverside County. The MSHCP serves as an HCP pursuant to Section 10(a)(1)(B) of the Federal Endangered Species Act (FESA) and as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The MSHCP allows the participating jurisdictions to authorize "Take" of plant and wildlife species identified within the MSHCP area. The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have authority to regulate the Take of threatened and endangered species. Under the MSHCP, these agencies have granted "Take Authorization" for otherwise lawful actions in exchange for the assembly and management of a coordinated MSHCP

Conservation Area. The approval of the MSHCP and execution of the Implementing Agreement (IA) by the USFWS and CDFW allowed them to issue Take Authorizations to the signatories of the IA. Issuance of Take Authorization to the local jurisdictions will allow MSHCP participants to implement land use decisions consistent with the MSHCP without project-by-project review and permitting by the USFWS and CDFW.

RCWD is not a signatory to the IA. However, the MSHCP provides a mechanism by which non-signatories can obtain coverage under the MSHCP on a project-by-project basis as a Participating Special Entity. This process requires adhering to the requirements of the MSHCP in terms of studies and reports, submittal of an application, and payment of impact fees.

The Project site is located within the MSHCP Southwest Area Plan in Cell Groups C and D. Cell Groups C and D are part of the Vail Lake Subunit (Subunit 3) of the Southwest Area Plan. Table 3.9.A lists the Criteria Cell Numbers within the Project site and indicates which Project components are located therein. Therefore, the Project is required to meet specific conservation objectives for the Planning Species, Biological Issues and Considerations, and Criteria for the conservation objectives of the Southwest Area Plan. Figure 3.2-1 depicts the Project impact area relative to the MSHCP Criteria Cells.

The Project will also be required to meet the Global Biological Objectives of the MSHCP, including the protection of narrow endemic, criteria area, mammal, and amphibian species; species associated with riverine/riparian habitat, wetlands, or vernal pool habitat; and upland and wetland habitat quality. These objectives also include additional survey needs (e.g., burrowing owl, arroyo toad, narrow endemic plants, and criteria area plants) and procedures such as best management practices (BMPs) described in Appendix C of Volume 1 of the MSHCP.

Upper Santa Margarita Watershed Integrated Regional Water Management Plan. RCWD is located within the Upper Santa Margarita Watershed (USMW) Integrated Regional Water Management (IRWM) Region, which includes both the portion of the USMW within Riverside County and the upper portion of the San Mateo Watershed within Riverside County. The region's first IRWM Plan provided the framework and procedures used to govern, collaborate, and plan activities, as well as pursue funding opportunities, within the USMW IRWM Program. The USMW IRWM Plan Update, finalized in April 2014, was prepared to update the 2007 IRWM Plan in accordance with new guidelines and standards issued by the Department of Water Resources in 2012. The Region's IRWM Plan is implemented through a multi-agency, multi-jurisdictional framework. RCWD, Riverside County Flood Control and Water Conservation District, and the County of Riverside make up the Regional Water Management Group, with RCWD serving as program manager on behalf of the group. Other participants include the Stakeholder Advisory Committee, Stakeholders and Members of the Public, and the Tri-County Funding Area Coordinating Committee (RCWD et al. 2014).

Table 3.9.A: Project Elements in MSHCP Criteria Cells

Criteria Cell No.	Staging and Laydown Areas	Disposal Areas	Access Roads	Dam Construction Area	Vail Lake Area (Spillway Elevation)
Cell Group C					
6917	X	X	Secondary Entry Road, Primary Entry Road (50 Acre Parcel), Pond		
7014		X	Primary Entry Road (50 Acre Parcel)		
6913	X		Pond		
6911			North, Pond		
7010	X		Canyon, North, Pond		
Cell Group D					
6909			North		
7001	X		Canyon		
6992	X		Canyon, North		
7119	X		Canyon		
7117	X		South, Canyon	X	X
6989			North		X
7377, 7378, 6986, 7102, 7107, 7109, 7190, 7191, 7193, 7194, 7198, 7284, 7285, 7286, 7287					X

Source: Compiled by LSA (2022).

3.9.3.4 Local Regulations

Property Guidance Document. In August 2014, RCWD acquired approximately 7,700 acres of the Vail and Sundance Ranch properties surrounding Vail Lake; land holdings total 8,444 acres when Vail Lake and other RCWD property are included. To evaluate the best use of this property for RCWD purposes, RCWD prepared the *Vail and Sundance Ranch Property Final Property Guidance Document* (RCWD 2016). The document functions as a planning-level analysis (generalized guidance document) of potential land use activities and projects for the property, similar to a strategic plan or a master plan. It identifies various conceptual land use options for specific areas of the Vail and Sundance Ranch properties and will help to guide future RCWD considerations related to the implementation of specific land use activities for the properties.

The Property Guidance Document indicates the locations of Vail Land Use Planning Areas. Table 3.9.B identifies the interim and proposed land uses in each of the Planning Areas and indicates which components of the Proposed Project are located within the respective Planning Area.

The consistency of the Project with the land uses within each Planning Area is evaluated further in Section 3.9.6.

Table 3.9.B: Project Elements in Vail Land Use Planning Areas

Area No.	Description	Interim Use	Proposed Land Use	Project Components in Area
2	Existing undeveloped property, north of Vail Lake	Vacant	A: District purposes (alternative access road to Vail Dam, pumped storage project) B: Open Space	North Access Road, Vail Lake Area (Spillway Elevation)
3	Existing undeveloped property, northeast of Vail Lake	Vacant	A: Open Space	Vail Lake Area (Spillway Elevation)
4	Butterfield Canyon/ Temecula Creek	Existing District water supply facilities	A: District purposes (existing District water supply facilities)	Canyon Access Road, Staging and Laydown Areas
5	Vail Dam	Existing Vail Dam facility	A: District purposes (Vail Dam remediation, sedimentation removal)	Vail Dam Construction Area, South Access Road, Staging and Laydown Areas
6	Vail Lake	Existing lake recreation use	A: District purposes (water supply purposes, sedimentation removal, invasive species protection and removal) B: Lake recreation use	Vail Lake Area (Spillway Elevation), South Access Road, Staging and Laydown Areas
7	Wilson Creek drainage area	Vacant	A: District purposes (sedimentation control basins, habitat restoration, invasive species removal)	Vail Lake Area (Spillway Elevation)
9	Existing undeveloped property/ Gooseneck Point	Vacant	A: Open Space	Vail Lake Area (Spillway Elevation)
10	Existing undeveloped property, east of Vail Lake	Vacant	A: Open Space	Vail Lake Area (Spillway Elevation)
14	Existing Vail Lake Marina facilities and access road, and water supply facilities	Recreational use area and water supply facilities	A: District purposes (water supply facilities) B: Recreational lease area and lake access improvements	Vail Lake Area (Spillway Elevation)
18	Temecula Creek drainage area	Vacant	A: District purposes (sedimentation control basins, habitat restoration, invasive species removal) B: Open Space	Vail Lake Area (Spillway Elevation)

Source: Compiled by LSA (2022).

3.9.4 Methodology

The impact analysis presented in this Land Use and Planning section evaluates potential physical impacts of the Proposed Project on land use compatibility and considers whether the Proposed Project would result in potential inconsistencies with relevant plans or policies contained in applicable planning documents adopted by the County and other agencies. Neither CEQA nor the

State CEQA Guidelines set forth standards for determining whether or not a project is consistent with an applicable plan; rather, the final determination that a project is consistent or inconsistent with an applicable plan is made by the Lead Agency when it acts on the project. The analysis in this EIR discusses the findings of policy review and is meant to provide a guide for decision-makers during policy interpretation.

A project's inconsistency with a plan or policy is only considered significant if such inconsistency would result in a significant physical environmental impact (per *State CEQA Guidelines* Section 15382). This EIR section determines whether or not the Proposed Project would conflict with any adopted land use policies or programs and whether mitigation is feasible. Under this approach, a policy or program conflict is not in and of itself considered a significant environmental impact. An inconsistency between the Proposed Project and an applicable plan is a legal determination that may or may not indicate the likelihood of an environmental impact. In some cases, an inconsistency may be evidence that an underlying physical impact is significant and adverse.

3.9.5 Thresholds of Significance

The thresholds for land use and planning impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to land use and planning if it would:

Threshold 3.9.1: Physically divide an established community

Threshold 3.9.2: 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

The Initial Study, included as Appendix A, substantiates that there would be no impacts associated with Threshold 3.9.1 because the Proposed Project would not disrupt/realign the existing roadway network or affect/disrupt residential neighborhoods in the Project vicinity; therefore, it was determined that implementation of the Proposed Project would not physically divide an established community. This topic will not be discussed further in this section.

This threshold will not be addressed in the following analysis.

3.9.6 Project Impacts

Threshold 3.9.2: Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect

Less Than Significant Impact. The consistency of the Proposed Project with applicable provisions of the land use plans, policies, and regulations identified in Section 3.9.3 is evaluated below. For each identified plan, applicable policies, goals, and objectives are stated alongside a discussion of the Project's consistency with each item. The discussion below addresses both construction and operation of the Project.

3.9.6.1 SCAG

Table 3.9.C lists the applicable provisions of the SCAG RCP and includes a discussion of the Project's consistency with each policy.

Table 3.9.C: Consistency with the SCAG RCP

Policy	Project Consistency
Water	
WA-9. Developers and local governments should consider potential climate change hydrology and resultant impacts on available water supplies and reliability in the process of creating or modifying systems to manage water resources for both year-round use and ecosystem health.	Consistent. The Project is based on hydrology studies that accounted for changes to precipitation patterns as a result of climate change. The Project would provide additional flexibility in water supply management by eliminating the need for the Interim Operation Restriction Plan. Refer to Sections 3.2 and 3.8 for additional information about biological resources and hydrology and water quality.
WA-10. Developers and local governments should include conjunctive use as a water management strategy when feasible.	Consistent. RCWD conjunctively manages water storage within Vail Lake and the groundwater aquifers, with existing infrastructure that includes a pump station and transmission main connecting the groundwater to the water in Vail Lake as well as facilities that discharge lake water into the Upper VDC Recharge Basins. The Proposed Project would retain these connections allowing water to be transferred in both directions between the lake and aquifers.
WA-13. Developers and local governments should protect and preserve vital land resources—wetlands, groundwater recharge areas, woodlands, riparian corridors, and production lands. The federal government's 'no net loss' wetlands policy should be applied to all of these land resources.	Consistent. The Project would not adversely affect groundwater recharge in the Upper VDC Recharge Basins. While construction of the gravity dam would impact wetlands and waters, compensatory mitigation within the watershed will ensure that there will be no net loss of wetlands or waters. Refer to Section 3.2 for additional information about impacts to wetlands and waters.
Energy	
EN-11. Developers and local governments should submit projected electricity and natural gas demand calculations to the local electricity or natural gas provider, for any project anticipated to require substantial utility consumption. Any infrastructure improvements necessary for project construction should be completed according to the specifications of the energy provider.	Consistent. Operation of the replacement dam is not anticipated to generate additional electricity demand and will not use natural gas. The Project design includes necessary adjustments to utilities, including relocation of utility poles and associated facilities that supply electricity in coordination with the utility provider, Southern California Edison. Temporary power provided during construction will be coordinated with Southern California Edison and will be installed in accordance with their standard specifications. Refer to Section 3.4 for additional information about energy use associated with the Project.
Open Space	
OSN-14. Developers and local governments should implement mitigation for open space impacts through the following activities: • Individual projects should either avoid significant impacts to regionally significant open space resources or mitigate the significant impacts through measures consistent with regional open space policies for conserving natural lands, community open space, and	Consistent. The Project would not result in significant impacts to open space. Mitigation measures for transportation facilities are not relevant to the Project. Access road improvements would not result in substantial barriers to wildlife movement or contribute to habitat fragmentation, as the road width is limited to two lanes at most and the roads do not include barriers along the edges that would substantially impede wildlife movement.

Table 3.9.C: Consistency with the SCAG RCP

Policy	Project Consistency
farmlands. All projects should demonstrate consideration of alternatives that would avoid or reduce impacts to open space. • Individual projects should include into project design, to the maximum extent practicable, mitigation measures and recommended best practices aimed at minimizing or avoiding impacts to natural lands, including, but not limited to FHWA's Critter Crossings, and Ventura County Mitigation Guidelines. • Project level mitigation for RTP's significant cumulative and growth-inducing impacts on open space resources will include but not be limited to the conservation of natural lands, community open space and important farmland through existing programs in the region or through multi-party conservation compacts facilitated by SCAG. • Project sponsors should ensure that transportation systems proposed in the RTP avoid or mitigate significant impacts to natural lands, community open space and important farmland, including cumulative impacts and open space impacts from the growth associated with transportation projects and improvements. • Project sponsors should fully mitigate direct and indirect impacts to open space resulting from implementation of regionally significant projects.	Construction activities might temporarily deter wildlife use of the area; however, there are large areas of open space on either side of the access roads. Following construction completion, traffic along the access roads would be minimal (consistent with existing conditions) and would not deter wildlife use of the area, or impact open space areas.
OSC-6. SCAG should encourage member jurisdictions that have trails and trail segments determined to be regionally significant to work together to support regional trail networks. SCAG should encourage joint use of utility, transportation and other rights-of-way, greenbelts, and biodiversity areas.	Consistent. The Project would not result in adverse impacts to existing trails in and around Vail Lake or the Upper VDC Recharge Basins. Refer to Section 3.11 for additional information about parks and recreation facilities.
OSC-9. Developers and local governments should increase the accessibility to natural areas lands for outdoor recreation.	Consistent. The Project would not impede public access of the open space around Vail Lake for recreation. Refer to Section 3.11 for additional information about parks and recreation facilities.
Solid Waste	
SW-11. Local governments should discourage exporting of locally generated municipal solid waste (destined for landfills) outside of the SCAG region. Disposal within the county where the waste originates should be encouraged as much as possible, when appropriate. Green technologies for long-distance transport of waste (e.g., clean engines, clean locomotives or electric rail for waste-by-rail disposal systems) and consistency with AQMP and RTP policies should be required.	Consistent. The majority of the waste associated with ground improvements and access road improvements would be reused or stored on-site for use in future projects. Waste that is not suitable for reuse, including portions of the existing dam that are removed to allow for hydrologic connection with the replacement dam, would be disposed of at local waste facilities within Riverside County. No long-distance transport of waste is anticipated. Refer to Section 3.14 for additional information regarding solid waste.

Source: SCAG 2020; LSA 2022.
Notes: SCAG = Southern California Association of Governments; RCP = Regional Comprehensive Plan; FHWA = Federal Highway Administration; RTP = Regional Transportation Plan; VDC = Valle De Los Caballos; AQMP = Air Quality Management Plan

As documented in Table 3.9.C, construction and operation of the Project would be consistent with the applicable provisions of the SCAG RCP.

3.9.6.2 County of Riverside General Plan

Table 3.9.D lists the applicable provisions of the County General Plan and the Southwest Area Plan and includes a discussion of the Project's consistency with each policy.

Table 3.9.D: Consistency with the County of Riverside General Plan

Policy	Project Consistency
Land Use Element	
LU 7.2 Notwithstanding the Public Facilities designation, public facilities shall also be allowed in any other land use designation except for the Open Space – Conservation and Open Space – Conservation Habitat land use designations. For purposes of this policy, a public facility shall include all facilities operated by the federal government, the State of California, the County of Riverside, any special district governed by or operating within the County of Riverside or any city, and all facilities operated by any combination of these agencies.	Consistent. The Project site includes public facilities (Vail Dam, transmission pipelines, and associated structures) and is located in areas designated as Rural Residential, Open Space Rural, and Open Space Water. The Project does not propose placement of public facilities within areas designated as Open Space-Conservation or Open Space-Conservation Habitat.
LU 9.1 Provide for permanent preservation of open space lands that contain important natural resources, cultural resources, hazards, water features, watercourses including arroyos and canyons, and scenic and recreational values. (AI 10)	Consistent. The Project would provide for the long-term continued operation of Vail Dam, maintaining the water features and scenic and recreational resources associated with Vail Lake.
LU 14.1 Preserve and protect outstanding scenic vistas and visual features for the enjoyment of the traveling public. (AI 32, 79)	Consistent. The Project would provide for the long-term operation of Vail Dam, maintaining the scenic resources associated with Vail Lake. Changes in the appearance of the dam would not be widely visible from public areas.
Policies applicable to properties designated with the Rural Residential, Rural Mountainous, and Rural Desert land use designations on the area plan land use maps: • **LU 21.1** Require that grading be designed to blend with undeveloped natural contours of the site and avoid an unvaried, unnatural, or manufactured appearance. (AI 23) • **LU 21.3** Ensure that development does not adversely impact the open space and rural character of the surrounding area. (AI 3)	Consistent. The grading associated with the Project would be for the construction/demolition of the dam and improvements to existing access roads. The access roads follow the natural contours of the terrain and are not visually prominent. The Project would have no impact on the surrounding open space or nearby rural land uses and does not include the construction of new housing or commercial uses.
Policies applicable to properties designated under the Open Space Foundation Component: • **LU 23.2** Require that structures be designed to maintain the environmental character in which they are located. (AI 3)	Consistent. The Project is the construction of a gravity dam immediately downstream of the existing Vail Dam and includes improvements to existing access roads. The Project elements would be consistent with existing facilities and would not affect the environmental character of the area.
Policies applicable to properties designated either as Open Space-Conservation, Open Space-Conservation Habitat, or Open Space-Water on the area plan land use maps: • **LU 24.1** Cooperate with the California Department of Fish and Wildlife (CDFW), United States Fish and Wildlife	Consistent. RCWD will seek and obtain all applicable regulatory permits for the Project, and it is anticipated that mitigation would be provided at least partially through restoration and protection of riparian and wetland habitats in the Vail Lake area. Refer to Section 3.2 for additional

Table 3.9.D: Consistency with the County of Riverside General Plan

Policy	Project Consistency
Service (USFWS), and any other appropriate agencies in establishing programs for the voluntary protection, and where feasible, voluntary restoration of significant environmental habitats. (AI 10)	information regarding biological resources.
Circulation Element	
C 3.30 Design roadways to accommodate wildlife crossings whenever feasible and necessary.	Consistent. Access road improvements would not result in substantial barriers to wildlife movement, as the road width through undeveloped areas is limited to two lanes at most and the roads do not include barriers along the edges that would substantially impede wildlife movement.
C 15.3 Develop a trail system which connects Riverside County parks and recreation areas while providing links to open space areas, equestrian communities, local municipalities, and regional recreational facilities (including other regional trail systems), and ensure that the system contains a variety of trail loops of varying classifications and degrees of difficulty and length	Consistent. The Project would not impede the use of the Vail Lake KOA facilities, including trails and recreational facilities. During construction, temporary closures and/or detours of some equestrian trails through RCWD property near the Upper VDC Recharge Basins may be required; such closures will be coordinated with trail users ahead of time and detours will be made available whenever feasible. Refer to Section 3.11 for additional information about parks and recreation facilities.
C 20.5 In order to protect the watershed, water supply, groundwater recharge, and wildlife values of watercourses, the County of Riverside will avoid siting utility infrastructure and associated grading, fire clearance, and other disturbances within or adjacent to watercourses, if there are feasible alternatives available, and discourage special districts and other governmental jurisdictions outside of Riverside County's authority, from doing so. Where such watershed utility siting locations cannot be avoided, the impacts on watercourses shall be minimized. (AI 60)	Consistent. Construction and continuing operation of Vail Dam is a water-dependent use; however, the Project is compatible with protecting the watershed, water supply, groundwater recharge, and wildlife value of Vail Lake and its associated watercourses. The Project has been designed to minimize impacts to waters and wetlands. Refer to Sections 3.2 and 3.8 for additional information about biological resources and hydrology and water quality.
Multipurpose Open Space Element	
OS 3.4 Review proposed projects to ensure compliance with the National Pollutant Discharge Elimination System (NPDES) Permits and require them to prepare the necessary Stormwater Pollution Prevention Program (SWPPP). (AI 3)	Consistent. The Project will comply with the NPDES permit requirements and a SWPPP will be prepared for the Project prior to construction. Refer to Section 3.8 for additional information about hydrology and water quality.
OS 4.1 Support efforts to create additional water storage where needed, in cooperation with federal, state, and local water authorities. Additionally, support and/or engage in water banking in conjunction with these agencies where appropriate, as needed. (AI 56, 57)	Consistent. Construction of the new gravity dam will ensure the storage capacity of Vail Lake is maintained, allowing greater flexibility in managing the area's surface and groundwater resources. Refer to Section 3.8 for additional information about hydrology and water quality.
OS 4.3 Ensure that adequate aquifer water recharge areas are preserved and protected. (AI 3, 56, 57)	Consistent. The Project will not reduce the capacity or efficiency of the nearby groundwater recharge areas but will support ongoing RCWD groundwater recharge activities at the Upper VDC Recharge Basins. Refer to Section 3.8 for additional information about hydrology and water quality.
OS 4.6 Retain storm water at or near the site of generation for percolation into the groundwater to conserve it for future uses and to mitigate adjacent flooding. Such retention may occur through "Low Impact Development" or other Best Management Practice measures. (AI 57)	Consistent. The Project components (gravity dam, access roads, and staging and disposal areas) are generally surrounded by pervious areas or existing water bodies that will allow storm water to percolate into the groundwater. Refer to Section 3.8 for additional information about hydrology and water quality.

Table 3.9.D: Consistency with the County of Riverside General Plan

Policy	Project Consistency
OS 4.8 Use natural approaches to managing streams, to the maximum extent possible, where groundwater recharge is likely to occur. (AI 57)	Consistent. The Project would not affect the management of streams where groundwater recharge occurs. Consistent with current RCWD practices and permit requirements, water would continue to be released from Vail Lake into Temecula Creek based on flows measured upstream of Vail Lake.
OS 5.1 Substantially alter floodways or implement other channelization only as a "last resort," and limit the alteration to: a. that necessary for the protection of public health and safety only after all other options are exhausted; b. essential public service projects where no other feasible construction method or alternative project location exists; or c. projects where the primary function is improvement of fish and wildlife habitat. (AI 25, 59, 60)	Consistent. The Project includes the construction of a gravity dam immediately downstream of the existing Vail Dam to remediate seismic and hydrologic deficiencies and protect public health and safety. The Project does not represent a substantially new modification of the floodway, as Vail Dam has been a feature in the area for more than 70 years.
OS 5.2 If substantial modification to a floodway is proposed, design it to reduce adverse environmental effects to the maximum extent feasible, considering the following factors: a. stream scour; b. erosion protection and sedimentation; c. wildlife habitat and linkages; d. cultural resources including human remains; e. groundwater recharge capability; f. adjacent property; and g. design (a natural effect, examples could include soft riparian bottoms and gentle bank slopes, wide and shallow floodways, minimization of visible use of concrete, and landscaping with native plants to the maximum extent possible). A site specific hydrologic study may be required. (AI 25, 59, 60)	Consistent. The Project does not represent a new modification of the floodway, as Vail Dam has been a feature in the area for more than 70 years. As described in the 90% Design Report, the design process addressed scour, erosion and sedimentation, groundwater recharge, and minimizing impacts to biological resources. Refer to Sections 3.2 and 3.3 for additional information about biological resources and cultural resources.
OS 5.5 Preserve and enhance existing native riparian habitat and prevent obstruction of natural watercourses. Prohibit fencing that constricts flow across watercourses and their banks. Incentives shall be utilized to the maximum extent possible. (AI 25, 60)	Consistent. The Project has been designed to avoid and minimize impacts to riparian habitat, and impacts will be offset through mitigation (refer to Section 3.2 for additional information about impacts to biological resources). Construction of the gravity dam does not represent a new obstruction of a natural watercourse, as the Project is intended to remediate seismic and hydrologic deficiencies of the existing dam.
OS 5.6 Identify and, to the maximum extent possible, conserve remaining upland habitat areas adjacent to wetland and riparian areas that are critical to the feeding, hibernation, or nesting of wildlife species associated with these wetland and riparian areas. (AI 60, 61)	Consistent. The Project would not limit the potential to conserve upland habitat areas surrounding Vail Lake and its associated drainages. Refer to Section 3.2 for additional information about biological resources.
OS 6.2 Preserve buffer zones around wetlands where feasible and biologically appropriate. (AI 61)	Consistent. The Project would not limit the potential to preserve buffer zones around wetlands. Refer to Section 3.2 for additional information about biological resources.

Table 3.9.D: Consistency with the County of Riverside General Plan

Policy	Project Consistency
OS 9.3 Maintain and conserve superior examples of native trees, natural vegetation, stands of established trees, and other features for ecosystem, aesthetic, and water conservation purposes. (AI 3, 79)	Consistent. The Project has been designed to minimize impacts to biological resources, including vegetation and other features. Refer to Section 3.2 for additional information about biological resources.
OS 9.4 Conserve the oak tree resources in the county. (AI 3, 77, 78)	Consistent. The Project has been designed to minimize impacts to oak trees. Refer to Section 3.2 for additional information about biological resources.
OS 18.1 Preserve multi-species habitat resources in the County of Riverside through the enforcement of the provisions of applicable MSHCP's and through implementing related Riverside County policies.	Consistent. RCWD intends to obtain Take Authorization for impacts to special-status species through the MSHCP as a Participating Special Entity. Refer to Section 3.2 for additional information about biological resources.
OS 18.3 Prohibit the planting or introduction of invasive, non-native species to watercourses, their banks, riparian areas, or buffering setbacks.	Consistent. All revegetation and mitigation plans will be prepared and/or reviewed by qualified habitat restoration biologists to ensure that no invasive, non-native species are planted. Refer to Section 3.2 for additional information about biological resources.
OS 19.4 To the extent feasible, designate as open space and allocate resources and/or tax credits to prioritize the protection of cultural resources preserved in place or left in an undisturbed state. (AI 145)	Consistent. The Project will not adversely affect known cultural resources, and avoidance and preservation are identified as the preferred mitigation option for any significant unanticipated discoveries. Refer to Section 3.3 for additional information about cultural resources.
OS 19.5 Exercise sensitivity and respect for human remains from both prehistoric and historic time periods and comply with all applicable laws concerning such remains.	Consistent. The Project will not adversely affect known burial sites, and compliance with applicable laws governing human remains is required. Refer to Section 3.3 for additional information about cultural resources.
OS 19.6 Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8, a paleontological resource impact mitigation program (PRIMP) shall be filed with the County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources.	Consistent. Portions of the Project site are within areas mapped as having high paleontological sensitivity. A PRIMP will be prepared and implemented. Refer to Section 3.5 for additional information about paleontological resources.
OS 19.9 Whenever paleontological resources are found, the County Geologist shall direct them to a facility within Riverside County for their curation, including the Western Science Center in the City of Hemet.	Consistent. A PRIMP will be prepared and implemented. Any paleontological resources discovered will be curated, consistent with the requirements of the PRIMP. Refer to Section 3.5 for additional information about paleontological resources.
OS 20.1 Preserve and maintain open space that protects County environmental and other nonrenewable resources and maximizes public health and safety in areas where significant environmental hazards and resources exist.	Consistent. The Project does not preclude the preservation and maintenance of open space, and the Project's remediation of seismic and hydrologic hazards is in the interest of public health and safety.
Safety Element	
S 1.4 Implement the County of Riverside Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP) (as approved by FEMA, the latest approved version is available online at planning.rctlma.org/LHMP).	Consistent. RCWD is a participating agency in the LHMP and will provide updated information regarding Vail Dam to the County for incorporation into LHMP updates and emergency response planning. Refer to Section 3.7 for additional information about hazards.

Table 3.9.D: Consistency with the County of Riverside General Plan

Policy	Project Consistency
S 2.2 Require geological and geotechnical investigations in areas with potential for earthquake-induced liquefaction, landsliding or settlement, for any building proposed for human occupancy and any structure whose damage would cause harm, except for accessory buildings. (AI 81)	Consistent. Extensive geological and geotechnical investigations have been undertaken in support of the Project, as described in the 90% Design Report. Refer to Section 3.5 for additional information about geological and geotechnical issues.
S 2.5 Require that engineered slopes be designed to resist seismically-induced failure. For lower-risk projects, slope design could be based on pseudo-static stability analyses using soil engineering parameters that are established on a site-specific basis. For higher-risk projects, the stability analyses should factor in the intensity of expected ground shaking, using a Newmark-type deformation analysis.	Consistent. Extensive geological and geotechnical investigations have been undertaken in support of the Project, as described in the 90% Design Report. Refer to Section 3.5 for additional information about geological and geotechnical issues.
S 3.1 Require the following in landslide potential hazard management zones, or when deemed necessary by the California Environmental Quality Act: (AI 104) a. Preliminary geotechnical and geologic investigations. b. Evaluations of site stability, including any possible impact on adjacent properties, before final project design is approved. c. Consultant reports, investigations, and design recommendations required for grading permits, building permits, and subdivision applications be prepared by state-licensed professionals.	Consistent. According to Figure S-4 of the County of Riverside General Plan, the Project site is located primarily within low to moderate landslide susceptibility areas, although there are some high landslide susceptibility areas mainly along the Canyon Access Road. Extensive geological and geotechnical investigations have been undertaken in support of the Project by licensed professionals, as described in the 90% Design Report. Refer to Section 3.5 for additional information about geological and geotechnical issues.
S 4.5 Prohibit substantial modification to watercourses, unless modification does not increase erosion or adjacent sedimentation, or increase water velocities, so as to be detrimental to adjacent property, nor adversely affect adjacent wetlands or riparian habitat. (AI 60, 61)	Consistent. The Project does not represent a new modification of the floodway, as Vail Dam has been a feature in the area for more than 70 years. The new dam has been designed to minimize impacts to wetlands and riparian habitat, and there are no adjacent properties that would be affected by changes to the configuration of inlet or outlet structures at the dam.
S 4.7 Any substantial modification to a watercourse shall be done in the least environmentally damaging manner practicable in order to maintain adequate wildlife corridors and linkages and maximize groundwater recharge. (AI 25, 60)	Consistent. The Project has been designed to minimize impacts to biological resources and would not adversely affect groundwater recharge. The Project would not introduce new barriers to wildlife movement. Refer to Section 3.2 for additional information about biological resources.
S 4.17 Continue to assess and upgrade inundation risk and protection in the County. (AI 83, 88)	Consistent. A revised dam inundation map for Vail Dam has been developed as part of the Emergency Action Plan and has been filed with Cal OES and applicable local government agencies. Refer to Section 3.7 for additional information about hazards.
S 5.13 Develop a program to utilize existing reservoirs, tanks, and water wells in the county for emergency fire suppression water sources.	Consistent. The Project will not adversely affect the use of Vail Lake as a water source for emergency fire suppression. Refer to Section 3.15 for additional information about wildfire.
S 7.8 Promote strengthening of planned and existing utilities and lifelines, the retrofit and rehabilitation of existing weak structures, and the relocation of certain critical facilities.	Consistent. The Project will result in the remediation of seismic and hydrologic hazards at an existing structure, Vail Dam.

Table 3.9.D: Consistency with the County of Riverside General Plan

Policy	Project Consistency
S 7.14 Regularly review and clarify emergency evacuation plans for dam failure, inundation, fire and hazardous materials releases. (AI 88)	Consistent. A revised dam inundation map for Vail Dam has been developed as part of the Emergency Action Plan and has been filed with Cal OES and applicable local government agencies. Refer to Section 3.7 for additional information about hazards.
S 7.17 Adopt inundation alert and readiness levels corresponding with official forecasts by the State Office of Emergency Services, regarding earthquake prediction and potential for dam failure.	Consistent. A revised dam inundation map for Vail Dam has been developed as part of the Emergency Action Plan and has been filed with Cal OES and applicable local government agencies. The Project will not conflict with alert and readiness levels. Refer to Section 3.7 for additional information about hazards.
Noise Element	
N 13.1 Minimize the impacts of construction noise on adjacent uses within acceptable practices. (AI 105, 108)	Consistent. Construction noise impacts will be minimized through standard practices, including the installation of noise barriers near sensitive noise land uses. Refer to Section 3.10 for additional information about noise.
N 13.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas. (AI 105, 108)	Consistent/Partially Consistent. Where appropriate (e.g., where noise-sensitive uses may be affected by the Project), construction activities will be limited to appropriate hours of operation to the maximum extent feasible, consistent with applicable County noise regulations. Delivery of aggregate and other materials to the batch plant site will be limited to daytime hours only to reduce noise impacts. During placement of RCC at the dam, operations at the RCC batch plant would be required during both daytime and nighttime to allow uninterrupted construction of the dam. During this time, nighttime noise levels may exceed County noise standards at the property line of a rural residential parcel. Although RCWD is not subject to County noise criteria, noise barriers have been proposed to reduce nighttime noise levels on sensitive receptors. Refer to Section 3.10 for additional information about noise.
N 13.4 Require that all construction equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer. (AI 105, 108)	Consistent. Requirements for the incorporation of noise reduction features on construction vehicles and equipment have been identified for the Project. Refer to Section 3.10 for additional information about noise.
Air Quality Element	
AQ 17.1 Reduce particulate matter from agriculture, construction, demolition, debris hauling, street cleaning, utility maintenance, railroad rights-of-way, and off-road vehicles to the extent possible. (AI 123)	Consistent. The Project will comply with South Coast AQMD regulations for reducing particulate matter emissions from construction. Refer to Section 3.1 for additional information about air quality.
SWAP Policies	
Vail Lake Policy Area: **SWAP 4.1** Balance the development and recreation value with protection of the biological and aesthetic resources of the Vail Lake Policy Area by enforcing the following: • Any future development shall be focused into the least biologically sensitive areas of the site. Development beyond what is currently allowed shall only occur in accordance with the provisions of an adopted Specific	Consistent. • The Project does not consist of new development and will not affect future development in Specific Plan areas within the Vail Lake Policy Area. • Impacts to threatened and endangered species have been avoided and minimized, and measures have been incorporated to provide long-term benefits to species present within the Vail Lake area.

Table 3.9.D: Consistency with the County of Riverside General Plan

Policy	Project Consistency
Plan. • Provide for adequate long-term protection to threatened and endangered plant and animal species. • Provide for recreation access to Vail Lake and other recreational opportunities including a network of equestrian and foot trails available for public use, as described in the Open Space, Parks and Recreation section of the General Plan Multipurpose Open Space Element. • If the lake is retained in private ownership, prepare a lake management plan to protect water quality, adjacent riparian plant and animal life and recreation opportunities. • Protect outstanding scenic vistas as described in the Hillside Development and Slope section and the Scenic Corridors section of the General Plan Land Use Element and the Scenic Resources section and Scenic Corridors section of the General Plan Multipurpose Open Space Element. • Provide adequate access as described in the System Access section of the General Plan Circulation Element. • Control the design of future development by minimizing grading cuts and fill, clustering development in the least biologically sensitive areas, and minimizing light and glare impacts. • Provide natural and cultural resource education opportunities.	• The Project would not adversely affect recreational access to Vail Lake and the surrounding area. Temporary equestrian trail closures near the Upper VDC Recharge Basins would be minimized to the extent practicable, and detours would be provided. • No changes are proposed to lake operations; measures will be implemented to protect water quality in the lake during removal of portions of the existing dam as discussed in Section 3.8. • The Project will not adversely affect scenic vistas in the Vail Lake area, and Vail Dam is not visible from any designated scenic corridors. • The Project includes provision of access to the dam for RCWD vehicles. Access to the dam would remain off limits to the public. No adverse impacts to existing access to the area, including existing recreational trails associated with the campground, would occur. • The Project will minimize light and glare impacts in accordance with Riverside County Ordinance No. 655, Regulating Light Pollution. • The Project will not adversely affect the potential for natural and cultural resources education. Refer to Section 3.2 for additional information about biological resources. Refer to Section 3.11 for additional information about parks and recreation facilities.
SWAP 13.1 Adhere to the lighting requirements of county ordinances for standards that are intended to limit light leakage and spillage that may interfere with the operations of the Palomar Observatory.	Consistent. The Project will minimize light and glare impacts in accordance with Riverside County Ordinance No. 655, Regulating Light Pollution.
SWAP 21.1 Protect the Santa Margarita watershed and habitat, and provide recreational opportunities and flood protection through adherence to the applicable policies found within the Multiple Species Habitat Conservation Plans, Wetlands and Floodplain and Riparian Area Management sections of the General Plan Multipurpose Open Space Element, as well as use of Best Management Practice policies.	Consistent. Applicable Multipurpose Open Space Policies are addressed separately in this table. Refer to Sections 3.2 and 3.8 for additional information about biological resources and hydrology and water quality.
SWAP 22.1 Protect viable oak woodlands through adherence to the Oak Tree Management Guidelines adopted by Riverside County.	Consistent. The Oak Tree Management Guidelines are not applicable to the Project. Impacts to oak trees during construction have been avoided and minimized wherever feasible. Refer to Section 3.2 for additional information about biological resources.
SWAP 23.3 Maintain habitat connectivity within Murrieta Creek, Temecula Creek, Lower Tucalota Creek, Lower Warm Springs Creek, and Pechanga Creek to facilitate wildlife movement and dispersal, (especially for the California gnatcatcher and Quino checkerspot butterfly) and conservation of wetland species.	Consistent. Improvements to access roads and construction of the gravity dam will result in localized changes but would not introduce new barriers to wildlife movement or adversely affect habitat connectivity throughout the Vail Lake area. Refer to Section 3.2 for additional information about biological resources.

Table 3.9.D: Consistency with the County of Riverside General Plan

Policy	Project Consistency
SWAP 23.4 Conserve habitat connections to the Agua Tibia Wilderness, Arroyo Seco, and Wilson Valley.	Consistent. The Project would not adversely affect habitat connections between the Vail Lake area and Agua Tibia Wilderness, Arroyo Seco, or Wilson Valley. Refer to Section 3.2 for additional information about biological resources.
SWAP 23.8 Protect sensitive biological resources in SWAP through adherence to policies found in the Multiple Species Habitat Conservation Plans, Environmentally Sensitive Lands, Wetlands, and Floodplain and Riparian Area Management sections of the General Plan Multipurpose Open Space Element.	Consistent. RCWD will comply with the MSHCP and will obtain Take Authorization for the Project as a Participating Special Entity. The Project will be constructed and operated in accordance with all applicable policies of the MSHCP and the County General Plan Multipurpose Open Space Element. Specific General Plan policies are addressed earlier in this table. Refer to Section 3.2 for additional information about biological resources.
SWAP 24.1 Protect life and property from the hazards of potential dam failures and flood events through adherence to the Flood and Inundation Hazards section of the General Plan Safety Element.	Consistent. The Project is the remediation of seismic and hydrologic hazards associated with Vail Dam. A revised dam inundation map for Vail Dam has been developed as part of the Emergency Action Plan and has been filed with Cal OES and applicable local government agencies. Refer to Section 3.7 for additional information about hazards.
SWAP 25.1 Protect life and property from wildfire hazards through adherence to the Fire Hazards section of the Safety Element of the General Plan.	Consistent. The Project will not affect the availability of water resources to use for emergency fire suppression and will not exacerbate the risks to life and property from wildfire hazards. Specific General Plan Safety Element policies are addressed earlier in this table. Refer to Section 3.15 for additional information about wildfire.
SWAP 26.1 Protect life and property from seismic-related incidents through adherence to the Seismic Hazards section of the General Plan Safety Element.	Consistent. The Project is the remediation of seismic and hydrologic hazards associated with Vail Dam. Refer to Section 3.5 for additional information about geotechnical issues.

Source: County of Riverside 2014a, 2015b, 2015d, 2021a, 2021b, and 2022; LSA 2022.
Notes: SWAP = Southwest Area Plan

As documented in Table 3.9.D, construction and operation of the Project would be consistent with the applicable provisions of the County General Plan and Southwest Area Plan and will comply with applicable regulations such as County Ordinance No. 655.

3.9.6.3 MSHCP

As discussed in Section 3.2, Biological Resources, RCWD intends to obtain Take Authorization for impacts to special-status species through the MSHCP as a Participating Special Entity. Therefore, the Project will be required to meet the Global Biological Objectives of the MSHCP, including the protection of narrow endemic, criteria area, mammal, and amphibian species; species associated with riverine/riparian habitat, wetlands, or vernal pool habitat; and upland and wetland habitat quality. These objectives include additional survey needs (e.g., burrowing owl, arroyo toad, narrow endemic plants, and criteria area plants) and procedures such as the standard BMPs listed in Appendix C of Volume 1 of the MSHCP. Compliance with mitigation measures BIO-1 through BIO-7 and BIO-10 through BIO-13 will ensure that the Project is constructed and operated in a manner that is consistent with the MSHCP.

3.9.6.4 Property Guidance Document

Table 3.9.E lists the policies of the Property Guidance Document and includes a discussion of the Project's consistency with each policy. Additionally, the table lists the proposed land use(s) in each area within the Project footprint and indicates the consistency of the Project component(s) within those areas with the proposed land use(s).

Table 3.9.E: Consistency with the Property Guidance Document

Policy	Project Consistency
General Management Objectives	
Comply with state regulations for drinking water and the County of Riverside's Vail Lake Policy Area goals	Consistent. The Project supports the reliable provision of clean drinking water. Refer to Table 3.9.D for a discussion of the County's Vail Lake Policy Area goals.
Fully utilize Vail Lake for water supply purposes	Consistent. Construction of the gravity dam would remediate seismic and hydrologic hazards, eliminating the restrictions on water storage associated with the Interim Operation Restriction Plan. The Project would also improve RCWD's ability to conduct emergency water draw down. This would allow RCWD to fully utilize Vail Lake for water storage and supply.
Protect the water quality for Vail Lake and the VDC groundwater recharge basins	Consistent. Appropriate BMPs have been incorporated into the design and construction of the Project to ensure water quality would be protected at Vail Lake and the Upper VDC Recharge Basins. Refer to Section 3.8 for additional information on water quality.
Identify future RCWD facility requirements	Consistent. The Project would not adversely affect the identification of future facility requirements. The specifications for the gravity dam and appurtenances will be available to RCWD.
Habitat conservation and restoration	Consistent. The Project has been designed to avoid and minimize impacts to habitat and includes mitigation measures requiring restoration of habitat.
Provide a variety of recreational opportunities	Consistent. Construction and operation of the Project would not conflict with the provision of recreational opportunities associated with Vail Lake. Refer to Section 3.11 for additional information about recreational resources.
Fiscally-sound property management	Consistent. The Project would not affect property management of Vail Lake or the surrounding area.
Land Use Opportunities	
Specific RCWD projects that are anticipated to occur irrespective of any land use activities include the following (see Figure 2 [of the PGD]): • Vail Dam Remediation Project, including potential hydroelectric or pumped-storage projects; • Vail Lake Sediment Removal Project, including on-site disposal areas; and • Vail Lake Sediment Control Improvements.	Consistent. The Project is the Vail Dam Remediation Project mentioned in the first bullet point of this policy.

Table 3.9.E: Consistency with the Property Guidance Document

Policy	Project Consistency
Depending upon which recreational opportunities are implemented, other anticipated RCWD projects are: • Water, wastewater, storm drain, electrical, and other utility improvements, including potential solar or wind generation facilities; and • On-site vehicular access improvements for security purposes and access to RCWD facilities.	Consistent. The Project includes improvements to the Primary Entry Road (50 Acre Parcel), Secondary Entry Road, Pond Access Road, Canyon Access Road, North Access Road, and South Access Road, which will support the second part of this policy.
Other District opportunities relating to both RCWD projects and recreational opportunities consist of the following: • Coordination with the RCA regarding options for Riverside County MSHCP compliance/consistency; and • Potential development of a private mitigation bank for wetlands and riparian habitat.	Consistent. RCWD will obtain Take Authorization under the MSHCP as a Participating Special Entity. The Project would not preclude establishing a mitigation bank for wetland and riparian habitat.
Recreational Opportunities	
The objective for the water-based recreational opportunities on Vail Lake is to consider activities and amenities that complement the on-site lodging facilities with appropriate activities and amenities, as further identified in Table 1 [of the PGD], acquiescent to a varying lake operation (water level fluctuations, see Figure 3 [of the PGD]) and a protective water quality management program. It is anticipated that a vendor/concessionaire would be contracted to manage the water-based recreational opportunities, and District-related activities would be as follows: • Revision of the Vail Lake Operations Plan; • Revision of the Vail Lake Water Quality Monitoring Plan; • Revision of the Vail Lake Invasive Species Monitoring Plan; • Development of a fisheries management plan; and • Development of a recreational operation plan to quantify facility improvements, daily boat limits, and other management requirements.	Consistent. Independently of this Project, RCWD has retained Kampgrounds Enterprises Incorporated (KEI) to manage the Vail Lake Resort (Temecula/Vail Lake KOA), consistent with this objective. The Project allows greater flexibility in the management of water resources in Vail Lake and improved capacity for emergency draw downs. Construction and operation of the Project will not adversely affect RCWD's efforts to revise the Operations Plan, Water Quality Monitoring Plan, or Invasive Species Monitoring Plan, and will not adversely affect the development of a fisheries management plan or recreational operation plan.
The objective for the land-based recreational opportunities at the Vail property is to promote a destination resort for active nature-based tourism that offers a variety of outdoor adventure and education activities and amenities, as further identified in Table 2 [of the PGD]. Lodging improvements may include refurbishment of the existing Vail Lake RV Resort and potential additional lodging facilities and recreational amenities in the vicinity of the Vail Lake RV Resort and Vail Marina facility (see Figure 4 [of the PGD]). It is anticipated that a vendor/concessionaire would be contracted to manage the land-based recreational opportunities for the Vail property. District related activities would be as follows: • Determination of historical preservation requirements for the existing structures; • Determination of cultural preservation requirements for the property; • Determination of MSHCP compliance/consistency requirements; and	Consistent. Independently of this Project, RCWD has retained KEI to manage the Vail Lake Resort. Cultural resources studies in support of the Project will be available to RCWD to support identifying potential historical preservation requirements within the Project area. Biological studies in support of RCWD's participation in the MSHCP for this Project will be available to RCWD to support identification of MSHCP compliance/consistency requirements that may apply to other activities in the Project vicinity. Bathymetric data and biological resources data developed in support of the Project may be used in support of identifying future sediment disposal areas and control facilities.

Table 3.9.E: Consistency with the Property Guidance Document

Policy	Project Consistency
• Determination of future sediment disposal areas and sediment control facilities.	
The objective for the recreational opportunities at the Sundance Ranch property has a "skill building" focus promoting a variety of outdoor adventure activities and amenities, as further identified in Table 3 [of the PGD], in conjunction with the lodging facilities at the Vail property. It is anticipated that a vendor/concessionaire would be contracted to manage the land-based recreational opportunities for the Sundance Ranch property (see Figure 5 [of the PGD]). District-related activities would be as follows: • Determination of historical preservation requirements for the existing structures; • Determination of cultural preservation requirements for the property; • Determination of MSHCP compliance/consistency requirements; and • Determination of future sediment disposal areas.	Consistent. The Project is not anticipated to have any effect on the Sundance Ranch property; however, it is possible that biological, cultural, and other data developed in support of the Project may be applicable in part to the area.
The objective for trail recreation is to provide a variety of multi-purpose trails, utilizing existing roads and trails for equestrian, mountain biking, and hiking purposes (see Figure 6 [of the PGD]). Motorized recreational vehicle use on trails would be prohibited. It is anticipated that a vendor/ concessionaire would be contracted to manage the trail-related recreational opportunities. District-related activities would be as follows: • Determination of MSHCP compliance/consistency requirements; • Coordination of trail improvements with potential RCWD projects and the potential recreational opportunities; and • Coordination with the County of Riverside regarding regional trail facilities.	Consistent. The Project does not specifically include the creation of trails; however, the biological and topographic data developed in support of the Project may be applicable for these objectives.
Implementation Plan	
Prior to implementation of the potential land use activities, the proposed operating objectives for the existing facilities and property are as follows: • Continue to secure and patrol the properties to prevent trespassing and other illegal activities; • Continue to operate the Vail Lake RV Resort facility under Conditional Use Permit 3172 and perform facility repairs, as necessary; • Continue to operate the Vail Lake boating and fishing recreational facilities and repair the support facilities, as necessary; • Continue to allow trail access and trail events as managed by RCWD's recreation vendor; • Continue to utilize a recreation vendor to operate the facilities and to manage the property on a year-to-year or multi-year operating agreement; and • Evaluate unsolicited property lease proposals, in accordance with the PGD.	Consistent. Construction and operation of the project would not affect the availability of Vail Lake for recreational use, with the exception that areas in the vicinity of active construction may be temporarily closed for public safety. The Project would not affect RCWD's ability to secure and patrol the properties, conduct facility repairs, utilize KEI as a private recreation vendor, or evaluate property lease proposals.

Table 3.9.E: Consistency with the Property Guidance Document

Policy	Project Consistency
Vail Land Use Planning Area Proposed Land Use(s)	
Area 2 (Existing undeveloped property, north of Vail Lake): District purposes (alternative access road to Vail Dam, pumped storage project), Open Space	Consistent. Project components in this area include the North Access Road. These are consistent with the proposed District purposes and open space land use.
Area 3 (Existing undeveloped property, northeast of Vail Lake): Open Space	Consistent. Portions of this area are within the upper limit of the lake (at spillway elevation); however, that is consistent with the proposed open space land use and would not change as a result of the Project.
Area 4 (Butterfield Canyon/Temecula Creek): District purposes (existing District water supply facilities)	Consistent. Project components in this area include portions of the Canyon Access Road as well as staging and disposal areas, which are consistent with the proposed District purposes.
Area 5 (Vail Dam): District purposes (Vail Dam remediation, sedimentation removal)	Consistent. Project components in this area include the Vail Dam construction area, portions of the South Access Road, and staging and disposal areas, all of which are consistent with the proposed District purposes.
Area 6 (Vail Lake): District purposes (water supply purposes, sedimentation removal, invasive species protection and removal), Lake recreation use	Consistent. Portions of this area are within the upper limit of the lake (at spillway elevation); however, that is consistent with the proposed lake recreation land use and would not change as a result of the Project. Portions of the South Access Road are in this area, which is also consistent with the proposed District purposes.
Area 7 (Wilson Creek drainage area): District purposes (sedimentation control basins, habitat restoration, invasive species removal)	Consistent. Portions of this area are within the upper limit of the lake (at spillway elevation); however, that is consistent with the proposed District purposes and would not change as a result of the Project.
Area 9 (Existing undeveloped property/ Gooseneck Point): Open Space	Consistent. Portions of this area are within the upper limit of the lake (at spillway elevation); however, that is consistent with the proposed open space land use and would not change as a result of the Project.
Area 10 (Existing undeveloped property, east of Vail Lake): Open Space	Consistent. Portions of this area are within the upper limit of the lake (at spillway elevation); however, that is consistent with the proposed open space land use and would not change as a result of the Project.
Area 14 (Existing Vail Lake Marina facilities and access road, and water supply facilities): District purposes (water supply facilities), Recreational lease area and lake access improvements	Consistent. Portions of this area are within the upper limit of the lake (at spillway elevation); however, that is consistent with the proposed District purposes and recreational lease area and lake access improvements and would not change as a result of the Project.
Area 18 (Temecula Creek drainage area): District purposes (sedimentation control basins, habitat restoration, invasive species removal), Open Space	Consistent. Portions of this area are within the upper limit of the lake (at spillway elevation); however, that is consistent with the proposed District purposes and open space land use and would not change as a result of the Project.

Source: RCWD 2016; LSA 2022.
Notes: PGD = Property Guidance Document
MSHCP= Western Riverside County Multiple Species Habitat Conservation Plan

As documented in Table 3.9.E, construction and operation of the Project would be consistent with the applicable provisions of the Property Guidance Document, which specifically identifies the Project and proposes appropriate land uses in areas where Project components would be located.

3.9.6.5 2014 Upper Santa Margarita Watershed IRWM Plan Update

Table 3.9.F lists applicable policies of the IRWM Plan Update and includes a discussion of the Project's consistency with each policy.

Table 3.9.F: Consistency with the IRWM Plan Update

Policy	Project Consistency
Regional Issues	
1. Increase diversification of the water supply portfolio Objective 1a: Reduce regional potable water consumption Objective 1b: Increase local supply development	Consistent. The Project would eliminate the need for the Interim Operation Restriction Plan, allowing RCWD to fully utilize the storage capacity of Vail Lake. This would support Objective 1b.
2. Maximize groundwater potential • Objective 2a: Improve quality and ability to access and increase groundwater supply • Objective 2b: Increase knowledge of groundwater supply potential	Consistent. The Project would not interfere with the implementation of these objectives. RCWD manages Vail Lake and the Upper VDC Recharge Basins as a connected system, developing and utilizing knowledge of the local groundwater supply and storage.
3. Protect and improve local surface water quality • Objective 3a: Reduce controllable pollutant sources to 303(d) listed receiving waters	Consistent. The Project would not introduce any new pollutant sources.
4. Promote integrated flood management • Objective 4a: Enhance regional flood control by implementing multiple benefit projects • Objective 4b: Reduce municipal and private property damage risk	Consistent. The Project supports Objective 4b by reducing the risk associated with seismic and hydrologic hazards at the existing Vail Dam.
5. Protect, restore and enhance aquatic/riparian habitat • Objective 5a: Protect and create aquatic/riparian habitat • Objective 5b: Enhance riparian corridors on existing land use	Consistent. The Project has been designed to avoid and minimize impacts to habitat and includes mitigation measures requiring restoration of habitat.
6. Promote economic, social, land use and environmental sustainability • Objective 6a: Support water resources projects that positively impact Disadvantaged Communities • Objective 6b: Improve recreation opportunities and open space through multiple benefit projects • Objective 6c: Adapt to and mitigate against climate change by promoting adaptation strategies and reducing water related greenhouse gas emissions	Consistent. The Project would benefit all communities in RCWD's service area as well as areas within the dam inundation zone for Vail Dam. The Project would not adversely affect recreation projects and open space improvements under consideration by RCWD. The Project would allow for greater flexibility in water storage in Vail Lake, which would allow RCWD to adapt to both more intense storm events and droughts associated with climate change.

Source: RCWD et al. 2014; LSA 2022.

As documented in Table 3.9.F, construction and operation of the Project would be consistent with the applicable provisions of the Upper Santa Margarita Watershed IRWM Plan Update.

3.9.7 Cumulative Impacts

As defined in Section 15130 of the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for land use and planning. The cumulative impact area for land use for the Proposed Project is the Vail Lake Policy Area as defined in the County of Riverside SWAP. While a portion of the Upper VDC Recharge Basins is located adjacent to the Vail Lake Policy Area in the neighboring Temecula Valley Wine Country Policy Area - Equestrian District, Project components in this area are limited to access road improvements and staging/disposal areas which would not affect or contribute to cumulative land use impacts. Several development projects are approved and/or pending in the area. Related projects are shown in Table 3.A, Summary of Related Projects, in Chapter 3.0. Each of these projects, as well as all proposed development in the area, would be subject to its own General Plan consistency analysis and would be reviewed for consistency with adopted land use plans and policies. The Property Guidance Document outlines the land use and developments (e.g., recreational facilities, conservation areas, and areas required for lake management actions such as sediment removal) envisioned by RCWD on its property surrounding Vail Lake. None of the RCWD projects shown in Table 3.A would change the underlying land use.

The area surrounding Vail Lake is characterized primarily by undeveloped areas and conservation property, developed ranch and agricultural properties, and recreational/campground uses. The Vail Lake Policy Area in the SWAP acknowledges the open space, conservation, and recreational opportunities as well as the constraints from steep slopes and limited public facilities in the area. The Proposed Project would not introduce new land uses or substantially change the existing land use on the Project site, which are compatible with the adopted land use plans. The Project is consistent with land use and zoning regulations, the policies of the County General Plan and SWAP, the MSHCP, the Property Guidance Document, and the Upper Santa Margarita River Watershed IRWM Plan Update. No significant land use impacts would occur as a result of the Project; therefore, land use impacts would not be cumulatively considerable.

There are no incompatibilities between the Proposed Project and planned future projects. As discussed previously, the Proposed Project would not conflict with the SCAG RCP or the County-adopted plans, policies, or zoning; or conflict with the MSHCP. All identified adopted and planned projects are required to be reviewed for consistency with adopted land use plans and policies. For this reason, the related projects are anticipated to be consistent with applicable General Plan and zoning requirements, or would be subject to allowable exceptions; further, they would be subject to CEQA, mitigation requirements, and design review. Therefore, the Proposed Project would not have a cumulatively considerable land use compatibility impact in the area, and no mitigation is required.

3.9.8 Level of Significance Prior to Mitigation

The Proposed Project would result in less than significant impacts related to land use and planning.

3.9.9 Regulatory Compliance Measures and Mitigation Measures

The following RCMs are existing regulations that are applicable to the Proposed Project and are considered in the analysis of potential impacts related to land use. RCWD considers these requirements mandatory; therefore, they are not mitigation measures.

RCM LU-1 The access point at De Portola Road at the Primary Entry Road (50 Acre Parcel) will comply with Riverside County's minimum intersection spacing standards. Prior to the approval of final plans, the design of the proposed intersection will be provided by RCWD to Riverside County for review.

RCM LU-2 The Project will minimize light and glare impacts in accordance with Riverside County Ordinance No. 655, Regulating Light Pollution, including use of allowed light fixtures and types specified within the ordinance. RCWD shall verify compliance with this requirement prior to issuing the Final Design Plans.

The Proposed Project would not result in potentially significant impacts related to land use and planning; therefore, no mitigation is required.

3.9.10 Level of Significance After Mitigation

No mitigation is required. The Proposed Project would not result in potentially significant impacts related to land use and planning.

3.10 NOISE

This section of the Environmental Impact Report (EIR) is intended to satisfy Rancho California Water District's (RCWD) requirements for a project-specific noise and vibration impact analysis by examining the short-term and long-term noise impacts of the Proposed Project on sensitive uses adjacent to the Proposed Project area and by evaluating the effectiveness of mitigation measures. This includes the potential for the Proposed Project to result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of noise standards and the generation of excessive groundborne vibration or groundborne noise levels. The analysis contained in this section is based on the *Noise and Vibration Impact Analysis, Rancho California Water District, Vail Dam Seismic and Hydrologic Remediation Project [Project No. D1911], Riverside County, California* (LSA 2022b), included as Appendix I.

3.10.1 Scoping Process

RCWD received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. No comment letters included comments related to noise. No comments were made regarding noise at the scoping session held on July 15, 2020.

3.10.2 Existing Environmental Setting

The Project site is surrounded primarily by residential uses and vacant land. Numerous hiking, equestrian, and mountain biking trails are in the surrounding area. The land uses near the Project are:

- **North:** NexStar Ranch (horse ranch, residential), agricultural areas, and undeveloped areas; equestrian trails north of and outside of the Upper Valle de los Caballos (VDC) Recharge Basins to the Secondary Entry Road and via RCWD property along the south side of the NexStar Ranch property to Oak Mountain Road; the area generally consists of undeveloped property with a County of Riverside (County) land use designation of rural mountainous (10-acre minimum lot size) or Bureau of Land Management conservation property with a County land use designation of open space-conservation

- **East:** Vail Lake, including boat launch; farther to the east, the area generally consists of developed property associated with the Sundance Meadows private membership campground with a County land use designation of rural residential (5-acre minimum) or vacant undeveloped property with a land use designation of rural mountainous (10-acre minimum)

- **South:** Rancho Pacifica Ranch (horse ranch, residential), Vail Lake Village and RV Resort and associated recreational facilities; beyond these two uses, the area consists primarily of recreational/campground uses, Cleveland National Forest, a variety of ranch and agricultural properties, and vacant undeveloped properties; the County land use designations for this area are rural residential (5-acre minimum), rural mountainous (10-acre minimum), open-space conservation, open-space habitat, and open-space recreation

- **West:** Residential (single-family homes) west of De Portola Road; to the west beyond the canyon below Vail Dam, the area generally consists of developed ranch property within the VDC Policy Area with a County land use designation of rural residential (5-acre minimum), undeveloped property with a land use designation of agricultural, and RCWD's Upper VDC Groundwater Recharge Basins

Of the abovementioned land uses, the areas comprised of horse ranches and residential uses are considered noise sensitive.

3.10.3 Regulatory Setting

As an independent water district, RCWD is not subject to County noise criteria; however, RCWD does not have established noise standards. The Project is federally funded; however, the Federal Emergency Management Agency (FEMA), the lead agency under the National Environmental Policy Act (NEPA), also does not have established noise standards. The following standards are presented as a guide for determining California Environmental Quality Act (CEQA) significance. As it relates to noise and vibration, the Local Guidelines for Implementing the California Environmental Quality Act for Rancho California Water District (Best Best & Krieger 2022) is consistent with the standard CEQA Appendix G Checklist.

3.10.3.1 Federal Regulations for Noise and Vibration (Federal Transit Administration)

Because RCWD, FEMA, and the County do not have construction noise level limits, construction noise was assessed using criteria from the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018). Table 3.10.A shows the Federal Transit Administration's (FTA) General Assessment Construction Noise Criteria based on the composite noise levels of the two noisiest pieces of equipment per construction phase.

Table 3.10.A: General Assessment Construction Noise Criteria

Land Use	Daytime 1-hour L_{eq} (dBA)	Nighttime 1-hour L_{eq} (dBA)
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
dBA = A-weighted decibels
FTA = Federal Transit Administration
L_{eq} = equivalent continuous sound level

The criteria for environmental impact from groundborne vibration and noise are based on the maximum levels for a single event. Table 3.10.B lists the potential vibration building damage criteria associated with construction activities, as suggested in the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

FTA guidelines show that a vibration level of up to 0.5 inches per second (in/sec) peak particle velocity (PPV) (FTA 2018) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster) and would not result in any construction vibration damage. For a non-engineered timber and masonry building, the construction building vibration damage criterion is 0.2 in/sec PPV.

Table 3.10.B: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
FTA = Federal Transit Administration PPV = peak particle velocity
in/sec = inches per second

The U.S. Department of the Interior Office of Surface Mining Reclamation and Enforcement (OSM) has established guidelines related to blasting for surface mining activities. The OSM guidelines include requirements that the operator distribute a blasting schedule, post blasting signs, and control access within the blasting area. OSM has established air blast and ground vibration limits at the location of any dwelling, public building, school, church, or community building outside the permit area. The standard PPV damage threshold for residential structures is 2.0 in/sec. This requirement is based on the findings and recommendations of several reports made by the former U.S. Bureau of Mines.

3.10.3.2 County of Riverside General Plan

The California Government Code requires that a noise element be included in the general plan of each county and city in the State. The Riverside County General Plan Noise Element (County of Riverside 2015b) evaluates the existing noise environment and future noise environment projections as well as identifies noise-sensitive land uses and major noise sources in the County. The Noise Element provides goals, policies, and implementation programs designed to minimize noise conflicts and protect public health and includes the following applicable policies:

N 1.1: Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or block walls shall be used.

N 1.2: Guide noise-tolerant land uses into areas irrevocably committed to land uses that are noise-producing, such as transportation corridors or within the projected noise contours of any adjacent airports.

N 1.4: Determine if existing land uses will present noise compatibility issues with proposed projects by undertaking site surveys.

N 1.5: Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.

N 1.6: Minimize noise spillover or encroachment from commercial and industrial land uses into adjoining residential neighborhoods or noise-sensitive uses.

N 13.1: Minimize the impacts of construction noise on adjacent uses within acceptable practices.

N 13.2: Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.

N 13.4: Require that all construction equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

In addition, the Riverside County Noise Element provides the County's noise standards and land use compatibility standards for normally acceptable conditions, based on State recommendations and County land use designations. The County uses the noise/land use compatibility guidelines presented in Table 3.10.C and Table 3.10.D, below. The Land Use Compatibility Standards, which use the Community Noise Equivalent Level (CNEL) noise descriptor, are intended to be applicable for land use designations exposed to noise levels generated by transportation-related sources while the stationary or non-transportation noise standards rely on an average noise level (L_{eq}).

Table 3.10.C: County of Riverside Land Use Compatibility for Community Noise Exposure

Land Use	Community Noise Exposure (L_{dn} or CNEL)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential[1]	50–60	60–70	70–75	75–85
Transient Lodging–Motel, Hotels	50–60	60–70	70–80	80–85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50–60	60–70	70–80	80–85
Auditoriums, Concert Halls, Amphitheaters[2]	NA	50–70	NA	70–85
Sports Arenas, Outdoor Spectator Sports[2]	NA	50–75	NA	75–85
Playgrounds, Neighborhood Parks	50–70	NA	67.5–75	72.5–85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50–70	NA	70–80	80–85
Office Buildings, Business Commercial and Professional	50–65	65–75	75–85	NA
Industrial, Manufacturing, Utilities, Agriculture	50–70	70–80	80–85	NA

Source: *County of Riverside General Plan Noise Element* (County of Riverside 2015b).
Notes: NA: Not Applicable, L_{dn} = Day-Night Sound Level, CNEL = Community Noise Equivalent Level
[1] Regarding aircraft-related noise, the maximum acceptable exposure for new residential development is 60 dB CNEL.
[2] No normally acceptable condition is defined for these uses. Noise studies are required prior to approval.
Normally Acceptable - Specified land use is satisfactory, based upon the assumption that any buildings involved meet conventional Title 24 construction standards. No special noise insulation requirements.
Conditionally Acceptable - New construction or development shall be undertaken only after a detailed noise analysis is made and noise reduction measures are identified and included in the project design.
Normally Unacceptable - New construction or development is discouraged. If new construction is proposed, a detailed analysis is required, noise reduction measures must be identified, and noise insulation features included in the design.
Clearly Unacceptable - New construction or development clearly should not be undertaken.

Table 3.10.D: Stationary Source Noise Level Standards[1]

Residential Land Use	Interior Standards L_{eq} (dBA)	Exterior Standards L_{eq} (dBA)
10:00 p.m. to 7:00 a.m.	40 (10-minute)	45 (10-minute)
7:00 a.m. to 10:00 p.m.	55 (10-minute)	65 (10-minute)

Source: *County of Riverside General Plan Noise Element* (County of Riverside 2015b).

[1] These are considered preferred standards; final decision will be made by the Riverside County Planning Department and Office of Public Health.

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

3.10.3.3 County of Riverside Municipal Code

The County of Riverside has established limits to the hours of construction. Section 9.52.020 of the County's Noise Ordinance (County of Riverside 2020) indicates that noise associated with any private construction activity located within 0.25 mile of an inhabited dwelling is considered exempt between the hours of 6:00 a.m. and 6:00 p.m., during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May.

3.10.4 Methodology

The evaluation of noise and vibration impacts associated with the Proposed Project includes the following:

- Determination of the short-term construction noise impacts on off-site noise-sensitive uses;
- Determination of the short-term construction vibration impacts on off-site building structures;
- Determination of the long-term noise and vibration impacts, including vehicular traffic and stationary noise sources, on off-site noise-sensitive uses; and
- Determination of the required mitigation measures to reduce short-term construction and long-term operational noise and vibration impacts from all sources.

3.10.5 Thresholds of Significance

The thresholds for noise and vibration impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to noise or vibration if it would:

Threshold 3.10.1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies

Threshold 3.10.2: Result in generation of excessive groundborne vibration or groundborne noise levels

Threshold 3.10.3: 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

The Initial Study, included as Appendix A, substantiates that there would be no impacts associated with Threshold 3.10.3 as the Project site is not within the vicinity of a private airstrip or an airport land use plan, and there are no airports within two miles of the Project site. This threshold will not be addressed in the following analysis.

3.10.6 Project Impacts

Threshold 3.10.1: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies

Significant Impact.

Construction. The Noise and Vibration Technical Analysis provides detailed projections of noise generation during and after construction of the Proposed Project. Calculations indicate that although construction traffic noise would fall below the threshold of significance, on-site construction-related short-term noise levels have the potential to be higher than existing ambient noise levels in the Project area under existing conditions. The noise impacts would no longer occur once Project construction is completed. As stated above, noise impacts associated with construction activities are regulated by the County's Noise Ordinance. To control noise impacts associated with the construction of the Proposed Project, the County of Riverside has established limits to the hours of operation. Section 9.52.020 of the County's Noise Ordinance indicates that noise associated with any construction activity located within 0.25 mile of an inhabited dwelling is considered exempt between the hours of 6:00 a.m. and 6:00 p.m., during the months of June through September, and between the hours of 7:00 a.m. and 6:00 p.m., during the months of October through May. Although as an independent water district RCWD is not subject to the County Noise Ordinance, RCWD does not have its own adopted noise standards, so this analysis considers consistency with the County standard as one factor of determining potential significance.

For the majority of the duration of construction, activities would only occur during daytime hours and construction-related noise impacts would remain below the 90 A-weighted decibels (dBA) L_{eq} 1-hour construction noise level criteria as established by the FTA for residential land uses. However, during the period of 12 weeks nighttime work generating noise levels at the residential uses to the west would range from 49 to 57 dBA L_{eq} and would exceed the nighttime noise level standard of 45 dBA L_{eq} by 12 dBA. Under the assumption that proposed operations would occur near the center of the Flyers Field, even with temporary barriers along the property lines of NexStar Ranch and Rancho Pacifica Ranch, construction-related noise levels at residential uses to the west would be reduced by 0 to 9 dBA given the source heights on heavy construction equipment such as batch plants and cranes. It is possible that a temporary construction barrier may provide more reduction to sources with lower source heights that are close to the barrier. Regardless, these construction-related noise impacts would remain above the 45 dBA L_{eq} exterior noise level standard established by the County for residential land uses during nighttime hours. Although RCWD is an independent water district

and is not subject to County noise regulations, based on the very perceptible and potentially disruptive increase in nighttime noise levels during this phase of construction, impacts are anticipated to be significant. A Regulatory Compliance Measure (RCM N-1) has been identified that would help reduce the impacts; however, there is no feasible way to mitigate the nighttime noise due to the location of the sensitive residential uses and the types of construction equipment to be used. Therefore, construction-related noise impacts during nighttime hours would remain significant and unavoidable.

Less Than Significant Impact.

Operation. Once construction is complete, there would be no regular or daily traffic associated with the Proposed Project site. Periodically, maintenance vehicles would access the completed dam, but the number of maintenance vehicles accessing the dam would not change compared to existing conditions. As such, an associated noise level increase would be minimal and, therefore, less than significant during Project operation.

The Proposed Project would construct facilities to house equipment associated with overhead electrical service provided by Southern California Edison (SCE). All new electrical utility facilities would be designed per SCE standards. Because all equipment would be housed within a concrete building and the building would be approximately 7,000 feet (ft) from the nearest receptor, any noise generated would be imperceptible and would be less than significant during Project operation. No mitigation is required.

Threshold 3.10.2: Result in generation of excessive groundborne vibration or groundborne noise levels

Less Than Significant.

Construction.

Construction Equipment. Other than RCWD facilities, the closest structures to the areas of construction at the Project site are the existing buildings associated with NexStar Ranch to the north, approximately 60 ft from the nearest construction activities. The operation of a large bulldozer would generate groundborne vibration levels of 0.014 in/sec PPV. This level would not exceed the 0.2 in/sec PPV guideline and, therefore, impacts would be less than significant. No mitigation is required.

Blasting. Per the Noise and Vibration Impact Analysis, the estimated vibration impact at the nearest buildings to the west of blasting activity would be 0.002 to 0.018 in/sec PPV. These levels are well below the criteria for potential building damage. The Proposed Project includes a Blasting Plan as Regulatory Compliance Measure RCM N-2. The Blasting Plan, outlined below, shall include provisions to ensure that no damage would occur to the existing dam or ancillary structures during blasting.

Operation. The Proposed Project would not include any sources of long-term operational vibration. Additionally, the streets surrounding the Project area are paved and smooth and are unlikely to

cause significant groundborne vibration, and the number of maintenance vehicles that would access the Project site in the future would not change compared to existing conditions. Therefore, there would be no vibration impacts associated with the long-term operation of the Proposed Project.

3.10.7 Cumulative Impacts

The cumulative area for noise and vibration impacts is the unincorporated area surrounding Vail Lake. The nearest projects with the potential to contribute to a cumulative noise impact would be RCWD's proposed Well No. 172 within the Upper VDC Recharge Basins, RCWD's proposed pump station to be constructed on the 50 Acre Parcel, and ongoing operations and maintenance activities. No nighttime earthwork is anticipated for these RCWD projects, although nighttime work for drilling Well No. 172 would be required. This work is not anticipated to occur concurrently with batch plant operations as it is scheduled to begin in early 2023 and be completed before the batch plant is operational. Therefore, although the Proposed Project would result in a significant nighttime noise impact during construction, it would not be exacerbated by cumulative projects in the vicinity.

With respect to the remaining projects identified in Section 3.0, all of which are off site, it is not possible to predict whether contiguous or nearby properties may be developed at the same time as the Vail Dam Project. However, it is unlikely that adjacent properties will be developed at the same time as the Project area because of the low density and open space characteristics of the vicinity. In the event that adjacent properties are developed at the same time as the Proposed Project, adherence to the County's provisions that regulate construction activities and other development standards would ensure that potential noise impacts of the Proposed Project would not be cumulatively considerable.

3.10.8 Level of Significance Prior to Mitigation

During the period of 12 weeks during which nighttime work generating noise levels at NexStar Ranch and Rancho Pacifico Ranch approaching 57 dBA Leq will occur, nighttime construction-related noise impacts would be significant and unavoidable, even with compliance with RCM N-1. There is no feasible mitigation to reduce the nighttime construction noise. Vibration during construction would be less than significant. Noise and vibration during Project operation would be less than significant.

3.10.9 Regulatory Compliance Measures

RCM N-1 Although as a special district RCWD is not subject to County requirements, for consistency with County standards, RCWD will implement the following measures during construction of the Proposed Project:

- Prior to the commencement of construction activities, RCWD will incorporate the following measures as noted on the Project plans to reduce noise impacts and ensure that the greatest distance between noise sources and sensitive receptors during construction activities has been achieved:

- Construction equipment, fixed or mobile, shall be equipped with properly operating and maintained noise mufflers consistent with manufacturers' standards.

- Operations at construction staging areas shall be located away from off-site sensitive uses to the extent feasible.

- If acceptable to adjacent property owners, to reduce construction noise, it is recommended that RCWD install temporary noise barriers along the property lines of NexStar Ranch and Rancho Pacifica Ranch as shown on Figure 3.10-1 of the Environmental Impact Report, or identify and implement other measures demonstrated through an acoustical study to provide equivalent or superior noise attenuation. It is recommended that the temporary noise barriers be 18 ft in height and constructed of material with a minimum weight of 2 pounds per square foot (sf) with no gaps of perforations. Noise barriers may be constructed of, but are not limited to, 5/8-inch plywood, 5/8-inch oriented strand board, or sound rated blankets. All noise control barrier walls should be designed to preclude structural failure due to such factors as winds, shear, shallow soil failure, earthquakes, and erosion. A typical sound rated blanket support frame would be constructed of steel tubing. The sound rated blankets should have a minimum breaking and tear strength of 120 pounds and 30 pounds, respectively. The sound rated blankets should have a minimum sound transmission classification (STC) of 20 and noise reduction coefficient of 0.70. The sound blankets should be of sufficient length to extend from the top of the frame and drape on the ground/lower wall or be sealed at the ground/lower wall. The sound blankets will have grommets along the top edge with exterior grade hooks, and loop fasteners along the vertical edges with overlapping seams, with a minimum overlap of 2 inches.

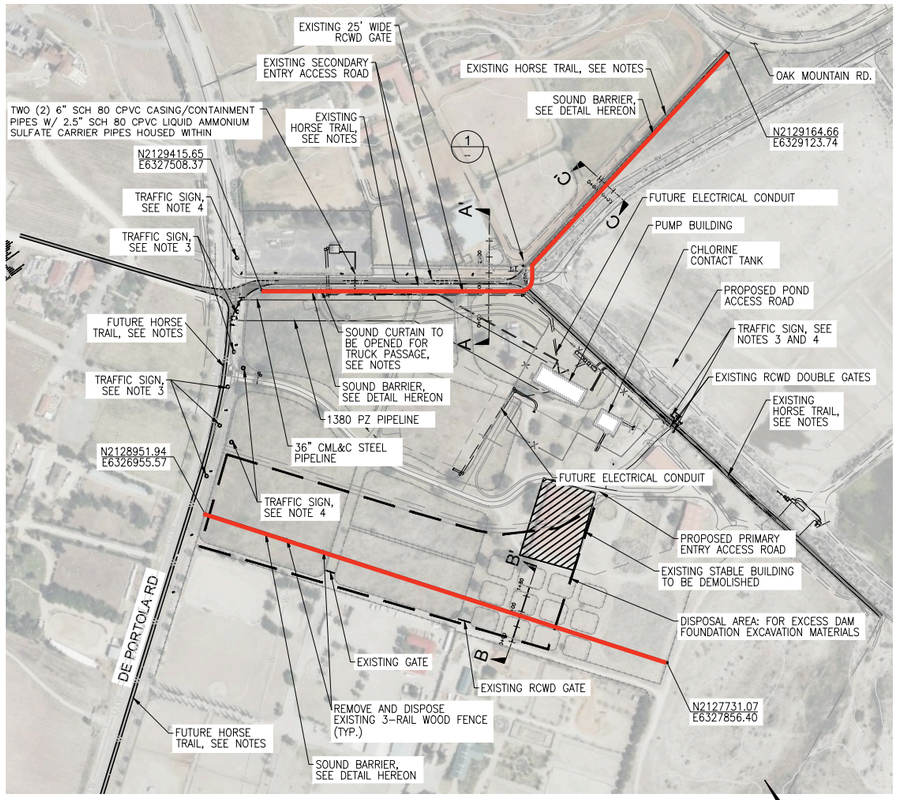
- All stationary construction equipment shall be placed so that emitted noise is directed away from sensitive receptors nearest the Proposed Project site and/or placed in proximity to temporary noise barriers to achieve the greatest noise reduction, whenever feasible.

- Consistent with Section 9.52.020 of the County's noise regulations, construction shall be limited, where possible, to the hours between 6:00 a.m. and 6:00 p.m., during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May.

RCM N-2 A Blasting Plan for construction shall be prepared by RCWD prior to issuance of grading permits. The Blasting Plan shall be followed during construction with the RCWD Development & Design Services Director or designee oversight. The plan shall include the following related to noise and vibration impacts:

- Type and quantity of explosives and description of detonation device;

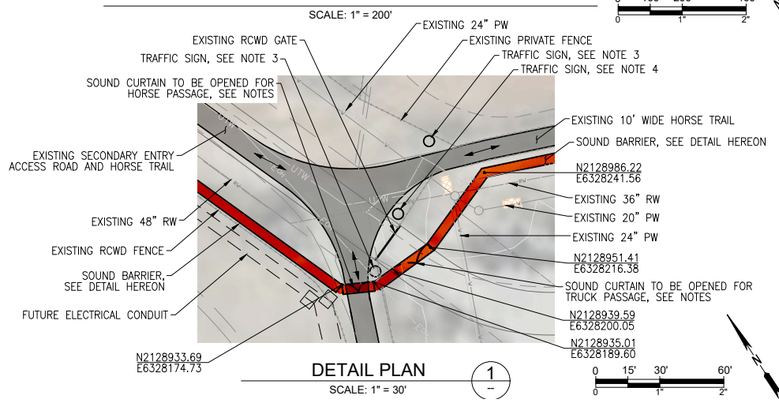
This page intentionally left blank



SOUND BARRIER AND HORSE TRAIL LOCATIONS PLAN

SCALE: 1" = 200'

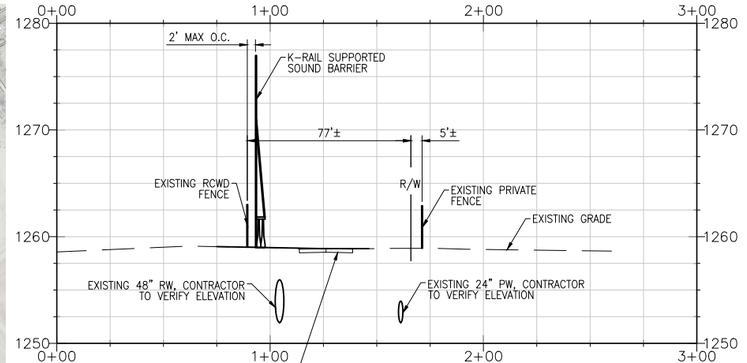
0 100' 200' 400'



DETAIL PLAN (1)

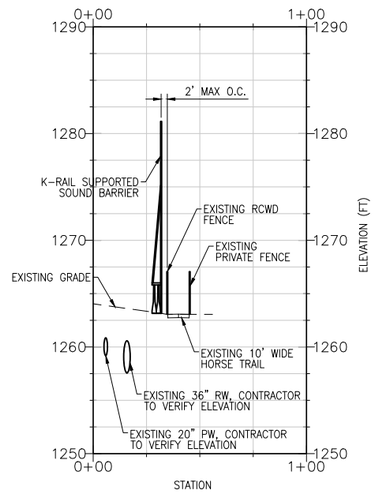
SCALE: 1" = 30'

0 15' 30' 60'



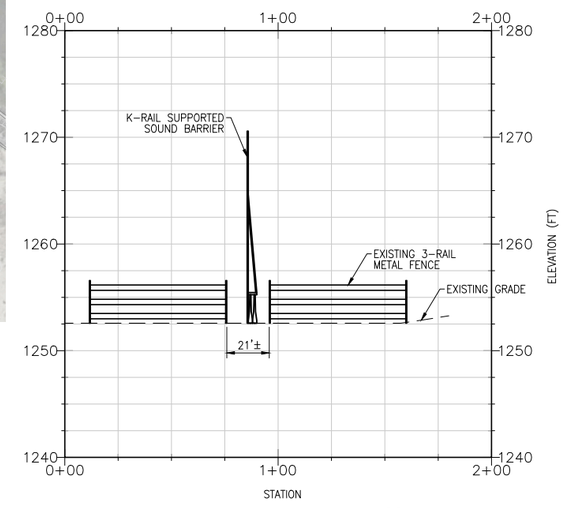
SECTION (A)

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 150'



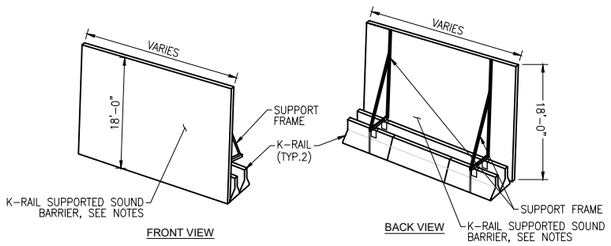
SECTION (C)

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 150'



SECTION (B)

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 150'



SOUND BARRIER DETAIL

SCALE: 1" = 10'

NOTES

1. CONTRACTOR MAY ELECT TO USE ALTERNATIVE SOUND WALL CONSTRUCTION. CONTRACTOR SHALL SUBMIT PROPOSED SOUND WALL DESIGN TO ENGINEER FOR REVIEW AND APPROVAL.
2. CONTRACTOR SHALL PROVIDE SOUND CURTAIN OR SIMILAR AT ROADWAY CROSSING, WHICH SHALL ALLOW TRUCKS AND HORSES TO PASS THROUGH THE SOUND BARRIER AS NEEDED. CONTRACTOR TO SUBMIT PROPOSED SOUND CURTAIN DESIGN TO ENGINEER FOR APPROVAL.
3. CONTRACTOR SHALL INSTALL OSHA CERTIFIED "CAUTION CONSTRUCTION TRAFFIC" OR APPROVED EQUAL AT ALL HORSE TRAIL CROSSINGS WITH CONSTRUCTION ACCESS ROADS.
4. CONTRACTOR SHALL INSTALL OSHA CERTIFIED "HORSE CROSSING" OR APPROVED EQUAL AT ALL HORSE TRAIL CROSSINGS WITH CONSTRUCTION ACCESS ROADS.
5. CONTRACTOR SHALL CLEAR AND GRUB AND PROVIDE REMEDIAL GRADING TO CREATE FLAT SURFACE ALONG THE PROPOSED HORSE TRAIL PARALLEL TO THE SECONDARY ACCESS ROAD.

LSA

LEGEND

- Sound Barrier

* For further information, refer to Sheet G-15 in the Vail Dam Seismic and Hydrologic Remediation Project 90% Design Submittal by AECOM

N

SEE DETAIL FOR SCALE

SOURCE: AECOM

FIGURE 3.10-1

Vail Dam Seismic and Hydrologic Remediation Project

Noise Barrier Locations

I:\RCW1902\G\Noise_Barrier_Locs.ai (12/13/2022)

This page intentionally left blank

- Identification of blast officer;
- Drawings of blast locations, surrounding buildings, and other locations that could be inhabited;
- Blasting notification procedures, lead times, and list of those notified, including public notification to potentially affected vibration and nuisance noise receptors describing the expected extent and duration of the blasting;
- Identification of transportation practices, on-site storage, and security of explosives in accordance with local, State, and federal regulations;
- Acceptable weather conditions for blasting and safety provisions for potential stray current (if electric detonation);
- Procedures for handling, setting, wiring, and firing explosives; and procedures for handling misfires;
- Methods of matting or covering of blast area to prevent flyrock and excessive air blast pressure;
- Description of blast vibration and air blast monitoring programs;
- A sound attenuation plan shall be prepared outlining sound control measures that would include the use of blasting mats or sound walls; and
- The stability of all nearby surrounding structures shall be monitored during all blasting events.

3.10.10 Level of Significance After Mitigation

Construction-related noise at nighttime would remain significant after implementation of regulatory compliance measures. All other noise and vibration impacts would be less than significant.

This page intentionally left blank

3.11 PUBLIC SERVICES

This section describes the public services within whose jurisdiction the Project site is located and evaluates the potential impacts of the Proposed Project on public services. This section is based on multiple data sources and addresses the following public services (service providers are noted in parenthesis):

- Parks (Rancho California Water District [RCWD])

Fire, police, and school facilities are not discussed as the Proposed Project does not include construction of homes or businesses, and it is not anticipated to affect the population within the area.

3.11.1 Scoping Process

RCWD received two comment letters during the public review period of the Notice of Preparation (NOP). For copies of the NOP comment letters, refer to Appendix A of this Environmental Impact Report (EIR). No comment letters included comments related to public services.

3.11.2 Existing Environmental Setting

3.11.2.1 Riverside County Parks

The County of Riverside maintains and operates 35 regional parks, encompassing approximately 22,317 acres. Riverside County also contains 4 park and recreation districts, which provide approximately 27 neighborhood and community parks, accounting for approximately 275 acres of parkland. Private parks are also distributed throughout Riverside County in various planned communities and apartment complexes (County of Riverside 2015c). Additionally, approximately 80 percent of unincorporated Riverside County (3,288,199 acres) is designated as open space. Table 3.11.A includes the existing public parks within Riverside County. In addition to the parks within unincorporated Riverside County, cities within the County maintain approximately 215 parks encompassing over 1,534 acres.

Table 3.11.A: County of Riverside Existing Parks

County of Riverside Existing Public Parks			
Type of Park	**Number of Parks**	**Total Acres**	**General Description**
National	1[1]	794,000	Joshua Tree National Park
State of California	7	39,423	State-maintained open space and recreation areas
Riverside County[2]	35	22,317	County regional park locations offer a wide range of recreational activities
Riverside County Park Districts	27	275[3]	Neighborhood and community parks offer a wide range of recreational activities

Source: County of Riverside. 2015c. Environmental Impact Report, Section 4.16: Parks and Recreation. February.

[1] Total acreage for Joshua Tree National Park is 1,017,748; the park is partially located within San Bernardino County.

[2] County of Riverside maintained regional parks.

[3] Accounts for Park and Recreational facilities in County of Riverside park districts.

3.11.2.2 Vail Lake Parks and Recreational Facilities

The Vail Lake Resort (Temecula/Vail Lake KOA) is located on RCWD-owned property along the southern shore of Vail Lake, in the vicinity of the confluence of Arroyo Seco Creek and Vail Lake. This property is operated as a recreational amenity by Kampgrounds Enterprises Incorporated (KEI) under contract to RCWD. The Vail Lake Resort contains campsites and numerous buildings such as the registration office, guard shack, bar, deli, arcade, restrooms, workshop, storage sheds, and other facilities. Amenities include a miniature golf course, tennis courts, basketball courts, disc golf, and swimming pools. Facilities not currently in operation include a water slide and horse stables. A boat and recreational vehicle (RV) storage facility is located on-site. Electrical, water, RV dump station, and sewer facilities also exist at the site.

The Vail Lake Marina facilities include the former Vail Lake membership office, Vail Lake boat launch, open fields used for special events and event parking, RV and boat storage, pool, clubhouse, tennis court, portable toilets, and garbage bins. However, storage levels at Vail Lake have receded as water levels have been drawn down in recent years to meet RCWD's water supply needs. Currently, Vail Lake water levels have reached the end of the boat ramp, thereby making the boat launch inoperable. Additionally, winter storms have damaged both access roads to the Vail Lake Marina, such that the access roads are not usable (RCWD 2016, 2022d).

3.11.3 Regulatory Setting

3.11.3.1 Federal Regulations

There are no federal policies or regulations applicable to public services for the Proposed Project.

3.11.3.2 State Regulations

California Health and Safety Code Section 115825-115850. The California Health and Safety Code Section 115825-11580 requires that all public waters are to be used for multiple purposes to the extent that the uses are consistent with public health and safety.

3.11.3.3 Regional Regulations

Ordinance No. 328 - Rules and Regulations for the Government of County or District Owned or Operated Parks and Open Space Areas. This ordinance prescribes rules and regulations for parks and open space areas within Riverside County for the purpose of maintaining the integrity and effective use of such areas for recreational purposes. The ordinance also regulates the following: those uses allowed in parks/open space areas, the circulation of vehicles throughout the recreational areas, and the maintenance and protection of landscaped areas (County of Riverside 1947).

Vail Lake Recreation Management Plan. The license for the use of Vail Lake at the Vail Lake Marina and other areas of the lake requires the development of a Lake Recreation Management Plan. The Temecula/Vail Lake KOA Lake Recreation Management Plan (Vail Lake Recreation Management Plan) (RCWD 2019) includes information, goals, and policies regarding daily boat/visitor limits based on water depths and other factors; proposed uses; facility improvements; controlling access; fees; liability protection; monitoring/patrolling of recreation use; and equipment rental options.

County of Riverside General Plan Multipurpose Open Space Element. The County's Multipurpose Open Space Element addresses protecting and preserving natural resources, agriculture, and open space areas, managing mineral resources, preserving and enhancing cultural resources, and providing recreational opportunities for the citizens of Riverside County.

3.11.4 Methodology

The impact analyses are based on data obtained from the 90% Design Report (AECOM 2022a) and correspondence with RCWD.

3.11.5 Thresholds of Significance

The thresholds for public services impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to public services if it would:

Threshold 3.11.1(i): Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection

Threshold 3.11.1(ii): 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: police protection

Threshold 3.11.1(iii): 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: schools

Threshold 3.11.1(iv): 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: parks

Threshold 3.11.1(v): 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: other public facilities

The Initial Study, included as Appendix A, substantiates that impacts associated with the following threshold would be less than significant: Thresholds 3.11.1(i), 3.11.1(ii), and 3.11.1(iii). There would be no impacts to fire, police, or school facilities as the Proposed Project does not include construction of homes or businesses, and it is not anticipated to affect the population within the area. These thresholds will not be addressed in the following analysis.

3.11.6 Project Impacts

Threshold 3.11.1(iv): **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: parks**

Or

Threshold 3.11.1(v): **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: other public facilities**

Less Than Significant Impact. The Vail Lake Resort is located on RCWD-owned property along the southern shore of Vail Lake, in the vicinity of the confluence of Arroyo Seco Creek and Vail Lake. KEI operates this property as a recreational amenity under contract to RCWD. Project construction would not result in direct impacts to this area. The California Department of Water Resources (DWR), Division of Safety of Dams (DSOD) restricts the maximum reservoir elevation until the hydrologic and seismic deficiencies are remediated (DSOD 2015). In June 2015, DSOD established an interim restriction level of 1,457.60 feet (ft) NAVD88.[1] Although implementation of the Proposed Project would remove the DSOD restrictions, RCWD does not propose changes to lake operations and would lower the lake water if it exceeds 1,457.6 ft NAVD88 (15 ft below the spillway crest) to maintain capacity for rainfall inflow.

The Vail Lake Recreation Management Plan (RCWD 2019) details proposed RCWD improvements to the Vail Lake boat launch and Marina facilities, including the installation of floating docks at the Vail Lake Marina, which can be moved as the lake is either lowered or raised. However, these proposed improvements are not included as part of the Proposed Project and would be included under a separate environmental analysis. The Proposed Project would result in a less than significant impact

[1] NAVD88 = North American Vertical Datum of 1988.

associated with the provision of 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 measures. The Proposed Project's impacts would be less than significant; no mitigation is required.

3.11.7 Cumulative Impacts

As defined in the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for public services. As the Proposed Project is located within unincorporated Riverside County, for the purposes of this analysis, the geographic area for potential cumulative impacts on public services is Riverside County. The Proposed Project would not increase Riverside County's population or remove park or recreation facilities, and therefore it would not increase demand for park facilities or other recreational facilities. Therefore, the Proposed Project and the applicable related projects are not expected to result in any significant cumulative impact to the County's size of park and recreational facilities, and the incremental contribution of the Proposed Project to a potentially significant impact would not be cumulatively considerable.

3.11.8 Level of Significance Prior to Mitigation

Construction and operational impacts related to public services would be less than significant.

3.11.9 Mitigation Measures

No mitigation measures are proposed.

3.11.10 Level of Significance After Mitigation

Construction and operational impacts related to public services would be less than significant.

This page intentionally left blank

3.12 TRANSPORTATION

This section analyzes the existing and planned transportation and circulation conditions for the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project) and the surrounding area and identifies circulation impacts that may result during, or subsequent to, the development of the Proposed Project. The analysis contained in this section is based in part on the *Transportation Memorandum for the Vail Dam Seismic and Hydrologic Remediation Project (Project No. D1911)* (LSA 2022e), which is provided in Appendix J to this Environmental Impact Report (EIR).

3.12.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. No comment letters included comments related to transportation.

3.12.2 Existing Environmental Setting

The following describes key roadways in the vicinity of the Proposed Project.

- **De Portola Road** is an undivided, two-lane Rural Highway west of Vail Lake and Vail Dam that provides direct access to the Project site. The posted speed limit is 55 miles per hour (mph). Sidewalks are not provided on either side of the street. Parking is not permitted along this roadway.
- **Anza Road** is an undivided, two-lane Rural Highway west of the Project site. The posted speed limit is 45 mph. Sidewalks are not provided on either side of the street. Parking is not permitted along this roadway.
- **State Route 79 (SR-79)** is an undivided two-lane Rural Highway south of the Project site. The posted speed limit is 50 mph. There are no sidewalks or bike lanes along this roadway in the Project vicinity.

3.12.3 Regulatory Setting

3.12.3.1 Federal Regulations

No relevant federal transportation/traffic regulations apply to the Proposed Project.

3.12.3.2 State Regulations

Senate Bill 743. On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law and codified a process that revises the approach to determining transportation impacts and mitigation measures under the California Environmental Quality Act (CEQA). SB 743 directed the Governor's Office of Planning and Research (OPR) to administer new CEQA guidance for jurisdictions by replacing the focus on automobile vehicle delay and level of service (LOS) or other similar measures of vehicular capacity or traffic congestion in the transportation impact analysis with vehicle miles traveled (VMT). This change shifts the focus of the transportation impact analysis from measuring impacts to drivers, such as the amount of delay and LOS at an intersection, to measuring the impact of driving on the local, regional, and statewide circulation system and the environment. This shift in focus is expected to better align the transportation impact analysis with the statewide

goals related to reducing greenhouse gas emissions, encouraging infill development, and promoting public health through active transportation. As a result of SB 743, the California Office of Administrative Law cleared the revised *State CEQA Guidelines* for use on December 28, 2018, and the statewide implementation data on July 1, 2020. The OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory) (OPR 2018) provides a technical advisory as a resource for agencies to use at their discretion.

3.12.3.3 Regional Regulations

Western Riverside Council of Governments. The Western Riverside Council of Governments (WRCOG) is an association of local agencies in Western Riverside County. Its members include the County, the Riverside County Superintendent of Schools, the Eastern Municipal Water District, the Western Municipal Water District, and 18 cities within the County boundaries. The purpose of WRCOG is to unify Western Riverside County so that it can speak with a collective voice on important issues that affect its members such as transportation, environment, energy, economy, and health.

Riverside County Transportation Commission. The Riverside County Transportation Commission (RCTC) is comprised of 29 members, including the County and 28 cities within the County boundaries. RCTC is responsible for overseeing the funding and coordination of all public transportation services within Riverside County. Being the State-mandated Regional Transportation Planning Agency, RCTC prepares and updates the Congestion Management Program in coordination with the Southern California Association of Governments (SCAG) to meet federal and State standards.

3.12.3.4 Local Regulations

Riverside County. The Proposed Project is located in unincorporated Riverside County. As such, the Riverside County Transportation Department's *Traffic Impact Analysis Preparation Guide* (TIA Guide) (Riverside County Transportation Department 2008) is the guidance document for the countywide transportation system. This TIA Guide is intended to ensure that the traffic impacts of proposed development projects, General Plan Amendments, and Specific Plans are addressed in a manner that is consistent with the policies set forth in the Circulation Element of the Riverside County General Plan.

3.12.4 Methodology

The Riverside County Transportation Department's 2008 TIA Guide states that certain types of projects, because of their size, nature, or location, are exempt from the requirements of a Traffic Impact Analysis (TIA). In addition, the minimum area to be studied in the TIA shall include any intersection of Collector (or higher classification) Street with Collector (or higher classification) Street, at which the Proposed Project will add 50 or more peak-hour trips. As required by the 2008 TIA Guide, RCWD solicited input from the County prior to preparation of this analysis. Based on this coordination effort, the County determined that a TIA is not required for the Proposed Project (LSA 2022e).

3.12.5 Thresholds of Significance

The thresholds for transportation impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to transportation if it would:

Threshold 3.12.1: Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities

Threshold 3.12.2: Conflict or be inconsistent with CEQA Guidelines section 15064.3 or will conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways

Threshold 3.12.3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)

Threshold 3.12.4: Result in inadequate emergency access

The Initial Study, included as Appendix A, substantiates that impacts associated with the following thresholds would be less than significant: Thresholds 3.12.3 and 3.12.4. The Proposed Project includes improvements to access roads that may include sharp curves, creek crossings, and steep grades; however, as these features would be limited to RCWD's privately owned roads and would not be accessible to the public, no increased hazards due to design features would occur (Threshold 3.12.3). Access along one or more routes may be temporarily unavailable as access road improvements are under construction; however, construction would be phased such that emergency access to the dam is always available via at least one route (Threshold 3.12.4). These thresholds will not be addressed in the following analysis.

3.12.6 Project Impacts

Threshold 3.12.1: Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities

***Less Than Significant Impact*.** The Proposed Project would be required to comply with the County's General Plan Circulation Element policies addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Refer to Table 3.9.D in Section 3.9, Land Use and Planning, of this EIR, which provides an evaluation of the Proposed Project's consistency with relevant goals and policies from the County's General Plan Circulation Element, including those related to transit, roadway, bicycle, and pedestrian facilities. Compliance with these requirements is also interpreted to apply to the equestrian trails located on RCWD property that could be affected by the Proposed Project.

Construction. To assess the impact of the Proposed Project on the surrounding circulation system, construction Project trips were estimated that would be generated on a temporary basis throughout each phase of construction and based on the number of construction workers and trucks. Once the

Proposed Project is complete, Vail Lake and Vail Dam would not require any full-time, dedicated RCWD staff or part-time construction workers for typical day-to-day operations (i.e., no operational vehicle trips).

Based on construction information provided by AECOM (email correspondence dated April 2020), construction of the Proposed Project will include the following 14 phases (including phase duration and daily worker and truck estimates) over 31 months between the fall of 2023 and late 2025. Some phases would overlap. Construction of the Primary Entry Road (50 Acre Parcel), which is part of Phase 2, would be the first order of work. Delivery and installation of noise barriers would occur as part of Phase 1 and Phase 2, respectively. Section 2.2 of this EIR provides further details on Project-related activities.

1. Mobilization (16 weeks): 5 workers and 2 trucks per day
2. Access Roads and Staging Areas (24 weeks): 8 workers and 12 trucks per day
3. Demolition of Facilities at Existing Dam (10 weeks): 9 workers and 2 trucks per day
4. Foundation Excavation (48 weeks): 10 workers and 2 trucks per day
5. Temporary Energy Dissipation Vault (18 weeks): 9 workers and 3 trucks per day
6. Armor Spillway (6 weeks): 9 workers and 4 trucks per day
7. Foundation Treatment and Grouting (20 weeks): 8 workers and 2 trucks per day
8. Roller-Compacted Concrete Placement (31 weeks): 18 workers and 86 trucks per day
9. Outlet Tower (28 weeks): 9 workers and 5 trucks per day
10. Dam Drainage Facilities (19 weeks): 7 workers per day
11. Dam Instrumentation (10 weeks): 4 workers per day
12. Permanent Energy Dissipation Vault (8 weeks): 9 workers and 4 trucks per day
13. Demolition of Existing Facilities (19 weeks): 16 workers and 4 trucks per day
14. Site Reclamation and Demobilization (6 weeks): 7 workers and 2 trucks per day

Workers are assumed to arrive to the site in the a.m. peak hour and depart from the site during the p.m. peak hour to present a conservative estimate of trip generation. Truck trips are anticipated to occur throughout the day, including both peak hours.

As shown in Table 3.12.A, the overlap of Phases 8, 9, and 10 would be the most intense period of construction (i.e., the highest construction trip generation). Over approximately 11 weeks, the overlapping construction activities of Phases 8, 9, and 10 are anticipated to generate 250 average daily trips (ADT), including 49 trips (42 inbound and 7 outbound) in the a.m. peak hour and 49 trips (7 inbound and 42 outbound) in the p.m. peak hour. All other individual and overlapping construction phases would generate 42 or fewer peak-hour trips.

Table 3.12.A: Construction Trip Generation Summary

Phase			Vehicles				AM Peak Hour			PM Peak Hour		
	Description	Duration	Description[1,2]	Quantity	Round Trips	ADT	In	Out	Total	In	Out	Total
1	**Mobilization**	**16 Weeks (Months 1–4)**	Workers	5	1	10	5	0	5	0	5	5
			Trucks (Equipment/Materials)	2	1	4	1	1	2	1	1	2
			Total			***14***	***6***	***1***	***7***	***1***	***6***	***7***
2	**Access Roads and Staging Areas**	**24 Weeks (Months 2–8)**	Workers	8	1	16	8	0	8	0	8	8
			Trucks (Aggregates)	12	1	24	2	2	4	2	2	4
			Total			***40***	***10***	***2***	***12***	***2***	***10***	***12***
3	**Demolition of Facilities at New Dam**	**10 Weeks (Months 5–9)**	Workers	9	1	18	9	0	9	0	9	9
			Trucks (Equipment/Materials)	2	1	4	1	1	2	1	1	2
			Total			***22***	***10***	***1***	***11***	***1***	***10***	***11***
4	**Foundation Excavation**	**48 Weeks (Months 5–16)**	Workers	10	1	20	10	0	10	0	10	10
			Trucks (Ready-Mix Concrete)	2	1	4	1	1	2	1	1	2
			Total			***24***	***11***	***1***	***12***	***1***	***11***	***12***
5	**Temporary Energy Dissipation Vault**	**18 Weeks (Months 5–9)**	Workers	9	1	18	9	0	9	0	9	9
			Trucks (Equipment/Materials)	1	1	2	1	0	1	0	1	1
			Trucks (Ready-Mix Concrete)	2	1	4	1	1	2	1	1	2
			Total			***24***	***11***	***1***	***12***	***1***	***11***	***12***
6	**Armor Spillway**	**6 Weeks (Months 8–10)**	Workers	9	1	18	9	0	9	0	9	9
			Trucks (Equipment/Materials)	1	1	2	1	1	2	1	1	2
			Trucks (Ready-Mix Concrete)	3	1	6	1	1	2	1	1	2
			Total			***26***	***11***	***2***	***13***	***2***	***11***	***13***
7	**Foundation Treatment and Grouting**	**20 Weeks (Months 10–15)**	Workers	8	1	16	8	0	8	0	8	8
			Trucks (Equipment/Materials)	2	1	4	1	0	1	0	1	1
			Total			***20***	***9***	***0***	***9***	***0***	***9***	***9***

Table 3.12.A: Construction Trip Generation Summary

Phase			Vehicles				AM Peak Hour			PM Peak Hour		
	Description	Duration	Description[1,2]	Quantity	Round Trips	ADT	In	Out	Total	In	Out	Total
			Workers	18	1	36	18	0	18	0	18	18
			Trucks (Equipment/Materials)	2	1	4	1	1	2	1	1	2
			Trucks (Aggregates)	70	2	140	4	4	8	4	4	8
	Roller-Compacted	31 Weeks	Trucks (Cement/Flyash)	14	1	28	1	1	2	1	1	2
8	Concrete Placement	(Months 13–20)	***Total***			***208***	***24***	***6***	***30***	***6***	***24***	***30***
			Workers	9	1	18	9	0	9	0	9	9
			Trucks (Equipment/Materials)	1	1	2	1	0	1	0	1	1
		28 Weeks	Trucks (Ready-Mix Concrete)	4	1	8	1	1	2	1	1	2
9	Outlet Tower	(Months 17–23)	***Total***			***28***	***11***	***1***	***12***	***1***	***11***	***12***
		19 Weeks	Workers	7	1	14	7	0	7	0	7	7
10	Dam Drainage Facilities	(Months 18–22)	***Total***			***14***	***7***	***0***	***7***	***0***	***7***	***7***
		10 Weeks	Workers	4	1	8	4	0	4	0	4	4
11	Dam Instrumentation	(Months 22–24)	***Total***			***8***	***4***	***0***	***4***	***0***	***4***	***4***
			Workers	9	1	18	9	0	9	0	9	9
			Trucks (Equipment/Materials)	1	1	2	1	0	1	0	1	1
	Permanent Energy	8 Weeks	Trucks (Ready-Mix Concrete)	3	1	6	1	1	2	1	1	2
12	Dissipation Vault	(Months 23–25)	***Total***			***26***	***11***	***1***	***12***	***1***	***11***	***12***
			Workers	16	1	32	16	0	16	0	16	16
		19 Weeks	Trucks (Equipment/Materials)	2	1	4	1	1	2	1	1	2
	Demolition of		Trucks (Debris)	2	1	4	1	1	2	1	1	2
13	Existing Facilities	(Months 25–29)	***Total***			***40***	***17***	***1***	***18***	***1***	***17***	***18***
			Workers	7	1	14	7	0	7	0	7	7
	Site Reclamation	6 Weeks	Trucks (Equipment/Materials)	2	1	4	1	1	2	1	1	2
14	and Demobilization	(Months 30–31)	***Total***			***18***	***8***	***1***	***9***	***1***	***8***	***9***

Table 3.12.A: Construction Trip Generation Summary

Overlapping Phases	Duration	Vehicles	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
1 and 2	10 Weeks (Months 2–4)	Workers and Trucks	54	16	3	19	3	16	19
3, 4, and 5	6 Weeks (Months 5–6)	Workers and Trucks	70	32	3	35	3	32	35
7 and 8	8 Weeks (Months 13–15)	Workers and Trucks	228	33	6	39	6	33	39
8 and 9	4 Weeks (Months 17–18)	Workers and Trucks	236	35	7	42	7	35	42
8, 9, and 10	11 Weeks (Months 18–20)	Workers and Trucks	250	42	7	49	7	42	49
9 and 10	5 Weeks (Months 21–22)	Workers and Trucks	42	18	1	19	1	18	19
9, 10, and 11	2 Weeks (Month 22)	Workers and Trucks	50	22	1	23	1	22	23
9 and 11	4 Weeks (Months 22–23)	Workers and Trucks	36	15	1	16	1	15	16
11 and 12	7 Weeks (Months 23–24)	Workers and Trucks	34	15	1	16	1	15	16

Source: AECOM 2020 and LSA 2022.

= most intense period of construction activities (i.e., highest trip generation)

[1] Workers are assumed to arrive in the a.m. peak hour and depart during the p.m. peak hour.

[2] Truck trips are assumed to occur throughout the day, including the a.m. and p.m. peak hours.

ADT = average daily traffic

Mitigation Measure H-3 (refer to Section 3.7, Hazards and Hazardous Materials) sets forth the following requirement, which would further reduce impacts to pedestrians, equestrians, and bicyclists:

> ***Construction Traffic Management Plan (CTMP).*** Prior to commencement of grading activities, the construction contractor shall prepare a CTMP to the satisfaction of RCWD and shall ensure that the plan is implemented during construction with the goal of maintaining acceptable intersection LOS during peak traffic hours and ensuring that construction traffic does not queue on public roadways. The CTMP shall be consistent with the California Temporary Traffic Control Handbook (CATTCH) (previously known as the California Joint Utility Traffic Control Manual) (California Inter-Utility Coordinating Committee 2018). At a minimum, the CTMP shall include, but not be limited to, the following:
>
> - Provisions for temporary traffic control to improve traffic flow on public roadways and ensure the safe access into and out of the site (e.g., warning signs, lights and devices, and flag person).
> - Prohibiting construction-related vehicles from parking on public streets.
> - Providing safety precautions for pedestrians, equestrians, and bicyclists through such measures as alternate routing and protection barriers.
> - Obtaining the required permits for truck haul routes from the City of Temecula and/or the California Department of Transportation (Caltrans).
> - All emergency access to the Project site and adjacent areas shall be kept clear and unobstructed during all phases of demolition and construction.
> - Flag persons shall be trained to assist in emergency response by restricting or controlling the movement of traffic that could interfere with emergency vehicle access.

Operation. County staff determined that a TIA is not required for the Proposed Project for the following reasons:

- The Proposed Project would only generate temporary construction trips (a peak of 49 peak-hour trips over 11 weeks) and no operational trips.
- The Proposed Project is located in a remote area (low traffic volumes adjacent to Vail Lake and Vail Dam).
- The Proposed Project would not add 50 or more peak-hour trips to an intersection of a Collector (or higher classification) Street and a Collector (or higher classification) Street. The primary access intersection for the Project is Anza Road/De Portola Road (i.e., both roadways have a Rural Highway classification, which is a lower classification than Collector Street).

Therefore, the Proposed Project is not anticipated to result in any LOS or operational deficiencies to the surrounding circulation system.

Although the Proposed Project would generate a temporary increase in trips by vehicles and trucks, it would not preclude alternative modes of transportation or facilities (e.g., transit, bicycle, equestrian, or pedestrian). Therefore, the Proposed Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, equestrian, and pedestrian facilities or with existing or planned pedestrian, bicycle, equestrian, or transit facilities. No mitigation is required. Although not required to mitigate a transportation impact, the CTMP set forth in Mitigation Measure H-3 would further reduce impacts to pedestrian, bicycle, equestrian, and transit facilities.

Threshold 3.12.2: Conflict or be inconsistent with CEQA Guidelines section 15064.3 or will conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways

Less Than Significant Impact. *State CEQA Guidelines* Section 15064.3, Subdivision (b) states that for land use projects, transportation impacts are to be measured by evaluating the project's VMT, as outlined in the following:

> "Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact."

VMT is the amount and distance of automobile travel attributable to a project. According to the 2018 OPR Technical Advisory, "automobile" refers to "on-road passenger vehicles, specifically cars and light trucks." Thus, Project construction trucks do not need to be included in the Project VMT assessment. Additionally, the OPR Technical Advisory recommends VMT screening thresholds for smaller projects. The footnote on page 12 of the OPR Technical Advisory states the following:

> "Screening Thresholds for Small Projects
>
> Many local agencies have developed screening thresholds to indicate when detailed analysis is needed. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact."

The OPR Technical Advisory recommends that a project generating 110 ADT or less be screened out of a VMT analysis due to the presumption of a less than significant impact. The Proposed Project is an improvement project that would generate temporary construction trips over 31 months. During the 11-week peak of construction activities, the Proposed Project would generate 250 total ADT (182 truck ADT and 68 worker ADT). Since the Proposed Project is estimated to generate 68 worker (passenger car) ADT, it is considered a small project for the purposes of this analysis and would not conflict or be inconsistent with *State CEQA Guidelines* Section 15064.3(b).

As previously described, the Proposed Project is not anticipated to result in any LOS or operational deficiencies to the surrounding circulation system based on its description, location, and temporary construction trip generation (peak of 250 ADT, including 49 trips in the a.m. and p.m. peak hours). Therefore, the Proposed Project would not conflict with any congestion management program, standards, or travel demand measures for roads or highways.

Therefore, a less than significant impact would occur in regard to conflict with CEQA Guidelines section 15064.3 or conflict with an applicable congestion management program, standards, or travel demand measures for roads or highways, and no mitigation is required.

3.12.7 Cumulative Impacts

As defined in the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects. The cumulative impact area for traffic/transportation is the Proposed Project area as shown in Figure 2-1. Because the Proposed Project is located in a remote area with low traffic volumes, would not result in operational trips, and would not add 50 or more peak-hour trips to an intersection of a Collector (or higher classification) Street and a Collector (or higher classification) Street, the Project's contribution to traffic impacts would not be cumulatively considerable, and no mitigation is required.

3.12.8 Level of Significance Prior to Mitigation

The Proposed Project would result in less than significant impacts related to transportation.

3.12.9 Regulatory Compliance Measures and Mitigation Measures

No mitigation is required. Although not required to mitigate a transportation impact, the CTMP set forth in Mitigation Measure H-3 would further reduce impacts to pedestrian, bicycle, equestrian, and transit facilities.

3.12.10 Level of Significance After Mitigation

No mitigation is required. The Proposed Project would not result in potentially significant impacts related to transportation.

3.13 TRIBAL CULTURAL RESOURCES

This section provides a discussion of the existing tribal cultural resource environment and an analysis of potential impacts to tribal cultural resources from implementation of the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project). According to California Public Resources Code (PRC) Section 21080.3.1 and Chapter 532, Statutes 2014 (i.e., Assembly Bill [AB] 52), "tribal cultural resources" are defined as either of the following:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either: (A) included or determined to be eligible for inclusion in the California Register of Historical Resources; or (B) included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

This section summarizes information obtained from AB 52 Native American consultation efforts. The record of these consultation efforts is contained in Appendix K of this Environmental Impact Report (EIR).

3.13.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. One comment letter included comments related to cultural resources and tribal cultural resources.

The letter from the Native American Heritage Commission (NAHC) (June 30, 2020) outlines RCWD's tribal consultation requirements under AB 52. The NAHC recommended that RCWD consult with Native American tribes and analyze impacts and include mitigation for tribal cultural resources in the EIR.

3.13.2 Existing Environmental Setting

The Project site was prehistorically occupied by Native Americans and is within the traditional boundaries of the Luiseño. Prior to the Spanish occupation of California, Luiseño territory extended from Agua Hedionda Creek in the southwest, Aliso Creek in the northwest, the Elsinore Valley and Palomar Mountain in the southeast, and the areas surrounding the Santa Ana River in the current cities of Riverside and Grand Terrace in the northeast.

3.13.3 Regulatory Setting

3.13.3.1 Federal Regulations

There are no federal regulations that are applicable to tribal cultural resources relevant to the Proposed Project.

3.13.3.2 State Regulations

Assembly Bill 52 Tribal Consultation. California PRC Section 21080.3.1 and Chapter 532, Statutes 2014 (i.e., AB 52), require that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource, as defined, is a project that may have a significant effect on the environment. The bill requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation, prior to determining whether a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report is required for a project. The bill specifies examples of mitigation measures that may be considered to avoid or minimize impacts on tribal cultural resources. The bill makes the above provisions applicable to projects that have an NOP or a notice of Negative Declaration or Mitigated Negative Declaration filed on or after July 1, 2015. By requiring the lead agency to consider these effects relative to tribal cultural resources and to conduct consultation with California Native American tribes, this bill imposes a State-mandated local program.

3.13.3.3 Regional Regulations

There are no regional regulations that are applicable to tribal cultural resources relevant to the Proposed Project.

3.13.3.4 Local Regulations

There are no local regulations that are applicable to tribal cultural resources relevant to the Proposed Project.

3.13.4 Methodology

The NAHC was contacted on April 27, 2020, to conduct a Sacred Lands File (SLF) search for the Project site. The NAHC responded on April 29, 2020, stating that an SLF search was completed for the Project site with positive results, and recommended that RCWD contact the Pechanga Band of Luiseño Indians for additional information. On June 26, 2020, the four Native American groups who have requested consultation with RCWD under AB 52 were contacted by RCWD via letter and email. The Rincon Band of Luiseño Indians responded to the letter on June 30, 2020, and the Pechanga Band of Luiseño Indians responded to the letter on July 1, 2020; both groups requested AB 52 consultation with RCWD for the Proposed Project.

On August 7, 2020, the Rincon Band of Luiseño Indians and RCWD held a virtual AB 52 consultation meeting during which Cheryl Madrigal (Tribal Historic Preservation Officer) stated that the Rincon Band of Luiseño Indians will defer to the Pechanga Band of Luiseño Indians for Project-related mitigation, potential construction monitoring, and report review because the Pechanga Band of Luiseño Indians is more local to the Project site. Ms. Madrigal requested that the Rincon Band of Luiseño Indians be provided a copy of the finalized cultural resources assessment for the Project, that they be provided a copy of the EIR during the public circulation period, and that they be notified of any significant archaeological finds during Project work.

In the July 1, 2020, request for consultation for the Proposed Project, Juan Ochoa (Assistant Tribal Historic Preservation Officer for the Pechanga Band of Luiseño Indians) stated that the Project site is within a Traditional Cultural Property.

3.13.5 Thresholds of Significance

The thresholds for tribal cultural resources impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to tribal cultural resources if it would:

Threshold 3.13.1: Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)

Threshold 3.13.2: Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe

3.13.6 Project Impacts

Threshold 3.13.1: Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

***No Impact*.** A cultural resources record search was completed on August 18, 2020, at the Eastern Information Center (EIC) of the California Historical Resources Information System (CHRIS) at the University of California, Riverside. It included a review of all prehistoric and historic archaeological sites within a 1.0-mile radius of the Proposed Project study area, as well as a review of known cultural resource survey and excavation reports in that area. The California State Historic Resources Inventory (HRI), the National Register of Historic Places, California Historical Landmarks (SHL), California Points of Historical Interest (SPHI), and various local historical registers were examined.

Between April 20, 2020, and July 22, 2022, pedestrian field surveys of the Project study area were conducted by walking transects spaced approximately 10 meters apart where possible (LSA 2022d).

Native American consultation was conducted in compliance with AB 52. The Rincon Band of Luiseño Indians and Pechanga Band of Luiseño Indians both requested consultation on the Proposed Project. The Rincon Band of Luiseño Indians deferred to the Pechanga Band of Luiseño Indians for Project-related mitigation, potential construction monitoring, and report review. Juan Ochoa (Assistant Tribal Historic Preservation Officer for the Pechanga Band of Luiseño Indians) stated that the Project site is within a Traditional Cultural Property. No specific information regarding tribal cultural resources within the Project site has been provided to RCWD.

There are no tribal cultural resources within the Project site that are listed or eligible for listing in the California Register of Historical Resources (California Register), or in a local register of historical resources as defined in PRC Section 5020.1(k). As such, the Proposed Project would result in no impact to the significance of a tribal cultural resource (as defined in PRC Section 21074) that is listed or eligible for listing in the California Register, or in a local register of historical resources as defined in PRC Section 5020.1(k). No mitigation is required.

Threshold 3.13.2: Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less Than Significant with Mitigation Incorporated. Native American consultation was conducted in compliance with AB 52. The Rincon Band of Luiseño Indians and Pechanga Band of Luiseño Indians both requested consultation on the Proposed Project. The Rincon Band of Luiseño Indians deferred to the Pechanga Band of Luiseño Indians for Project-related mitigation, potential construction monitoring, and report review. Juan Ochoa (Assistant Tribal Historic Preservation Officer for the Pechanga Band of Luiseño Indians) stated that the Project site is within a Traditional Cultural Property. No specific information regarding tribal cultural resources within the Project site has been provided to RCWD.

However, in the Battle of San Pasqual during the Mexican-American War (December 6, 1846), the Californios killed more than 20 United States soldiers. After the battle, some of the Californios went to a rancho in Pauma Valley, where 11 of them were kidnapped by Luiseño Indians who were sympathetic to Americans. The 11 Californios were eventually killed. In response to this event (known as the Pauma Massacre), a Mexican General ordered José del Carmen Lugo to capture the people responsible for the killing of the Californios. In January 1847, Lugo (along with some Cahuilla Indians) came to the Temecula Valley and killed Luiseño Indians in the canyon in the area of Vail Lake Dam. This event has been called the Temecula Massacre, during which an estimated 38 to 40

Luiseños were killed. The actual number of Luiseño victims of the massacre remains unknown because severe rain and flooding in the canyon soon after the massacre would have made recovery of the victims difficult (LSA 2022d).

Because of the proximity of the Project site to the Temecula Massacre site, RCWD as the Lead Agency has determined that previously unidentified tribal cultural resources that are significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1 (including undiscovered human remains) may be present within the Project site. As such, Mitigation Measure Tribal-1 requires tribal monitoring by a representative from the Pechanga Band of Luiseño Indians during all ground-disturbing activities associated with the Project to avoid and/or mitigate for potential impacts to tribal cultural resources. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect, or halt the ground-disturbance activities to allow recovery of cultural resources and tribal cultural resources, in coordination with the Project Archaeologist.

Implementation of Mitigation Measure Tribal-1 would reduce the impact of the Proposed Project on the significance of tribal cultural resources to a less than significant level. Because Native American human remains may also be a tribal cultural resource, implementation of Mitigation Measure CUL-3 (as presented in Section 3.3 of this EIR, Cultural Resources) would reduce the potential impact of the Proposed Project on Native American human remains as tribal cultural resources to less than significant.

3.13.7 Cumulative Impacts

Potential impacts of the Proposed Project to tribal cultural resources, when combined with the impacts of past, present, and reasonably foreseeable projects in the vicinity of the Proposed Project, could contribute to a cumulatively significant impact due to the overall loss of tribal cultural resources in the region and in Luiseño territory. As discussed above, the Proposed Project would not have an impact on the significance of a tribal cultural resource (as defined in PRC Section 21074) that is listed or eligible for listing in the California Register, or in a local register of historical resources as defined in PRC Section 5020.1(k).

There is, however, potential for the presence of tribal cultural resources that are significant pursuant to criteria set forth in subdivision (c) of PCR Section 5024.1 (including undiscovered human remains) within the Project site. This determination is based on the proximity of the Project site to the Temecula Massacre site and the high number of precontact archaeological resources (30) within 1.0 mile of the Project study area. Mitigation Measure Tribal-1 requires tribal monitoring during ground-disturbing construction activities associated with the Proposed Project. Mitigation Measure CUL-3, as provided in Section 3.3, requires compliance with the California Health and Safety Code for the treatment of human remains (which may also pertain to tribal cultural resources). When tribal cultural resources are assessed and/or protected as they are discovered, impacts to these resources would be less than significant.

As such, implementation of Mitigation Measure Tribal-1 (as well as Mitigation Measure CUL-3) would ensure that the Proposed Project, together with other projects, would not result in a cumulatively considerable impact to tribal cultural resources.

3.13.8 Level of Significance Prior to Mitigation

No impacts would occur to the significance of a tribal cultural resource (as defined in PRC Section 21074) that is listed or eligible for listing in the California Register, or in a local register of historical resources as defined in PRC Section 5020.1(k). Prior to mitigation, the Proposed Project has the potential to result in significant impacts to tribal cultural resources that could be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

3.13.9 Mitigation Measures

The following mitigation measures are proposed to reduce impacts associated with construction-related impacts to tribal cultural resources.

Mitigation Measure Tribal-1 **Native American Monitoring.** A representative from the Pechanga Band of Luiseño Indians shall attend the pre-construction meeting and shall be invited to present a Tribal Cultural Resources Awareness Training to construction personnel at the pre-grade meeting. A Tribal Monitor from the Pechanga Band of Luiseño Indians shall be required on site during all ground-disturbing activities, including grading and trenching. Rancho California Water District (RCWD) shall retain a qualified Tribal Monitor(s) from the Pechanga Band of Luiseño Indians. Prior to initiating ground-disturbing activities, RCWD shall execute a contract between the Pechanga Band of Luiseño Indians and RCWD for the monitoring of the Project. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect, or halt the ground-disturbance activities to allow recovery of cultural resources and tribal cultural resources, in coordination with the Project Archaeologist (as defined in Mitigation Measure CUL-2 provided in Section 3.3, Cultural Resources).

Previously presented in Section 3.3, Cultural Resources, Mitigation Measure CUL-3 is also applicable to Tribal Cultural Resources and is provided again below.

Mitigation Measure CUL-3 **Human Remains.** In the event that human remains are encountered during any Project work, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County of Riverside (County) Coroner has made a determination of origin and disposition pursuant to California Public Resources Code (PRC) Section 5097.98. The Riverside County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner would notify the Native American Heritage Commission (NAHC) within 24 hours (per *State CEQA Guidelines* Section 15064.5(e)), and the NAHC would determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall

complete the inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

3.13.10 Level of Significance After Mitigation

No impacts would occur to the significance of a tribal cultural resource (as defined in PRC Section 21074) that is listed or eligible for listing in the California Register or in a local register of historical resources as defined in PRC Section 5020.1(k). Mitigation Measure Tribal-1 would reduce potential impacts to previously unidentified tribal cultural resources that are significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1 within the Project site to a less than significant level. Mitigation Measure CUL-3, provided in Section 3.3, Cultural Resources, would reduce potential impacts to previously undiscovered Native American human remains to a less than significant level. No significant unavoidable impacts to tribal cultural resources would occur with implementation of these measures.

This page intentionally left blank

3.14 UTILITIES AND SERVICE SYSTEMS

This section describes the utility providers within whose jurisdiction the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project) site is located and evaluates the potential impacts of the Proposed Project on utilities and service systems. This section is based on multiple data sources, including: Section 3.4 Energy, utility provider websites, adopted planning documents of utility providers, and the Riverside County (County) General Plan Update Environmental Impact Report (EIR). As noted in Section 3.14.5, the Initial Study, included as Appendix A, substantiates that there would be no impacts associated with water or wastewater services. This section addresses the following utilities (service providers are noted in parentheses):

- Electricity (Southern California Edison [SCE])
- Solid Waste (Lamb Canyon Landfill)

3.14.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. No comment letters included comments related to utilities and service systems.

3.14.2 Existing Environmental Setting

3.14.2.1 Solid Waste

The Project site is located within the Riverside County Department of Waste Resources (RCDWR) service area. RCDWR owns and operates six active landfills. All six landfills are permitted as Class III landfills, which accept all types of nonhazardous municipal solid waste for disposal; however, no hazardous or liquid waste can be accepted (RCDWR 2020a).

The Lamb Canyon Landfill is the closest RCDWR landfill to the Project site, approximately 27.3 miles northwest of the Project site, and would be expected to provide solid waste disposal for the construction of the Proposed Project. Solid waste considered unacceptable waste at the Lamb Canyon Landfill includes: hazardous wastes, waste that contains greater than 1 percent friable asbestos, chemicals (including fuels, cleaners, degreasers, oils, pesticides, acids, paints, etc.), radioactive material, auto body shredder wastes, explosives, soil contaminated in excess of State and federal hazardous waste levels, liquid waste (with a moisture content greater than 50 percent), nuisance dust, and untreated infectious waste from commercial sources (RCDWR 2020b).

The Lamb Canyon Landfill is permitted to receive a daily maximum of 5,000 tons per day (tpd) and has a maximum permitted capacity of 38,935,653 cubic yards (cy). The Lamb Canyon Landfill is approximately 703 acres, with 144 acres permitted for refuse disposal. The Lamb Canyon Landfill opened in 1992 and is scheduled to close in approximately 2029. The Lamb Canyon Landfill is subject to regular inspections from the California Department of Resources Recycling and Recovery (CalRecycle) and its Local Enforcement Agency (LEA), the California Regional Water Quality Control Board (RWQCB), and the South Coast Air Quality Management District (SCAQMD) to ensure compliance with applicable regulations.

Assembly Bill (AB) 939 was enacted in 1989. This bill mandated a 25 percent reduction of waste being disposed of in the landfill system by 1995 and a 50 percent reduction by 2000. In response to AB 939, the California Integrated Waste Management Board (now known as CalRecycle) was established to monitor compliance with waste reduction requirements. According to CalRecycle, all counties within the State are required to have an approved Countywide Integrated Waste Management Plan (CIWMP), which outlines methods for waste diversion and demonstrates sufficient solid-waste disposal capacity for a minimum of 15 years. In compliance with AB 939, the County prepared a CIWMP, which is kept current, demonstrating the required 15-year disposal capacity and allowing disposal of a maximum daily imported waste stream of 1,000 tpd. Imported tonnage varies depending on demand and is limited by the solid waste facility permit for each site.

3.14.2.2 Electricity

According to the most recent data available, in 2020, California's electricity was generated primarily by natural gas (37.06 percent), renewable sources (33.09 percent), large hydroelectric (12.21 percent), nuclear (9.33 percent), and coal (2.74 percent). Total electric generation in California in 2020 was 272,576 gigawatt-hours (GWh), down 2 percent from 2019's total generation of 277,704 GWh (CEC 2021a). The Project site is within the service territory of SCE, which provides services through a grid of transmission lines and related facilities. SCE provides electricity to more than 15 million people in a 50,000-square-mile area of Central, Coastal, and Southern California (SCE 2019). According to the California Energy Commission (CEC), total electricity consumption in the SCE service area in 2020 was 83,633 GWh (32,475 GWh for the residential sector and 51,158 GWh for the non-residential sector). Total electricity consumption in Riverside County in 2020 was 16,857 GWh (CEC 2021b, 2018b).

3.14.3 Regulatory Setting

3.14.3.1 Federal Regulations

No federal regulations for utilities and service systems apply to the Proposed Project.

3.14.3.2 State Regulations

California Integrated Waste Management Act of 1989. The California Integrated Waste Management Act of 1989 (Public Resources Code [PRC] Division 30), enacted through AB 939 and modified by subsequent legislation, required all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by 2000 (PRC Section 41780). The State determines compliance with this mandate to "divert" 50 percent of generated waste (which includes both disposed and diverted waste) through a complex formula. This formula requires cities and counties to conduct empirical studies to establish a "base year" waste generation rate against which future diversion is measured. The actual determination of the diversion rate in subsequent years is arrived at through deduction, not direct measurement: instead of counting the amount of material recycled and composted, the city or county tracks the amount of material disposed at landfills, then subtracts the disposed amount from the base year amount. The difference is assumed to be diverted (PRC 41780.2).

Senate Bill 1374. Senate Bill (SB) 1374 requires that the annual report submitted to CalRecycle include a summary of the progress made in diversion of construction and demolition waste

materials. In addition, SB 1374 required that CalRecycle adopt a model ordinance suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition waste materials from landfills by March 1, 2004. Local jurisdictions are not required to adopt their own construction and demolition ordinances, nor are they required to adopt CalRecycle's model by default. However, adoption of such an ordinance may be considered by CalRecycle when determining whether to impose a fine on a jurisdiction that has failed to implement its Source Reduction and Recycling Element (SRRE).

Senate Bill 1383 (Short-Lived Climate Pollutants: Organic Waste Methane Emissions Reductions). SB 1383 establishes methane emissions reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants (SLCPs). SB 1383 requires that jurisdictions adopt an ordinance or other enforceable mechanism by January 1, 2022, to require compliance by organic waste generators, haulers, and other entities subject to the regulations and subject to the jurisdiction's regulatory authority.

Assembly Bill 75. AB 75, passed in 1999, took effect on January 1, 2000. This bill adds new provisions to the PRC, mandating that State agencies develop and implement an Integrated Waste Management Plan (IWMP); it also mandates that community service districts providing solid-waste services report disposal and diversion information to the city, county, or regional agency in which the community service district is located.

Assembly Bill 341. AB 341, enacted in 2011 and begun in 2012, changes the due date of the State agency waste management annual report to May. The bill makes a legislative declaration that it is the policy goal of the State of California that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by 2020.

3.14.3.3 Regional Regulations

Riverside Countywide Integrated Waste Management Plan. The Riverside Countywide Integrated Waste Management Plan (CIWMP) was adopted by the Riverside County Board of Supervisors on January 14, 1997, and was approved by the California Integrated Waste Management Board on September 23, 1998. The Plan outlines the goals, policies, and programs the County and its cities will implement to create an integrated and cost effective waste management system that complies with the provisions of the California Integrated Waste Management Act and its diversion mandates. The Plan is composed of the Riverside Countywide Summary Plan, the Source Reduction and Recycling Element (SRRE) for the County and each of its cities, the Nondisposal Facility Element (NDFE) for the County and each of its cities, the Household Hazardous Waste Element (HHWE) for the County and each of its cities, and the Riverside Countywide Siting Element (Riverside County 2015).

3.14.4 Methodology

The impact analyses are based on data obtained from the 90% Design Report (AECOM 2022a) and correspondence with RCWD.

3.14.5 Thresholds of Significance

The thresholds for utilities and service systems impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to utilities and service systems if it would:

Threshold 3.14.1: 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

Threshold 3.14.2: Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years

Threshold 3.14.3: 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

Threshold 3.14.4: 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

Threshold 3.14.5: Comply with federal, state, and local management and reduction statutes and regulations related to solid waste

The Initial Study, included as Appendix A, substantiates that there would be no impacts associated with Thresholds 3.14.2 and 3.14.3. The Proposed Project is the remediation of seismic and hydrologic hazards at the existing Vail Dam and will not affect demands on water supplies or wastewater treatment providers. These thresholds will not be addressed in the following analysis.

3.14.6 Project Impacts

Threshold 3.14.1: 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

***Less Than Significant Impact*.** As stated previously, no changes to water, wastewater treatment, stormwater drainage, natural gas facilities, or telecommunications facilities are proposed as part of the Project. However, the existing dam facilities have a 6.9-kilovolt (kV) overhead electrical service provided by SCE. The existing overhead service will need to be rerouted to accommodate the footprint of the new dam and outlet works facilities. New power poles will be provided to route the existing service up the downstream side of the right abutment to the new Dam Control Building. The new electrical service for the new dam facilities will be 100A, 480V, and 3P rated and include one pole mounted electrical transformer. The new electrical service will be routed from the pole mounted transformer to the main circuit breaker inside the Dam Control Building. This main breaker

will feed power to the various mechanical equipment and lighting features for the new dam facilities. All new electrical utility facilities will be designed per SCE standards.

Short-term construction activities would be limited to providing power to the staging area and portable construction equipment and would not substantially increase demand for electricity. Heavy equipment used for construction is primarily powered by diesel fuel. Temporary electric power would be provided via existing utility poles by the proposed access roads. Given the limited nature of potential demand for electricity during construction and the availability of existing power lines adjacent to the Project site, there would not be a need to construct new or alter existing electric transmission facilities. Impacts to regional electricity supplies would be less than significant.

As the Proposed Project is the demolition and replacement of an existing dam, the Proposed Project would not increase electrical demand beyond existing projections from the local electricity provider, and the Project site is within a developed service area with existing demand. Therefore, the Proposed Project would not require the construction of any physical improvements related to the provision of electricity service that would result in significant environmental impacts, and the Project's potential impacts would be less than significant. No mitigation would be required.

Threshold 3.14.4: Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals

***Less Than Significant Impact*.** The Project site is located within RCDWR's service area. RCDWR owns and operates seven active landfills in Riverside County that accept municipal solid waste. These include the Badlands Landfill, Blythe Landfill, Edom Hill Landfill, Lamb Canyon Landfill, Mecca II Landfill (open 2 days/week), Desert Center Landfill (open 2 days/year), and Oasis Landfill (open 1 day/week). The El Sobrante Landfill is also located in the County and is privately owned and operated under an agreement with the County of Riverside. All eight landfills are classified as Class III landfills, which accept only nonhazardous, municipal, solid wastes.

Project construction will include substantial site preparation activities and partial demolition of the existing Vail Dam. Approximately 64,900 cy of materials (including the previous foundation spoils, alluvium, fill, and moderately weathered rock) would be generated for excavation for the dam foundation. Most of this material would be used to construct the new alignment of the South Access Road. The balance of the excavation materials would require removal from the dam area and subsequent disposal. RCWD currently plans to keep the excess materials on its property for possible future reuse. Disposal areas are anticipated to be located within the staging and laydown area near De Portola Road on RCWD's 50 Acre Parcel as shown on Figure 2-2. However, it is likely not all waste materials would be suitable for reuse (e.g., minor metallic demolition debris such as hand railings, piping, and valves from demolition of the existing facilities, as well as concrete from the partial removal of the existing dam). For waste materials that would not be suitable for reuse, including approximately 1,250 cy of dam demolition debris, waste materials would be transported off site to the Lamb Canyon Landfill. The Lamb Canyon Landfill is the closest RCDWR landfill to the Proposed Project site and is located approximately 27.3 miles north of the Project site. The Lamb Canyon Landfill is permitted to receive a daily maximum of 5,000 tpd and is scheduled to close in approximately 2029 (CalRecycle 2019). Therefore, the Proposed Project would be served by a landfill

with sufficient permitted capacity to accommodate its solid waste disposal needs. Additionally, operation of the Project would not appreciably change solid waste generation compared with existing conditions, as the nature and frequency of operation and maintenance activities at the dam would be similar for the gravity dam as for the existing arch dam. Therefore, the Proposed Project would result in less than significant impacts related to solid waste and landfill facilities, and no mitigation would be required.

Threshold 3.14.5: Comply with federal, state, and local management and reduction statutes and regulations related to solid waste

Less Than Significant Impact. Solid waste practices in California are governed by multiple federal, State, and local agencies that enforce legislation and regulations ensuring that landfill operations minimize impacts to public health and safety and the environment. The Project site is located within RCDWR's service area. An important part of RCDWR's mission is to apply sound environmental practices to ensure compliance with these regulations. Additionally, RCDWR has adopted a CIWMP that requires countywide facilities to meet the 15-year capacity requirements. RCDWR is also obligated to obtain a Solid Waste Facilities Permit, a Storm Water Discharge Permit, and permits to construct and operate gas management systems and meet Waste Discharge Requirements. The LEA, the SCAQMD, and the RWQCB enforce landfill regulations related to health, air quality, and water quality, respectively. The Proposed Project would not inhibit RCDWR's compliance with the requirements of each of the governing bodies.

The California Integrated Waste Management Act (AB 939) changed the focus of solid waste management from landfill to diversion strategies such as source reduction, recycling, and composting. The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal. AB 939 established mandatory diversion goals of 25 percent by 1995 and 50 percent by 2000. CalRecycle tracks and monitors solid waste generation rates on a per capita basis. As described in Threshold 3.14.4, the majority of demolition debris from the proposed dam would be stored on site for potential reuse. Waste materials not suitable for reuse would be transported to the nearest landfill, Lamb Canyon Landfill. As the Proposed Project is the replacement of an existing dam, waste generation during operation would remain similar to existing conditions. Therefore, the Proposed Project would comply with federal, State, and local statutes and regulations related to solid waste, and no mitigation would be required.

3.14.7 Cumulative Impacts

As defined in the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for public services and utilities. The Project site includes Vail Lake and is currently served by utility providers. The cumulative area for utilities is listed below for each individual utility provider.

3.14.7.1 Solid Waste

The geographic area for the cumulative analysis of solid waste infrastructure is RCDWR's service territory. Although operation of the Proposed Project would not appreciably change solid waste generation compared with existing conditions, construction associated with the Proposed Project

would contribute to an increased demand for landfill capacity for solid waste. As stated previously, the landfill serving the Project site would be the Lamb Canyon Landfill, which is not scheduled to close until 2029. As discussed under Threshold 3.14.4 above, although the Proposed Project would contribute waste during construction, the majority of debris from demolition of the existing dam would be stockpiled for future reuse. Therefore, the Lamb Canyon Landfill has sufficient permitted capacity to provide adequate capacity for the County's solid waste needs, and with compliance with federal, State, and regional statutes and regulations related to solid waste, which require reductions in solid waste generation, the Proposed Project's contribution to solid waste impacts would not be cumulatively considerable, and no mitigation would be required.

3.14.7.2 Electricity

The geographic area for the cumulative analysis of impacts to the provision of electricity is the service territory of SCE. SCE's service area covers approximately 50,000 square miles spanning Central, Coastal, and Southern California, with a total population of 15 million people. The projections of statewide electricity supply capacity demand rates are cumulative in nature. They are based on population and economic growth in addition to such physical variables as average temperature and water supplies (important to hydroelectric generation) in a given year. The total annual electricity consumption in the SCE service area in 2018 was 83,400 GWh. By 2030, consumption is anticipated to increase by approximately 12,000 GWh for the low-demand scenario and by 22,000 GWh for the high-demand scenario (CEC 2018a). Operation of the Proposed Project would not appreciably increase energy use at Vail Dam. Although the forecast represents a large increase in electricity consumption, the Proposed Project would not contribute to the increase. In relation to the cumulative study area, the Proposed Project would not generate a significant cumulative increase in demand for electricity or a significant disruption in service or service level. Therefore, the Proposed Project's contribution to electricity impacts would not be cumulatively considerable, and no mitigation would be required.

3.14.8 Level of Significance Prior to Mitigation

The Proposed Project would have no significant impacts related to utilities and service systems, and no mitigation is required.

3.14.9 Mitigation Measures

The Proposed Project would not result in significant impacts. Therefore, no mitigation would be required.

3.14.10 Level of Significance After Mitigation

The Proposed Project would have no significant impacts related to utilities and service systems.

This page intentionally left blank

3.15 WILDFIRE

This section describes the existing setting and wildfire risks within the Project site for the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project), which is in unincorporated Riverside County (County). This section evaluates the potential impacts of the Proposed Project with regard to wildfire and post-wildfire environmental risks. This section is based on:

- Federal and State policies;
- County of Riverside General Plan Safety Element (2021);
- Riverside County Fire Department (RCFD) Strategic Plan 2009–2029 (November 2009);
- County of Riverside Emergency Management Department *Riverside Operational Area Multi-Jurisdictional Local Hazard Mitigation Plan* (LHMP) (2018);
- County of Riverside Emergency Management Department *Riverside County Emergency Operations Plan* (2019);
- California Department of Forestry and Fire Protection (CAL FIRE) fire hazard severity zone (FHSZ) viewer; and
- *Geotechnical Data Report, Vail Dam Seismic and Hydrologic Remediation Project* (AECOM 2021).

3.15.1 Scoping Process

Rancho California Water District (RCWD) received two comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this Environmental Impact Report (EIR). No comment letters included comments related to wildfire.

3.15.2 Existing Environmental Setting

A wildfire is a nonstructural fire that occurs in vegetative fuels. Wildfire generally does not include prescribed or controlled fires set by firefighters to manage fuel loads in fire-prone landscapes. Wildfires can occur in undeveloped areas and spread to urban areas where the landscape and structures are not designed and maintained to be ignition resistant. A wildland-urban interface (or WUI) is an area where urban development is located in proximity to open space or "wildland" areas. The potential for wildland fires represents a hazard where development is adjacent to open space or within close proximity to wildland fuels or designated Fire Hazard Severity Zones (FHSZs).[1] Steep hillsides and varied topography can also contribute to the risk of wildland fires. Fires that occur in WUI areas may affect natural resources as well as life and property.

Wildfire ignition sources may include lightning, improperly managed camp fires, cigarettes, arson, sparks from automobiles, lawnmowers, and maintenance equipment, and other sources. Wildfire spread is often dramatically exacerbated when prolonged hot and dry weather conditions are coupled with strong wind events. In the County, fire potential is typically greatest in the months of

[1] An FHSZ is a mapped area that designates zones (based on factors such as fuel, slope, and fire weather) with varying degrees of fire hazard (i.e., moderate, high, and very high).

August, September, and October, when dry vegetation coexists with hot, dry Santa Ana winds (County of Riverside 2021b). However, climate change has increasingly led to conditions that are conducive to wildfire spread throughout much of the year.

CAL FIRE has mapped areas of significant fire hazards in the State through its Fire and Resources Assessment Program (FRAP). These maps place areas of California into different FHSZs, based on a hazard scoring system using subjective criteria for fuels, fire history, terrain influences, housing density, and occurrence of severe fire weather where urban conflagration could result in catastrophic losses. As part of this mapping system, land where CAL FIRE is responsible for wildland fire protection and generally located in unincorporated areas is classified as a State Responsibility Area (SRA). Where local fire protection agencies are responsible for wildfire protection, the land is classified as a Local Responsibility Area (LRA). CAL FIRE currently identifies the Project site as an SRA. In addition to establishing local or State responsibility for wildfire protection in a specific area, CAL FIRE designates areas as very high fire hazard severity zones (VHFHSZ) or non-VHFHSZ.

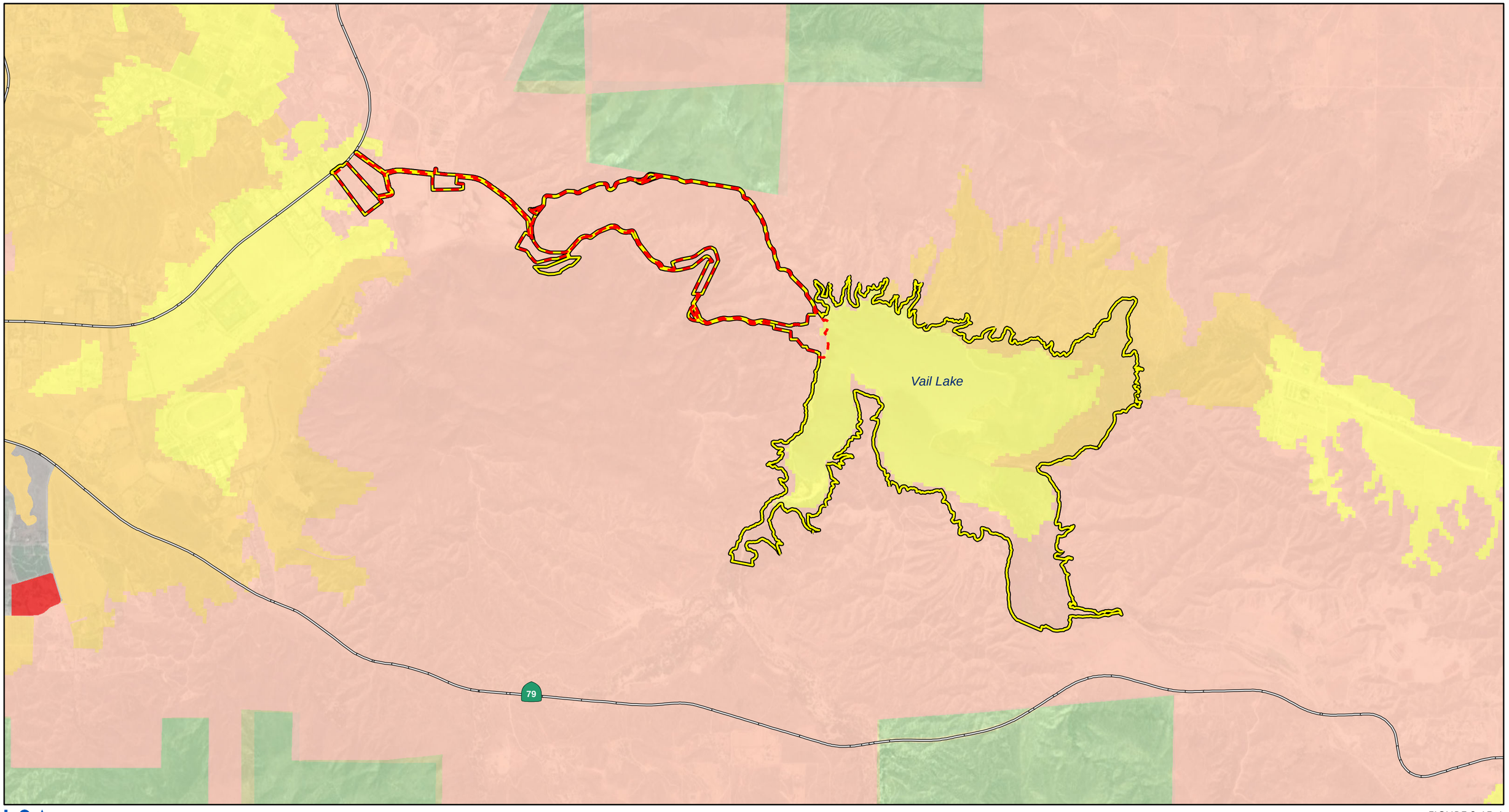
According to the CAL FIRE Hazard Severity Zone Viewer, as shown on Figure 3.15-1, the Project site is located within moderate, high, and very high FHSZ in an SRA (CAL FIRE 2020). The Project site consists of a majority of undeveloped and open space land associated with the recreational and operational use of Vail Lake. The vegetation at the Project site is dominated with scrub communities (inland sage scrub, chamise chaparral, and alluvial fan scrub) that are generally combustible. The areas surrounding the Project site include undeveloped open space to the north, developed ranch property and undeveloped agricultural lands to the west, recreational/campground uses, Cleveland National Forest, a variety of ranch and agricultural properties, and vacant undeveloped properties to the south, and developed property associated with the Sundance Meadows private membership campground to the east. These surrounding areas include a mix of moderate, high, and very high FHSZ in an SRA. Areas of federal responsibility (Federal Responsibility Areas [FRAs]) exist farther beyond the Project site to the north and south.

The County contracts with CAL FIRE for fire protection services under the RCFD. RCFD operates and serves all unincorporated areas in Riverside County and operates 93 fire stations within the County. Within its service area, RCFD provides fire suppression, emergency medical, rescue, and fire prevention services and is equipped to fight both urban and wildland emergency conditions. Other services provided by RCFD include weed abatement, ambulance response, swift water rescue, a level 1 hazardous material team, and an air attack program. CAL FIRE also has primary responsibility for managing fires on lands designated as SRAs. Within the County, RCFD is responsible for 544,180 acres of SRA (County of Riverside 2015c).

3.15.3 Regulatory Setting

3.15.3.1 Federal Regulations

National Incident Management System (NIMS). The NIMS provides a systematic, proactive approach to guide government agencies, nongovernmental organizations, and the private sector to work together to prevent, report to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property harm to the environment. The County participates in NIMS, which improves its ability to prepare for and respond to potential incidents and hazard scenarios.



LSA

LEGEND

Project Site
Study Area

Local Responsibility Area (LRA)
State Responsibility Area (SRA)
Federal Responsibility Area (FRA)

FHSZ in LRA
VHFHSZ

FHSZ in SRA
Very High
High
Moderate

0 1250 2500
FEET

SOURCE: Google Earth (2020); CalFire FRAP (2021)

I:\RCW1902\GIS\MXD\EIR-EIS\Wildfire_Hazard_Zones.mxd (8/23/2022)

FIGURE 3.15-1

Vail Dam Seismic and Hydrologic Remediation Project

Wildfire Hazard Zones

This page intentionally left blank

3.15.3.2 State Regulations

CAL FIRE and Resources Assessment Program. CAL FIRE publishes maps that predict the threat of fire for each county within the State. LRAs, SRAs, or FRAs are classified as either VHFHSZ or non-VHFHSZ based on factors including fuel availability, topography, fire history, and climate.

California Fire Code (CFC). Chapter 8.32 of the County of Riverside Municipal Code adopts the CFC, which is updated every 3 years. The CFC includes regulations for emergency planning, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Several fire safety requirements include building materials and particular types of construction and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

California Strategic Fire Plan. This statewide plan is a strategic document that guides fire policy for much of California. The plan is aimed at reducing wildfire risk through pre-fire mitigation efforts tailored to local areas through assessments of fuels, hazards, and risks. The 2018 Strategic Fire Plan for California was generated by CAL FIRE to provide guidelines and objectives in order to account for associated fire impacts.

California State Hazard Mitigation Plan. The purpose of the State Hazard Mitigation Plan (SHMP) is to significantly reduce deaths, injuries, and other losses attributed to natural- and human-caused hazards in California. The SHMP provides guidance for hazard mitigation activities emphasizing partnerships among local, State, and federal agencies as well as the private sector.

California Government Code. California Government Code §51175 defines VHFHSZ and designates lands considered by the State to be a very high fire hazard.

Public Resources Code (PRC) Sections 4290–4299. This portion of the PRC requires minimum statewide fire safety standards pertaining to: road standards for fire equipment access; standards for signs identifying streets, roads, and buildings; minimum private water supply reserves for emergency fire use; and fuel breaks and greenbelts. With certain exceptions, all new construction in potential wildland fire areas is required to meet the statewide standards. State requirements, however, do not supersede more restrictive local regulations (County of Riverside 2015c).

Office of Emergency Services. The State of California passed legislation authorizing the Office of Emergency Services to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Non-compliance with SEMS could result in the State withholding disaster relief from the non-complying jurisdiction in the event of an emergency disaster (County of Riverside 2015c).

Assembly Bill 337. Per Assembly Bill (AB) 337, local fire prevention authorities and CAL FIRE are required to identify VHFHSZ in LRAs. Standards related to brush clearance and the use of fire resistant materials in FHSZ are also established.

California Code of Regulations (CCR).

CCR Title 8 (Industrial Relations). In accordance with CCR Title 8 §1270 and §6773 (Fire Prevention, and Fire Protection and Fire Equipment), the California Occupational Safety and Health Administration (Cal/OSHA) establishes fire suppression service standards. The standards range from fire hose size requirements to the design of emergency access roads.

CCR Title 14 (Natural Resources). Division 1.5 (Department of Forestry and Fire Protection), Title 14 of the CCR establishes a variety of wildfire preparedness, prevention, and response regulations.

CCR Title 19 (Public Safety). Title 19 of the CCR establishes a variety of emergency fire response, fire prevention, and construction and construction materials standards.

CCR Title 24 (California Building Standards Code). The CFC is set forth in Part 9 of the Building Standards Code. The CFC, which is pre-assembled with the International Fire Code (IFC) by the International Code Council (ICC), contains fire-safety building standards referenced in other parts of Title 24.

California Health and Safety Code §13000 et seq. and California Building Code (CBC). State fire regulations are set forth in §13000 et seq. of the California Health and Safety Code, which is divided into "Fires and Fire Protection" and "Buildings Used by the Public." The regulations provide for the enforcement of the CBC and mandate the abatement of fire hazards.

The California Health and Safety Code establishes broadly applicable regulations, such as standards for buildings and fire protection devices, in addition to regulations for specific land uses, such as childcare facilities and high-rise structures.

California Health and Safety Code Division 11 (Explosives). Division 11 of the California Health and Safety Code establishes regulations related to a variety of explosive substances and devices, including high explosives and fireworks. Section 12000 et seq. establishes regulations related to explosives and explosive devices, including permitting, handling, storage, and transport (in quantities greater than 1,000 pounds).

Executive Order N-04-19. On January 9, 2019, Governor Newsom announced Executive Order (EO) N-04-19, which requires State agencies to identify innovative and sustainable solutions to address the State's wildfire crisis, such as upgraded fire detection technology.

Executive Order N-05-19. On January 9, 2019, Governor Newsom also announced EO N-05-19, which requires CAL FIRE and other State agencies to compile policy and regulatory recommendations concerning wildfire mitigation, emphasizing environmental sustainability and public health. EO N-05-19 requires the incorporation of socioeconomic analysis when conducting risk management of wildfires and mandates that agencies identify geographic areas with populations that are more vulnerable to the impacts of wildfires.

3.15.3.3 Regional Regulations

Riverside County Fire Department Strategic Plan (2009–2029). The RCFD developed the Strategic Plan in 2009, which defines current and future needs of the department and recommends goals and strategies to meet those needs during the next 20 years. The RCFD also includes the Draft Implementation Plan, which contains key steps for implementing each of the strategies, and includes Fire Station Location Methodology, which outlines the process for identifying future stations.

County of Riverside Multi-Jurisdictional Local Hazard Mitigation Plan. The purpose of the Riverside County Operational Area Multi-Jurisdictional Local Hazard Mitigation Plan is to identify the County's hazards, review and assess past disaster occurrences, estimate the probability of future occurrences, and set goals to mitigate potential risks to reduce or eliminate long-term risk to people and property from natural and man-made hazards. The plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 to achieve eligibility and potentially secure mitigation funding through Federal Emergency Management Agency (FEMA) Flood Mitigation Assistance, Pre-Disaster Mitigation, and Hazard Mitigation Grant Programs.

Riverside County Emergency Operations Plan. The County of Riverside Emergency Management Department developed the Emergency Operations Plan (EOP) for the Riverside County Operational Area in 2019. The EOP addresses the planned response to extraordinary situations associated with natural disasters and/or human-caused incidents. The plan focuses on coordinating mutual aid and provides an overview of the operational concepts relating to various emergency situations, identifies components of the emergency response, and describes the overall responsibilities of the operational area for supporting stakeholders in protecting life and property.

County of Riverside General Plan. The County of Riverside General Plan Safety Element (County of Riverside 2021b) identifies goals and policies related to fire protection services. According to the Safety Element, wildfire hazard is the highest-priority hazard in the county with the greatest potential for catastrophic loss. In unincorporated Riverside County, native vegetation, such as chaparral, sage, and grassland provide fuel that allows the rapid spread of fire. In particular, the hillside terrain of unincorporated Riverside County has a substantial fire risk. The policies identified in the Safety Element are intended to reduce earthquake and wind-induced fire as a threat and to develop an integrated approach to minimizing the threat of wildland and urban fires. Relevant goals and policies from the Safety Element are listed below.

- **Safety Element (2021):**

  Policy S 4.1: All development and construction within Fire Hazard Severity Zones shall be reviewed by the Riverside County Fire Department and Building and Safety Department for consistency with the following requirements before the issuance of any building permits (AI 25, 81.1, 81.2, 104.1):

  a) All proposed development and construction shall meet minimum state, county, and local standards and other legal requirements for fire safety, as defined in the Riverside County Building or Fire Codes, or by County zoning, or as dictated by the Building Official or the

Transportation Land Management Agency, based on building type, design, occupancy, and use.

b) In addition to the standards and guidelines of the California Building Code, California Fire Code, the Riverside County Code of Ordinances, Title 14 of the California Code of Regulations, and other appropriate fire safety provisions, developments shall incorporate additional standards for high-risk, high-occupancy, and dependent facilities where appropriate under the Riverside County Fire Code (Ordinance No. 787) Ordinance. These shall include assurance that structural and nonstructural architectural elements of the building will not impede emergency egress for fire safety staffing/personnel, equipment, and apparatus; nor hinder evacuation from fire, including potential blockage of stairways or fire doors.

c) Proposed development and construction in Fire Hazard Severity Zones shall provide secondary public access, in accordance with Riverside County ordinances, where required. There shall be multiple points of ingress and egress that allow for emergency response vehicle access. Points of access shall also include visible street addresses and signs and sufficient water supplies, infrastructure for structural fire suppression, and other applicable local and state requirements.

d) Proposed development and construction in Fire Hazard Severity Zones shall use single loaded roads to enhance fuel modification areas, unless otherwise determined by the Riverside County Fire Chief.

e) Proposed development and construction in Fire Hazard Severity Zones shall provide a defensible space or fuel modification zones to be located, designed, constructed, and maintained to provide adequate defensibility from wildfires.

f) Prior to the approval of all parcel maps and tentative maps, the County shall require, as a condition of approval and as feasible and appropriate, the developer meet or exceed the State Responsibility Area Fire Safe Regulations and the Fire Hazard Reduction Around Buildings and Structures Regulations, particularly those regarding road standards for ingress, egress, and fire equipment access (see Gov. Code, Section 66474.02.)

g) Proposed development and construction of more than four residential units or more than 10,000 square feet of nonresidential space located in Very High Fire Hazard Severity Zones, or other appropriate zones as determined by the Riverside County Fire Department, shall submit and implement a fire protection plan as feasible and appropriate. This plan shall include provisions for roadways and access, firefighting infrastructure, signage, vegetation management, construction materials, and evacuations.

Policy S 4.2: Require continued long-term operation and maintenance of fuel breaks, brush management, controlled burning, revegetation, and fire roads by Riverside County and private landowners. (AI 25)

Policy S 4.3: Monitor fire-prevention measures (e.g., fuel reduction) through a site-specific fire-prevention plan to reduce long-term fire risks in the Very High Fire Hazard Severity Zones. (AI 25, 88)

Policy S 4.11: Collaborate with local governments to establish fire fuel management practices in local and regional parks and open spaces, as feasible.

Policy S 4.16: Continue to work cooperatively with the California Department of Forestry and Fire Protection and Tribal government fire departments to strengthen fire-fighting capabilities and successfully respond to multiple fires. (AI 4, 88, 150)

Policy S 4.17: Consider developing a program to use existing reservoirs, tanks, and water wells in the county for emergency fire suppression water sources.

3.15.4 Methodology

This section addresses factors that could expose people or structures to fire or post-fire flooding or landslides, risk or impair emergency response, or require installation of infrastructure that could exacerbate fire risk. Past case law supports that the California Environmental Quality Act (CEQA) should evaluate a proposed project's impact on the environment (e.g., potential of a housing development to degrade water quality), rather than the environment's impact on a project (e.g., potential for an earthquake to destroy a housing development). In *California Building Industry Association v. Bay Area Air Quality Management District* (CBIA v. BAAQMD) (Supreme Court of California 2015), the CBIA challenged BAAQMD's adoption of CEQA air pollutant significance thresholds that required analysis of impacts on "new receptors" (residents and workers drawn to an area as a result of a proposed project). The California Supreme Court found that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents," except where a proposed project may exacerbate those environmental hazards or conditions that already exist. Therefore, this section will not directly focus on the risk of wildfire to the Project, rather it will address whether the Project exacerbates the risk of a natural disaster by bringing new development to vulnerable areas. The analysis is based on review of FHSZ maps, local and regional Hazard Mitigation Plans, and Project conformance to County fire codes.

3.15.5 Thresholds of Significance

The thresholds for wildfire impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The Proposed Project may be deemed to have a significant impact with respect to wildfire if it would:

Threshold 3.15.1: Substantially impair an adopted emergency response plan or emergency evacuation plan

Threshold 3.15.2: Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire

Threshold 3.15.3: 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

Threshold 3.15.4: 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

The Initial Study, included as Appendix A, substantiates that impacts associated with the following threshold would be less than significant: Threshold 3.15.1. Project construction and operation would not introduce new barriers or constraints on emergency response or evacuation, as the dam access roads would not typically be used for evacuation except for RCWD and construction personnel. This threshold will not be addressed in the following analysis.

3.15.6 Project Impacts

Threshold 3.15.2: Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire

Less Than Significant Impact. Topography influences the movement of air, thereby directing a fire course. Wind events magnify the risks of wildfire and have the potential to expose inhabitants of the surrounding ranch properties and recreational/campground users to elevated pollutant concentrations from a wildfire and the uncontrolled spread of wildfire from the surrounding open space areas, including the Cleveland National Forest to the south of the Project site and the largely undeveloped areas surrounding Vail Lake.

The Project site is located in a remote, largely undeveloped portion of unincorporated Riverside County. The terrain on the Project site and within the surrounding vicinity of Vail Lake includes nearly flat stream valleys, step-like alluvial fan and terrace deposits, canyons, steep-sided river gorges, and moderate to steep mountain slopes. The topography slopes in all directions from various peaks and canyons in the vicinity of the lake. Vail (Oak) Mountain is located on the western portion of the property. As previously stated, the Project site and surrounding areas are located within a mixture of moderate, high, and very high FHSZ in an SRA (CAL FIRE 2020).

The Project is the remediation of seismic and hydrologic hazards at Vail Dam. Construction would substantially alter localized topography at the site of the proposed gravity dam; however, this is not anticipated to affect prevailing winds or otherwise exacerbate wildfire risks as the topographic changes would be generally confined to the proposed dam and abutments and the realigned South Access Road. During construction, additional workers would be within areas classified as high to very high FHSZs. Project construction activities would use vehicles and machinery that have the potential to spark a fire in the area, which could expose workers and residents in neighborhoods to the west of the Project site to fire-related pollutants. During operations and maintenance, potential ignition sources such as vehicles and gas- or electric-powered small hand tools and maintenance equipment may be used, similar to the existing operations of Vail Dam. The Project does not include habitable

structures; therefore, the Project is not anticipated to expose any Project occupants to pollutant concentrations from a wildfire.

As detailed in Regulatory Compliance Measure RCM FIRE-1, the Proposed Project would adhere to the County's Fuel Hazard Abatement Program to minimize ignition sources on the Project site and to reduce the unlikely chance of wildfire on the Project site. The Fuel Hazard Abatement Program specifies the removal and proper disposal of noxious vegetation sources, including native tree brush and chaparral. Furthermore, the proposed development would result in clearing, grading, and revegetation according to RCFD/CAL FIRE requirements, resulting in the unavailability of vegetative/ combustible materials in areas of the Project site that would be particularly vulnerable to wildfire spread from the native vegetation within the vicinity of Vail Dam. Furthermore, the Project would comply with comprehensive safety measures in compliance with federal, State, and regional worker safety and fire protection codes and regulations, which would minimize the occurrence or spread of wildfire during construction and operation of the Proposed Project. Therefore, the Proposed Project would not exacerbate wildfire risks due to slope, prevailing winds, location, and other factors, with implementation of Regulatory Compliance Measure RCM FIRE-1, and no mitigation is required.

Threshold 3.15.3: Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment

Less Than Significant Impact. Utility and infrastructure improvements included as part of the Project are described in Section 3.14, Utilities and Service Systems. These improvements include modifications to existing power line infrastructure to provide electricity to the new gravity dam facilities. Generally, utilities including water facilities and storm drain lines that would be modified and/or extended throughout the Project site would be underground and would not exacerbate fire risk. However, above-ground power lines would have the potential to exacerbate fire risks associated with sparking in the event of damage to the lines or transformers. The Project site is located within SCE's electricity delivery jurisdiction. When there are potentially dangerous weather conditions, SCE turns off power in high fire risk areas to reduce the threat of wildfires. The Project site is in an area where power can be shut off by SCE, thus reducing potential for wildfire starting and spreading throughout the Project site. During and following construction, Vail Lake would also remain available as an emergency water source. Additionally, Project design and implementation of utility improvements would be reviewed and approved by the RCFD/CAL FIRE to ensure the Proposed Project is compliant with all applicable fire codes, design standards, and regulations. Furthermore, as specified in the Project Description, improvements would be required to the existing access roads to accommodate construction traffic. These include Secondary Entry Road, the access road from De Portola Road (an existing, paved road) to the mouth of the canyon, the North Access Road, the Canyon Access Road, and the South Access Road (which connects to State Route 79), as well as construction of the proposed Primary Entry Road (50 Acre Parcel) (see Figure 2-11). These roadway improvements would accommodate construction traffic and would provide potential evacuation routes in the event of a wildfire, and therefore would not exacerbate fire risk. Therefore, the Proposed Project would not require the installation or maintenance of associated infrastructure (e.g., roads, fuel breaks, emergency water sources, power lines, or other utilities) that would

exacerbate fire risk or result in temporary or ongoing impacts to the environment. There would be no temporary or ongoing impact to the environment, and no mitigation would be required.

Threshold 3.15.4: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes

Less Than Significant Impact.

Landslides. Landslides and other forms of mass wasting, including mud flows, debris flows, and soil slips, occur as soil moves downslope under the influence of gravity. Landslides are frequently triggered by intense rainfall or seismic shaking but can also occur as a result of erosion and downslope runoff caused by rain following a fire. According to the *Geotechnical Data Report* (AECOM 2021), recent and ancient landslides are mapped along the alignment of the proposed North Access Road. However, the minor grading proposed to modify the existing road is not considered sufficient to trigger landslide movement. Further, an engineering geologist would be present during construction grading activities to identify any unfavorable geologic conditions so that they would be avoided, if present. As discussed above in Threshold 3.15.2, the Project would adhere to the County's Fuel Abatement Program (Regulatory Compliance Measure RCM FIRE-1). Adherence to this measure would reduce the likelihood of urban conflagration on the Project site in the unlikely event of a wildfire. Additionally, the Project site is only susceptible to landslide by the proposed North Access Road. With implementation of Regulatory Compliance Measure RCM FIRE-1, a less than significant impact would occur related to exposure of people or structures to significant risks, including downslope landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Flooding. According to the FEMA Flood Insurance Rate Map (FIRM) No. 06065C2745G, No. 06065C2775G, No. 06065C3310G, and No. 06065C3350G (December 28, 2009), the Project site is located within Zones A, X, and D (FEMA 2020). The Primary Entry Road (50 Acre Parcel), Secondary Entry Road, Pond Access Road, and a small westernmost portion of the North Access Road and the Canyon Access Road are within Zone A, which is classified as an area subject to inundation by the 1-percent-annual-chance flood event. A portion of the North Access Road and the Canyon Access Road would be located within Zone X, which is classified as an area of minimal flood hazard. The majority of the Project site, including the South Access Road and the majority of the North Access Road and the majority of the Canyon Access Road, lies within Zone D, an area of undetermined flood hazard (refer to Figure 3.8-2).

As described in Section 3.8, Hydrology and Water Quality, during construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered, and there would be an increased potential for flooding compared to existing conditions. As specified in Regulatory Compliance Measure RCM WQ-1, construction Best Management Practices (BMPs), such as Erosion Control and Sediment Control BMPs, would target and reduce pollutants of concern in stormwater runoff during construction. In addition, the Proposed Project includes proposed operational BMPs and Low Impact Development (LID) principles (i.e., the energy dissipater basin) that would be adequately sized and designed to reduce the negligible increase in stormwater runoff (less than a 1 percent increase). With incorporation of Regulatory Compliance Measures RCM WQ-1 and RCM WQ-3, the Proposed Project would not expose people or structures to significant risks, such as

flooding, as a result of runoff, post-fire slope instability, or drainage changes. In the event of a wildfire, these measures would be applied to post-fire conditions. Therefore, the Project would not result in impacts to Project occupants related to post-wildfire flooding risks. No mitigation is required.

3.15.7 Cumulative Impacts

As defined in the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and reasonably foreseeable projects within the cumulative study area for wildfire.

For the reasons outlined above in Section 3.15.6, Project Impacts, implementation of the Proposed Project would not result in a significant cumulative impact related to wildfire. The Proposed Project would not increase the risk of wildfire or introduce new land uses into moderate, high, and very high FHSZ areas. Impacts are limited to the construction period, during which time additional personnel and sources of ignition would be present within high and very high FHSZ areas. The Proposed Project and all related projects are required to adhere to regional, State, and federal regulations designed to reduce and/or avoid impacts related to wildfire. With compliance with these regulations, impacts related to wildfire would be less than significant.

Potential impacts of the Proposed Project with regard to wildfire, when combined with the impacts of past, present, and reasonably foreseeable projects in Riverside County, are not anticipated to contribute to a cumulatively significant impact due to the increased risk of wildfire and impacts to resources and human life as a result of wildfire. Other projects are not anticipated to result in increased fire hazards during construction of the Proposed Project or require additional personnel in the high and very high FHSZ areas, and therefore would not exacerbate the temporarily changed risk to additional personnel associated with the Proposed Project. Each development application received by the County is required to undergo environmental review pursuant to CEQA. If there were any potential for significant impacts with regard to wildfire and related risks, an investigation would be required to determine the nature and extent of the resources and identify the appropriate mitigation measures. Therefore, the Proposed Project's impact related to wildfire would not be cumulatively considerable.

3.15.8 Level of Significance Prior to Mitigation

Construction and operational impacts related to wildfire would be less than significant with implementation of Regulatory Compliance Measure RCM FIRE-1 and hydrology and water quality Regulatory Compliance Measures RCM WQ-1 and RCM WQ-3, as specified in Section 3.8.

3.15.9 Regulatory Compliance Measure

The following Regulatory Compliance Measure (RCM) is an existing regulation that is applicable to the Proposed Project and is considered in the analysis of potential impacts related to wildfire. RCWD considers the requirement mandatory; therefore, it is not a mitigation measure.

RCM FIRE-1 **Fuel Hazard Abatement Program.** Section 8.56.010 of Chapter 8.56 of Title 8 of the Riverside County Municipal Code establishes a hazardous vegetation abatement program to protect the lives and property of the citizens of Riverside County. The program requires all property owners to maintain their property and remove noxious vegetation and other hazardous conditions to prevent wildfires. RCWD shall maintain the Project site in accordance with the Fuel Hazard Abatement Program.

3.15.10 Level of Significance After Mitigation

Construction and operational impacts related to wildfire would be less than significant. No mitigation is required.

4.0 ALTERNATIVES

4.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) include a discussion of reasonable project alternatives that would "feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any significant impacts of the project, and evaluate the comparative merits of the alternatives" (*State CEQA Guidelines*, Section 15126.6). This chapter identifies potential alternatives to the proposed Vail Dam Seismic and Hydrologic Remediation Project (Proposed Project), evaluates the potential impacts of each alternative, and compares the potential impacts of each alternative against the Proposed Project's impacts, as required by CEQA.

Key provisions of the *State CEQA Guidelines* on alternatives (Section 15126.6[b] through [f]) are summarized below to explain the foundation and legal requirements for the alternatives analysis in the EIR:

- The discussion of alternatives shall focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly (15126.6[b]).

- The specific alternative of 'no project' shall also be evaluated along with its impact (15126.6[e][1]). The 'no project' analysis shall discuss the existing conditions at the time the Notice of Preparation is published, and at the time the environmental analysis is commenced, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (15126.6[e][2]).

- The range of alternatives required in an EIR is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision-making. Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent) (15126.6[f]).

- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR (15126.6[f][2][A]).

- If the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion and should include the reasons in the EIR. For example, in some cases there may be no feasible alternative locations for a geothermal plant or mining project which must be in close proximity to natural resources at a given location (15126.6[f][2][B]).

- An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative (15126.6[f][3]).

Pursuant to the guidelines stated above, a range of alternatives to the Proposed Project is considered and evaluated in this EIR. These alternatives were developed during the course of project planning and environmental review. Except for the No Project/No Action Alternative, the alternatives are focused on possible construction options that would potentially reduce impacts during construction. Such alternatives are not mutually exclusive, and Rancho California Water District (RCWD) could elect to implement multiple options.

The alternatives analysis provides the following:

- Description of the alternative;

- Environmental analysis of the potential impacts of the alternative and the significance of those impacts (per the *State CEQA Guidelines*, significant effects of an alternative shall be discussed but in less detail than those of the Proposed Project);

- Overview of the potential impacts of the alternative and the significance of those impacts; and

- Summary comparison of the alternative relative to the Proposed Project's impacts, specifically addressing whether the alternative would meet the project objectives, eliminate or reduce impacts as compared to the project, and include other comparative merit.

4.2 PROPOSED PROJECT

4.2.1 Project Characteristics

RCWD proposes to remediate seismic and hydrologic hazards associated with the existing Vail Dam, an arch dam, by constructing a new straight-axis gravity concrete dam immediately downstream of the existing dam. Hydrologic and seismic evaluations of the existing dam, conducted by the California Department of Water Resources Division of Safety of Dams (DSOD), indicate that the existing dam's spillway is insufficient to pass the Probable Maximum Flood (PMF) without overtopping the dam (DSOD 2012b) and that the existing concrete arch dam would not resist the stresses induced by the Maximum Credible Earthquake (MCE) (DSOD 2012b). Dam failure would result in downstream flooding and the loss of Vail Lake, which would adversely affect water supply throughout RCWD's service area.

The Project includes construction of a straight-axis concrete gravity dam structure immediately downstream of the existing arch dam. The new dam would connect to the existing abutments. A reinforced concrete outlet tower would be constructed on the upstream side of the new dam.

A permanent energy dissipater valve would be constructed at the toe of the new dam. A downstream parapet wall would be constructed to serve primarily as a guardrail for vehicles traversing the crest. The downstream face of the dam would be stepped concrete. The new dam would include new outlet works that would be designed to meet the emergency reservoir drawdown requirements. The existing arch dam would be partially demolished, and construction materials and methods used for the project would take into account local seismic activity. The existing dam spillway will serve as the spillway for the new dam, and operations at the lake would not change; therefore, there would be no change in the maximum inundation area for Vail Lake (AECOM 2022a, 2022b).

Preparation of the new gravity dam foundation includes excavation to slightly weathered or fresh rock and then treatment of the excavated surface. Existing overhead electrical service would need to be rerouted to accommodate the footprint of the new dam and outlet works facilities. New power poles would be provided to route the existing service up the downstream side of the right abutment to the new Dam Control Building (AECOM 2022a).

Improvements to existing on-site access roads would be required to accommodate construction traffic. The site development would also include staging and laydown areas to support construction and demolition activities, as well as disposal areas for excess materials from the foundation excavation (AECOM 2022a).

4.2.2 Project Objectives

As discussed in Section 2.3, Project Objectives, of this EIR, the following project objectives have been established to aid decision-makers in their review of the Proposed Project and its associated environmental impacts:

1. Ensure that Vail Dam will pass the Probable Maximum Flood (PMF) through the spillway without overtopping.

2. Ensure that Vail Dam will withstand the Maximum Credible Earthquake (MCE) without resulting in catastrophic dam failure.

3. Maintain the current capacity of Vail Lake to ensure adequate water supply and maintain reliability throughout RCWD's service area.

4. Utilize RCWD resources in a cost-effective and responsible manner.

5. Maintain a locally based and cost-effective water supply that continues to support local agriculture.

6. Provide a climate change buffer with both the ability to capture less frequent, but more intense, storms and act as a buffer against drought conditions.

7. Provide passive flood control for downstream Temecula Creek.

4.2.3 Project-Related Impacts

4.2.3.1 Less Than Significant Impacts

As described in Section 1.3 of this EIR, the Initial Study documented that the Proposed Project would result in less than significant impacts related to the following:

- Aesthetics
- Agriculture and Forestry
- Air Quality (odors)
- Geology and Soils (soils capability to support the use of septic tanks or other alternative wastewater disposal systems)
- Hazards and Hazardous Materials (hazardous materials within one-quarter mile of an existing or proposed school, and airport land use plan)
- Hydrology and Water Quality (flood hazard, tsunami, or seiche zones)
- Land Use and Planning (division of an established community)
- Mineral Resources
- Noise (airport land use plan)
- Population and Housing
- Public Services (fire protection, police protection, and schools)
- Transportation (geometric design, emergency access)
- Utilities and Service Systems (sufficient water supplies, wastewater treatment provider capacity)
- Wildfire (emergency response plan or emergency evacuation plan)

No mitigation measures would be required to reduce project-related impacts related to the above topics.

As described throughout Chapter 3.0, Existing Environmental Setting, Environmental Analysis, Impacts, and Mitigation Measures, the analysis in this EIR and supporting technical studies documented that the Proposed Project would not result in significant unavoidable adverse impacts related to the following:

- Air Quality
- Biological Resources

- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise (with the exception of nighttime construction noise, discussed separately)
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

For the purpose of this alternatives analysis, it is assumed the alternatives would comply with applicable federal, State, and local regulations, policies, and ordinances. It is also assumed that all mitigation measures required for project implementation would also apply to any project alternative and that similar reductions in impacts would be achieved through such mitigation. Therefore, the following discussion focuses on the ability of the alternatives to further reduce or lessen project impacts and the potential impacts of the project related to these issues.

4.2.3.2 Significant and Unavoidable Impact

As discussed in Section 3.10 of this EIR, the Proposed Project would result in a significant and unavoidable noise impact associated with the 12-week period for roller compacted concrete (RCC) placement. Specifically, the Proposed Project would result in significant nighttime noise impacts to adjacent rural residential properties during the 12-week period when the RCC batch plant would be operating continuously. A Regulatory Compliance Measure (RCM N-1), which includes placement of temporary construction barriers to reduce noise, has been identified that would help reduce the impacts; however, there is no feasible way to fully mitigate the nighttime noise due to the location of the sensitive residential uses and the types of construction equipment to be used. Therefore, construction-related noise impacts during nighttime hours would remain significant and unavoidable.

4.3 ALTERNATIVES INITIALLY CONSIDERED BUT REJECTED FROM FURTHER CONSIDERATION

Section 15126.6(c) of the *State CEQA Guidelines* suggests that EIRs identify any alternatives that were considered by the Lead Agency but were rejected during the scoping process and briefly explain the reasons underlying the Lead Agency's determination. In evaluating an appropriate range of alternatives to the Proposed Project, a number of alternatives were considered and rejected for differing reasons by RCWD.

The following is a discussion of the development alternatives considered during the environmental review process and the reasons they were not selected for detailed analysis in this Draft EIR.

4.3.1 Alternative Sites

CEQA requires that the discussion of alternatives focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant impacts of the project. The key question and first step in the analysis is whether any of the significant impacts of the project would be avoided or substantially lessened by relocating the project. Only locations that would avoid or substantially lessen any of the significant impacts of the project need be considered for inclusion in the EIR (*State CEQA Guidelines*, Section 15126.6[f][2][A]). Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, General Plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the applicant can reasonably acquire, control, or otherwise have access to the alternative site (*State CEQA Guidelines*, Section 15126.6[f][1]). If it is determined that no feasible alternative locations exist, the EIR must disclose the reasons for this conclusion (*State CEQA Guidelines*, Section 15126.6[f][2][B]).

No alternative locations to undertake the Proposed Project are analyzed in the Draft EIR. The Proposed Project involves the remediation of seismic and hydrologic hazards for Vail Dam, which is located on the Project site. There are no alternative sites that would achieve the objectives of the Proposed Project. Therefore, this alternative was rejected from further consideration.

4.3.2 Engineering Options

RCWD identified various options to remediate the seismic and hydrologic deficiencies, which were identified and evaluated; these included expanding the spillways, strengthening the existing dam, and building a new dam. Initial remediation approaches were investigated as documented in *Vail Dam Remediation Options* (URS 2014a). Further investigation of options was completed as documented in Seismic Structural Analyses – Phase 3.1 (URS 2015) and Seismic Structural Analyses – Phase 3.2 (URS 2016). Additional evaluation was conducted during the preliminary design phase to explore obtaining aggregate through the use of borrow sites in proximity to the dam.

The following concepts were eliminated from further consideration based on feasibility, impacts to resources, ability to meet the project objectives, and/or feasibility related to cost.

4.3.2.1 Lowering Dam Crest Elevation

This alternative consists of lowering the dam crest in conjunction with additional modifications that would address the potential for overtopping, allow for emergency water releases, and address seismic deficiencies. Specifically, a 170 foot (ft) wide notch would be created in the center of the existing dam to lower the spillway crest by about 19 ft. The notch and the existing spillway could pass the PMF without overtopping the parapet wall on the remaining part of the arch dam and gravity block abutments. Construction of the notch would occur in conjunction with construction of a large unreinforced concrete buttress with spillway downstream of the dam to prevent erosion near the toe of the dam and to address seismic deficiencies. The existing conduits and meter vault would need to be relocated to accommodate the downstream improvements. In order to allow for emergency reservoir releases, new, larger downstream piping and valves would be installed, while leaving existing dam piping in place. With the lowering of the dam crest, the reservoir capacity would be reduced by 9,250 acre-feet (ac-ft), down to 33,430 ac-ft.

This alternative was not chosen because it was estimated to cost $18.6 million more than the proposed action and, therefore, is not the most cost-effective option. In addition, it does not meet the project purpose or objective of maintaining the capacity of the reservoir.

4.3.2.2 Local Borrow Site

This alternative consisted of obtaining aggregate material for dam construction from an area in the vicinity of the existing dam, avoiding the need to purchase and haul materials from existing off-site quarries. Initial geotechnical investigations included explorations at proposed borrow sites downstream of the existing dam. Preliminary drawings for the potential borrow area and test quarry were developed during preliminary design. Three sites within the canyon were identified and studied, including mapping vegetation and jurisdictional resources, geological testing, and evaluation of other constraints. It was determined that all of the borrow site options would substantially impact sensitive habitat, including areas previously used as mitigation for prior projects in the area, waters and wetlands subject to regulatory agency jurisdiction, and potentially threatened and endangered species, all of which would require costly compensatory mitigation. Furthermore, it is uncertain whether agencies would issue permits for impacts of that magnitude to jurisdictional waters and wetlands when a viable alternative (e.g., obtaining material from an off-site quarry) was available. A cost comparison was prepared during preliminary design, as noted in the Preliminary Design Report (AECOM 2019), and it was determined that importing aggregates from a commercial quarry would be the more cost-effective option, in addition to avoiding significant impacts to sensitive biological resources. Therefore, this alternative was not chosen for further consideration.

4.3.2.3 Eliminate Water Storage at Vail Lake

This alternative would eliminate long-term water storage in Vail Lake by releasing water as it is impounded, subject to the constraints associated with the existing outlet facilities. This alternative would not prevent water overtopping during the PMF, and the drawdown capacity for emergency operations would not be improved. Furthermore, the seismic hazards would not be alleviated because it was shown that a minimum water level of 1,437.6 ft NAVD88 is necessary to maintain seismic stability. Elimination of water storage at the lake would not meet any of the project objectives and would not alleviate the seismic or hydrologic risks. Therefore, this alternative was not chosen for further consideration.

4.4 ALTERNATIVES UNDER CONSIDERATION

Section 21100 of the Public Resources Code (PRC) and Section 15126 of the *State CEQA Guidelines* require an EIR to identify and discuss a No Project Alternative and a reasonable range of alternatives to the Proposed Project that would feasibly attain most of the basic objectives of the project and would avoid or substantially lessen any of the significant environmental impacts. Based on the criteria listed above, the following four alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the Proposed Project but that may avoid or substantially lessen any of the significant impacts of the Proposed Project. These alternatives additionally reflect construction options to

determine whether differential environmental impacts may result. The alternatives considered in this EIR include the following:

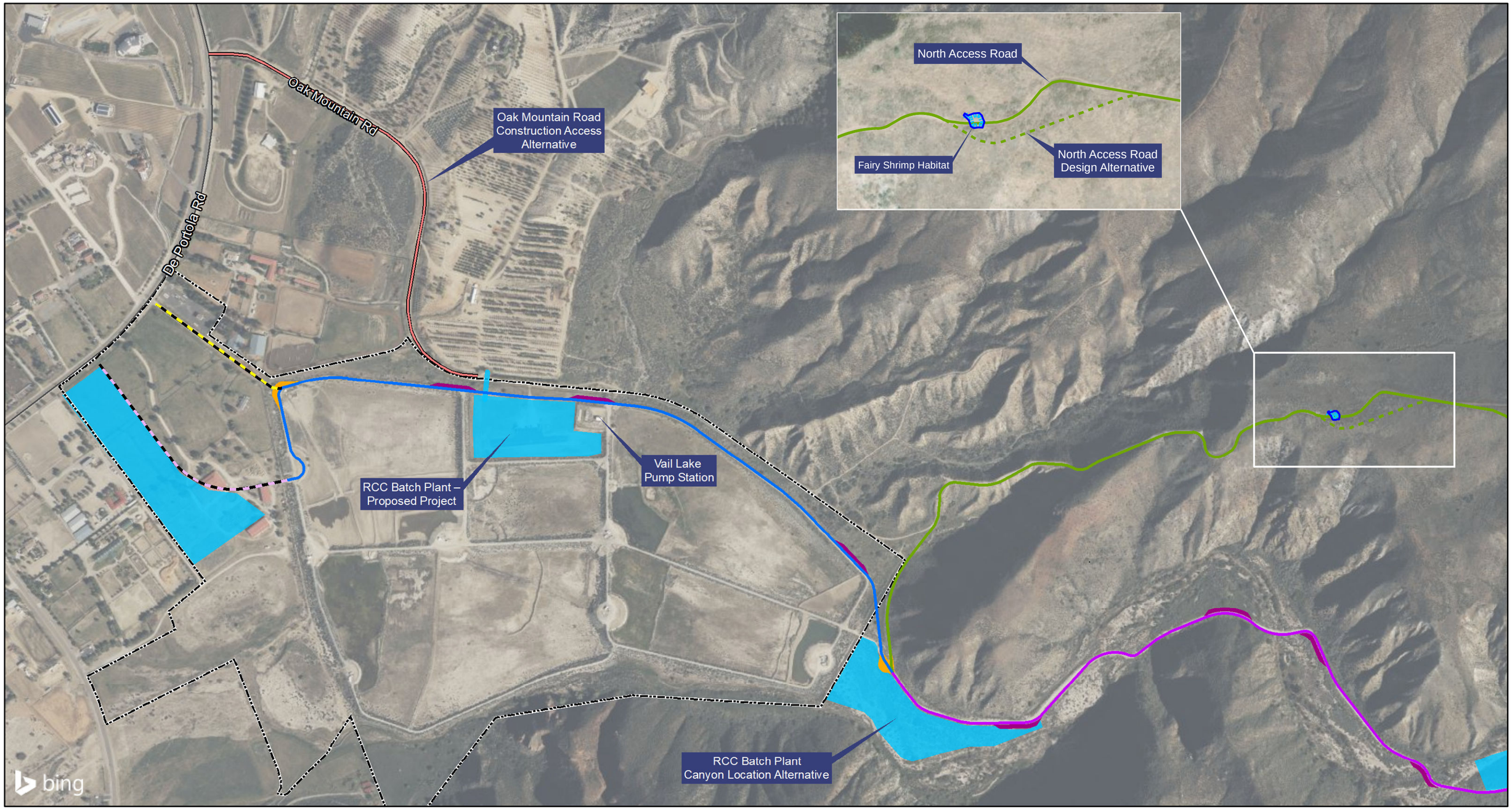
- **Alternative 1: No Project/No Action.** The No Project/No Action Alternative would leave Vail Dam in its current condition, without remediation of the identified seismic and hydrologic hazards. The No Action Alternative would leave deficiencies unaddressed, and hazards of catastrophic dam failure with downstream flooding would remain. In addition, RCWD would be out of compliance with DSOD's requirements. The No Project/No Action Alternative is not feasible, but it is included as the baseline for comparing the effects of the Proposed Action and Alternatives.

- **Alternative 2: North Access Road Design Option.** Prior to completion of biological surveys, RCWD identified a design alternative for a portion of the North Access Road to avoid an existing seasonal pool that provides habitat for fairy shrimp. No evidence of special-status fairy shrimp was identified during focused surveys. However, because this alternative would result in greater impacts to native vegetation communities and may result in other environmental impacts (e.g., subsurface cultural resources), it is not the preferred option. It has been retained pending coordination with the applicable resource agencies. The North Access Road Design Option is shown on Figure 4-1.

- **Alternative 3: Oak Mountain Road Construction Access.** Oak Mountain Road is a privately owned road north of the Secondary Entry Road that could provide access to the north side of the Flyers Field. Under this alternative, aggregate, fly ash, and concrete deliveries would use this route to access the RCC batch plant, thereby eliminating the need for on-road/highway trucks to travel over the unpaved Primary Entry Road (50 Acre Parcel) and Pond Access Road and reducing associated dust and noise along that route. The Oak Mountain Road Construction Access is shown on Figure 4-1.

- **Alternative 4: RCC Batch Plant Canyon Location.** Under this alternative, the RCC batch plant would be located at the staging and laydown area at the mouth of the canyon rather than at the Flyers Field. Most of the Flyers Field would not be used as a staging and laydown area. Trucks delivering aggregate, fly ash, and concrete would enter via the Primary Entry Road (50 Acre Parcel) and would travel a longer distance along the unpaved Pond Access Road. This alternative would reduce the significant and unavoidable nighttime noise impacts associated with the RCC batch plant during the 12 weeks of RCC placement at the dam by locating the batch plant at a greater distance from residential uses. The Proposed Project RCC batch plant location and the alternative location at the canyon staging and laydown area are shown on Figure 4-1.

As noted earlier, in the case of Alternatives 2, 3, and 4, one or more of these alternatives could be implemented; implementation of one alternative would not preclude another. For the purpose of this analysis, it is assumed that all of the alternatives would comply with applicable federal, State, and local regulations, policies, and ordinances and would be subject to applicable mitigation measures. The alternatives are further described below and their potential impacts compared to those of the Proposed Project.



LSA

LEGEND

- Canyon Access Road
- North Access Road
- North Access Road Design Alternative
- Primary Entry Road (50 Acre Parcel)
- Secondary Entry Road
- Pond Access Road
- Oak Mountain Road Construction Access Alternative
- Staging and Laydown Area
- Roadway Radius
- Proposed Truck Turnout
- Property Boundary
- Fairy Shrimp Habitat

N

0 300 600
FEET

SOURCE: Bing Maps (2020); AECOM (6/2022)

I:\RCW1902\GIS\MXD\EIR-EIS\Alternatives.mxd (8/23/2022)

FIGURE 4-1

Vail Dam Seismic and Hydrologic Remediation Project

Alternatives

This page intentionally left blank

4.4.1 Alternative 1: No Project/No Action

4.4.1.1 Description

The No Project/No Action Alternative would leave Vail Dam in its current condition; no improvements would be made. The existing dam has been determined, by DSOD and through independent evaluation by URS Corporation (URS), to be hydrologically and seismically deficient. The existing spillways are not sufficient to pass the PMF without overtopping the dam. During a PMF, it was determined that the dam would be overtopped by 4 ft. This overtopping of the dam could undermine the dam foundation and could lead to catastrophic failure. In addition, existing outlets do not have the capacity to lower the maximum storage depth of the reservoir by 10 percent within 7 days, as required by DSOD for emergency operations.

Seismic evaluations confirmed that there are significant areas of tensile stresses that exceed the estimated capacity of the concrete during the maximum credible earthquake. This overstressing could result in multiple cracks in the dam structure and result in catastrophic dam failure. Catastrophic dam failure would result in release of the 43,000 ac-ft of impounded water, leading inevitably to major flooding of downstream areas extending from the dam to the Pacific Ocean. This flooding would have potential for loss of life as well as other safety threats to the 22,645 people residing in the flood inundation area, as well as damage to infrastructure, loss of water storage, and loss of lifelines. As a result of these deficiency determinations, DSOD is requiring RCWD to address both seismic and hydrologic deficiencies. The No Action Alternative would leave these deficiencies unaddressed, and hazards of catastrophic dam failure with downstream flooding would remain. In addition, RCWD would be out of compliance with DSOD's requirements. The No Project/No Action Alternative is not feasible, but it is included as the baseline for comparing the effects of the Proposed Action and Alternatives.

4.4.1.2 Environmental Analysis

The No Project/No Action alternative would not entail construction of new facilities, removal of existing facilities, or substantial changes to operations and maintenance. Impacts associated with operation of the Proposed Project and the No Project/No Action Alternative would be essentially the same. Unlike with the Proposed Project, there would be no construction impacts under this alternative, including to air quality and greenhouse gas emissions, biological resources, cultural resources, energy, geology and soils, hazardous materials, hydrology and water quality, noise, public services, transportation, tribal cultural resources, utilities and service systems, and wildfire. Impacts from construction would therefore be less than significant with implementation of the Proposed Project. However, in the event of a substantial spill event or catastrophic dam failure, both of which would be more likely with the No Project/No Action Alternative, the associated clean up and repair activities would result in impacts from use of construction equipment and potentially hauling debris off site for disposal. The following discussion focuses primarily on the potential consequences of a substantial spill event or catastrophic dam failure due to the existing seismic and hydrologic hazards as compared to impacts of construction of the Proposed Project.

Air Quality. The Proposed Project would result in impacts to air quality during construction as a result of construction activities and vehicle trips; however, these impacts would not be significant

with implementation of Mitigation Measure AQ-1, which would require off-road construction equipment to meet the minimum application of EPA Tier 4 engine standards or equivalent. The No Project/No Action Alternative would not directly result in additional air pollutant emissions related to grading, construction, additional vehicle trips, and operational uses, and no air quality impacts would occur. Therefore, although the Proposed Project would result in less than significant air quality impacts during construction, the No Project/No Action Alternative's impacts on air quality would be less than the impacts associated with the Proposed Project.

This alternative would not reduce the risk associated with the existing seismic and hydrologic hazards; therefore, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, it is anticipated that substantial work would be needed to clear debris and conduct repairs using a variety of construction equipment, resulting in pollutant emissions. Catastrophic dam failure could result in a much greater area affected compared with the Proposed Project due to downstream flooding and structural damage, with the potential for longer and more intense activities associated with clean up and reconstruction, and correspondingly more severe impacts to air quality when compared with the Proposed Project. However, given the uncertainty over the extent of damage associated with potential future spills or dam failure, it is speculative to predict whether air quality impacts would be greater or less than those associated with the construction of the Proposed Project, or whether impacts would be significant after mitigation.

Biological Resources. The Proposed Project would result in impacts to biological resources, including temporary and permanent habitat loss, loss of endangered species (Nevin's barberry), impacts to waters and wetlands, and indirect effects from noise and air quality impacts during construction. These impacts would be less than significant with implementation of Regulatory Compliance Measure Bio-1 and Mitigation Measures Bio-1 through Bio-13. The No Project/No Action Alternative does not entail construction of any new structures or substantial changes to existing access roads. Therefore, although the Proposed Project would result in less than significant biological resources impacts during construction, the No Project/No Action Alternative's impacts on biological resources would be less than the impacts associated with the Proposed Project.

The No Project/No Action Alternative would not reduce the risk associated with the existing seismic and hydrologic hazards; therefore, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, sensitive biological resources present within the canyon along Temecula Creek, including special status species and native habitat, would be affected, potentially including direct loss of plants and wildlife from flooding or debris flows, loss of riparian habitat surrounding Vail Lake if the water level decreases rapidly and is not replenished, impacts associated with clean up and repair activities, and indirect impacts to habitat from changes in water regime as routine water releases could be affected due to damaged facilities. The potential impacts associated with a substantial spill event or dam failure are anticipated to be greater than those associated with the Proposed Project.

Cultural Resources. The Proposed Project would not adversely impact any known significant cultural resources but does have the potential to disturb unknown subsurface resources during construction. Impacts would be less than significant with implementation of Mitigation Measure CUL-1, which

requires the evaluation of LSA-RCW1902-S-3 if it would be affected by the Proposed Project, Mitigation Measure CUL-2, which requires archaeological monitoring during construction, and Mitigation Measure CUL-3, which provides appropriate procedures for addressing any discovery of human remains. The No Project/No Action Alternative does not entail construction of any new structures or substantial changes to existing access roads. Therefore, although the Proposed Project would result in less than significant cultural resources impacts during construction, the No Project/ No Action Alternative's impacts on cultural resources would be less than the impacts associated with the Proposed Project.

Because this alternative would not reduce the risk associated with the existing seismic and hydrologic hazards, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, surface and subsurface cultural resources would have the potential to be disturbed as a result of water and debris flow as well as subsequent clean up and repair activities. Given the uncertainty with the damage associated with potential future spills or dam failure, and specifically not knowing the potential extent of ground-disturbing activities or possible impacts to existing historical structures downstream, it is speculative to provide a meaningful comparison of impacts between this alternative and the Proposed Project.

Energy. The Proposed Project would require energy during construction, primarily in the form of fuel and electricity, but would not substantially alter the energy use associated with the operation of Vail Dam. Impacts would be less than significant. The No Project/No Action Alternative would not directly result in additional energy use related to grading, construction, additional vehicle trips, and operational uses, and no impacts would occur related to energy use. Therefore, although the Proposed Project would result in less than significant energy impacts during construction, the No Project/No Action Alternative's impacts on energy could be less than the impacts associated with the Proposed Project.

However, because this alternative would not reduce the risk associated with the existing seismic and hydrologic hazards, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, energy use in the form of fuel and electricity would be required for subsequent clean up and repair activities. Given the uncertainty with the damage associated with potential future spills or dam failure, it is speculative to predict the amount of energy that would be required or to provide a meaningful comparison of impacts between this alternative and the Proposed Project. However, it is unlikely that the No Project/No Action Alternative would result in significant impacts related to energy.

Geology and Soils. The Proposed Project has been designed in consideration of local geologic conditions, including seismicity, stability of geologic units, landslide potential, and expansive soils. The Project would remediate seismic hazards associated with the existing dam and would be designed to withstand the MCE. The Proposed Project site is in an area previously determined as sensitive for paleontological resources; therefore, it is possible that ground-disturbing construction activities could impact significant previously undiscovered paleontological resources. With implementation of Mitigation Measure PAL-1, which requires development and implementation of a Paleontological Resources Impact Mitigation Program, and Mitigation Measure PAL-2, which

requires paleontological monitoring during construction in paleontologically sensitive areas, impacts to paleontological resources would be less than significant. The No Project/No Action Alternative would not introduce new risks associated with geologic conditions but would not remediate the existing risks associated with strong seismic ground shaking. This alternative is not anticipated to result in impacts to paleontological resources. Therefore, the No Project/No Action Alternative's impacts to paleontological resources would be less than the impacts associated with the Proposed Project.

This alternative would not reduce the risk associated with the existing seismic and hydrologic hazards, and the potential for a substantial spill event or catastrophic dam failure would remain. Although the extent of damage and loss downstream in the event of a substantial spill event or catastrophic dam failure cannot be predicted, the failure to remediate known seismic hazards to the dam facilities would result in greater impacts associated with geologic conditions when compared to the Proposed Project.

Greenhouse Gas Emissions. The Proposed Project would result in impacts associated with greenhouse gas emissions during construction as a result of construction activities and vehicle trips; however, these impacts would not be significant. The No Project/No Action Alternative would not require new grading or construction on the Project site, and this alternative would not increase greenhouse gas emissions from construction or additional vehicle trips. Therefore, although the Proposed Project would result in less than significant greenhouse gas impacts during construction, the No Project/No Action Alternative's impacts on greenhouse gas emissions would be less than those of the Proposed Project.

This alternative would not reduce the risk associated with the existing seismic and hydrologic hazards; therefore, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, it is anticipated that substantial work would be needed to clear debris and conduct repairs using a variety of construction equipment, resulting in greenhouse gas emissions. Catastrophic dam failure could result in a much greater area affected compared with the Proposed Project due to downstream flooding and structural damage, with the potential for longer and more intense activities associated with clean up and reconstruction, and correspondingly greater amounts of greenhouse gas emissions when compared with the Proposed Project. However, given the uncertainty over the extent of damage associated with potential future spills or dam failure, it is speculative to predict whether greenhouse gas emissions would be greater or less than those associated with the construction of the Proposed Project, or whether impacts would be significant after mitigation.

Hazards and Hazardous Materials. The Proposed Project would not result in significant impacts associated with proximity to known hazardous materials sites or as a result of handling of hazardous substances. Impacts associated with the demolition of structures that may contain lead-based paint, PCBs, or asbestos-containing materials would be less than significant with the implementation of Regulatory Compliance Measures RCM H-1, requiring an update to the Vail Dam Emergency Action Plan, and RCM H-2, requiring Coordination with the County of Riverside Emergency Management Department, as well as Mitigation Measure H-1, requiring a Demolition Plan, Mitigation Measure H-2, requiring a Construction Contingency Plan to address hazardous materials handling, and

Mitigation Measure H-3, requiring a Construction Traffic Management Plan. The Proposed Project would remediate existing seismic and hydrologic hazards at Vail Dam, reducing the risk of loss associated with these hazards. The No Project/No Action Alternative would not directly result in impacts associated with hazardous materials, as no demolition or construction would occur. Impacts associated with hazardous materials would be similar to the Proposed Project. However, because this alternative would not alleviate the existing seismic and hydrologic hazards at Vail Dam, and the risk of substantial spill events or catastrophic dam failure would remain, it is considered to result in a greater impact with respect to hazards than the Proposed Project.

Hydrology and Water Quality. The Proposed Project would result in an overall increase in impervious surfaces but would incorporate appropriate Low Impact Development features and Best Management Practices (BMPs) to ensure that water quality is protected. No significant impacts would occur after implementation of Regulatory Compliance Measures RCM WQ-1, requiring compliance with the Construction General Permit, RCM WQ-2, requiring a Groundwater Dewatering Permit, RCM WQ-3, requiring a Final Water Quality Management Plan, and RCM WQ-4, requiring a Final Hydrology and Hydraulic Analysis. The No Project/No Action Alternative would not include grading or construction and would therefore result in less impacts than the Proposed Project.

However, because this alternative would not reduce the risk associated with the existing seismic and hydrologic hazards, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, possible damage to facilities downstream of the dam would have the potential to adversely affect water quality, including through deposition of materials into the storm drain system, damage to the system itself, damage to facilities storing possible contaminants, and impacts associated with clean up and repair activities. However, given the uncertainty over the extent of damage associated with potential future spills or dam failure, it is speculative to predict whether hydrology and water quality impacts would be greater or less than those associated with the construction of the Proposed Project, or whether impacts would be significant after mitigation.

Land Use and Planning. The Proposed Project would not result in significant impacts related to land use and planning. It is consistent and does not conflict with relevant policies of the Southern California Association of Governments Regional General Plan, the Riverside County General Plan, the Western Riverside County Multiple Species Habitat Conservation Plan, the RCWD Vail and Sundance Ranch Property Final Property Guidance Document (Property Guidance Document), and the Upper Santa Margarita Watershed Integrated Regional Water Management Plan. Regulatory Compliance Measures RCM LU-1 and RCM LU-2 would be implemented to address design of the intersection of the Primary Entry Road (50 Acre Parcel) with De Portola Road and to comply with the Light Pollution Ordinance. The No Project/No Action Alternative would not include construction of a replacement dam and would not remediate of existing seismic and hydrologic hazards. The existing facilities are not in conflict with land use regulations, but this alternative would not further several of the policies in the Riverside County General Plan Safety Element and the RCWD Property Guidance Document. Land use impacts for this alternative are anticipated to be similar to the Proposed Project.

Noise. As stated in Section 4.2.3.2, even with implementation of Regulatory Compliance Measure RCM N-1 to comply with the Riverside County noise standards to the extent feasible, the Proposed Project would result in significant and unavoidable impacts during the 12-week period when the RCC batch plant would operate during both day and night hours. Other noise impacts would be less than significant after implementation of RCM N-2 (requiring a blasting plan) and RCM N-1. The No Project/No Action Alternative would not require new grading or construction on the Project site, and this alternative would not increase noise from construction or additional vehicle trips. Therefore, the No Project/No Action Alternative's impacts related to noise during construction would be less than those of the Proposed Project.

This alternative would not reduce the risk associated with the existing seismic and hydrologic hazards; therefore, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, it is anticipated that substantial work would be needed to clear debris and conduct repairs using a variety of construction equipment, resulting in noise impacts. Catastrophic dam failure could result in a much greater area affected compared with the Proposed Project due to downstream flooding and structural damage, with the potential for longer and more intense activities associated with clean up and reconstruction, and correspondingly greater areas affected by noise when compared with the Proposed Project. It is not known whether nighttime noise impacts would occur. However, given the uncertainty over the extent of damage associated with potential future spills or dam failure, it is speculative to predict whether noise impacts would be greater or less than those associated with the construction of the Proposed Project, or whether impacts would be significant after mitigation.

Public Services. The Proposed Project would result in less than significant impacts to parks and recreation facilities and would not conflict with the Vail Lake Recreation Management Plan. Temporary closure of the Flyers Field would be required during construction; however, as this is not a public park and as it would be restored to its existing uses following construction, impacts would be less than significant. The No Project/No Action Alternative would not require new grading or construction on the Project site. Although the Proposed Project impacts would be less than significant, because the No Project/No Action Alternative would not require closure of the Flyers Field, it would have less impacts to recreation facilities when compared to the Proposed Project.

This alternative would not reduce the risk associated with the existing seismic and hydrologic hazards; therefore, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, recreational activities at Vail Lake or downstream areas could be adversely affected, potentially including temporary closures during clean up and repair activities. However, given the uncertainty over the extent of damage associated with potential future spills or dam failure, it is speculative to predict whether impacts to recreation would be greater or less than those associated with the construction of the Proposed Project.

Transportation. The Proposed Project would result in additional vehicle trips during construction and includes the construction of the Primary Entry Road (50 Acre Parcel) to provide access to the Project site from De Portola Road. Detours or temporary closures of local pedestrian and equestrian trails may be required during construction. These impacts would be less than significant and would

be further reduced through implementation of the Construction Traffic Management Plan required pursuant to Mitigation Measure Hazard-1. The No Project/No Action Alternative would not include construction of the Primary Entry Road (50 Acre Parcel), although it would not preclude future construction of an additional access road. This alternative would not increase vehicle trips or affect local pedestrian or equestrian trails. Therefore, although the Proposed Project would result in less than significant transportation impacts during construction, the No Project/No Action Alternative's impacts on transportation could be less than those of the Proposed Project.

This alternative would not reduce the risk associated with the existing seismic and hydrologic hazards; therefore, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, downstream transportation facilities could be damaged and require temporary detours or closure during clean up and repair. However, given the uncertainty over the extent of damage associated with potential future spills or dam failure, it is speculative to predict whether impacts to transportation would be greater or less than those associated with the construction of the Proposed Project.

Tribal Cultural Resources. The Proposed Project would have the potential to affect unknown subsurface tribal cultural resources due to the level of cultural sensitivity of the Project site. These impacts would be less than significant with implementation of Mitigation Measure CUL-3, which addresses handling of any human remains discovered during construction, and Tribal-1, which requires Native American monitoring during construction. The No Project/No Action Alternative would not require new grading or construction on the Project site, and this alternative is not anticipated to disrupt unknown subsurface tribal cultural resources. Therefore, although the Proposed Project would have less than significant impacts to tribal cultural resources during construction, the No Project/No Action Alternative's impacts could be less than those of the Proposed Project.

This alternative would not reduce the risk associated with the existing seismic and hydrologic hazards; therefore, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, it is possible that unknown subsurface tribal cultural resources or other tribal cultural resources downstream of the dam could be exposed or otherwise affected due to water and debris flows or during clean up and repair activities. However, given the uncertainty over the extent of damage associated with potential future spills or dam failure, as well as the unknown extent of any subsurface tribal cultural resources, it is speculative to predict whether impacts would be greater or less than those associated with the construction of the Proposed Project.

Utilities and Service Systems. The Proposed Project would require disposal of waste generated by demolition activities and potentially during preparation of the dam foundation, as well as relocation of existing electrical facilities (power poles and lines). The Project site is served by landfills with adequate capacity, and all electrical relocation would be conducted in consultation with Southern California Edison consistent with applicable standards. Impacts would be less than significant. The No Project/No Action Alternative would not directly generate additional waste requiring off-site disposal and would not require relocation of power lines; therefore, impacts would be less than those of the Proposed Project.

However, because this alternative would not reduce the risk associated with the existing seismic and hydrologic hazards, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a significant spill or dam failure, it is possible that additional solid waste would require disposal at local landfills, and that electrical facilities downstream of the dam could be damaged. Given the uncertainty over the extent of damage associated with potential future spills or dam failure, it is speculative to predict whether impacts to utilities and service systems would be greater or less than those associated with the construction of the Proposed Project.

Wildfire. The Proposed Project would temporarily increase the number of personnel and potential sources of ignition within wildfire hazard areas. Impacts would be less than significant. The No Project/No Action Alternative would not require new grading or construction on the Project site, and this alternative would not increase the number of personnel and potential sources of ignition within wildfire hazard areas. Therefore, although the Proposed Project would result in less than significant wildfire impacts, the No Project/No Action Alternative's impacts on wildfire would be less than those of the Proposed Project.

This alternative would not reduce the risk associated with the existing seismic and hydrologic hazards; therefore, the potential for a substantial spill event or catastrophic dam failure would remain. In the event of a substantial spill event or catastrophic failure of the dam, it is possible that water reserves in Vail Lake would not be available as a firefighting resource, or that there would be reduced availability until repairs are completed. Given the uncertainty over the extent of damage associated with potential future spills or dam failure, it is speculative to predict whether wildfire impacts would be greater or less than those associated with construction of the Proposed Project, or whether impacts would be significant.

4.4.1.3 Overview of Potential Impact/Comparison to Proposed Project

Under the No Project/No Action Alternative, direct impacts would generally be similar to or less than the Proposed Project. The No Project/No Action Alternative would not result in the significant and unavoidable noise impacts associated with nighttime construction that would occur with implementation of the Proposed Project. However, because this alternative does not reduce the risk associated with the existing seismic and hydrologic hazards, it has the potential to result in greater impacts to biological resources, air quality, cultural resources, energy, paleontology, greenhouse gas emissions, hazardous materials, land use, noise, public services, transportation, tribal cultural resources, utilities and service systems, and wildfire. It is speculative to make a determination about potential impacts associated with a substantial spill or catastrophic dam failure; therefore, for the purposes of the EIR, overall impacts are considered to be reduced under this alternative.

4.4.1.4 Attainment of Project Objectives

The No Project/No Action Alternative would not attain most of the Project objectives. It would not ensure that Vail Dam would pass the PMF through the spillway or would withstand the MCE, and it would not utilize RCWD resources in a cost-effective and responsible manner. The No Project/No Action Alternative would not reduce the capacity of Vail Lake but might not ensure reliability as the seismic and hydrologic hazards would remain. Similarly, it is uncertain whether this alternative would maintain a locally based and cost-effective water supply, provide a climate change buffer for

more intense storms and for drought conditions, or provide passive flood control for downstream Temecula Creek.

4.4.2 Alternative 2: North Access Road Design Option

4.4.2.1 Description

As shown in Figure 4-1, the North Access Road Design Option Alternative would re-route a short segment of the North Access Road around an existing seasonal pond that provides habitat for versatile fairy shrimp (*Branchinecta lindahli*). Protocol focused surveys did not detect threatened or endangered species of fairy shrimp within this seasonal pond; therefore, avoidance of this resource is not anticipated to be required. Because consultation with the U.S. Fish and Wildlife Service (USFWS) and Western Riverside County Regional Conservation Authority (RCA) has not yet been concluded, this alternative has been carried forward as an avoidance option in the event that the resource agencies determine there may be an impact to listed species. Because this alternative would impact additional native habitat rather than the existing road, and because of potential impacts to cultural resources, it was not carried forward as part of the Proposed Project.

This alternative represents a minor change to the overall Proposed Project. No changes would occur to the construction of the dam, length of the North Access Road, improvements to other access roads, or construction staging and laydown areas, and the alternative would not affect the construction methodology, schedule, or equipment to be used. No changes to operation of the Proposed Project would occur. The North Access Road would provide the same level of connectivity, and there would be no substantial changes to the amount of grading or new impervious areas. No hazardous materials are known to occur in proximity to the area, and the alternative would be located within the same geologic unit as the existing road. Therefore, the only environmental analysis with the potential to differ from the Proposed Project would be biological resources, cultural resources, and tribal cultural resources. The environmental analysis that follows focuses on these topics.

4.4.2.2 Environmental Analysis

Biological Resources. As documented in the Western Riverside County MSHCP Consistency Analysis and Biology Report (LSA 2022, Appendix C), construction of the North Access Road under the Proposed Project would impact a seasonal pond that is approximately 0.07 acre and would impact disturbed areas and Riversidian sage scrub habitat. These impacts would be less than significant with implementation of mitigation. If implemented, the North Access Road Design Option Alternative would increase permanent impacts to Riversidian sage scrub by 0.15 acre and decrease permanent impacts to disturbed areas by 0.16 acre and would reduce permanent impacts to the seasonal pool. The reduction in impacts to the seasonal pond would be offset by the increased impacts to Riversidian sage scrub, which is a native vegetation community that provides habitat for a variety of special-status species. Therefore, unless it is determined that the seasonal pond provides habitat for threatened or endangered species, impacts to biological resources under this alternative would be greater than with the Proposed Project, although they are anticipated to be less than significant with mitigation.

In the event it is determined that threatened or endangered species are present within the seasonal pond, impacts to threatened or endangered species would be reduced through the implementation of the North Access Road Design Option Alternative.

Cultural Resources/Tribal Cultural Resources. The cultural resources investigation conducted for the Proposed Project identified a resource in proximity to the North Access Road Design Option Alternative. This resource is not present within the existing access road and would not be affected if the Proposed Project is implemented. However, the extent and significance of this resource is unknown. Mitigation Measure CUL-1 in Section 3.3 of this EIR has been identified, which would require evaluation of this resource for significance. If the resource is determined to be significant, and if present within the alternative alignment, avoidance or preservation in place of the resource would be required. Implementation of this measure, along with Mitigation Measure CUL-2, requiring archaeological monitoring, and Tribal-1, requiring Native American Monitoring, impacts to cultural resources and tribal cultural resources are anticipated to be less than significant. Although impacts under this alternative would be less than significant, they are anticipated to be greater than those associated with the Proposed Project.

4.4.2.3 Overview of Potential Impact/Comparison to Proposed Project

Unless it is determined that threatened or endangered species are present within the seasonal pond along the North Access Road and that no significant cultural or tribal cultural resources are present within the alternative alignment, the North Access Road Design Option Alternative is anticipated to have greater impacts to biological, cultural, and tribal cultural resources when compared to the Proposed Project. All other impacts for the remaining environmental topics would be similar to the Proposed Project.

4.4.2.4 Attainment of Project Objectives

The North Access Road Design Option Alternative would provide the same benefits as the Proposed Project and would achieve all the project objectives.

4.4.3 Alternative 3: Oak Mountain Road Construction Access

4.4.3.1 Description

The Oak Mountain Road Construction Access Alternative would route most deliveries of aggregate, fly ash, and concrete from De Portola Road via Oak Mountain Road to the north side of the Flyers Field (see Figure 4-1). It would require construction of a temporary gate and access from the south side of Oak Mountain Road to the Flyers Field. This would allow more efficient delivery of materials to the RCC batch plant location by reducing the amount of travel over unpaved roads by on-road/highway trucks. Oak Mountain Road is currently a private road not maintained by the County, and use of this road would be subject to obtaining agreements from private property owners.

This alternative represents a minor change to the overall Proposed Project. No changes would occur to the construction of the dam, improvements to access roads, or construction staging and laydown areas, and the alternative would not affect the overall construction methodology, schedule, or equipment to be used. No changes to operation of the Proposed Project would occur. There would

be no substantial changes to the amount of grading or new impervious areas, and no hazardous materials that would affect the Proposed Project are known to occur in proximity to Oak Mountain Road. As with the Proposed Project, temporary closure of the Flyers Field would be required during construction. Therefore, the only environmental analysis with the potential to differ from the Proposed Project would be air quality, energy, greenhouse gas emissions, noise, and transportation. The environmental analysis that follows focuses on these topics.

4.4.3.2 Environmental Analysis

Air Quality. The Proposed Project would result in air quality emissions associated with particulate matter from vehicles traveling over unpaved roads on the Project site. These impacts would be less than significant with compliance with regulatory requirements, including use of water trucks to reduce dust. The Oak Mountain Road Construction Access Alternative would reduce the total number of trips by delivery trucks on unpaved roads, thereby reducing the emissions of particulate matter by those vehicles. Although impacts from the Proposed Project would be less than significant, impacts under the Oak Mountain Road Construction Access Alternative associated with particulate matter emissions are anticipated to be slightly less than the Proposed Project.

Energy and Greenhouse Gas Emissions. The Proposed Project would require use of energy during construction, primarily in the form of fuel and electricity. Greenhouse gas emissions for the Proposed Project are also primarily associated with vehicle trips. By limiting the distance traveled over unpaved roads by vehicles not designed for off-road use, the Oak Mountain Road Construction Access Alternative has the potential to improve the overall fuel efficiency for those delivery trips, reducing energy required and greenhouse gas emissions. In the overall context of project-wide energy use and greenhouse gas emissions, this is not expected to be a substantial change, as the off-road portion of the delivery trips that would be avoided (approximately 0.7 mile) represents a small segment of the distance traveled per trip. Although impacts from the Proposed Project would be less than significant, impacts under the Oak Mountain Road Construction Access Alternative associated with energy use and greenhouse gas emissions are anticipated to be slightly less than the Proposed Project.

Noise. As stated in Section 4.2.3.2, even with implementation of regulatory compliance measure RCM N-1 to comply with the Riverside County noise standards to the extent feasible, the Proposed Project would result in significant and unavoidable impacts during the 12-week period when the RCC batch plant would operate during both daytime and nighttime hours. Other noise impacts would be less than significant after implementation of RCM N-2 (requiring a blasting plan) and RCM N-1. The Oak Mountain Road Construction Access Alternative would result in the same significant and unavoidable impact as the Proposed Project; however, the daytime construction noise would also occur along Oak Mountain Road. The noise associated with aggregate, fly ash, and cement deliveries would decrease on the Primary Entry Road (50 Acre Parcel) and would instead occur along Oak Mountain Road, potentially affecting two additional residences. Although daytime construction noise impacts would be less than significant, noise impacts from this alternative would affect a greater number of residences and therefore would be slightly greater than impacts associated with the Proposed Project.

Transportation. The Proposed Project includes construction of the Primary Entry Road (50 Acre Parcel), which would provide the primary access point during construction. Aggregate, fly ash, and concrete deliveries are anticipated to access the site via this route and deliver materials to the RCC batch plant via the Pond Access Road. The Primary Entry Road (50 Acre Parcel) would traverse RCWD-owned property and would not serve other residential areas. According to the transportation analysis, construction trips along De Portola Road would not exceed the road capacity or result in significant impacts. With the Oak Mountain Road Construction Access Alternative, a portion of the construction traffic would be re-routed along Oak Mountain Road. Oak Mountain Road is used by residents, who would experience a notable increase in traffic volume during construction. Therefore, although construction traffic would be less than significant, this alternative would affect a shared roadway and an intersection used by local residents and therefore would have slightly greater transportation impacts as compared with the Proposed Project.

4.4.3.3 Overview of Potential Impact/Comparison to Proposed Project

The Oak Mountain Road Construction Access Alternative is anticipated to have similar overall impacts when compared to the Proposed Project, with a few impacts slightly increased and a few slightly decreased. Impacts to air quality, energy, and greenhouse gas emissions could be incrementally reduced by improving the fuel efficiency associated with aggregate, fly ash, and cement deliveries and by slightly reducing vehicle miles traveled over unpaved roads. This alternative would result in the same significant and unmitigated noise impacts associated with nighttime operation of the RCC batch plant. Daytime noise associated with vehicle trips during construction would occur in additional locations but is not anticipated to be significant.

4.4.3.4 Attainment of Project Objectives

The Oak Mountain Road Construction Access Alternative would provide the same benefits as the Proposed Project and would achieve all the project objectives.

4.4.4 Alternative 4: RCC Batch Plant Canyon Location

4.4.4.1 Description

The RCC Batch Plant Canyon Location Alternative would locate the RCC batch plant at the staging and laydown area at the mouth of the canyon, at the western limit of the Canyon Access Road (see Figure 4-1). Under this alternative, the staging and laydown area at the Flyers Field would be reduced or eliminated, potentially avoiding direct impacts to the existing facilities (depending on the final disposal location for excess foundation spoils). It is anticipated that closure of the Flyers Field would still be required due to construction hazards associated with traffic along the Pond Access Road. Aggregate, fly ash, and cement deliveries would access the Project site via the Primary Entry Road (50 Acre Parcel) and then along the entire length of the Pond Access Road, increasing the off-road distance traveled on unpaved roads by on-road/highway trucks by about 0.6 mile.

This alternative represents a minor change to the overall Proposed Project. No changes would occur to the construction of the dam, improvements to access roads, or construction staging and laydown areas, and the alternative would not affect the overall construction methodology, schedule, or equipment to be used. No changes to operation of the Proposed Project would occur. There would

be no changes to the amount of grading or new impervious areas, and no hazardous materials that would affect the Proposed Project are known to occur in proximity to either the Flyers Field or the staging and laydown area at the mouth of the canyon. As with the Proposed Project, temporary closure of the Flyers Field would be required during construction. Unlike the Flyers Field, the staging and laydown area is located adjacent to sensitive biological resources. This alternative would not reroute construction trips onto other roadways and therefore would not change impacts associated with transportation. The environmental analysis with the potential to differ from the Proposed Project would be air quality, biological resources, water quality, energy, greenhouse gas emissions, and noise. The environmental analysis that follows focuses on these topics.

4.4.4.2 Environmental Analysis

Air Quality. The Proposed Project would result in air quality emissions associated with particulate matter from vehicles traveling over unpaved roads on the Project site. These impacts would be less than significant with compliance with regulatory requirements, including use of water trucks to reduce dust. The RCC Batch Plant Canyon Location Alternative would increase the total distance traveled by delivery trucks on unpaved roads, thereby incrementally increasing the emissions of particulate matter by those vehicles. Although impacts from the Proposed Project would be less than significant, impacts under the RCC Batch Plant Canyon Location Alternative associated with particulate matter emissions are anticipated to be slightly greater than the Proposed Project but remain less than significant.

Biological Resources. Under the Proposed Project, the RCC batch plant would be located at the Flyers Field, which is not in proximity to sensitive biological resources. Potential impacts to biological resources associated with the RCC batch plant include noise, dust, increased activity, and increased vehicle trips that could affect wildlife movement. If the RCC batch plant is located at the Flyers Field, these impacts would be less than significant. The Proposed Project includes a staging and laydown area at the mouth of the canyon at the western end of the Canyon Access Road. Impacts associated with this feature include temporary loss of alluvial fan sage scrub habitat due to clearing and minor grading of the site, noise and activity associated with use of the area for staging and laydown, and trips to and from the area. Following completion of construction, the staging and laydown area would be revegetated, consistent with applicable mitigation measures.

Under the RCC Batch Plant Canyon Location Alternative, the RCC batch plant would be located at the mouth of the canyon, within the staging and laydown area identified for the Proposed Project. Placement of the RCC batch plant within this area would increase the anticipated noise, dust, and vehicle trips at that location. Regulatory Compliance Measure Bio-1 and applicable mitigation measures would be implemented to reduce impacts associated with the use of this site, and impacts would be less than significant. Therefore, although impacts to biological resources would be less than significant, impacts from this alternative would result in more indirect impacts to sensitive biological resources adjacent to the staging and laydown area, and therefore would be slightly greater than impacts associated with the Proposed Project.

Water Quality. The Proposed Project would locate the RCC batch plant at the Flyers Field, which is a lowered area surrounded on all sides by elevated berms (including the Pond Access Road). This topography would provide secondary containment for any runoff and/or accidental spills associated

with the RCC batch plant. As discussed in Section 3.8, construction of the Proposed Project would comply with existing National Pollutant Discharge Elimination System (NPDES) regulations (as specified in Regulatory Compliance Measure RCM WQ-1), which includes preparation of a Stormwater Pollution Prevention Plan and Erosion and Sediment Control Plans and implementation of Construction BMPs to target and reduce pollutants of concern in stormwater runoff, and with the requirements of the Groundwater Discharge Permit (as specified in Regulatory Compliance Measure RCM WQ-2), which includes testing and treatment (if required) of any groundwater prior to discharge to surface waters. With implementation of these requirements, impacts would be less than significant.

With the RCC Batch Plant Canyon Alternative, the location of the batch plant would be at the mouth of the canyon, adjacent to riparian scrub and alluvial fan sage scrub associated with Temecula Creek. This staging and laydown area does not have any existing topographical features that would provide secondary containment of spills or runoff. Compliance with NPDES regulations and the Groundwater Discharge Permit would require more extensive measures to ensure that pollutants and sediment would not contaminate Temecula Creek. Due to the proximity to the creek and the site topography, this location would be less desirable from a water quality perspective; however, impacts would remain less than significant with compliance with regulatory requirements.

Energy and Greenhouse Gas Emissions. The Proposed Project would require use of energy during construction, primarily in the form of fuel and electricity. Greenhouse gas emissions for the Proposed Project are also primarily associated with vehicle trips. By increasing the distance traveled over unpaved roads, the RCC Batch Plant Canyon Location Alternative has the potential to decrease the overall fuel efficiency for those delivery trips, increasing energy required and greenhouse gas emissions. In the overall context of project-wide energy use and greenhouse gas emissions, this is not expected to be a substantial change, as the off-road portion of the delivery trips that would be added (approximately 0.6 mile) represents a small segment of the distance traveled per trip. Although impacts from the Proposed Project would be less than significant, impacts under the RCC Batch Plant Canyon Location Alternative associated with energy use and greenhouse gas emissions are anticipated to be slightly greater than the Proposed Project.

Noise. As stated in Section 4.2.3.2, even with implementation of Regulatory Compliance Measure RCM N-1 to comply with the Riverside County noise standards to the extent feasible, the Proposed Project would result in significant and unavoidable noise impacts during the 12-week period when the RCC batch plant would operate during both day and night hours. Other noise impacts would be less than significant after implementation of RCM N-2 (requiring a blasting plan) and RCM N-1. The RCC Batch Plant Canyon Location Alternative would increase the distance between the RCC batch plant and the closest sensitive receptors, NexStar Ranch and Rancho Pacifica, by approximately 0.5 mile. While daytime noise impacts would be similar to the Proposed Project, this alternative would not result in a significant and unavoidable noise impact during nighttime construction due to the increased distance from these sensitive receptors. Therefore, impacts under the RCC Batch Plant Canyon Location Alternative would be less than the Proposed Project and would likely reduce the significant and unavoidable impact to a less than significant level.

4.4.4.3 Overview of Potential Impact/Comparison to Proposed Project

The RCC Batch Plant Canyon Location Alternative is anticipated to have similar overall impacts when compared to the Proposed Project, with a few impacts slightly increased and one notably decreased. Impacts to air quality, energy, and greenhouse gas emissions could be incrementally increased by reducing the fuel efficiency associated with aggregate, fly ash, and cement deliveries and by slightly increasing vehicle miles traveled over unpaved roads. This alternative would reduce the significant and unmitigated noise impact associated with nighttime operation of the RCC batch plant to a level below significance.

4.4.4.4 Attainment of Project Objectives

The RCC Batch Plant Canyon Location Alternative would provide the same benefits as the Proposed Project and would achieve all the project objectives.

4.5 IDENTIFICATION OF THE ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of an Environmentally Superior Alternative among the alternatives evaluated in an EIR. *State CEQA Guidelines* Section 15126.6(e)(2) provides that, if the No Project/No Build Alternative is the Environmentally Superior Alternative, then the EIR shall also identify an Environmentally Superior Alternative among the other alternatives. Table 4.A provides, in summary format, a comparison of the level of impacts of each alternative to the Proposed Project.

Alternative 4: RCC Batch Plant Canyon Location has the least impact on the environment because it would reduce the significant impacts related to nighttime construction noise to a less than significant level, while only incrementally increasing other impacts, which would remain at a less than significant level. Additionally, Alternative 4 would potentially meet all the project alternatives. This alternative would incrementally increase particulate air emissions associated with off-road travel along unpaved roads for aggregate and fly ash delivery (approximately 20 weeks) and would be less desirable than the Proposed Project for the purposes of water quality control during construction. In addition, it would increase the area of native habitat affected by indirect impacts (noise) during construction. However, because these impacts would not be significant, and because this alternative would eliminate the significant unavoidable nighttime noise impact, it is determined that Alternative 4 is the Environmentally Superior Alternative because it would meet all the project objectives and result in reduced environmental impacts as compared to the Proposed Project.

Table 4.A: Comparison of the Environmental Impacts of the Proposed Project and Project Alternatives

Impact Area	Proposed Project Impact with Mitigation (if any)	Alternative 1: No Project/No Action	Alternative 2: North Access Road Realignment Design Option	Alternative 3: Oak Mountain Road Construction Access	Alternative 4: RCC Batch Plant Canyon Location
Air Quality	Less Than Significant	Less (Construction) Similar (Operations) Unknown (Spill/Failure)	Similar	Slightly Less	Slightly Greater
Biological Resources	Less Than Significant[1]	Less (Construction) Similar (Operations) Greater (Spill/Failure)	Greater	Similar	Similar
Cultural Resources	Less Than Significant[1]	Less (Construction) Similar (Operations) Unknown (Spill/Failure)	Unknown	Similar	Similar
Energy	Less Than Significant	Less (Construction) Similar (Operation) Unknown (Spill/Failure)	Similar	Slightly Less	Slightly Greater
Geology and Soils	Less Than Significant[1]	Less (Construction) Greater (Operations) Unknown (Spill/Failure)	Similar	Similar	Similar
Greenhouse Gas Emissions	Less Than Significant	Less (Construction) Similar (Operations) Unknown (Spill/Failure)	Similar	Slightly Less	Slightly Greater
Hazards and Hazardous Materials	Less Than Significant[1]	Less (Construction) Greater (Operations) Greater (Spill/Failure)	Similar	Similar	Similar
Hydrology and Water Quality	Less Than Significant[1]	Less (Construction) Similar (Operations) Greater (Spill/Failure)	Similar	Similar	Slightly Greater
Land Use and Planning	Less Than Significant	Similar (Construction) Greater (Operation) Greater (Spill/Failure)	Similar	Similar	Similar
Noise	Significant and Unavoidable (Construction) Less Than Significant (Operation)	Less (Construction) Similar (Operation) Unknown (Spill/Failure)	Similar (Significant Construction) Similar (Operation)	Slightly Greater (Significant Construction) Similar (Operation)	Less (Construction – Eliminates Significant Impact) Similar (Operation)

Table 4.A: Comparison of the Environmental Impacts of the Proposed Project and Project Alternatives

Impact Area	Proposed Project Impact with Mitigation (if any)	Alternative 1: No Project/No Action	Alternative 2: North Access Road Realignment Design Option	Alternative 3: Oak Mountain Road Construction Access	Alternative 4: RCC Batch Plant Canyon Location
Public Services	Less Than Significant[1]	Less (Construction) Similar (Operation) Unknown (Spill/Failure)	Similar	Similar	Similar
Transportation	Less Than Significant	Less (Construction) Similar (Operation) Unknown (Spill/Failure)	Similar	Slightly Greater	Similar
Tribal Cultural Resources	Less Than Significant[1]	Less (Construction) Similar (Operation) Unknown (Spill/Failure)	Similar	Similar	Similar
Utilities and Service Systems	Less Than Significant	Less (Construction) Similar (Operation) Unknown (Spill/Failure)	Similar	Similar	Similar
Wildfire	Less Than Significant	Less (Construction) Similar (Operation) Unknown (Spill/Failure)	Similar	Similar	Similar

Source: LSA 2022.
[1] Mitigation identified.

This page intentionally left blank

5.0 OTHER CEQA CONSIDERATIONS

5.1 SUMMARY OF SIGNIFICANT UNAVOIDABLE IMPACTS

Section 15126.2(c) of the *State CEQA Guidelines* requires that an Environmental Impact Report (EIR) describe any significant impacts that cannot be avoided. Specifically, Section 15126.2(c) states that an EIR shall:

> "Describe any significant impacts, including those which can be mitigated but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described."

The Executive Summary of this document contains a detailed summary that identifies the Proposed Project's environmental impacts as compared to existing conditions, proposed mitigation measures, and the level of significance of any impacts after mitigation. The following is a summary of impacts that are considered significant, adverse, and unavoidable after all mitigation is applied. This impact is also described in detail in Chapter 3.0, Environmental Impact Analysis.

5.1.1 Construction Noise (Nighttime)

As discussed in Section 3.10 of this EIR, the Proposed Project would result in a significant and unavoidable impact associated with a 12-week construction period for roller compacted concrete (RCC) placement. Specifically, the Proposed Project would result in significant nighttime noise impacts to adjacent rural residential properties during the 12-week period when the RCC batch plant would be operating continuously. A Regulatory Compliance Measure (RCM N-1), which includes placement of temporary construction barriers to reduce noise, has been identified that would help reduce the impacts; however, there is no feasible way to fully mitigate the nighttime noise due to the location of the sensitive residential uses and the types of construction equipment to be used. Therefore, construction-related noise impacts during nighttime hours of this construction phase would remain significant and unavoidable. However, as discussed in Chapter 4.0, selection of Alternative 4: RCC Batch Plant Canyon Location would reduce this impact to a less than significant level.

5.2 GROWTH-INDUCING IMPACTS

Sections 15126(d) and 15126.2(e) of the *State CEQA Guidelines* require that an EIR analyze growth-inducing impacts and discuss the ways in which a proposed project could foster economic or population growth or construction of additional housing, either directly or indirectly, in the surrounding environment. This section examines ways in which the Proposed Project could foster economic or population growth, or the construction of additional housing either directly or indirectly in the surrounding environment. *State CEQA Guidelines* Section 15126.2(d) also requires a discussion of the characteristics of projects that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. To address these

issues, potential growth-inducing effects were examined through analysis of the following questions:

- Would the project remove obstacles to, or otherwise foster, population growth (e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development)?
- Would the project foster economic growth?
- Would approval of the project involve some characteristic that may encourage and facilitate other activities that could significantly affect the environment?

Growth-inducing effects are not to be construed as necessarily beneficial, detrimental, or of little significance to the environment (*State CEQA Guidelines*, Section 15126.2(e)). This issue is presented to provide additional information on ways in which the Proposed Project could contribute to significant changes in the environment beyond the direct consequences of developing the proposed land uses as described in earlier sections of this Draft EIR.

5.2.1 Remove Obstacles to, or Otherwise Foster, Population Growth

The area surrounding the Project site is primarily undeveloped with a mix of agricultural, open space-rural, conservation, rural mountainous, and rural residential land uses. However, limited population growth is feasible within the vicinity of the Project site, as only the surrounding agricultural, rural mountainous, and rural residential land uses permit residential development. Specifically, these land uses only permit single-family residential uses with a minimum lot size of 5 to 10 acres (Riverside County Planning Department 2021). In addition, the surrounding topography includes canyons, steep-sided river gorges, and moderate to steep mountain slopes, which limits substantial population growth. In any event, the Proposed Project would not remove impediments to population growth in the area surrounding the Project site. While the Proposed Project may require water, electricity, and telecommunications lines on site and in the immediate vicinity of the Project site, such improvements would be similar to existing conditions and intended primarily to meet Project-related demand, which would not necessitate substantial utility infrastructure improvements.

Construction of the Proposed Project would generate a substantial number of construction-related jobs. However, the Proposed Project would not promote construction workers relocating their places of residence as a direct consequence of working on the Proposed Project. The work requirements of most construction projects are highly specialized so construction workers remain at a job site only for the limited time in which their specific skills are needed to complete a particular phase of the construction process. In addition, the supply of general construction labor in the region has been stable over recent years. In 2018, there were approximately 105,200 construction jobs in the County. By 2026, construction jobs in the County are projected to increase to approximately 119,000 jobs (13.1 percent increase), suggesting a well-functioning construction job market and available regional labor pool (EDD 2022). Therefore, given the availability of construction workers, the Proposed Project would not induce material population growth from a short-term employment perspective. Furthermore, given that the employment opportunities generated by the construction

of the Proposed Project would be filled by people who would commute to the Project site, the potential population growth associated with Project employees would be minimal.

The Project is the remediation of seismic and hydrologic hazards at the existing Vail Dam and includes the demolition and replacement of the existing dam. Implementation of the Proposed Project would not include the extension of roads or other infrastructure and would not change the operation of existing land uses on the Rancho California Water District (RCWD) property. Vail Lake is primarily utilized for water storage and recreation, and visitors and users of Vail Lake would not be expected to change their places of residence due to implementation of the Proposed Project. The Proposed Project would not generate any new permanent residents on the Project site or result in additional employment opportunities during operation. Therefore, the Proposed Project would not result in substantial indirect growth or create a significant demand for housing or services in the project vicinity.

5.2.2 Foster Economic Growth

The Proposed Project would generate a substantial number of construction-related jobs which could foster regional economic growth. However, the Proposed Project would not change the number of employees working on site during operation and is not expected to attract additional recreational users of Vail Lake as a result of Project implementation; therefore, Project operation is unlikely to aid in economic growth.

5.2.3 Other Characteristics

The Project is the remediation of seismic and hydrologic hazards at the existing Vail Dam. It does not include construction of new homes or businesses and does not include extension of roads or other infrastructure. Therefore, the Project would not directly increase the regional population beyond existing levels.

5.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2(d) of the *State CEQA Guidelines* requires that an EIR consider and discuss significant irreversible changes that would be caused by implementation of a proposed project. The *State CEQA Guidelines* specify that the use of nonrenewable resources during the initial and continued phases of a project should be discussed because a large commitment of such resources makes removal or non-use thereafter unlikely. Primary and secondary impacts (e.g., a highway improvement that provides access to a previously inaccessible area) should also be discussed because such changes generally commit future generations to similar uses. Irreversible damage can also result from environmental accidents associated with a project and should be discussed.

The types and level of development associated with the Proposed Project would consume limited, slowly renewable, and nonrenewable resources. This consumption would occur during construction of the Proposed Project and would continue on a reduced scale throughout the operational lifetime of the Proposed Project. The development of the Proposed Project would require a commitment of resources that would include (1) building materials, (2) fuel and operational materials/resources, and (3) the transportation of materials, equipment, and people to and from the project site.

Construction of the Proposed Project would require consumption of resources that are not replenishable or that may renew so slowly as to be considered nonrenewable. These resources would include aggregate materials used in RCC, fly ash, concrete, metals (e.g., steel, copper, and lead), petrochemical construction materials (e.g., plastics), and water. Construction of the Proposed Project would require electricity to power some construction-related equipment. Construction of the Proposed Project would not involve the consumption of natural gas. Transportation energy use during construction would occur from the transport and use of construction equipment, delivery vehicles and haul trucks (particularly when importing aggregate materials), and construction worker vehicles that would use petroleum fuels (e.g., diesel fuel and/or gasoline). Water, which is a limited, slowly renewable resource, would also be consumed during construction of the Proposed Project. However, given the temporary nature of construction activities, water consumption during construction would result in a less than significant impact on water supplies.

Energy use consumed during operation of the Proposed Project would be associated with electricity consumption. The Proposed Project would also require a diesel emergency backup generator; however, diesel consumption associated with the emergency backup generator is expected to be minimal and would nominally increase annual diesel fuel use in Riverside County. Energy consumption associated with the operation of the Proposed Project would replace the currently ongoing electricity consumption occurring at Vail Dam. Energy resources would be used for dam operations, transportation, and lighting. See Section 3.4, Energy, of this Draft EIR for a discussion on energy consumption and potential impacts of the Proposed Project.

As described in Section 3.7.6, operation and maintenance of the Project would involve transport, use, and disposal of small quantities of hazardous materials or wastes associated with routine maintenance of dam facilities and associated ancillary structures. RCWD is required to ensure that hazardous materials are used and stored in accordance with applicable regulations, and RCWD and contracted solid waste disposal providers are required to ensure that such materials are disposed of at appropriate facilities. Such materials would be used, handled, stored, and disposed of in accordance with applicable government regulations and standards that would serve to protect against a significant and irreversible environmental change resulting from the accidental release of hazardous materials.

In summary, construction and operation of the Proposed Project would commit the use of slowly renewable and nonrenewable resources and would limit the availability of these resources on the Project site for future generations or for other uses during the life of the Proposed Project. However, the continued use of such resources during operation would be on a relatively small scale and consistent with regional and local development goals for the area as well as with existing operations. As a result, the use of nonrenewable resources in this manner would not result in significant irreversible changes to the environment under the Proposed Project.

6.0 LIST OF PREPARERS AND CONTRIBUTORS

6.1 RANCHO CALIFORNIA WATER DISTRICT

The following individuals from Rancho California Water District (RCWD) were involved in the preparation of this Draft Environmental Impact Report (EIR):

- Jacob Wiley, P.E., Engineering Manager – CIP & Development
- Randy Neff, P.E., Principal Engineer
- Tom Marcoux, Safety and Risk Officer

6.2 DRAFT EIR PREPARERS

The following individuals were involved in the preparation of this Draft EIR.

6.2.1 LSA

- Adrianne Beazley, Project Manager, Associate, Environmental/Biology
- Ashley Davis, Principal in Charge, Environmental
- Nicole Dubois, Principal, Environmental
- Cara Carlucci, Associate, Environmental/Air Quality
- Kerrie Collison, Associate/Senior Cultural Resources Manager
- Pam Reading, Principal, Environmental
- Sarah Rieboldt, Associate/Senior Paleontologist
- Justin Roos, Associate, Geospatial Information Systems Manager
- Grant Wilson, Principal, Environmental

6.2.2 AECOM

- Kelly Giesing, Project Geotechnical Engineer

6.3 TECHNICAL REPORT PREPARERS

6.3.1 LSA

- Dean Arizabal, Principal, Transportation
- Adrianne Beazley, Project Manager, Associate, Environmental/Biology
- Jacob Biewer, Paleontologist
- Cara Carlucci, Associate, Environmental/Air Quality
- Kerrie Collison, Associate/Senior Cultural Resources Manager
- Amy Fischer, Principal/Executive Vice President, Environmental/Air Quality/Sustainability
- Riordan Goodwin, Senior Cultural Resources Manager
- Anthony Greco, Senior Biologist
- Jaime Morales, Senior Biologist
- Sarah Rieboldt, Associate/Senior Paleontologist
- Justin Roos, Associate, Geospatial Information Systems Manager

- Lloyd Sample, Principal, Cultural Resources
- John (JT) Stephens, Principal, Noise

6.3.2 AECOM

- Jimmy Medellin, P.E., QSD, Engineering Manager, US West Water
- Sarah Perhala, Project Scientist

6.4 PERSONS CONSULTED

- Leo Handfelt, P.E., GE, Senior Principal Engineer, AECOM
- Dylan LaFrance, P.E., JD, Project Engineer, AECOM

7.0 REFERENCES

AECOM. 2017a. Geotechnical Data Report, Vail Dam Seismic and Hydrologic Remediation Project. Project No. 60539527, dated November 29, 2017.

_____. 2017b. Geotechnical Basis of Design Report, Vail Dam Seismic and Hydrologic Remediation Project. Project No. 60539527, dated November 29, 2017.

_____. 2019. Preliminary Design Report (30% Design), Vail Dam Seismic and Hydrologic Remediation Project, DSOD Dam No. 2028, Riverside County, California. Project No. 60539527, dated August 22, 2019.

_____. 2020. Construction Information Memo with the Anticipated Equipment Application and Construction Schedule.

_____. 2021. Geotechnical Data Report, Vail Dam Seismic and Hydrologic Remediation Project. Dated December 12, 2021.

_____. 2022a. Design Report (90% Design), Vail Dam Seismic and Hydrologic Remediation Project, DSOD Dam No. 2028-2, Riverside County, California, dated June 30, 2022.

_____. 2022b. Vail Dam Seismic and Hydrologic Remediation Project 90% Design Submittal (Design Plans). June.

_____. 2022c. Phase I Environmental Site Assessment, Vail Dam Seismic and Hydrologic Remediation Project.

_____. 2022e. Hydrology Study, Vail Dam Seismic and Hydrologic Remediation Project RCWD Project No. D1911. July.

_____. 2022f. Preliminary Water Quality Management Plan, Vail Dam Seismic and Hydrologic Remediation Project. July 6.

Association of State and Territorial Health Officials (ASTHO). 2012. Robert T. Stafford Disaster Relief and Emergency Assistance Act Fact Sheet. Website: https://legacy.astho.org/uploadedFiles/Programs/Preparedness/Public_Health_Emergency_Law/Emergency_Authority_and_Immunity_Toolkit/14-Stafford%20Act%20FS%20Final%203-12.pdf (accessed November 2022).

Bryant, W.A., compiler. 2017. Fault number 298, Murrietta Hot Springs fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults (accessed 04/23/2020 01:47 PM).

California Air Resources Board (CARB). 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October.

_____. 2007a. CARB approves tripling of early action measures required under AB 32. News Release 07-46. October.

_____. 2007b. Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration. October.

_____. 2009. ARB Fact Sheet: Air Pollution and Health. Website: https://ww2.arb.ca.gov/resources/common-air-pollutants (accessed May 2020).

_____. 2014. First Update to the Climate Change Scoping Plan: Building on the Framework Pursuant to AB 32, the California Global Warming Solutions Act of 2006. May. Website: http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf (accessed May 2020).

_____. 2016. Ambient Air Quality Standards. May. Website: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf (accessed May 2020).

_____. 2017. California's 2017 Climate Change Scoping Plan.

_____. 2019. State and Federal Area Designations. Website: http://www.arb.ca.gov/desig/desig.htm (accessed September 2020).

_____. 2021. iADAM: Air Quality Data Statistics. Website: http://www.arb.ca.gov/adam (accessed April 2021).

California Department of Conservation (CDC). 2019. Asbestos. Website: https://www.conservation.ca.gov/cgs/mineral-hazards/asbestos (accessed August 2020).

California Department of Fish and Wildlife (CDFW). 2020. California Natural Diversity Database. RareFind 5 (Version 5.2.14). Website: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data (accessed August 2020).

California Department of Forestry and Fire Protection (CAL FIRE). 2018 Strategic Fire Plan For California. August 22, 2018.

_____. 2020. Hazard Severity Zone Viewer. Website: http://egis.fire.ca.gov/FHSZ/ (accessed May 18, 2020).

California Department of General Services. 2019. Building Standards Commission. https://www.dgs.ca.gov/bsc (accessed May 2020).

California Department of Resources Recycling and Recovery (CalRecycle). 2019. SWIS Facility Detail: Lamb Canyon Sanitary Landfill (33-AA-0007). Website: https://www2.calrecycle.ca.gov/swfacilities/Directory/33-AA-0007/ (accessed May 11, 2020).

California Department of Water Resources (DWR). 2004. California's Groundwater Bulletin 118. Temecula Valley Groundwater Basin.

_____. 2020. SGMA Basin Prioritization Dashboard, Groundwater Basins 2020. Website: https://gis.water.ca.gov/app/bp-dashboard/p2/ (accessed August 29, 2022).

California Department of Water Resources Division of Safety of Dams (DSOD). 2012a. Memorandum of Design Review, Seismic Evaluation of Vail Dam, No. 2028, Riverside County. March 19.

_____. 2012b. Memorandum of Hydrologic Review Vail Dam, No. 2028, Riverside County. November 30.

_____. 2015. Letter from David Gutierrez, Chief, Division of Safety of Dams, to Jeff Armstrong, Interim General Manager, regarding Vail Dam, No. 2028, Riverside County. Dated June 2.

_____. 2020. Division of Safety of Dams: https://water.ca.gov/Programs/All-Programs/Division-of-Safety-of-Dams (accessed May 2020).

_____. 2021. California Dam Breach Inundation Maps. Website: https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2 (accessed February 23, 2021).

California Energy Commission (CEC). 2018a. California Energy Demand, 2018-2030 Revised Forecast. Publication Number: CEC-200-2018-002-CMF.

_____. 2018b. Energy Consumption by County. Website: https://ecdms.energy.ca.gov/elecbycounty.aspx (accessed May 11, 2020).

_____. 2019. Notice of Request for Public Comments on the Draft Scoping Order for the 2019 Integrated Energy Policy Report. Docket No. 19-IEPR-01.

_____. 2021a. 2020 Total System Electric Generation. Website: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation (accessed January 2022).

_____. 2021b. Electricity Consumption by County and Entity. Website: http://www.ecdms.energy.ca.gov/elecbycounty.aspx and http://www.ecdms.energy.ca.gov/elecbyutil.aspx (accessed January 2022).

_____. 2021c. Gas Consumption by County and Entity. Website: http://www.ecdms.energy.ca.gov/gasbycounty.aspx and http://www.ecdms.energy.ca.gov/gasbyutil.aspx (accessed January 2022).

California Environmental Protection Agency (CalEPA). 2010. Climate Action Team Report to Governor Schwarzenegger and the California Legislature. December. Website: https://research.fit.edu/media/site-specific/researchfitedu/coast-climate-adaptation-library/united-states/west-coast-amp-hawaix27i/california---statewide/Bonner-et-al.--2010.--Climate-Action-Team-Report-to-State-Officials.pdf (accessed August 2020).

California Geological Survey (CGS). 2018a. Earthquake Fault Zone, A guide for government agencies, property owners/developers, and geoscience practitioners for assessing fault rupture hazards in California, Special Publication 42: Department of Conservation.

_____. 2018b. Seismic Hazards Mapping Act: Department of Conservation, https://www.conservation.ca.gov/cgs/shma (accessed May 2020).

_____. 2020. Data Viewer. https://maps.conservation.ca.gov/cgs/DataViewer/ (accessed May 2020).

California Inter-Utility Coordinating Committee. 2018. California Temporary Traffic Control Handbook. May.

California Native Plant Society (CNPS). 2020. Inventory of Rare and Endangered Plants of California. Website: http://www.rareplants.cnps.org (accessed July 2020).

California Office of Historic Preservation (OHP). 1999. California Office of Historic Preservation Technical Assistance Series #10; California State Law and Historic Preservation: Statutes, Regulations and Administrative Policies Regarding Historic Preservation and Protection of Cultural and Historical Resources. October.

California Public Utilities Commission (CPUC). 2008. Long Term Energy Efficiency Strategic Plan. Website: https://www.cpuc.ca.gov/General.aspx?id=4125 (accessed August 2020).

Climate Registry. 2019. Climate Registry Information System (CRIS) Default GHG Emission Factors. May. Website: https://www.theclimateregistry.org/wp-content/uploads/2019/05/The-Climate-Registry-2019-Default-Emission-Factor-Document.pdf (accessed August 2020).

County of Riverside. 1947. Ordinance No. 328 (as Amended Through 328.1a): An Ordinance of the County of Riverside Amending Ordinance No. 328 Prescribing Rules and Regulations for the Government of County or District Owned or Operated Parks and Open-Space Areas. Amended March 14, 2000.

_____. 1996. Ordinance No. 663. An Ordinance of the County of Riverside Amending Ordinance No. 663 Establishing the Riverside County Stephens' Kangaroo Rat Habitat Conservation Plan Plan Fee Assessment Area and Setting Mitigation Fees.

_____. 2000. Ordinance No. 559 (as Amended through 559.7). An Ordinance of the County of Riverside Amending Ordinance No. 559 Regulating the Removal of Trees.

_____. 2014. Santa Margarita Region Hydromodification Management Plan. May.

_____. 2015a. General Plan Air Quality Element. December.

_____. 2015b. General Plan Noise Element. December.

_____. 2015c. General Plan Environmental Impact Report, Volume I. February.

_____. 2015d. General Plan Multipurpose Open Space Element. December.

_____. 2019. Climate Action Plan Update. November 2019. Website: https://planning.rctlma.org/Portals/14/CAP/2019/2019_CAP_Update_Full.pdf (accessed September 2020).

_____. 2020. Municipal Code. Section 9.52.020.

_____. 2021a. General Plan Land Use Element. September.

_____. 2021b. General Plan Safety Element. September.

_____. 2021c. Zoning Ordinance.

_____. 2022. General Plan Southwest Area Plan (SWAP). September.

County of Riverside Building and Safety Department. 2020. Grading. https://rctlma.org/building/Building-Permits/About-Grading (accessed May 2020).

County of Riverside Emergency Management Department. 2018. County of Riverside Multi-Jurisdictional Local Hazard Mitigation Plan. July.

_____. 2019. Riverside County Emergency Operations Plan.

Federal Emergency Management Agency (FEMA). 2020. "FEMA Flood Map Service Center." Website: https://msc.fema.gov/portal/home (accessed July 16, 2020).

_____. 2022. "Dam Safety." Website: https://www.fema.gov/emergency-managers/risk-management/dam-safety (accessed November 20, 2022).

Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. Office of Planning and Environment. Report No. 0123. September.

Google. 2022. Aerial Imagery.

Governor's Office of Emergency Services (Cal OES). 2018. California State Hazard Mitigation Plan. September.

_____. 2022. Dam Safety Planning. Website: https://www.caloes.ca.gov/office-of-the-director/operations/planning-preparedness-prevention/dam-safety-planning/ (accessed November 2022).

Governor's Office of Planning and Research (OPR). 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR Technical Advisory). December. p. 12.

Kennedy, M.P. 2003. Geologic map of the Vail Lake 7.5-minute quadrangle, San Diego and Riverside counties, California: A digital database.: California Geological Survey, Preliminary Geologic Maps, scale 1:24,000.

Kennedy, M.P., and Tan, S.S. 2007. Geologic map of the Oceanside 30' x 60' quadrangle, California: CGS, digital preparation by Bovard, K.R., Alvarez, R.M., Watson, M.J., and Gutierrez, C.I.

LSA. 2022a. Air Quality, Energy, and Greenhouse Gas Technical Analysis, Vail Dam Seismic and Hydrologic Remediation Project. October.

_____. 2022b. Noise and Vibration Impact Analysis, Vail Dam Seismic and Hydrologic Remediation Project [Project No. D1911]. August.

_____. 2022c. Paleontological Resources Assessment, Vail Dam Seismic and Hydrologic Remediation Project. August.

_____. 2022d. Phase I Cultural Resources Assessment, Vail Dam Seismic and Hydrologic Remediation Project. October.

_____. 2022e. Transportation Memorandum for the Vail Dam Seismic and Hydrologic Remediation Project (Project No. D1911). August.

_____. 2022f. Western Riverside County Multiple Species Habitat Conservation Plan Consistency Analysis and Biology Report, Vail Dam Seismic and Hydrologic Remediation Project. November.

Magistrale H., and Rockwell, T. 1996. The central and southern Elsinore fault zone, southern California: Bulletin of the Seismological Society of America, Vol.86, No.6, pp. 1793–1803.

Microsoft Corporation. 2022. Bing Maps Aerial Imagery.

Morton, D.M., and Kennedy, M.P. 2005. Preliminary geologic map of the Sage 7.5' quadrangle, Riverside County, California: U.S. Geological Survey, Open-File Report OF-2005-1285, scale 1:24,000.

Morton, D.M., and Miller, F.K. 2006. Geologic map of the San Bernadino and Santa Ana 30' x 60' quadrangles, California: CGS, digital preparation by Cossette, P.M., and Bovard, K.R.

National Institute for Occupational Safety and Health (NIOSH). 2012. Dust Control Handbook for Industrial Minerals Mining and Processing. Report of Investigations 9689. January. Website: https://www.cdc.gov/niosh/mining/UserFiles/works/pdfs/2012-112.pdf (accessed August 2020).

Rancho California Water District (RCWD). 2016. Vail Property and Sundance Ranch Property Final Property Guidance Document (Property Guidance Document). Volume I. February 2016.

_____. 2017. Strategic Business Plan – 2017. Website: https://www.ranchowater.com/DocumentCenter/View/292/2017-RCWD-Strategic-Plan?bidId= (accessed August 2020).

_____. 2019. Temecula/Vail Lake KOA Lake Recreation Management Plan. Prepared by KTUA, Planning and Landscape Architecture, and Rincon Consultants, Inc. February. Website: httpsD://issuu.com/ktua/docs/vail_lake_recreation_management_plan_report (accessed November 2022).

_____. 2022a. CEQA Guidelines 2022: Local Guidelines for Implementing the California Environmental Quality Act. Prepared by Best Best & Krieger.

_____. 2022b. "Integrated Regional Water Management (IRWM) Planning Region." Website: https://www.ranchowater.com/255/Integrated-Regional-Water-Management-IRW (accessed August 29, 2022).

_____. 2022c. RCWD Service Area. Website: https://www.ranchowater.com/ 110/Service-Area (accessed June 20, 2022).

_____. 2022d. Website: "About Rancho Water: Welcome to Vail Lake." Website: https://www. ranchowater.com/265/Vail-Lake (accessed August 21, 2022).

Rancho California Water District et al. 2014. Upper Santa Margarita Watershed Integrated Regional Water Management Plan Update, Final. Prepared by Rancho California Water District, Riverside County Flood Control and Water Conservation District, County of Riverside, and Stakeholder Advisory Committee. April.

Riverside County Department of Waste Resources (RCDWR). 2020a. Department Landfills. Website: http://www.rcwaste.org/disposal/hours (accessed May 11, 2020).

_____. 2020b. Accepted Waste. Website: https://www.rcwaste.org/landfill/acceptedwaste (accessed May 11, 2020).

Riverside County Fire Department. 2009. Strategic Plan 2009–2029. November.

Riverside County Habitat Conservation Agency. 1996. Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County, California.

Riverside County Planning Department. 2019. Zoning Geographic Information Systems dataset. Updated September 9.

Riverside County Planning Department. 2021. General Plan Landuse Geographic Information Systems dataset. Updated May 20.

Riverside County Transportation and Land Management Agency. 2003. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Final MSHCP—Volumes 1 and 2. Approved June 17, 2003.

Riverside County Transportation Department. 2008. *Traffic Impact Analysis Preparation Guide* (TIA Guide). April.

San Diego Regional Water Quality Control Board (RWQCB). 1994. Water Quality Control Plan for the San Diego Basin (with amendments effective on or before May 17, 2016).

South Coast Air Quality Management District (SCAQMD). 1993. CEQA Air Quality Handbook. April. Website: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook (accessed May 2020).

_____. 2004. Air Toxics Control Plan. March. Website: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-toxics-control-plan/2004-draft-addendum-to-the-air-toxics-control-plan.pdf (accessed August 2020).

_____. 2005. Rule 403. Fugitive Dust. June 3. Website: http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf (accessed May 2020).

_____. 2008a. Multiple Air Toxics Exposure Study (MATES) III. September. Website: http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-iii/mates-iii-final-report, (Accessed August 2020).

_____. 2008b. Greenhouse Gases (GHG): CEQA Significance Thresholds. Website: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds/ (accessed May 2020).

_____. 2008c. Final Localized Significance Threshold Methodology. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf (accessed August 2020).

_____. 2010. Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #15. September 28. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf (accessed May 2020).

_____. 2015a. Multiple Air Toxics Exposure Study (MATES) IV. May. Website: http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-iv (accessed August 2020).

_____. 2016. Ambient Air Quality Standards. May. Website: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf (accessed May 2020).

_____. 2017. Final 2016 Air Quality Management Plan. March. Website: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf (accessed May 2020).

_____. 2018. Meteorological Data for AERMOD. Website: https://www.aqmd.gov/home/air-quality/meteorological-data/aermod-table-1 (accessed August 2020).

_____. 2019a. Air Quality Analysis Guidance Handbook. Website: https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook (accessed May 2020).

_____. 2019b. South Coast AQMD Air Quality Significance Thresholds. Southern California Association of Governments (SCAG). 2020. Connect SoCal: The 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy of the Southern California Association of Governments. Website: https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176 (accessed April 2021).

Southern California Edison (SCE). 2019. Southern California Edison's Service Area. Website: https://newsroom.edison.com/internal_redirect/cms.ipressroom.com.s3.amazonaws.com/166/files/20193/SCE%20Service%20Area%20Fact%20Sheet_Ver2_04252019.pdf (accessed August 2020).

Southern California Gas Company (SoCalGas). 2019. Company Profile. Website: https://www3.socalgas.com/about-us/company-profile (accessed August 2020).

State of California Employment Development Department (EDD). 2022. 2018-2028 Local Employment Projections Highlights. Website: https://www.labormarketinfo.edd.ca.gov/data/employment-projections.html (accessed August 25, 2022).

United Nations Environment Programme (UNEP). 2007. Buildings and Climate Change: Status, Challenges and Opportunities. Website: http://www.unep.fr/shared/publications/pdf/DTIx0916xPA-BuildingsClimate.pdf (accessed May 2020).

United States Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), eds., J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR 08 28. Vicksburg, MS: United States Army Engineer Research and Development Center.

_____. 2018. National Wetland Plant List, version 3.4. Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover, NH. Website: http://wetland-plants.usace.army.mil/ (accessed June 2020).

United States Department of Agriculture, Natural Resources Conservation Service (NRCS). 2020. Web Soil Survey, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (accessed April 22, 2020).

United States Energy Information Administration (EIA). 2020. California State Profile and Energy Estimates. Table F3: Motor Gasoline Consumption, Price, and Expenditure Estimates, 2019. Website: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=CA (accessed April 2021).

United States Environmental Protection Agency (EPA). 1995. Compilation of Air Pollutant Emission Factors (AP-42). Chapter 13.3: Chapter 13.3 Explosive Detonation. Website: https://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s03.pdf (accessed August 2020).

_____. 2011. Compilation of Air Pollutant Emission Factors (AP-42). Chapter 13: Miscellaneous Sources. Website: https://www3.epa.gov/ttn/chief/ap42/ch13/index.html (accessed August 2020).

_____. 2019. Air Data: 2014 – 2016 Air Quality Data Collected at Outdoor Monitors across the US. Website: https://www.epa.gov/outdoor-air-quality-data (accessed April 2021).

_____. 2021. Air Data: 2019 - 2021 Air Quality Data Collected at Outdoor Monitors across the US. Website: https://www.epa.gov/outdoor-air-quality-data (accessed April 2021).

United States Fish and Wildlife Service (USFWS). 2007. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Coastal California Gnatcatcher (Polioptila californica californica). Published in the *Federal Register* on December 17, 2007.

_____. 2009. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Quino Checkerspot butterfly (Euphydryas editha quino). Published in the *Federal Register* on June 17, 2009.

_____. 2011. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Arroyo Toad. Published in the *Federal Register* on February 9, 2011.

_____. 2012. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Riverside Fairy Shrimp; Final Rule. Federal Register 77: 72070-72140 (December 4, 2012).

_____. 2020. Wetlands Mapper. Website: https://www.fws.gov/wetlands/data/mapper.html (accessed February 2020).

_____. Information for Planning and Consultation (IPaC). 2021. Riverside County. Website: https://ecos.fws.gov/ipac/location/BR36E4HFIJGCBLWJNS55Q5JRPM/resources (accessed May 18, 2021).

United States Geological Survey (USGS). 1999. The Modified Mercali Intensity Scale: https://www.usgs.gov/natural-hazards/earthquake-hazards/science/modified-mercalli-intensity-scale?qt-science_center_objects=0#qt-science_center_objects (accessed April 2020).

_____. 2014. USGS Earthquake Scenario Map. https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=14d2f75c7c4f4619936dac0d14e1e468 (accessed April 2020).

_____. 2017. Fault number 478, Agua Tibia Mountain fault zone, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults (accessed 04/23/2020 02:15 PM).

_____. 2020a. Latest Earthquakes. https://earthquake.usgs.gov/earthquakes/map/ (accessed May 2020).

_____. 2020b. National Water Information System: Mapper. https://maps.waterdata.usgs.gov/mapper/index.html (accessed May 2020).

_____. 2020c. Quaternary Fault and Fold Database. https://earthquake.usgs.gov/cfusion/qfault/query_main_AB.cfm?CFID=339683&CFTOKEN=d25e40e2380d1893-DE5B40D3-F385-6BD0-540373B551F96612 (accessed May 2020).

URS Corporation (URS). 2013a. Assessment of local faulting at Vail Dam, Riverside County, California. Project No. 29405004, dated August 20, 2013.

_____. 2013b. Hydrologic Report, Vail Dam (DSOD Dam No. 2028), Temecula, Riverside County, California. November.

_____. 2014a. Dam Remediation Options, Vail Dam (DSOD Dam No. 2028), Temecula, Riverside County, California.

_____. 2014b. Interim Operations Restriction Plan, Vail Dam (DSOD Dam No. 2028), Temecula, Riverside County, California. April.

_____. 2015. Seismic Structural Analyses – Phase 3.1, Vail Dam (DSOD Dam No. 2028), Temecula, Riverside County, California.

_____. 2016. Seismic Structural Analyses – Phase 3.2, Vail Dam (DSOD Dam No. 2028), Temecula, Riverside County, California.

_____. 2019. Preliminary Design Report (30% Design), Vail Dam Seismic and Hydrologic Remediation Project.

Western Regional Climate Center (WRCC). 2020. Recent Climate in the West. Website: http://www.wrcc.dri.edu (accessed May 2020).

Western Riverside County Regional Conservation Authority (RCA). 2021. Information Map. Website: http://wrcrca.maps.arcgis.com (accessed September 2021).

_____. 2022. MSHCP Mitigation Fee Implementation Manual. February.

This page intentionally left blank