

Boca Quarry Expansion Project

RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT

May 2019 | NCO-01



Prepared for:

**Nevada County
Community Development Agency**
950 Maidu Avenue
Suite 170-CDA
Nevada City, CA 95959

Prepared by:

HELIX Environmental Planning, Inc.
11 Natoma Street, Suite 155
Folsom, CA 95630

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Acronyms and Abbreviations

AADT	annual average daily trips
AAQS	Ambient Air Quality Standards
AASHTO	American Association of State Highway and Transportation Officials
AB	California Assembly Bill
ACHP	Advisory Council on Historic Preservation
ADT	average daily traffic
AGR	agricultural supply
amsl	above mean sea level
ANFO	ammonium nitrate and fuel oil
applicant	Teichert Aggregates, Inc.
APN	Assessor's Parcel Number
AQAP	Air Quality Attainment Plan
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
ATF	Bureau of Alcohol, Tobacco and Firearms
bcf/year	billion cubic feet per year
BMPs	Best Management Practices
BTU	British thermal unit
CAA	Clean Air Act
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
Caltrans	State of California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CARB Handbook	CARB Air Quality and Land Use Handbook
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CEC	California Energy Commission
CEHC	California Essential Habitat Connectivity
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFCs	chlorofluorocarbons
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH ₄	methane
Cl	Chlorides
CIP	Capital Improvement Project

Acronyms and Abbreviations (cont.)

CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO ₂ e	carbon dioxide equivalent
COLD	cold freshwater habitat
COMM	commercial and sportfishing
County	County of Nevada
CRPR	California Rare Plant Rank
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibel
dba	A-weighting decibels
DBH	diameter at breast height
DPM	diesel particulate matter
DPR	Department of Parks and Recreation
DWR	Department of Water Resources
EIR	Environmental Impact Report
ENR	Engineering News Record
EO	Executive Order
ESA	Endangered Species Act
ESRS	Ecosynthesis Scientific and Regulatory Services
°F	Fahrenheit
F	Fluoride
Fe	Iron
FEMA	Federal Emergency Management Plan
FESA	Federal Endangered Species Act
FOS	factor of safety
FR	Forest
FRSH	freshwater replenishment
g	percentage of gravity that expresses the ground acceleration from a seismic event
GHG	greenhouse gas
gpm	gallons per minute
GPS	global positioning system
GWh	gigawatt hours
GWP	global warming potential
GWR	groundwater recharge
GVWR	gross vehicle weight rating

Acronyms and Abbreviations (cont.)

HA	Hydrologic Area
HAP	Hazardous Air Pollutants
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HELIX	HELIX Environmental Planning, Inc.
HFCs	hydrofluorocarbons
HMBP	Hazardous Materials Business Plan
HU	Hydrologic Unit
H ₂ S	Hydrogen sulfide
I-80	Interstate 80
IBC	International Building Code
ICC	International Code Council
IND	industrial service supply
ITE	Institute of Transportation Engineers
kWh	kilowatt hours
L _{DN}	Day Night sound level
LOS	Level of Service
LSC	LSC Transportation Consultants, Inc.
MCAB	Mountain Counties Air Basin
MCV2	Manual of California Vegetation 2nd edition
ME	Mineral Extraction
MEP	maximum extent practicable
MIGR	migration of aquatic organisms
MT	metric tons
MMT	million metric tons
MMTh	million therms
Mn	manganese
MND	Mitigated Negative Declaration
MOA	Memorandum of Agreement
MUN	Municipal and Domestic Supply
MW	megawatt
Na	sodium
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NALS	numeric action levels
NCCP	Natural Communities Conservation Program
NCDEH	Nevada County Department of Environmental Health

Acronyms and Abbreviations (cont.)

NCNRR	Nevada County Natural Resources Report
NCTC	Nevada County Transportation Commission
NO ₂	nitrogen dioxide
NO ₃	nitrate
NO _x	Nitrogen oxides
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NSAQMD	Northern Sierra Air Quality Management District
O ₃	ozone
OEHHA	California Office of Environmental Health Hazard Assessment
Pb	lead
PFCs	perfluorocarbons
PGA	peak ground acceleration
PM	particulate matter
PM ₁₀	Particulate matter less than 10 microns in aerodynamic diameter
PM _{2.5}	Particulate matter less than 2.5 microns in aerodynamic diameter
POW	hydropower generation
ppm	parts per million
PRC	Public Resources Code
PVC	polyvinyl chloride
QSD	Qualified SWPPP Developer
QSP	Qualified SWPPP Practitioner
RARE	Rare, Threatened or Endangered Species
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
S	sulfate
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Recovery Act of 1975
SO ₂	sulfur dioxide
SPWN	spawning, reproduction, and/or early development
SSC	Species of Special Concern
SWAMP	State Surface Water Ambient Monitoring Program
SWMP	Storm Water Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

Acronyms and Abbreviations (cont.)

TACs	toxic air contaminants
THPO	Tribal Historic Preservation Officer
TIA	Traffic Impact Analysis
TMDL	total maximum daily load
TROA	Truckee River Operating Agreement
UBC	Uniform Building Code
UDA	Ultimate Disturbed Area
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
V/C	volume to capacity
VMT	vehicle miles traveled
VOC	volatile organic compound
WILD	wildlife habitat
WSA	Water Supply Assessment

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This Recirculated Draft Environmental Impact Report (EIR) has been prepared in accordance with the requirements of the California Environmental Quality Act (CEQA), the State CEQA Guidelines, as amended, and County of Nevada (County) requirements. This EIR addresses the proposed project to expand mining operations at the currently permitted Boca Quarry (project site) in unincorporated Nevada County, California. The application includes a request for an Amended Use Permit (U11-008) as well as a Reclamation Plan (RP11-001; 2011 Reclamation Plan) to correspond with the proposed mine expansion and importation of clean fill material for pit backfilling.

A Draft EIR for the Boca Quarry Amended Use Permit (U11-008) and 2011 Reclamation Plan (RP11-001) was previously circulated for public review in September 2012 (State Clearinghouse [SCH] No. 2012022024); however, based on the comments received and the newly identified potentially significant impacts, this Recirculated Draft EIR is being recirculated in accordance with State CEQA Guidelines Section 15088.5.

This EIR is an informational document intended for use both by decision-makers and the public. It contains relevant information to be used to evaluate the potential environmental effects of the proposed action and project alternatives.

ES.2 PROJECT BACKGROUND

The Boca Quarry is an approximately 230-acre site located in eastern Nevada County. It is an active quarry that operates under a Conditional Use Permit (U83-036) and Reclamation Plan, approved in 1983 and modified in 2007 (U06-012 and RP06-001, respectively). As previously mentioned, the existing Conditional Use Permit allows mining in an approximately 40-acre area on APN 48-090-12. The quarry has been idle since the 2008 operating year based on reduced aggregate demand due to the downturn in the economy. The applicant applied in February 2010 to expand the mine to an extraction area of 158 acres and maximum 1 million tons for 30 years through an application for Amended Use Permit (U10-001) and Amended Reclamation Plan (RP10-001) which would also bring the proposed extraction area into compliance with Nevada County Codes and SMARA. The expansion was approved by the County Planning Commission on February 10, 2011; however, those approvals were appealed on February 22, 2011, based on concerns regarding aesthetics, air quality, greenhouse gases, water supply, and transportation and circulation.

The applicant withdrew the 2010 application and in July 2011, the project applicant applied to expand the mining operations at Boca Quarry under the authority of a revised application, Amended Use Permit (U11-008) and 2011 Reclamation Plan (RP11-001). The 2011 application maintained the expansion proposed in the 2010 application (158-acre extraction area) but was revised to address the previously described concerns noted in the appeal. An NOP was posted on February 8, 2012 and a public scoping meeting was held on March 8, 2012 to inform the public of the project and to receive comments. The Draft EIR was circulated for public review in September 2012 (SCH No. 2012022024). A public hearing to receive comments was held on October 11, 2012.

A total of six comment letters were received during public circulation, and two verbal comments were received during the public hearing on the Draft EIR. The comments were in regard to evaluation of a timber harvest plan, water supply, air quality, noise, water supply, transportation and circulation, and the local mule deer herd were received. The commenting agencies, organizations, and individuals and the comments received are summarized and provided in Appendix A.

A Final EIR was prepared and submitted to the County for an internal review in February 2013, and the Final EIR was scheduled for approval by the Planning Commission. Late comments were received which included concerns in regard to potentially hazardous conditions for bicyclists using Stampede Meadows Road with the addition of quarry truck trips for the expanded mine and in regard to the Stampede Meadows Road crossing over the Union Pacific Railroad (UPRR) tracks. In addition, a number of comments were received by the Hirschdale Community in response to the revisions in the Final EIR (see Table A-1 in Appendix A). Due to the scope of comments received and newly identified potentially significant impacts, the Final EIR needed to be revised. The County and applicant elected to revise the previously circulated Draft EIR to address the newly identified potentially significant impacts. In addition, the project applicant was considering a Development Agreement with the County for the project.

This Recirculated Draft EIR is being recirculated in accordance with State CEQA Guidelines Section 15088.5. Amended Use Permit (U11-008) and 2011 Reclamation Plan (RP11-001) are the proposed project analyzed in this Recirculated Draft EIR. Refer to Figure ES-1 for a timeline summarizing the Boca Quarry expansion.

This Recirculated Draft EIR addresses environmental impacts associated with the proposed project that are known to the County, were raised during the Notice of Preparation (NOP) process, in response to the 2012 Draft EIR, and the 2013 Final EIR. This Recirculated Draft EIR discusses potentially significant impacts associated with Geology and Soils, Hydrology and Water Quality, Biological Resources, Aesthetics, Traffic and Circulation, Noise, Air Quality, Greenhouse Gas Emissions, Energy, Hazards and Hazardous Materials, and Cultural and Tribal Resources.

ES.3 PROJECT DESCRIPTION

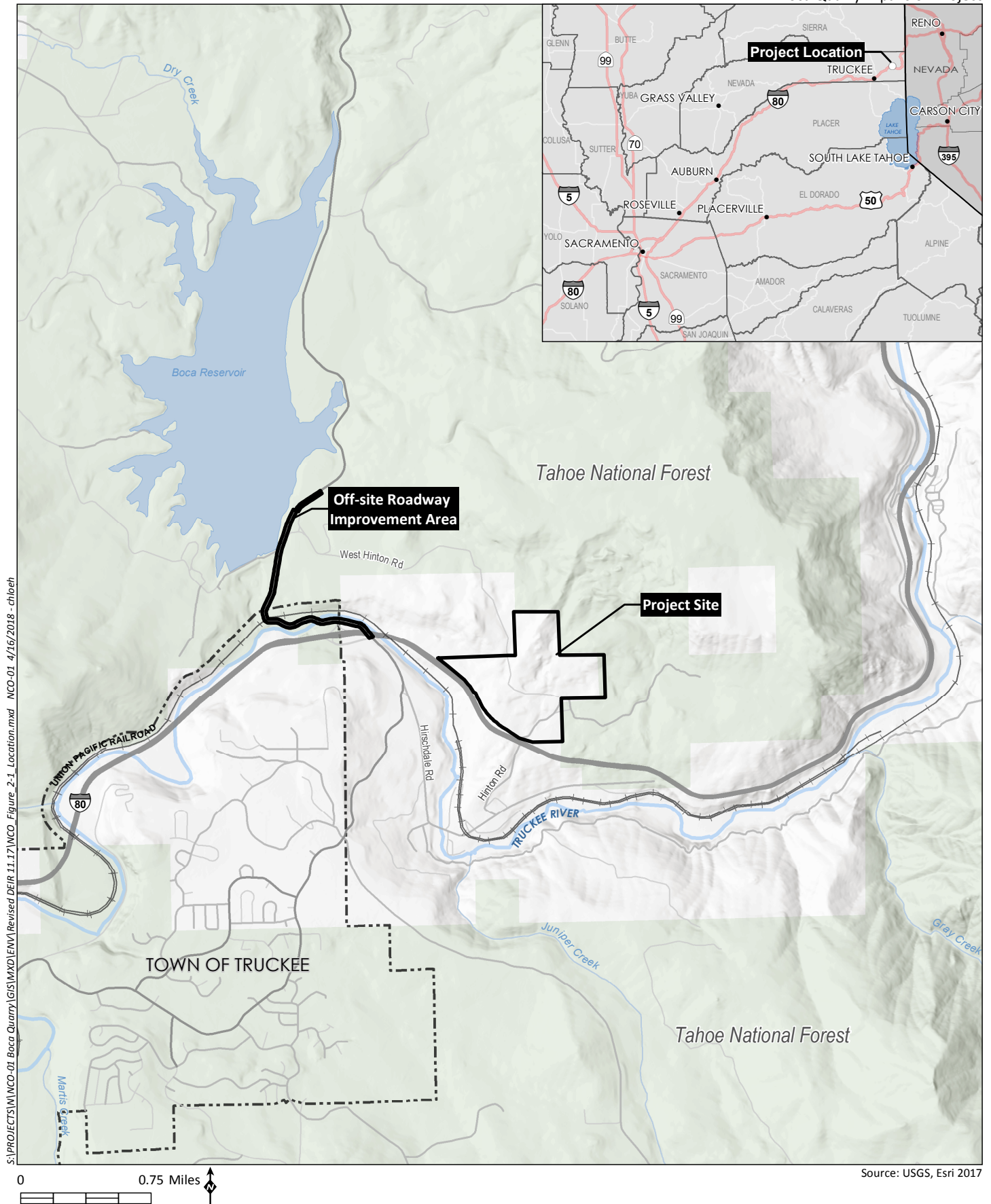
The proposed project is located on an approximately 230-acre site (project site) which includes the existing 40-acre permitted quarry operation (East Pit) and the proposed 118-acre expansion area (West Pit). The project site is located in Nevada County, approximately eight miles east of the center of the Town of Truckee, and five miles west of the California/Nevada state line. Town of Truckee limits are approximately 0.6-mile west of the project site. The project site is directly north of Interstate-80 (I-80). Off-site roadway improvements are proposed along an approximately 1.3-mile long segment of Stampede Meadows Road, which extends from West Hinton Road to the eastbound on-ramp to I-80. Refer to Figure ES-2 for the location of the project site and off-site roadway improvement area in the region.

The East Pit has been idle since 2008; however, the East Pit is currently permitted to operate pursuant to Use Permit U06-012 and is subject to the conditions and mitigation measures contained in Use Permit U06-012 which was approved on July 26, 2007, until its expiration on July 27, 2027. The proposed project would increase the allowable extraction/disturbance area by approximately 118 acres in the area referred to as the West Pit for a total area of approximately 158 acres (ultimate disturbed area) which would and increase the maximum annual production from 100,000 tons to one million tons. The actual yearly production would vary and would depend on the local market demand. The proposed



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Boca Quarry Expansion Project



Conditional Use Permit (U11-008) envisions the removal of 17 million tons (approximately 13 million cubic yards) of material in three phases over a 30-year period. Blasting would be utilized as part of the proposed mining activities.

An amendment to the current Reclamation Plan RP06-001 is required to authorize the proposed West Pit in accordance with Nevada County Codes and the Surface Mining and Recovery Act of 1975 (SMARA). As identified in the proposed 2011 Reclamation Plan (RP11-001), the project site would be restored to a natural condition which would allow the site to be readily adapted to alternative and beneficial land uses consistent with the existing County Zoning Code designation of Forest (FR) which provides for production, protection, and management of timber (and support uses); equipment storage; temporary offices; low intensity recreational uses; and open space. Reclamation of the site would occur concurrent with mining activities and would include placing soils on 3:1 and gentler slopes and revegetating with species common to the area. Approximately 114 acres of the ultimate disturbed area would be revegetated as a mountain shrubland community. The 2011 Reclamation Plan is included as Appendix B of this EIR.

The proposed expanded quarry operation would continue to use the existing haul route for the permitted quarry operations, which includes West Hinton Road from the quarry to Stampede Meadows Road, and Stampede Meadows Road south to I-80 and prohibits haul trucks from using Hirschdale Road through the Hirschdale Community to access the project site.

The off-site roadway improvement area consists of an approximately 22-acre area along Stampede Meadows Road. The improvements include: 1) pavement widening and shoulder improvements along the roadway segment; and 2) sight distance improvements at the Stampede Meadows Road and West Hinton Road to provide adequate driver sight distance at this intersection. The improvements are proposed to address concerns regarding bicyclist safety that were expressed by the public during the public review process for the previously circulated 2012 Draft EIR (September 2012), and to address existing sight-distance deficiencies at the intersection of Stampede Meadows Road with West Hinton Road. The project applicant would enter into a Development Agreement with the County which would outline timing of reclamation, payment of roadway maintenance costs to Nevada County and the Town of Truckee, the terms of agreement for the development and the expiration dates of approvals and permits.

Table ES-1 summarizes the key components of the proposed project. The project site would include the mining areas (East and West Pits).

Table ES-1
BOCA QUARRY EXPANSION PROJECT CHARACTERISTICS

Design/Operating Characteristics	Description/Parameters/Assumptions¹
Operational Activities	
Timber Harvest	Harvest approximately 750 trees
Mining	Excavation using dozers, scrapers, and excavators with occasional use of a drill rig and blasting.
Processing	Aggregate processing plant, screens, and conveyors
Reclamation	Place soil on 3:1 and gentler slopes. Revegetate with species common to the area.

**Table ES-1
BOCA QUARRY EXPANSION PROJECT CHARACTERISTICS (cont.)**

Design/Operating Characteristics	Description/Parameters/Assumptions¹
Mine and Reclamation Plan Data	
Acreages	
Project Site	230 acres
Off-site Roadway Improvement Area	22 acres
Acreage to be Disturbed	118 acres (West Pit); 13.2 acres (Off-site Roadway Improvement Area)
Acreage to be Reclaimed	114 acres
Volume ²	
Annual Mine Production	1 million tons maximum; approximately 570,000 tons average
Total (Maximum) Mine Production	Up to 17 million tons (approximately 13 million cubic yards)
Operation Period³	
Mining	30 years (maximum)
Reclamation	Concurrent as slopes are completed. Final reclamation five years after completion of mining.
Mine Excavation Area Dimensions – West Pit	
Approximate Maximum Length ⁴	3,500 feet
Approximate Maximum Width ⁴	1,700 feet
Vertical Extent of Mining	<200 feet
Operating Schedule and Workforce	
Typical Operating Schedule ⁵	May 1 through October 31 Monday – Friday: 6:00 a.m. – 6:00 p.m. Saturday: 7:00 a.m. – 4:00 p.m.
Blasting	Up to two times per week Monday – Saturday: 7:00 a.m. – 4:00 p.m.
Employment	6 – 15 employees
Reclamation	
Annual Backfill Import	250,000 tons maximum
Open Space	114 acres would be revegetated; some areas would remain as highwalls/talus slopes due to their steepness rendering them unsuitable for revegetation.

Notes:

¹ All values are approximate.

² Quantity based on current maximum production, and foreseeable demand. Actual demand would fluctuate based on economic conditions and regional growth requiring construction aggregate.

³ Total construction aggregates for the planned 30-year life of the permit. Mining and reclamation may be completed within a shorter timeframe depending on the market demand for the product.

⁴ Measured at the longest and widest points.

⁵ Occasionally operating hours may be 5 a.m. to 9 p.m. as a result of customer demand and/or operational considerations. The project may also periodically operate 24 hours per day, 7 days per week for limited durations to service nighttime and road improvement projects. The only operation allowed after 9 p.m. and before 6:00 a.m. is material loadout. Operating season is typically May 1 – October 31; opening and closing dates may occasionally be earlier or later, but not exceeding 180 operating days per year.

ES.4 PROJECT ALTERNATIVES

Pursuant to Section 15126.6(a) of the State CEQA Guidelines, the EIR discusses alternatives to the proposed project that could feasibly accomplish a majority of the proposed project objectives. A total of four alternatives to the proposed project were considered: (1) Other Quarry Locations and (2) No Project Alternative: No Development; (3) No Project Alternative: Existing Plan Alternative; (4) Reduced Daily Production Alternative. These alternatives are discussed in detail in Section 6.0.

The first two listed alternatives (Other Quarry Locations and No Project Alternative: No Development) were determined to be infeasible and were rejected from further study. Although the No Project Alternative: Existing Plan Alternative would be considered the environmentally superior alternative, it does not fulfill the objectives of the project (refer to Section 3.2). Moreover, State CEQA Guidelines Section 15126.6(e)(2) states that if the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Therefore, the Reduced Daily Production Alternative is the environmentally superior alternative, as it would reduce local impacts to nighttime noise, traffic, and air quality in the immediate project vicinity. The Reduced Daily Production Alternative would avoid significant impacts from NO_x and PM₁₀ emissions at the project-level, whereas under the proposed project it would remain significant and unavoidable.

No Project Alternative: Development Under the Existing Plan

This alternative is required under Section 15126.6(e) of the State CEQA Guidelines and represents a possible scenario that could occur if the proposed reclamation plan amendment was not approved. According to Section 15126.6 (e)(3)(A) of the State CEQA Guidelines, when the project is the revision of an existing land use plan or regulatory plan, policy or ongoing operation, the “no project” alternative would be the continuation of the existing plan, policy or operation into the future. Under the No Project Alternative, operations in the East Pit would be allowed to resume under the currently approved 2007 Reclamation Plan and Conditional Use Permit, but no mining in addition to the currently approved operations would be allowed. The impact footprint would remain at the currently approved 40-acre area. There are approximately one to two years of reserves remaining in the East Pit if mined at 250,000 tons per year. Upon completion of mining, the site would be reclaimed in accordance with the 2007 Reclamation Plan to a natural condition which would allow the site to be readily adapted to alternative and beneficial land uses consistent with the existing County Zoning Code designation of FR which provides for production, protection, and management of timber (and support uses); equipment storage; temporary offices; low intensity recreational uses; and open space.

The No Project Alternative would not fulfill the project objectives for Market Position and Production and Timeframe as described in Section 3.2 because it would not allow the project applicant to be a regional provider with access to 17 million tons of aggregate over the next 30 years, due to the limited quarry footprint of only 40 acres and the limited remaining reserves. Existing demand and any future increases in demand for aggregate material would likely have to be supplied from out-of-County sources which could result in an increase in cost and impacts from material transportation.

Reduced Daily Production Alternative

Under the Reduced Daily Production Alternative, operations in the East Pit would be allowed to resume under the currently approved Reclamation Plan and Conditional Use Permit. Under this alternative, the total footprint of the mine would be the same as the proposed project – the extraction area would be

expanded to include the West Pit for an ultimate disturbed area of 158 acres – and the total maximum extraction from the mine would remain the same as under the proposed project (17 million tons). However, the daily production would be limited to approximately 2,520 tons per day (approximately 0.25 of the maximum daily production of 10,080 tons under the proposed project). As such, annual production would be limited to 250,000 tons per year, approximately 0.25 of the maximum annual production of the proposed project (1 million tons per year). The annual production of 2,520 tons per day would result in approximately 280 daily one-way truck trips (approximately 0.25 of the 1,120 trips that would be generated by the proposed project). The processing operations located in the East Pit would also remain in the same location. Because the total allowable production from the mine would remain the same, reducing the maximum annual production of the quarry would extend the life of the mine when compared with the proposed project because the aggregate reserve would be removed at a slower rate. Reducing the annual and daily production could also reduce the daily hours of operations and could avoid the need for nighttime operations.

The Reduced Daily Production Alternative would not fulfill the project objectives for Market Position and Production and Timeframe described in Section 3.2 because it would not allow the project applicant to maximize production on the site in response to regional demand. If the demand for aggregate material in the Tahoe/Truckee area exceeded the 250,000 tons per year allowable under the Reduced Daily Production Alternative, the remaining supply would likely have to be sourced from out-of-County sources at an increased transportation cost and with the potential to result in site-specific air quality effects at those out-of-County locations, as well as an increase in GHG emissions and energy consumption when compared to the proposed project.

ES.5 SUMMARY OF IMPACTS AND MITIGATION MEASURES

As previously mentioned, the following issue areas were found to have the potential for significant adverse effects and are evaluated in detail in Section 4.0 of this EIR: Geology and Soils, Hydrology and Water Quality, Biological Resources, Aesthetics, Traffic and Circulation, Noise, Air Quality, Greenhouse Gas Emissions, Energy, Hazards and Hazardous Materials, and Cultural and Tribal Resources. Table ES-2 summarizes impacts, mitigation measures, and levels of significance based on the evaluation contained in Section 4.0. The project would result in potentially significant impacts to all of the above-listed issue areas except Greenhouse Gas Emissions and Energy. The following issue areas were determined to have no significant effects and were not evaluated in detail in Section 4.0: Agricultural Resources, Land Use/Planning, Mineral Resources, Population and Housing, Public Services, Recreation, and Utilities/Service Systems, and Wildfire, and they are also excluded from Table ES-2. These issues are discussed in Section 9.0.

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
<p>Geology and Soils</p> <p>If site specific conditions vary from the conditions evaluated in the Stability Evaluation for the project (Golder 2010a), impacts related to manufactured slope instability would be potentially significant.</p>	<p>GEO–1. The final design of manufactured slopes in the proposed West Pit shall incorporate all available geologic/geotechnical data, with slope heights/grades and other applicable project features to reflect these data and include any applicable deviations from the recommendations provided in the August 2010 project Stability Evaluation.</p> <p>GEO–2. Manufactured slopes in the West Pit shall be regularly inspected by a qualified geotechnical engineer during mining operations, and slope performance and geological conditions shall be documented and submitted to the County as required. This information shall be used to review and, as appropriate, revise the geological and geotechnical models and slope design recommendations provided in the Stability Evaluation of the West Pit (Golder 2010a). These inspections and slope design reviews shall be performed by a qualified geotechnical engineer as follows: (1) annually at a minimum; (2) at any time mining operations encounter conditions that vary significantly from the geological and geotechnical models documented in the Stability Evaluation of the West Pit (Golder 2010a); and (3) at any time that slopes developed according to the project design based on the recommendations of the Stability Evaluation of the West Pit (Golder 2010a) show indications of significant instability. This observational and review approach, supported by strength testing of representative materials, shall be used to update or provide more appropriate FOS calculations for slopes prior to pit closure, with any and all associated modifications from recommendations contained in the Stability Evaluation of the West Pit (Golder 2010a) to be incorporated into the design and operation of mining activities at the West Pit.</p>	<p>Less Than Significant</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Geology and Soils (cont.)		
	<p>Specifically, such modifications would typically include standard geotechnical measures such as updating/revising individual slope heights/grades to reflect observed/tested conditions and ensure an acceptable FOS, as determined by a qualified geotechnical consultant. Specific elements of the inspection process shall include, but not be limited to, the following: (1) if, during excavation, a basalt boulders, cobbles, and rubble unit is discovered to be more than 60 feet thick, a qualified engineer shall sample and conduct laboratory testing of the material to confirm the project design based on the assumptions and recommendations in the Stability Evaluation of the West Pit (Golder 2010a), or to provide updated recommendations, including slope design as noted; (2) any highly weathered or fresh tuff and ash layer that is more than 15 feet thick shall be sampled and tested to confirm the project design based on the assumptions and recommendations in the Stability Evaluation of the West Pit (Golder 2010a), or to provide updated recommendations, including slope design as noted; and (3) if any major geological structures (i.e., faults, joints, etc.) are identified in the vicinity of the proposed new pit walls, they shall be evaluated by a qualified geotechnical engineer, and associated recommendations shall be incorporated into the project design and operational specifications (potentially including efforts such as revising manufactured slope grades/dimensions, and/or modifying proposed excavation to avoid problematic areas).</p>	

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Hydrology and Water Quality		
<p>Revisions to the design of the storm water detention basin following project approval would result in potentially significant impacts related to runoff volumes and velocities.</p>	<p>HYD-1. In accordance with SMARA, the applicant shall adhere to all erosion and sediment control measures as identified in the SWMP (Golder 2010b) and 2011 Reclamation Plan (ESRS 2011) for the project. Any revisions to the storm water management design for the project after project approval shall be prepared by a qualified registered engineer and shall be provided to the County for review and approval. The revised storm water management system shall be designed to prevent discharge of storm water from the project site. As required, the applicant shall update the SWMP based on the revised design or if required, shall file a Notice of Intent to comply with the Industrial General Permit from the RWQCB.</p> <p>The applicant shall provide the County Planning Department with an updated SWMP every seven years which will also be tracked through the annual review of the Development Agreement.</p>	<p>Less Than Significant</p>
<p>Operation of the proposed project would result in potentially significant impacts to ground water supplies and recharge at Dobbas Spring.</p>	<p>HYD-2. The project applicant and/or operator shall monitor precipitation levels at the project site and flows at Dobbas Spring on a monthly and annual basis. The results of this monitoring shall be documented and submitted to the County on an annual basis, along with a summary description of the resultant water balance (i.e., spring flow versus project-related use).</p> <p>If the noted monitoring data indicate that current or projected future project-related water demand equals or exceeds the flow at Dobbas Spring, the project applicant/operator shall adjust quarry production and/or water supply source(s) accordingly. Specifically, this could include an appropriate reduction of quarry production (with a corresponding reduction in water use), and/or the procurement of alternate water supplies, such that water use from Dobbas Spring does not exceed available supply.</p>	<p>Less Than Significant</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Hydrology and Water Quality (cont.)		
Should the design of the storm water detention basin be updated following project approval, potential impacts related to erosion and sedimentation would be potentially significant.	Implementation of Mitigation Measure HYD-1, described above.	Less Than Significant
Impacts to groundwater from contamination of the detention basin during operation of the project would be a potentially significant impact.	<p>HYD-3. The following avoidance and minimization measures shall be implemented for the duration of operation of the project to avoid impacts to groundwater resources in the project site:</p> <ul style="list-style-type: none"> ○ All imported fill material proposed for use as backfill at the project site shall be “clean” and free from contaminants that are potentially deleterious to surface or groundwater, public health, and the environment in general. The site operator shall visually inspect all imported fill loads for debris and foreign material and shall maintain a written log of all imported fill loads. Because the imported fill shall come from a known, clean source, a chemical inspection would not be required. The inspection log shall include the name, source, address, phone number and vehicle license plate number associated with each fill load, with this information to be submitted to the County for review and verification on a monthly basis. ○ All project-related vehicles and equipment shall be regularly inspected and maintained (per manufacturer’s specifications) to ensure proper operation and minimize the potential for accidental spills and leaks of associated pollutants. ○ The project impact footprint shall be inspected by the site operator on a daily basis to identify and (as necessary) maintained to identify/remove potential pollutant sources such as trash/debris, spills of vehicle/equipment-related pollutants, and other potential contaminants. 	Less Than Significant

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Hydrology and Water Quality (cont.)		
	<ul style="list-style-type: none"> ○ Storage of potential pollutants (such as fuels and lubricants), as well as maintenance of vehicles/equipment, shall not occur within the project site to reduce to potential for discharge of associated contaminants. ○ Appropriate containment and disposal shall be provided for project-generated solid waste (e.g., operational and office trash/debris), through efforts such as use of appropriate storage/containment facilities (e.g., enclosed dumpsters with lids, secondary containment fencing, and an impermeable base), and contracting for regular pickup and disposal of solid waste at an approved off-site facility. ○ Training shall be provided at appropriate regular intervals to employees responsible for activities related to installation, operation and/or maintenance of project equipment/vehicles, mining activities, storm drain systems, and erosion/ sedimentation facilities and operations. This training shall also include spill response procedures to ensure that staff are capable of appropriately addressing issues and conditions related to pollutant discharge. ○ Detailed records shall be kept on-site for efforts including inspections, maintenance activities, corrective actions, material deliveries and inventories, testing/sampling results, and spills and responses. 	

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Biological Resources		
<p>Clearing and grubbing or other ground disturbing activities have the potential to result in disturbance of nesting birds, including yellow warbler a CDFW species of special concern. Disturbance may include destruction of nests, forced fledgling, or nest abandonment of eggs or young which would be a potentially significant impact.</p>	<p>BIO-1. The removal of trees, vegetation, and soil salvage from the Boca Quarry project site or off-site roadway improvement area shall be limited to only those necessary to conduct the approved activity. Tree and shrub removal or trimming and soil salvage shall occur outside of the nesting season (between August 16 and January 14). Due to challenges with conducting surveys of tall trees, it is particularly important to time removal of trees with diameter at breast height exceeding 24 inches to be removed outside of the nesting season.</p> <ul style="list-style-type: none"> If removal of trees or shrubs in the project site will occur during the nesting season (typically January 15 to August 15, or as determined appropriate on a case-by-case basis by a qualified biologist based on the habitat being removed), or if construction of the off-site roadway improvement area is expected to be initiated during the nesting season, surveys for nesting birds shall be conducted by a qualified biologist prior to removal of potentially suitable nesting habitat. 	<p>Less Than Significant</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Biological Resources (cont.)		
	<p>The surveys shall cover the proposed work area (off-site roadway improvement area), or area of tree removal within the ultimate disturbed area and areas within 300 feet. The nesting surveys shall take place at the time birds are most active, typically between dawn and 11 a.m. The surveys may not occur more than 7 days prior to the activities. If no nesting activity is observed during the surveys or within 300 feet of the tree or vegetation to be removed or trimmed or soil to be salvaged, then no further mitigation is necessary.</p> <ul style="list-style-type: none"> • If nesting raptors or other nesting migratory birds are identified during the surveys, then a 100-foot buffer shall be established for nesting passerines, and a 300 to 1,000-foot buffer shall be established for nesting raptors at the discretion of the qualified biologist. Temporary exclusionary fencing with signs describing the sensitivity of the area shall be installed to establish the no-disturbance buffer around the nest. <ul style="list-style-type: none"> ○ No trees or vegetation shall be removed or trimmed and no other earth-moving activity shall occur within the established buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient mobility to avoid project construction/mining zones. ○ The size of the non-disturbance buffer may be altered if a qualified biologist conducts behavioral observations and determines the nesting raptors or other migratory birds are well acclimated to the disturbance. If this occurs, the biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to nesting birds. If the buffer is reduced, the qualified biologist shall remain on site to monitor the birds' behavior during heavy construction. The biologist shall have the authority to stop work if it is determined the project is adversely affecting nesting activities. 	

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Biological Resources (cont.)		
<p>The proposed project would result in a potentially significant impact if the wetland features located in the off-site improvement area fall under the jurisdiction of the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, or California Department of Fish and Wildlife and construction of the off-site improvements result in excavation, fill, or removal of vegetation and cannot be improved to avoid direct impact.</p>	<p>BIO-2. Ground disturbing activities and placement of fill in the Boca Quarry project site have been designed to avoid all identified aquatic habitats in the project site. No impacts to aquatic habitats shall occur without first obtaining the appropriate permits and approvals from the appropriate agency (USACE, RWQCB, and/or CDFW).</p> <p>The roadway improvements in the off-site roadway improvement area should be designed to avoid all aquatic habitats identified in Figure 4.3-1b of the EIR for the project by a minimum of 30 feet (Truckee River, Lemmon's Willow Thicket, Wet Meadow, in the off-site roadway improvement area). The mapping of these habitats shall be included in the roadway design plans with the distances from the edge of habitat to the cut/fill line shown. If the project design is unable to avoid those habitats, then the applicant shall prepare a formal wetland delineation including, at a minimum, the areas where improvements would be constructed within 30 feet of the mapped aquatic habitats. In the event that wetlands that fall under the jurisdiction of the USACE or the Lahontan RWQCB are found where excavation, fill, or vegetation removal would be required for the improvements, the applicant shall modify the improvement designs so as to minimize or eliminate direct impact. If the design of the improvements cannot be revised so as to avoid all direct impact on wetlands, the applicant shall obtain applicable authorizations and water quality certification and implement compensatory or other mitigation actions that are required by the approvals. At a minimum, the mitigation actions shall ensure that there is no net loss of wetland acreage or values.</p> <p>Prior to issuance of the grading permit for the roadway improvements, the applicant shall demonstrate to the County that: (1) all aquatic habitats are being sufficiently avoided, as described above; or (2) the appropriate permits and approvals have been obtained to impact waters of the U.S. and State and CDFW jurisdictional areas, if present, and any necessary compensatory mitigation has been secured.</p>	<p>Less Than Significant</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Biological Resources (cont.)		
The effects of water quality on wildlife could constitute a potentially significant impact.	BIO-3. Mitigation measures HYD-1 and HYD-3 shall be implemented to reduce potentially significant impacts on biological resources from reduced water quality to a level of less than significant.	Less Than Significant
The effects of night lighting on wildlife could constitute a potentially significant impact.	BIO-4. During and following all mining and reclamation activities, all exterior lighting adjacent to undisturbed habitat shall be of the lowest illumination allowed for human safety, selectively placed, shielded, and directed away from undisturbed habitat to the maximum extent practicable. All exterior lighting shall be manual on/off and shall be turned on only for the duration of allowable, occasional night time operations. No exterior lighting shall be allowed while the site is not in use.	Less Than Significant
The effects of fugitive dust on vegetation outside of the ultimate disturbed area could constitute a potentially significant impact.	BIO-5. Mitigation measures presented in Section 4.7, Air Quality, shall be implemented to reduce the effects of dust on surrounding vegetation to less than significant levels.	Less Than Significant
Aesthetic Resources		
As rock is removed in Phases II and III of the project the newly exposed blue-gray rock would cause a strong contrast to the surrounding weathered and oxidized surfaces, resulting in a visual impact that is potentially significant.	AES-1. Potential impacts to visual resources shall be offset by spraying “Rock Varnish” (aka desert varnish) such as Nantina or PERMEON or other functional equivalent on exposed upper cut face slopes immediately following the completion of each phase of mining, to blend visually with undisturbed rock face and talus following mining operations. The PERMEON (desert varnish) or approved equal, shall be mixed with water in a 5:1 solution (i.e.: 20 gallons of PERMEON to 100 gallons of water). A compressor shall be used to pressurize the spray to approximately 200 psi for application with an agricultural-type hand-held nozzle sprayer. The desert varnish color can range from almost black to a light tan, depending on the concentration of PERMEON and the number of coats to be made. The solution shall be sprayed on until saturation. When first applied, the PERMEON mixture would not have a tint, and the exposed rock initially returns to its original color as it dries. The desired coloration process is activated by exposure to ultraviolet light from sunshine.	Significant and Unavoidable

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Traffic and Circulation		
Construction of the roadway improvements along Stampede Meadows Road would result in temporary impacts to traffic circulation through the area. Construction-related impacts to traffic circulation would be potentially significant.	TRANS-1. Prior to the County issuing an encroachment permit for the off-site roadway improvements, the Contractor shall prepare and submit to the County for approval a traffic control plan consistent with County requirements regarding traffic control during construction of the off-site roadway improvements. In all instances, traffic flow through the off-site roadway improvement area shall be maintained for the duration of construction.	Less Than Significant
The applicant is responsible for maintaining a segment of West Hinton Road through U.S. Forest Service (Tahoe National Forest) lands pursuant to a Road Use Permit that is renewed annually. Should the applicant fail to renew the permit and/or fail to maintain the road as specified in the permit, impacts to the public road would be potentially significant.	TRANS-2. The applicant shall maintain the Road Use Permit with the USFS for use of West Hinton Road through USFS lands for the duration of operation of the quarry. The applicant shall submit documentation to the County prior to operation of the West Pit and annually thereafter (or for another duration, based on the duration of the issued Road Use Permit) which demonstrates the permit is valid.	Less Than Significant
Haul trucks traveling along an unauthorized route and entering residential communities south of I-80, including the Community of Hirschdale, could result in impacts to the roadway integrity. Impacts to the public road would be potentially significant.	TRANS-3. The authorized haul route for operation of the quarry is along Stampede Meadows Road and West Hinton Road between the I-80/Hirschdale Road interchange and the quarry. The applicant shall not alter the haul route without prior authorization from the County. No haul trucks shall be permitted to enter or leave the quarry from the southern entrance of the project site, through the Community of Hirschdale. To prevent haul truck traffic from inadvertently attempting to use the southern entrance or otherwise traveling into residential communities south of I-80, temporary signs shall be installed at the I-80/Hirschdale Road interchange off-ramp which shall depict the authorized haul route to the quarry. The applicant shall maintain the signs for the duration of operation of the mine.	Less Than Significant

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Traffic and Circulation (cont.)		
<p>The project would result in an increase in traffic at the intersection of Stampede Meadows Road and West Hinton Road would exacerbate existing hazards associated with inadequate sight distances at the intersection and would result in a potentially significant impact.</p>	<p>TRANS-4. Prior to issuance of an encroachment permit for the off-site roadway improvements, the proposed signage, roadway widening, and sight distance improvements shall be reviewed and approved by the Nevada County Department of Public Works. As a condition of approval, the applicant shall be required to construct the proposed off-site roadway improvements along Stampede Meadows Road between the I-80/Hirschdale Road interchange and West Hinton Road prior to implementation of operations in the West Pit. The off-site roadway improvements including the intersection improvements at Stampede Meadows Road and West Hinton Road, and the proposed roadway widening shall be complete and operational prior to the addition of traffic associated with operations in the West Pit. The applicant shall not implement operations in the West Pit prior to receiving County approval that the off-site roadway improvements are complete.</p>	<p>Less Than Significant</p>
<p>The project would result in an increase in truck traffic along Stampede Meadows Road between West Hinton Road and I-80 which may result in a potentially significant impact due to conflicts with bicyclists using Stampede Meadows Road.</p>	<p>TRANS-5. The final design for the roadway widening along Stampede Meadows Road shall include a smooth pavement transition where West Hinton Road meets Stampede Meadows Road. The transition shall be achieved by paving the approach to the paved road (Stampede Meadows Road) from the unpaved Road (West Hinton Road). The distance of the paved approach and the transition at the intersection shall be designed in accordance with County standards. The design shall be incorporated into the roadway widening plans and shall be reviewed and approved by the Nevada County Department of Public Works prior to issuance of an encroachment permit.</p>	<p>Significant and Unavoidable</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Noise		
<p>Noise generated by excavation activities during operation of the quarry may exceed the County's daytime, evening and nighttime noise thresholds at Receptor 14 which represents a potential future noise sensitive land use. If a noise sensitive land use is constructed on the represented property within 1,250 feet of the ultimate disturbed area, noise related impacts from excavation activities during operation of the project would be potentially significant.</p>	<p>NOI-1. Future residential development proposed at any nearby parcels shall not be exposed to operational noise levels exceeding 55 dBA L_{EQ} (or 65 dBA L_{MAX}) during daytime hours, or 50 dBA L_{EQ} (or 65 dBA L_{MAX}) during evening hours, or 50 dBA L_{EQ} (or 60 L_{MAX}) during nighttime hours.</p> <p>Residential development within 1,250 feet of the ultimate disturbed area may be exposed to elevated noise levels. If a residence is proposed within this setback, an acoustical analysis shall be provided paid for by the applicant or the current operator of the facility. The noise analysis shall be conducted by a qualified acoustical engineer to demonstrate that any future residences satisfies the exterior and interior noise standards established by Nevada County. The analysis shall include an ambient noise survey to quantify baseline conditions at a future residence which shall then be used to develop offsets to the Nevada County noise standards, as appropriate. Updated setback distances shall be established accounting for topography and equipment used at that time. The acoustical analysis shall identify additional noise control measures to be incorporated into the project operations at that time. Such measures could include the use of equipment noise shielding, sound berms or barriers, or other feasible measures.</p> <p>If excavation activity is not shown to be reduced to appropriate levels following mitigation, excavation activity within the determined setback distances shall not occur.</p>	<p>Less Than Significant</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
<p>Noise (cont.)</p> <p>Noise generated by heavy trucks may exceed the County's daytime, evening and nighttime noise thresholds at Receptors 12, 13, and 14 which all represent potential future noise sensitive land uses. If noise-sensitive land uses (residences) are constructed on these parcels within 300 feet of the proposed haul route, noise related impacts from truck trips would be potentially significant.</p>	<p>NOI-2. Future residential development proposed at any nearby parcels shall not be exposed to heavy traffic noise levels exceeding 55 dBA _{LEQ} during daytime hours, or 50 dBA _{LEQ} during evening or nighttime hours. Future residences shall not be exposed to noise levels exceeding 65 dBA _{L_{MAX}} during daytime hours, 65 dBA _{L_{MAX}} during evening hours, or 60 dBA _{L_{MAX}} during nighttime hours.</p> <p>Future residential development proposed within 300 feet of the haul route may be exposed to elevated noise levels. If a residence is proposed within these setbacks, an acoustical analysis shall be provided and paid for by the applicant or the current operator of the project. The noise analysis shall be conducted by a qualified acoustical engineer to demonstrate that any future residences satisfies the exterior and interior noise standards established by Nevada County. The analysis shall include an ambient noise survey to quantify baseline conditions at a future residence which shall then be used to develop offsets to the Nevada County noise standards, as appropriate. In addition, heavy truck passby noise level measurements shall be conducted from the locations of the proposed residences to determine if haul truck noise levels would exceed the adjusted noise level standards. The acoustical analysis shall identify additional noise control measures to be incorporated into the project operations at that time. Such measures could include the use of sound berms or barriers, relocation of the haul road to create additional setbacks from the proposed residences, or other feasible measures.</p>	<p>Less Than Significant</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Noise (cont.)		
Operation of the mine would exceed the County's evening and nighttime noise threshold at Receptor 7 which would result in a potentially significant impact.	NOI-3. Noise levels from operation of the mine shall not exceed the adjusted evening and nighttime County noise standard of 48 dBA Leq at Receptor 7. Mining activities other than the occasional haul out shall be prohibited between the hours of 9 p.m. and 6 a.m. Operational activities (e.g., excavation and processing) associated with the West Pit shall be limited to between the hours of 7 a.m. and 7 p.m. unless operational noise monitoring demonstrates that nighttime quarry operation does not exceed the adjusted evening and nighttime County noise standard at Receptor 7 (see Mitigation Measure NOI-2).	Less Than Significant
	NOI-4. Once the West Pit is operational, additional noise monitoring may be performed at Receptor 7 at the operator's expense. If this monitoring can confirm, to the satisfaction of the Nevada County Planning Department, that operational noise levels do not exceed the evening and nighttime noise standard of 48 dBA Leq at Receptor 7, then the County may extend the operating timeframe (including excavation and processing) to between 6 a.m. and 9 p.m. m. the intervening topography and vegetation effectively reduces the operational noise limits to at or below the nighttime 40 dBA Leq standard, then this Mitigation Measure shall replace mitigation measure NOI-1. If applicable, any operations that extend between 10 p.m. and 7 a.m. shall be limited to truck loading and unloading only. Adherence to this mitigation measure will reduce the project's nighttime noise impacts to less than significant.	
Off-site roadway improvement area construction activities occurring outside of daytime hours would result in a potentially significant impact	NOI-5. The hours of operation for off-site roadway improvement construction activities, including grading, roadway construction and vegetation clearance, shall be limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday. Grading and improvement plans shall reflect the limited hours of operation.	Less Than Significant

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Air Quality		
<p>Burning of vegetation cleared from the project site could result in exceedance of the NAAQS and/or CAAQS for nonattainment criteria air pollutants in the air basin. The project would result in a significant impact related to burning.</p>	<p>AQ-1. Prior to any open burning of vegetation, the Project Applicant shall obtain a burn permit in accordance with the NSAQMD Regulation III, Open Burning. All applicable requirements established for obtainment of a burn permit, notification of the air district or other entities, and execution of burning authorized by the permit shall be followed in accordance with NSAQMD Rules:</p> <ul style="list-style-type: none"> ○ 308 – Land Development Clearing ○ Rule 312 – Burning Permits ○ Rule 313 – Burn Day ○ Rule 314 – Minimum Drying Times ○ Rule 315 – Burning Management Requirements ○ Rule 316 – Burn Plan Preparation 	<p>Less Than Significant</p>
<p>Operation of the proposed project would result in NO_x and PM₁₀ emissions exceeding thresholds established by the Northern Sierra Air Quality Management District under all three potential operating scenarios (Scenario 1, Peak Daily Production; Scenario 2, Worst-Case Daily Production; and Scenario 3, Average Daily Production). As a result, the project would result in a significant impact associated with emissions</p>	<p>AQ-2. Diesel control measures including, but not limited to the following, shall be incorporated by the applicant into contract specifications for all on- and off-road equipment:</p> <ul style="list-style-type: none"> ○ To minimize potential diesel emission impacts on nearby receptors (pursuant to NSAQMD Regulation 2, Rule 205, Nuisance), heavy duty diesel equipment shall be properly tuned. A schedule of tune-ups shall be developed and performed for all equipment operating within the project area, particularly for haul and delivery trucks. A log of required tune-ups shall be maintained and a copy of the log shall be submitted to County for review every 2,000 service hours. ○ To minimize diesel emission impacts, contracts shall require off-road compression ignition equipment operators to reduce unnecessary idling with a two-minute time limit. 	<p>Significant and Unavoidable</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Air Quality (cont.)		
	<ul style="list-style-type: none"> ○ On-road and off-road material hauling vehicles shall shut off engines while queuing for loading and unloading for time periods longer than two minutes. ○ Off-road diesel equipment shall be fitted with verified diesel emission control systems (e.g., diesel oxidation catalysts) to the extent reasonably and economically feasible. ○ Off-road diesel equipment shall utilize alternative fuel equipment (i.e., compressed or liquefied natural gas, biodiesel, electric) to the extent reasonably and economically feasible. <p>AQ-3. The applicant shall comply with NSAQMD Rule 226, which requires implementation of feasible dust control measures which may include, but are not limited to the following:</p> <ul style="list-style-type: none"> • Ensure no visible dust emissions occurs beyond the property line; • Ensure no dust emissions exceeding 20 percent opacity occur anywhere on the property; • Ensure no offsite increase in ambient PM₁₀ concentrations greater than 50 µg/m³ occur; • Ensure no track-out exceeding 25 feet from the property occurs; • Employ a dust control supervisor who has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance; • Water to maintain soil moisture at 12 percent on haul roads and other active unpaved surfaces that are not chemically stabilized; • Water to prevent visible dust more than 100 feet from any earth moving or mining activity; • Utilize watering, dust suppressants, larger aggregate cover, and revegetation in inactive, disturbed areas to prevent wind driven dust; 	

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Air Quality (cont.)	<ul style="list-style-type: none"> • Utilize watering, dust suppressants, larger aggregate cover, and revegetation in inactive, disturbed areas to prevent wind driven dust; • Water unpaved roads daily, and limit the speed on unpaved roads to 15 mph; • Utilize chemical stabilization, watering covering, and enclosure of storage piles; • Conduct sweeping of paved roads at the end of each workday shift, utilizing certified sweepers; • Conduct prompt cleanup of any spilled material and stabilization of any spilled material storage piles at a minimum frequency of daily at the end of each work day; • Utilize dust suppressants or other dust control methods on conveyors, loading, unloading, or transferring activities; • Utilize baghouse emission controls on screening and crushing activities or other dust control measures to meet the visible emission limits; • Conduct chemical stabilization of unpaved haul roads; • Cover or otherwise stabilize aggregate loads (i.e., loads to remain 6 inches from the upper edge of the container area) to avoid dust emissions from product transport trucks in compliance with California Vehicle Code No. 23114; and • Utilize wheel washers, rumble grate, and paving of internal roads or use of dust palliatives on roads to eliminate track out. • Suspend excavation and grading activity when sustained winds make reasonable dust control difficult to implement, e.g., for winds over 25 miles per hour. • Limit the area subject to blasting, mining, and other operational activity at any one time, as feasible. 	

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Air Quality (cont.)		
Exposure of sensitive receptors to asbestos during construction of the off-site roadway improvements or mining operation would result in a potentially significant impact.	<p>AQ-4. Prior to issuance of the encroachment permit for the off-site roadway improvements and prior to commencing operations in the West Pit, the work area shall be evaluated by a qualified individual to determine the presence/absence of asbestos containing materials. The results of the analyses shall be provided to the Nevada County Department of Environmental Health (NCDEH), Certified Unified Program Agency (CUPA).</p> <p>If naturally occurring asbestos is found at the project site, the Project Applicant shall prepare an Asbestos Health and Safety Program and an Asbestos Dust Control Plan for approval by CUPA. The Asbestos Health and Safety Program and Asbestos Dust Control Plan may include, but is not limited to, the following:</p> <ul style="list-style-type: none"> • Equipment operator safety requirements: protective clothing, breathing apparatuses to prevent inhalation of airborne asbestos fibers, • Dust mitigation measures: continually water site to prevent airborne dust migration, cover all vehicle that haul materials from the site • Identification of CUPA-approved disposal areas for all excavated materials. 	Less than significant

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Hazards and Hazardous Materials		
The proposed project would result in potentially significant impacts associated with the routine transport, use, or disposal of hazardous materials.	HAZ-1. Should the hazardous materials used for operation of the mine be relocated and stored on the project site, the applicant must adhere to all applicable codes and regulations regarding the storage of hazardous materials and the generation of hazardous wastes set forth in the California Health and Safety Code Sections 25500 – 25519 and 25100 – 25258.2 including the electronic reporting requirement to the California Environmental Reporting System (CERS). The applicant shall apply for and obtain a permit for the storage of hazardous materials and the generation of hazardous wastes from the Nevada County Department of Environmental Health (NCDEH), Certified Unified Program Agency (CUPA). The operator shall secure and annually renew the permit for this facility within 30 days of becoming subject to applicable regulations.	Less Than Significant
The proposed project would result in a potentially significant impact associated with the accidental release of hazardous materials.	Implementation of Mitigation Measures HAZ-1 and AQ-4. HAZ-2. In order to protect the public from potential release of hazardous materials, the project applicant shall prepare and implement an HMBP in accordance with the requirements of the County Public Health Department Environmental Services Division and the Hazardous Materials Release Response Plan and Inventory Act of 1985. Under this state law, the applicant is required to prepare an HMBP to be submitted to the County Public Health Department, Environmental Health Services Division, which is the Certified Unified Program Agency for the County, or can be filed through the California Environmental Reporting System. The HMBP shall include a hazardous material inventory, emergency response procedures, training program information, and basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of at the proposed project site. The HMBP shall include an inventory of the hazardous waste generated on-site, and would specify procedures for proper disposal. As required, hazardous waste would be transported by a licensed hauler and disposed of at a licensed facility.	Less Than Significant

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Hazards and Hazardous Materials (cont.)		
	<p>According to the HMBP reporting requirements, workers must be trained to respond to releases of hazardous materials in accordance with State and federal laws and regulations governing hazardous materials and hazardous waste (e.g., HAZWOPER training required by OSHA). Any accidental release of small quantities of hazardous materials shall be promptly contained and abated in accordance with applicable regulatory requirements and reported to the Environmental Health Services Division. As the Certified Unified Program Agency for the County, the Environmental Health Services Division of the County Public Health Department is responsible for implementation and enforcement of HMBPs.</p>	
<p>The proposed project would result in an increased risk of fire during construction of off-site roadway improvements and during mine operation involving vegetation clearing and burning.</p>	<p>HAZ-3. Construction contractors and/or the site operator shall ensure that during construction and/or during vegetation clearing of the mine, all areas of the construction site and/or the mine in which spark-producing equipment and vehicles may operate shall be cleared of dried vegetation or other materials that could serve as fuel for combustion. This includes parking areas, staging areas, and the construction zone. The contractor shall keep these areas clear of combustible materials for the duration of construction.</p> <p>HAZ-4. Construction contractors and/or the site operator shall ensure that all equipment with internal combustible engines will be equipped with a spark arrester that shall be maintained in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.</p>	<p>Less Than Significant</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Cultural and Tribal Resources		
The proposed project would result in potentially significant impacts in regard to inadvertent discovery of historical resources.	<p>CUL-1. It is possible that ground-disturbing activities during construction may uncover previously unknown resources that meet the criteria for historical resources under CEQA. In the event that buried cultural resources are discovered during construction, operations shall stop within 50 feet of the find and a qualified archaeologist shall be consulted to determine whether the resource is potentially eligible for listing on the CRHR. The Washoe Tribe shall also be notified of the discovery. The applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement.</p> <p>If the archaeologist determines that construction activities could damage a potential historical resource, mitigation will be implemented in accordance with Section 15126.4 of the State CEQA Guidelines. If avoidance of the site is not feasible, a qualified archaeologist will prepare and implement a detailed treatment plan in consultation with the County. Treatment for most historical resources would consist of (but would not be not limited to) documentation of the resource on the appropriate DPR 523-series forms, sample excavation and artifact collection (if appropriate), and historical research. The treatment plan will include provisions for analysis of data in a regional context, reporting of results in a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.</p>	Less Than Significant
The proposed project would result in potentially significant impacts in regard to inadvertent discovery of archaeological resources.	<p>CUL-2. In the event that archaeological resources are discovered during construction, mitigation measure CUL-1 shall first be applied. If the qualified archaeologist determines that the find does not meet the criteria of a historical resource under CEQA, the criteria of a unique archaeological resource described in PRC Section 21083.2(g) shall be applied.</p>	Less Than Significant

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Cultural and Tribal Resources (cont.)		
	<p>If the archaeologist determines that construction activities could damage a resource that meets the criteria of a unique archaeological resource, mitigation will be implemented in accordance with Public Resources Code (PRC) Section 21083.2 and Section 15126.4 of the CEQA Guidelines. The applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Consistent with Section 15126.4(b)(3), mitigation may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If preservation in place is not feasible, a qualified archaeologist will prepare and implement a detailed treatment plan in consultation with the County. Treatment of unique archaeological resources may consist of (but would not be not limited to) sample excavation, artifact collection, site documentation on DPR 523 forms, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan will include provisions for analysis of data in a regional context, reporting of results in a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.</p>	
<p>The proposed project would result in potentially significant impacts in regard to inadvertent discovery of paleontological resources.</p>	<p>CUL-3. In the event a fossil is discovered during construction for the proposed project, excavations within 50 feet of the find shall be temporarily halted or delayed until the discovery is examined by a qualified paleontologist in accordance with Society of Vertebrate Paleontology standards. If the find is determined to be significant and if avoidance is not feasible, the paleontologist shall design and carry out a data recovery plan consistent with the Society of Vertebrate Paleontology standards. The applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement.</p>	<p>Less Than Significant</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
Cultural and Tribal Resources (cont.)		
<p>The proposed project would result in potentially significant impacts in regard to inadvertent discovery of human remains.</p>	<p>CUL-4. In the event of the accidental discovery or recognition of any human remains, State CEQA Guidelines Section 15064.5; Health and Safety Code Section 7050.5; PRC Section 5097.94 and Section 5097.98 must be followed. If during project development there is accidental discovery or recognition of any human remains, the following steps shall be taken:</p> <ul style="list-style-type: none"> a. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the Coroner determines the remains are Native American, the Coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or persons it believes to be the “most likely descendant” (MLD) of the deceased Native American(s). The MLD shall make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98. b. Where the following conditions occur, the landowner or his authorized representative shall reburial the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of MLD or on the project site in a location not subject to further subsurface disturbance: <ul style="list-style-type: none"> i. The NAHC is unable to identify a MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission. ii. The descendant identified fails to make a recommendation. The landowner or his authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner. 	<p>Less Than Significant</p>

Table ES-2
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES (cont.)

Significant Impact	Mitigation Measure	Significance of Impact After Mitigation
<p>Cumulative</p> <p>The proposed project would result in a potentially significant cumulative impact to the Loyalton-Truckee mule deer herd's habitat based on direct removal of vegetation used for foraging. While operation of the mine would be temporary (approximately 30 years) and would be reclaimed to a natural condition, the project would result in a cumulatively considerable contribution to impacts on mule deer.</p>	<p>CUM-1A. To offset cumulatively considerable impacts on mule deer migration and foraging habitat, the applicant shall incorporate reclamation planning objectives and specifications to include re-vegetation with species known to be used as browse or herbaceous forage by migrating or summer-resident mule deer into the Reclamation Plan for the project. The species incorporated into the Plan shall be prepared or reviewed by a qualified biologist and approved by the County.</p> <p>CUM-1B. The Reclamation Plan for the project shall identify the following phasing: Prior to commencement of year five of the operation within Phase 2, the Phase 1 quarry area (excluding the processing and stockpile areas) reclamation and re-vegetation activities shall be fully installed. This mitigation would allow the re-vegetation in Phase 1 to establish itself before encroachment into the Phase 3 area begins, thereby providing new habitat, as required in mitigation measure CUM – 1A, for the local mule deer herd. Prior to commencement of operations in the West Pit, the applicant shall submit to the County a monitoring plan for monitoring the success of the revegetation efforts as they relate to the mule deer. The monitoring plan shall include provisions for monitoring and annual reporting to the County and shall include provisions for adjusting the reclamation efforts as needed, before the end of the active mining activities</p>	<p>Less Than Significant</p>
<p>The project would result in potentially significant changes to the visual character and quality of the area due to the visibility of the site from surrounding sensitive viewers and the existing natural aesthetic quality of the area. The project would result in a cumulatively considerable contribution to aesthetic impacts.</p>	<p>Implementation of Mitigation Measure AES-1, described above.</p>	<p>Significant and Unavoidable</p>
<p>The project would result in a significant incremental increase in air pollutant emissions and would result in a cumulatively considerable contribution to NO_x and PM₁₀ emissions.</p>	<p>Implementation of Mitigation Measures AQ-1, AQ-2 and AQ-3, described above.</p>	<p>Significant and Unavoidable</p>

1.0 INTRODUCTION

This Recirculated Draft Environmental Impact Report (EIR) addresses the proposed Boca Quarry Expansion Project (proposed project) located at the Boca Quarry in unincorporated Nevada County, California. The quarry is currently permitted for operation by Teichert Aggregates, Incorporated. (applicant), under County of Nevada (County) Conditional Use Permit (U83-036) and Reclamation Plan (as amended by U06-012 and RP06-001, respectively) which allow mining of an approximately 40-acre area on Assessor's Parcel Number (APN) 48-090-12. The proposed project is an amendment to the existing Conditional Use Permit and Reclamation Plan to expand the existing operations on both the currently permitted parcel (APN 48-090-12) and the adjacent parcel (APN 48-200-03) by approximately 118 acres, and to amend the existing Reclamation Plan to correspond with the proposed mine expansion and importation of clean fill material for backfilling.

The Surface Mining and Reclamation Act (SMARA; Public Resources Code [PRC] Division 2, Chapter 19, Section 2710 et seq.) prohibits the conduct of surface mining operations without obtaining Lead Agency approval of a reclamation plan and financial assurances sufficient to reclaim the site according to the approved reclamation plan (Section 2770, SMARA). The project applicant is requesting the proposed amendments to the Boca Quarry Reclamation Plan (RP11-001) dated July 2011, pursuant to Title 14 California Code of Regulations [CCR], Section 3502(h)(1) regarding amended reclamation plans.

A Draft EIR for the Boca Quarry Amended Use Permit (U11-008) and 2011 Reclamation Plan (RP11-001) was previously circulated for public review in September 2012 (State Clearinghouse [SCH] No. 2012022024). In response to the comments received by the County regarding the project's potentially significant impacts, this Recirculated Draft EIR is being recirculated in accordance with State California Environmental Quality Act (CEQA) Guidelines Section 15088.5.

1.1 PROJECT BACKGROUND

1.1.1 History of Boca Quarry

The Boca Quarry is an approximately 230-acre site located in eastern Nevada County. It is an active quarry that operates under a Conditional Use Permit (U83-036) and Reclamation Plan, approved in 1983 and modified in 2007 (U06-012 and RP06-001, respectively). As previously mentioned, the existing Conditional Use Permit allows mining in an approximately 40-acre area on APN 48-090-12. The quarry has been idle since the 2008 operating year based on reduced aggregate demand due to the downturn in the economy.

The site has been used as a source of aggregate since the 1950s and in 1983, the County approved the first Use Permit (U83-036) and Reclamation Plan for the Hirschdale Cinder Quarry at the site. The 1983 Use Permit authorized a 15-acre quarry (extraction area) within a 162.4-acre site. The quarry was initially planned as a relatively small-scale operation with an annual production range between 75,000 and 150,000 cubic yards. The estimated total production of the quarry at that time was approximately 1,500,000 cubic yards over an approximately 20-year lifespan. The 1983 Use Permit, however, did not place any annual production limitations on the operation.

In 1987, an amendment to the original Use Permit was approved (U87-010) which allowed a one-time import and processing of approximately 50,000 cubic yards of excess rock material from a sewer-line extension project in the Glenshire area. The majority of that imported material was processed and returned to Glenshire and used as fill for the same sewer-line extension project. Upon completion of the Glenshire Project, the ability to import material for processing to the site expired.

As no annual reporting to the State occurred between 1983 to 1987, and few reports were given to the County during that time, it appeared that the original quarry never reached its permitted extraction potential. The operation appeared to be abandoned after a County staff inspection of the site in 1991; however, reclamation of the site was required in accordance with the California Surface Mining and Reclamation Act of 1975 (SMARA). A code compliance case was brought against the originally permitted property owner regarding the reclamation of the site.

In the mid-1990s, a representative of the property owner approached the County and proposed to resolve the prior compliance issues related to the quarry. As a result, the abandoned equipment and structures on site were removed and the mining area was reclaimed. A site inspection was conducted and later a financial assurance to bring the operation into compliance with County and State codes was posted. Ultimately, the property was sold, and the Hirschdale Cinder Quarry was brought into compliance and began to operate on a regular basis.

In late 2004, Teichert Aggregates, Inc. (the current project applicant) inquired about leasing the Hirschdale Cinder Quarry. The project applicant had the property flown in order to obtain aerial photos of the mining limits, which indicated that the prior operator had mined beyond the quarry limits of the 1983 Use Permit. The property owner, project applicant, and the County coordinated to develop a plan for bringing the site back into conformance, which included plans to expand the existing quarry.

On May 24, 2005, the Board of Supervisors approved a rezone application adding the Mineral Extraction (ME) combining district to the Forest (FR) base zoning for the original quarry parcel (APN 48-090-12) as well as an adjacent parcel (APN 48-200-03). The ME combining district recognizes the existing mineral resources and mining operation on the site and serves to legislatively notify others of the County's protection of those mineral resources. This was approximately the time that the project applicant became the new operator of the Hirschdale Cinder Quarry and subsequently renamed it Boca Quarry.

1.1.2 Boca Quarry Expansion

In June of 2006, the project applicant applied for an Amended Use Permit (U06-012) and Amended Reclamation Plan (RP06-001), which proposed to bring the quarry into conformance with the existing Conditional Use Permit (U83-036) and Reclamation Plan, and to expand the quarry from a 15-acre extraction area to a 105-acre extraction area (plus the processing area). The proposal generated a number of concerns that were primarily in regard to the associated truck traffic because the proposed haul route to the south of the site, which relied upon old bridges on Hirschdale Road for access also passed through the Hirschdale Community. During this same time period, the project applicant was utilizing the rock from the Boca Quarry (rather than from their Martis Valley Quarry and Asphalt Plant) and the associated truck traffic significantly increased well beyond any historical use.

Due to the number of substantial issues raised by the Hirschdale Community in response to the proposal, the project applicant and members of the Hirschdale Community coordinated to identify a feasible alternative route and to address the concerns of the Community. Through further investigation,

an alternate route to I-80 was identified which would bypass the Hirschdale Community by using West Hinton Road northwest of the site, and which would provide access to I-80 via Stampede Meadows Road.

The project applicant subsequently revised the project application based on to address the number of substantial issues raised by the June 2006 proposal. The revisions focused on bringing the operation back into conformance with the quarry's Use Permit and SMARA, as well as restricting the quarry limits to the basic footprint of the current pit (40 acres). The revised Use Permit application also included the revised access route which would bypass the Hirschdale Community. Use of the route required improving an existing logging road through a property northwest of the site that is also owned by a subsidiary of the applicant to connect to West Hinton Road. West Hinton Road passes to the quarry almost entirely through U.S. Forest Service Road (USFS) lands. On July 26, 2007, the Planning Commission approved the Amended Use Permit (U06-012) and associated Reclamation Plan (RP06-001; 2007 Reclamation Plan). The approved permit included mitigation requiring development of the revised access route to bypass the Hirschdale Community, and that if the identified route was found to be infeasible, another route to I-80 would be identified and a cap on the volume of truck trips would be required. Pursuant to the conditions of the permit, use of the route through the Hirschdale Community by the quarry was limited to employee use, limited off-season use, and emergency use. The applicant obtained a Road Use Permit from the USFS for the use of West Hinton Road through USFS lands, and the following spring (2008), work began on the West Hinton Road access route. Upon completion of the new haul route, the prior haul route over the two bridges south of the project site and through the Hirschdale Community was no longer available for use by haul trucks pursuant to U06-012 Use Permit Condition of Approval A6b.

In February 2010, the project applicant applied to expand the mining operations at Boca Quarry under the authority of an Amended Use Permit (U10-001) and associated Reclamation Plan (RP10-001; 2010 Reclamation Plan). The 2010 Amended Use Permit would expand the size of the quarry and increase the maximum levels of extraction from the site to one million tons of aggregate per year for 30 years. The 2010 Reclamation Plan would bring the new extraction area into compliance with Nevada County Codes and SMARA. A Mitigated Negative Declaration (MND) was prepared for the proposed project by the County and circulated for public review in December 2010. On February 10, 2011, the Planning Commission approved the proposed project and MND; however, those approvals were appealed on February 22, 2011, based on concerns regarding aesthetics, air quality, greenhouse gases, water supply, and transportation and circulation.

The applicant withdrew the 2010 application and in July 2011, the project applicant applied to expand the mining operations at Boca Quarry under the authority of a revised application, Amended Use Permit (U11-008) and associated Reclamation Plan (RP11-001; 2011 Reclamation Plan). The 2011 application maintained the expansion proposed in the 2010 application (158-acre extraction area) but was revised to address the previously described concerns noted in the appeal. An NOP was posted on February 8, 2012 and a public scoping meeting was held on March 8, 2012 to inform the public of the project and to receive comments. The Draft EIR was circulated for public review in September 2012 (SCH No. 2012022024). A public hearing to receive comments was held on October 11, 2012.

A total of six comment letters were received during public circulation, and two verbal comments were received during the public hearing on the Draft EIR. The comments were in regard to evaluation of a timber harvest plan, water supply, air quality, noise, water supply, transportation and circulation, and

the local mule deer herd were received. The commenting agencies, organizations, and individuals and the comments received are summarized and provided in Appendix A.

A Final EIR was prepared and submitted to the County for an internal review in February 2013, and the Final EIR was scheduled for approval by the Planning Commission. Late comments were received which included concerns in regard to potentially hazardous conditions for bicyclists using Stampede Meadows Road with the addition of quarry truck trips for the expanded mine and in regard to the Stampede Meadows Road crossing over the Union Pacific Railroad (UPRR) tracks. In addition, a number of comments were received by the Hirschdale Community in response to the revisions in the Final EIR (see Table A-1 in Appendix A). Due to the scope of comments received and newly identified potentially significant impacts, the Final EIR needed to be revised. The County and applicant elected to revise the previously circulated Draft EIR to address the newly identified potentially significant impacts. In addition, the project applicant was considering a Development Agreement with the County for the project.

This Recirculated Draft EIR is being recirculated in accordance with State CEQA Guidelines Section 15088.5. Amended Use Permit (U11-008) and 2011 Reclamation Plan (RP11-001) are the proposed project analyzed in this Recirculated Draft EIR. Refer to Figure 1-1 for a timeline summarizing the Boca Quarry expansion. The 2011 Reclamation Plan is included in Appendix B.

1.2 EIR PURPOSE AND LEGAL AUTHORITY

In accordance with CEQA (PRC Section 21000 et. seq.), if a Lead Agency determines that there is substantial evidence in light of the whole record that a project may have a significant effect on the environment, then the agency must prepare an EIR (State CEQA Guidelines Section 15064(a)(1)). The purpose of an EIR is to inform public agency decision makers and the general public of the potentially significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project (State CEQA Guidelines Section 15121(a)). This Recirculated Draft EIR is an informational document for use by public agencies, decision makers and members of the general public to evaluate the environmental effects of the proposed project. This document complies with all criteria, standards, and procedures of CEQA and the State CEQA Guidelines (California Administrative Code 15000 et. seq.), and it represents the independent judgment of the County (State CEQA Guidelines Section 15050).

The public agency with the greatest responsibility for supervising or approving the project or the first public agency to make a discretionary decision to proceed with a proposed project should ordinarily act as the “Lead Agency” pursuant to State CEQA Guidelines Section 15051(b)(1). The County is, therefore, the Lead Agency for the proposed project evaluated in this Recirculated Draft EIR.

This Recirculated Draft EIR is available for review by the public and public agencies for 45 days to provide comments “on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated” (State CEQA Guidelines Section 15204). The Recirculated Draft EIR and all supporting technical studies and documents are available for review at the County of Nevada Community Development Agency located at 950 Maidu Avenue, Suite 170, in Nevada City, CA 95959 (see Section 1.4.3, Public Notice/Public Review, for additional contact information).

The County will consider the written comments received on the Recirculated Draft EIR and at the public hearing in making its decision whether to certify the EIR as complete and in compliance with CEQA, and



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whether to approve or deny the proposed project, or take action on a project alternative. In the final review of the proposed project, environmental considerations, as well as economic and social factors, will be weighed to determine the most appropriate course of action. Subsequent to certification of the EIR, agencies with permitting authority over all or portions of the project may use the EIR to evaluate environmental effects of the project, as they pertain to their approval or denial of applicable permits.

1.3 PROJECT APPLICANT AND RELEVANT AGENCIES

The applicant for the proposed project is Teichert Aggregates, Incorporated. The County of Nevada is the Lead Agency for the EIR and will consider the document when making its discretionary actions on the proposed Amended Use Permit (U11-008) and 2011 Reclamation Plan (RP11-001). This Recirculated Draft EIR has been prepared in compliance with the requirements of CEQA, the State CEQA Guidelines (California Administrative Code, Section 15000 et. seq.) as amended, and in accordance with the County requirements.

Section 15386 of the State CEQA Guidelines defines “trustee agency” as a state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the state of California. The following trustee agencies may have an interest in the proposed project: California Department of Fish and Wildlife (CDFW) and the California Geological Survey (CGS).

According to Section 15381 of the State CEQA Guidelines, “responsible agencies” are those agencies having discretionary approval over one or more actions involved with development of the project. Responsible agencies for the proposed project include but may not be limited to: The Office of Mine Reclamation and the Lahontan Regional Water Quality Control Board (RWQCB).

1.4 ENVIRONMENTAL REVIEW PROCESS

The preparation, review, and certification process for the EIR involves the following steps:

1.4.1 Notice of Preparation

In accordance with Section 15082 of the State CEQA Guidelines, the County posted a Notice of Preparation (NOP) of an EIR for the project on February 8, 2012. The County was identified as the Lead Agency, and the notice was distributed to the public, potentially interested local, state, and federal agencies including the responsible and trustee agencies, and the State Clearinghouse to solicit comments on the proposed project. Four comment letters were received by the County in response to the NOP. A scoping meeting was held on March 6, 2012 at the Truckee Town Hall in the Town of Truckee to inform the public about the project and collect written comments. As previously mentioned in Section 1.1.2, due to substantial comments received on the previously circulated 2012 Draft EIR, this Recirculated Draft EIR is being recirculated pursuant to State CEQA Guidelines Section 15088.5.

A copy of the NOP, list of NOP recipients, and the response letters are contained in Appendix A of this EIR.

1.4.2 Draft EIR

This document constitutes the Recirculated Draft EIR and it has been prepared consistent with Section 15084 of the State CEQA Guidelines. This EIR contains a description of the project and its

environmental setting, potential impacts as a result of the project, prescribed measures to reduce or mitigate for impacts found to be significant, and an analysis of reasonable alternatives to the project.

This Recirculated Draft EIR has been prepared to address substantive comments received on the Draft EIR previously circulated for the project in September 2012. Refer to Table A-1 in Appendix A for a summary of the comments received. Once the Recirculated Draft EIR is complete, the County will file the Notice of Completion with the Governor’s Office of Planning and Research to begin a 45-day public review period.

The 2011 Reclamation Plan analyzed in this EIR is included in Appendix B, and the proposed Development Agreement between the County and the applicant is included in Appendix C.

1.4.3 Public Notice/Public Review

The principal objectives of CEQA are that: (1) the environmental review process provides for public participation; and (2) the EIR serves as an informational document to inform members of the general public, responsible and trustee agencies, and the decision-makers of the physical impacts associated with a proposed project. This EIR is being circulated for public review, in accordance with Section 15087 of the State CEQA Guidelines. Prior commenters will need to submit new comments. The document will be subject to review and comment by the public and interested jurisdictions, agencies, and organizations for a period of 45 days.

Any substantive written comments received from the State Department of Conservation would be addressed by County staff in the report it presents to the Planning Commission.

Written comments on this Draft EIR may be submitted to:

Mail: County of Nevada
Community Development Agency
Attention: Coleen Shade, Senior Planner
950 Maidu Avenue, Suite 170
Nevada City, CA 95959
Phone: (530) 470-2526
Email: coleen.shade@co.nevada.ca.us

1.4.4 Final EIR and Public Hearing Process

Following the public review period, the Final EIR will be prepared. The document will address public comments received via email, U.S. Postal Service or in-person oral comments provided at the public hearing during the 45-day circulation period. The Final EIR, Amended Use Permit, 2011 Reclamation Plan, and the Development Agreement will each be presented to the Planning Commission. Based on public comment and information in the project record, the Planning Commission will forward their recommendations on the four separate items to the Board of Supervisors for their final actions.

Next, the Board of Supervisors will schedule and hold a public hearing. At the close of the public hearing and based on the information in the record, the Board of Supervisors will vote on the final determination on the adequacy of the Final EIR and whether to approve the Conditional Use Permit, the Reclamation Plan and the Development Agreement.

Following County approval of the four separate items, the County will submit them to the State Department of Conservation for their final review.

Prior to certification of the EIR, the Lead Agency is required to prepare written findings of fact for each significant environmental impact identified in the EIR. For each significant impact, the Lead Agency must: (1) determine if the proposed project has been changed to avoid or substantially lessen the magnitude of the impact; (2) find that changes to the proposed project are within another agency's jurisdiction, and such changes have been or should be adopted; and (3) find that specific economic, social, or other considerations make mitigation measures or proposed project alternatives infeasible. The findings of fact must be based on substantial evidence in the administrative record and the conclusions required by CEQA.

If the Lead Agency elects to proceed with the proposed project and the project would result in significant impacts, a "statement of overriding considerations" must be prepared. A statement of overriding considerations explains why the Lead Agency determines that the benefits of the project outweigh the unavoidable environmental impact of the project.

1.4.5 Mitigation Monitoring and Reporting Program

CEQA requires that when a public agency makes findings based on an EIR, then the public agency must adopt a reporting or monitoring plan for those measures which it has adopted or made a condition of the project approval in order to mitigate or avoid significant effects on the environment (Sections 21081.6 and 21081.7 of the State CEQA Guidelines). The reporting or monitoring plan must be designed to ensure compliance during project implementation. The Mitigation Monitoring and Reporting Program for this project is bound into the back of this EIR.

1.5 SCOPE AND ORGANIZATION OF THE EIR

Sections 15120 through 15132 of the State CEQA Guidelines present the required content for Draft and Final EIRs. A Draft EIR must include a brief summary of the proposed actions and its consequences, a description of the proposed project, a description of the environmental setting, an environmental impact analysis, mitigation measures proposed to minimize the significant effects, alternatives to the proposed project, significant irreversible environmental changes, limitations on the discussion of the impact, effects found not to be significant, organizations and persons consulted, and cumulative impacts.

In accordance with CEQA, this Recirculated Draft EIR: (1) identifies the potential significant effects of the proposed project on the environment and indicates the manner in which those significant effects can be mitigated or avoided; (2) identifies any unavoidable adverse impacts that cannot be mitigated; and (3) analyzes reasonable alternatives to the project. Although the EIR does not control the final decision on the project, the Lead Agency must consider the information in the EIR and respond to each significant effect identified in the EIR.

Comprehensive updates to the State CEQA Guidelines went into effect on December 28, 2018. The updates included reorganization and clarification the analysis of a number of environmental issue areas. The structure of analysis of this EIR closely follows the Environmental Checklist in Appendix G of the State CEQA Guidelines. Updates to the checklist included: narrowing the scope of aesthetic impacts to focus on impacts at public view points (as opposed to private), moving the analysis of impacts to

paleontological resources from the cultural resources section to the geology section; creating a separate section for analysis of wildfire-related impacts; combining airport safety and noise into one question and remove analysis of impacts to private airstrips; clarifying the scope of impacts to water and utilities; clarifying that land use conflicts must relate to a physical impact; and clarifying the scope of impacts related to population growth. Guideline revisions in the analysis of transportation impacts establish vehicle miles traveled as the appropriate measure of transportation impacts, rather than level of service. Lead agencies will be required to comply with guideline revisions in regard to VMT starting July 1, 2020, but may elect to start immediately. The County does not currently have any adopted guidelines in regard to VMT, but it is analyzed in Section 4.5, Traffic and Circulation.

The update to the State CEQA Guidelines were reviewed in preparation of this Recirculated Draft EIR. The organization of this EIR has not been updated to more closely match the organization of the revised Environmental Checklist in Appendix G of the Guidelines because while the organization differs slightly, the analyses contained in this EIR are consistent with State CEQA Guidelines and rigor. In addition, this document has been in preparation for a number of years and maintaining the prior organization of the document provides those who have followed the project the ability to more easily compare the 2012 Draft EIR with the current Recirculated Draft EIR. The scope of this Recirculated Draft EIR is based, in part, on the 2012 NOPs prepared for the proposed project as well as the public comments received in response to the NOPs and comments received on the previously circulated 2012 Draft EIR. In addition, per the current State CEQA Guidelines, energy is analyzed in this EIR, and wildfire is addressed separately from the hazards and hazardous materials analysis. As the Lead Agency, the County identified potentially significant impacts associated with the following issues, which are analyzed in detail in this EIR:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural and Tribal Resources (includes analysis of impacts to paleontological resources)
- Energy (not analyzed in the 2012 Draft EIR)
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Traffic and Circulation (includes an analysis of VMT)

It has been determined that the proposed project would not affect the following environmental factors: agriculture and forestry resources; land use/planning, mineral resources; population and housing; public services; recreation; utilities and service systems; and wildfire. These environmental factors are not discussed in detail in this EIR for the reasons presented in Section 9.0, Effects Found Not to be Significant.

This Draft EIR is organized in the following sections:

Executive Summary

Consistent with Section 15123 of the State CEQA Guidelines, this section provides a brief summary of the proposed project and identifies environmental impacts and mitigation measures in a summary matrix.

Section 1.0 – Introduction

This section provides an overview that provides the overall project background, describes the intended use of the EIR (State CEQA Guidelines Section 15124(d)), as well as the environmental review process.

Section 2.0 – Project Location and Setting

This section includes a description of the physical environmental conditions in the vicinity of the project site as they existed at the time the NOP was published, and which have been updated based on current conditions during preparation of this EIR, consistent with Section 15125 of the State CEQA Guidelines.

Section 3.0 – Project Description

This section provides a detailed description of the proposed project and project objectives as well as background information and the project location consistent with Section 15124 of the State CEQA Guidelines.

Section 4.0 – Environmental Impacts and Mitigation Measures

This section contains a comprehensive analysis of impacts to each environmental factor evaluated in this EIR, and the appropriate, feasible measures to minimize or mitigate those impacts consistent with Section 15126.4 of the State CEQA Guidelines.

Section 5.0 – Cumulative Impacts

This section evaluates cumulative impacts resulting from the combination of the proposed project together with other projects causing related impacts consistent with Section 15130 of the State CEQA Guidelines.

Section 6.0 – Project Alternatives

Consistent with Section 15126.6 of the State CEQA Guidelines, this section evaluates a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Alternatives other than the proposed project evaluated in this document include: (1) the No Project Alternative: Development Under the Existing Plan Alternative in which the proposed project would not be implemented; and (2) the Reduced Annual Production Alternative in which annual production would be limited to 250,000 tons per year (reduced from the proposed one million tons per year).

Section 7.0 – Significant Irreversible Environmental Changes

Consistent with Section 15126.2 of the State CEQA Guidelines, this section outlines the significant irreversible changes anticipated to occur as a result of the project.

Section 8.0 – Growth-Inducement

Consistent with Section 15126(d) of the State CEQA Guidelines, this section describes potential growth-inducing impacts associated with the proposed project.

Section 9.0 – Effects Found Not to be Significant

Consistent with Section 15128 of the State CEQA Guidelines, this section describes those issues that have been identified during the environmental review process as having either no significant or no project-related impacts and are therefore not addressed in detail in the EIR.

Section 10.0 – List of Preparers

This section lists all authors and agencies that assisted in the preparation of the report by name, title, and company or agency affiliation.

Section 11.0 – Individuals and Agencies Consulted

This section lists the individuals and agencies that provided input during preparation of this document.

Section 12.0 – References

This section lists the resources and references that are cited throughout the document, including individuals and agencies contacted in preparation of this document.

2.0 PROJECT LOCATION AND SETTING

2.1 PROJECT LOCATION

The proposed project is located on an approximately 230-acre site (project site) which includes the existing 40-acre permitted quarry operation (East Pit) and the proposed 118-acre expansion area (West Pit). The project site is located in Nevada County, approximately eight miles east of the center of the Town of Truckee, and five miles west of the California/Nevada state line. Town of Truckee limits are approximately 0.6-mile west of the project site. The project site is directly north of Interstate-80 (I-80).

Off-site roadway improvements are proposed along an approximately 1.3-mile long segment of Stampede Meadows Road, which extends from West Hinton Road to the eastbound on-ramp to I-80. The off-site roadway improvement area consists of an approximately 22-acre area along Stampede Meadows Road. A portion of the off-site roadway improvement area falls within the boundaries of the Town of Truckee. See Figure 2-1 for the locations of the project site and the off-site roadway improvement area in the region.

The project site is situated in portions of Sections 26 and 27, Township 18 North, Range 17 East on the “Boca, CA” U.S. Geologic Survey (USGS) 7.5-minute topographic quadrangle map, Mount Diablo Base and Meridian (Figure 2-2), and is located in APNs 48-090-12 and 48-200-03. The off-site improvement area is located in APNs 48-070-28, 48-160-03, -06, -08, -10, -11, -12, -16, and 48-090-02. See Figure 2-2 for the APNs depicted on an aerial image.

2.2 REGIONAL SETTING

The project site is located in the Sierra Nevada. The area is characterized by ranges of rugged hillsides and mountain peaks with valleys containing rivers, their tributaries, and reservoirs. Nearby peaks include Boca Hill, approximately 2.2 miles west of the project site, with an elevation of 6,669 feet above mean sea level (amsl). Higher peaks with more rugged topography occur further from the site. Parcels directly north and east of the project site are within Tahoe National Forest, managed by the USFS. A privately-owned parcel is located approximately 0.5 mile east of the project site, at elevations of approximately 6,200 to 6,760 feet amsl (McGinity property, APN 48-090-15). Parcels to the west and south are privately owned and public right-of-way for I-80 – the parcel directly west of the project site is owned by a subsidiary of the applicant, and the parcel directly south of the project site is owned by Sierra Pacific Power Company. Residential communities in the Town of Truckee are approximately 1 to 1.5 miles southwest of the project site, at elevations of approximately 5,970 feet amsl. See Figure 2-2 for the regional setting, including public lands and roadways.

The project site is located directly north of I-80, the Truckee River, and the UPRR tracks, and approximately 1.6 miles southeast of the Boca Reservoir at its confluence with the Truckee River. The reservoir is one of several in the area that provides irrigation water, flood control, wildlife habitat, and recreation opportunities including fishing, boating, and camping. I-80 provides the primary regional travel route to and from the project area.

The project site is accessed from the north via West Hinton Road. From I-80, the project site can be reached by traveling north on Stampede Meadow Road (County Road 89Aa1) to West Hinton Road, and traveling east on West Hinton Road to the project site.

County Road 894Aa1 (Stampede Meadows Road) is a paved, County-maintained road that generally follows north/south along the eastern side of Boca Reservoir. The segment of road north of the UPRR corridor is located entirely within Tahoe National Forest (USFS lands) but has been granted to the County maintenance record pursuant to Board of Supervisors Resolution 74-24. To the south, Stampede Meadows Road crosses the UPRR at an at-grade crossing, and over the Truckee River via a two-lane bridge with a pedestrian walkway. The segment of roadway crossing the UPRR corridor at the at-grade-crossing is under jurisdiction of the California Public Utilities Commission (CPUC; letter received from UPRC dated January 3, 2013 included in Appendix A). An approximately 0.5-mile long segment of Stampede Meadows Road (from the UPRR corridor to the I-80 interchange) passes through the Town of Truckee. The roadway transitions to Hirschdale Road at the road's interchange with I-80, approximately 0.5 mile west of the project site and near the southern terminus of the off-site roadway improvement area. South of I-80, Hirschdale Road is a generally northwest/southeast County road that follows the western side of the Truckee River for approximately 1.2 miles, where it passes through the Community of Hirschdale before crossing the river and UPRR corridor. The road follows along the north side of the river and railroad for approximately 1.1 miles, where it terminates. The County plans to rehabilitate the existing bridges along Hirschdale Road over the Truckee River (Capital Improvement Project [CIP] No. 19-03) and Union Pacific Railroad (CIP #19-04), with both projects scheduled for construction beginning in spring of 2019 (Nevada County 2018a).

West Hinton Road is a generally east/west road that provides access to the site from the north. It intersects Stampede Meadows Road approximately 1.1 miles north of the I-80 interchange with Stampede Meadows Road/Hirschdale Road. West Hinton Road passes to the project site almost entirely through USFS lands. The project applicant has a Road Use Permit from the USFS for the use of West Hinton Road through USFS lands. The permit is renewed annually.

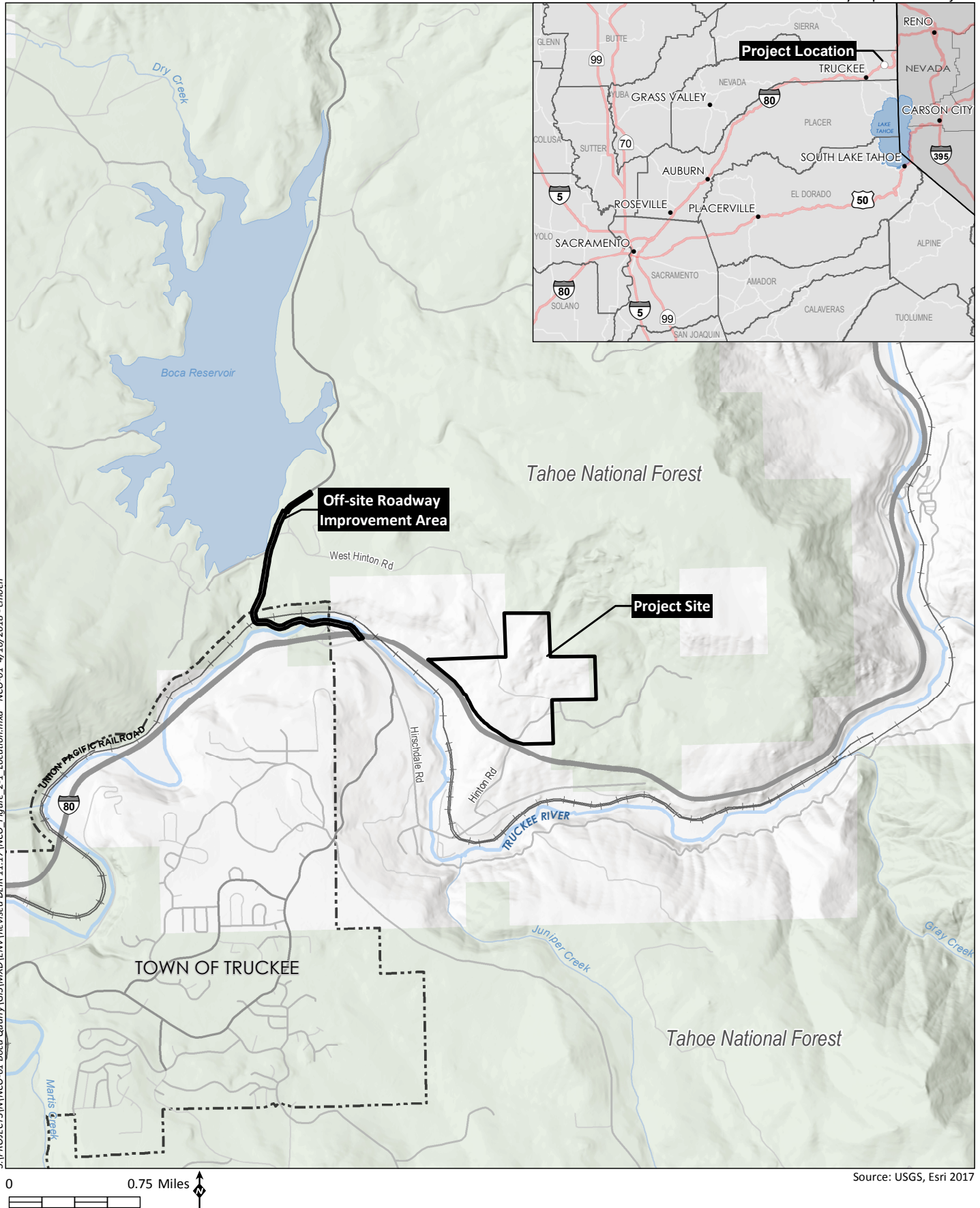
Hinton Road is a generally north/south road that accesses the project site from the south and is a paved County-maintained road that intersects Hirschdale Road approximately 0.5 mile south of the project site. The Hinton Road access to the project site – which accesses from the south and intersects Hirschdale Road – would not be used as a haul route for the proposed project.

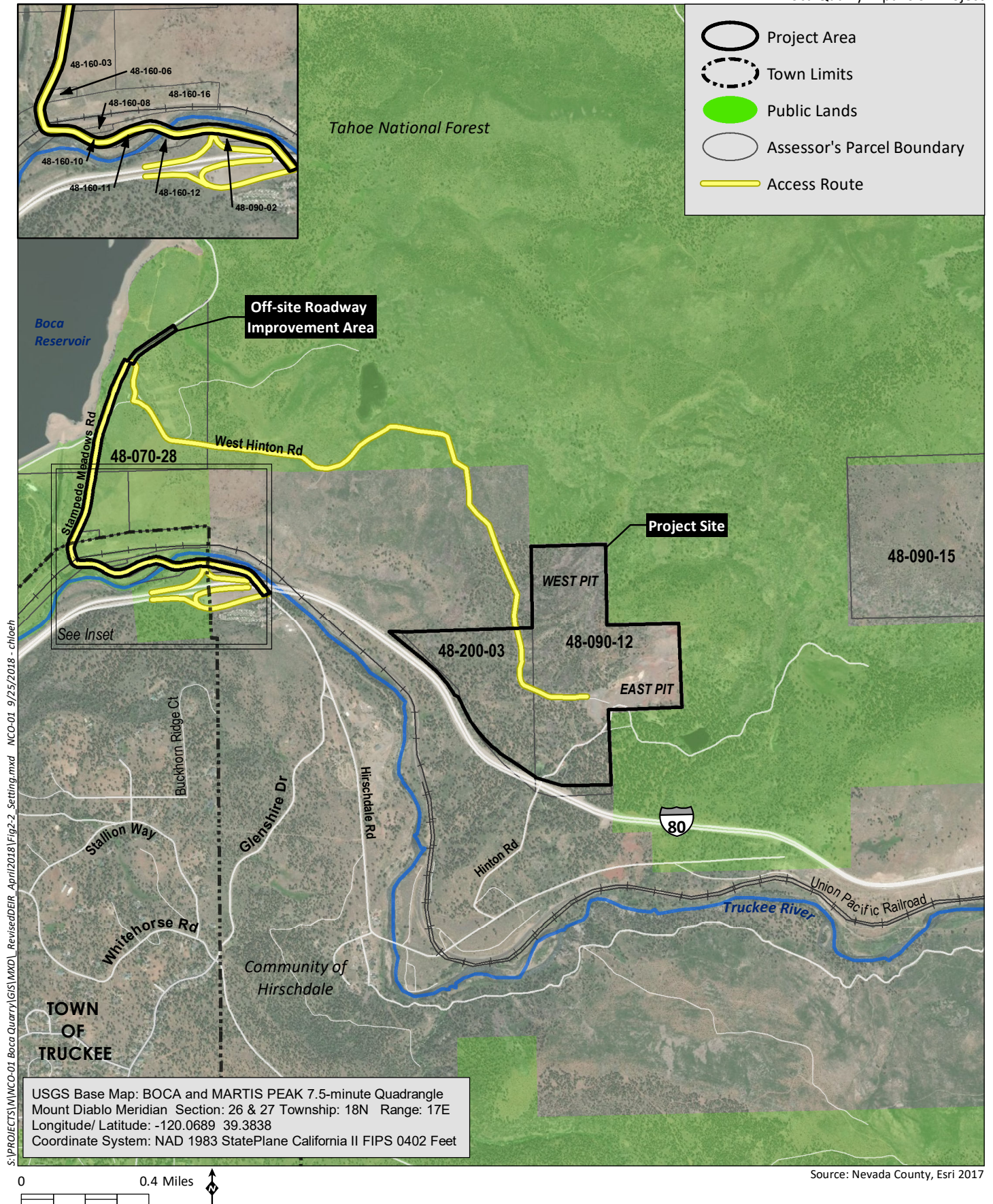
The project site is located within the northern high Sierra Nevada floristic province subregion which is vegetationally complex and is characterized by forests of ponderosa pine, white fir, and giant sequoia in lower montane areas, forests of red fir, Jeffrey pine, and lodgepole pine at the higher elevations, and forests of mountain hemlock and whitebark pine at the subalpine areas, with treeless alpine areas at the highest elevations (Baldwin et al. 2012).

2.3 EXISTING PROJECT SITE CHARACTERISTICS

The project site is located in the west and southwest facing slopes of a hillside in the Truckee River Valley. Elevations range from approximately 5,700 feet amsl at the southern edge of the site to approximately 6,250 feet amsl at the northernmost site boundary. West Hinton Road traverses the project site from northwest to the southeast and intersects Hinton Road in the eastern portion of the site. The project applicant is currently authorized to mine, process and transport rock from the Boca Quarry to off-site markets. The currently permitted operations (East Pit) includes an excavated slope and

S:\PROJECTS\W\CO-01 Boca Quarry\GIS\MXD\ENV\Revised DEIR 11.17\WCO_Figure 2-1 Location.mxd NCO-01 4/16/2018 - chloeh





quarry floor, an aggregate processing area, truck scale, and office surrounded by relatively steep topography. As previously described, the East Pit has been idle since 2008; however, because the East Pit is permitted and operations may resume at any time, the baseline conditions analyzed in this EIR assume the site is operational. Refer to Figure 2-3 for an aerial map of the project site. The map shows the location of the proposed West Pit in relation to the East Pit.

A spring (Dobbas Spring) and associated water catchment pond are located in the southern portion of the project site, outside the footprint of the proposed expansion (ultimate disturbed area). The spring features existing improvements that allow for economic use of the water and was formerly utilized by the property owner for a commercial water bottling operation, as well as for dust control in associated with the permitted mining operation in the East Pit. A cellular antenna is in the northern portion of the site, between the two pits. An existing caretaker residence with an associated domestic well is located in the southern portion of the site, west of Hinton Road. At the time of a site visit in October 2017, the home appeared to be occupied.

The primary vegetation communities within the project site include Jeffrey pine-antelope bitterbrush, bitterbrush scrub, and curl-leaf mountain mahogany woodland. Many large areas of rock outcrops and talus fields, virtually devoid of vegetation, are also present. Very small areas of wetland and riparian vegetation occur within the project site, but outside of the proposed area of disturbance.

The off-site roadway improvement area is along Stampede Meadows Road, west of the project site. The roadway segment is a relatively flat, paved two-lane roadway ranging from approximately 20- to 24-feet wide.

2.4 GENERAL PLAN AND ZONING DESIGNATIONS

The project site and the majority of the off-site roadway improvement area fall within the Nevada County planning area, while a portion of the off-site roadway improvement area falls within the Town of Truckee planning area. Table 2-1 summarizes the planning jurisdiction and associated General Plan and zoning designation for each of the project APNs.

The project site (APNs 48-090-12 and 48-200-03) and APNs 48-160-03, 48-160-06, and 48-070-28 in the off-site roadway improvement area have a Nevada County General Plan designation of Forest with a 160-acre minimum parcel size (FOR-160). The APNs in the off-site roadway improvement area are USFS lands. APNs 48-160-16, 48-160-08, and 48-090-02 are areas the off-site roadway improvement area that have a Town of Truckee General Plan designation of Rail Transportation Corridor. The UPRR corridor passes through these parcels. APN 48-160-08 is also USFS lands. APNs 48-16-12, 48-160-11, and 48-160-10 in the off-site roadway improvement area have a Town of Truckee General Plan designation of Resource Conservation/Open Space. The land designation applies for their significant natural resources and are USFS lands.

The project site is zoned FR with a ME combining district, while the off-site improvement area is zoned FR (APNs 48-160-03, 48-160-06, and 48-070-28), Resource Conservation (RC; APNs 48-160-08, 48-160-10, 48-160-11, 48-160-12 and 48-160-16), and Open Space/Resource Conservation (OS/RC; APN 48-090-02) (Refer to Figure 2-4 for the General Plan land use designations, and Figure 2-5 for the zoning designations).

Table 2-1
JURISDICTION, GENERAL PLAN AND ZONING BY ASSESSOR'S PARCEL NUMBER

Assessor's Parcel Number	Jurisdiction	Planning Area	General Plan Designation	Zoning Designation
Project Site				
48-200-03	Nevada County	Nevada County	FOR-160	FR-ME
48-090-12	Nevada County	Nevada County	FOR-160	FR-ME
Off-site Roadway Improvement Area				
48-160-16	Town of Truckee	Town of Truckee	Rail Transportation Corridor	RC
48-160-12	U.S. Forest Service	Town of Truckee	Resource Conservation/Open Space	RC
48-160-11	U.S. Forest Service	Town of Truckee	Resource Conservation/Open Space	RC
48-160-10	U.S. Forest Service	Town of Truckee	Resource Conservation/Open Space	RC
48-160-08	U.S. Forest Service	Town of Truckee	Rail Transportation Corridor	RC
48-160-06	Nevada County	Nevada County	FOR-160	FR
48-160-03	U.S. Forest Service	Nevada County	FOR-160	FR
48-090-02	Nevada County	Nevada County	OS	OS
48-070-28	U.S. Forest Service	Nevada County	FOR-160	FR

Sources: Nevada County 1995; Truckee 2006; Truckee 2017

General Plan Designation: FOR-160 = Forest with a 160-acre minimum parcel size; OS = Open Space

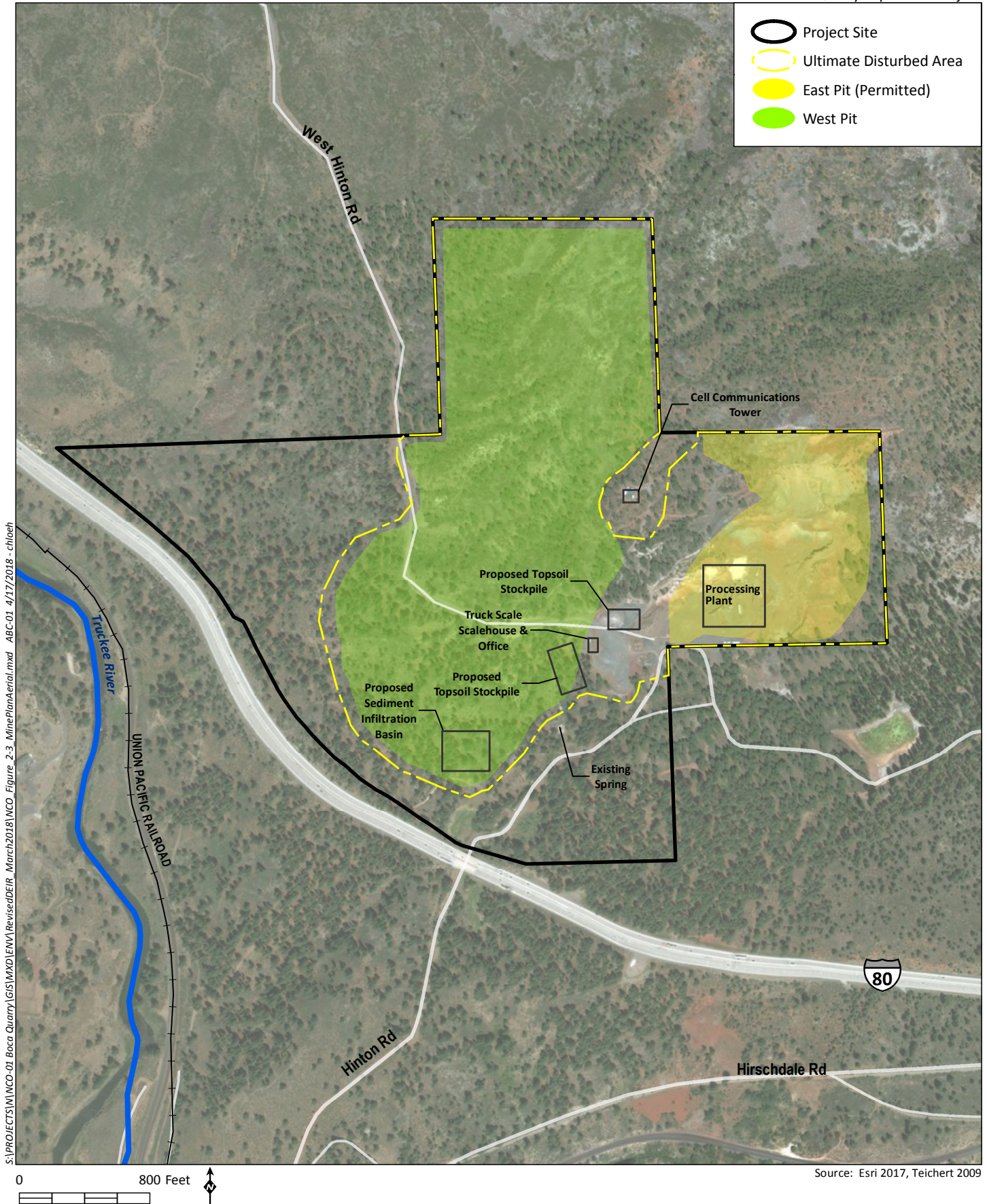
Zoning: FR = Forest; FR-ME Forest with Mineral Extraction Combining District; OS = Open Space; RC = Resource Conservation

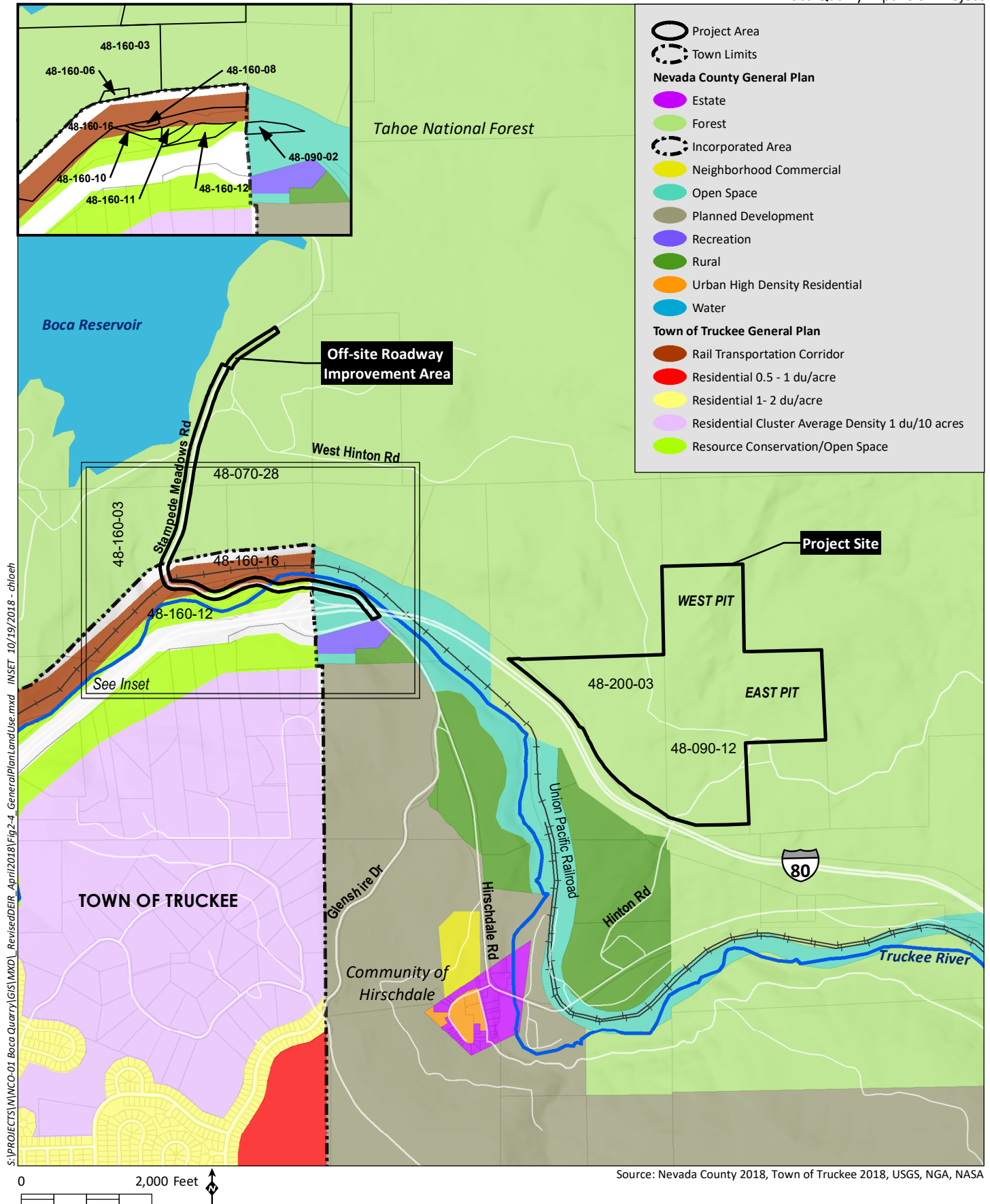
The FR zoning designation provides for production, protection, and management of timber (and support uses), equipment storage, temporary offices, low intensity recreational uses, and open space. The ME zoning designation allows for surface mining and is intended to provide public awareness of the potential for surface mining to occur where adequate information indicates that significant mineral deposits are likely present. The Nevada County Zoning Code (Land Use and Development Code Chapter II, Section L-11 3.22, Surface Mining Permits and Reclamation Plan) allows surface mining operations within an FR zone when an ME combining district overlay is in place, along with an approved Conditional Use Permit and Reclamation Plan.

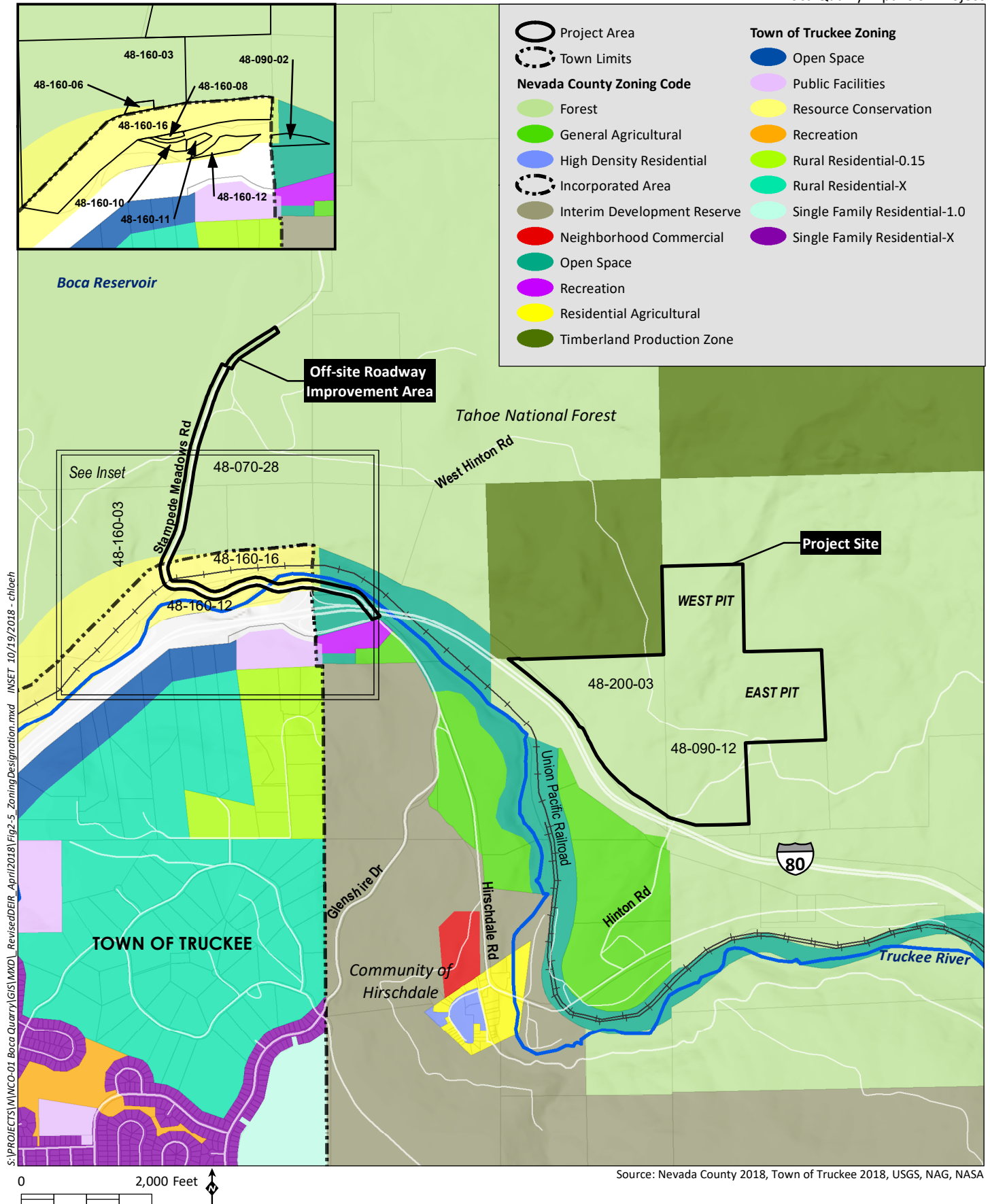
The APNs with the zoning designation RC and OS/RC fall within the Town of Truckee. The Town of Truckee Zoning Code (Truckee Municipal Code Title 18) identifies the RC zoning district for areas appropriate as protection as open space because of significant environmental resources, but where limited development may be allowed. The OS zoning district is applied to designated areas for permanent protection of areas with natural resources and areas suitable for passive recreational uses.

2.5 SURFACE MINING PERMIT

As discussed in Section 1.1, Project Background, the first Use Permit (U83-036) and Reclamation Plan were approved by the County for the Hirschdale Cinder Quarry at the site in 1983. The 1983 Use Permit authorized a 15-acre quarry within a 162.4-acre site. The quarry was initially planned as a relatively small-scale operation with an annual production ranging between 75,000 and 150,000 cubic yards. The estimated total production of the quarry was projected to be approximately 1.5 million cubic yards, over an approximately 20-year lifespan. The 1983 Use Permit, however, did not place any annual production limitations on the operation.







In 1987, an amendment to the original Use Permit was approved (U87-010) which allowed a one-time importation and processing of approximately 50,000 cubic yards of rock material generated by a sewer line project in the Glenshire area. The majority of that imported material was processed, returned to Glenshire and used as fill (for the same sewer line extension project). Upon completion of the Glenshire project, the ability to import material to this site for processing had expired.

On July 26, 2007, the County Planning Commission approved an Amended Use Permit (U06-012) and Amended Reclamation Plan (RP06-001) which focused on bringing the operation into conformance with the quarry's Use Permit and SMARA. The Amended Use Permit maintained the 15-acre mining limits of the original Use Permit (U83-036) and included establishing the current haul route along West Hinton Road and Stampede Meadows Road.

In July 2011, the project applicant re-submitted an application to the County requesting approval for the expansion of the mining operations at Boca Quarry under the authority of an Amended Use Permit (U11-008) and 2011 Reclamation Plan (RP11-001). The proposed Use Permit would expand the size of the quarry to 158 acres (including the existing permitted 40-acre East Pit) and would increase the maximum annual levels of extraction from the site to one million tons of aggregate per year for 30 years. The proposed 2011 Reclamation Plan would bring the new extraction area into compliance with Nevada County Codes and SMARA. These discretionary actions are the subject of this EIR and the 2011 Reclamation Plan is contained in Appendix B.

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3.0 PROJECT DESCRIPTION

3.1 PROJECT OVERVIEW

The project applicant proposes to expand mining operations at the currently permitted Boca Quarry in Nevada County. The application includes requests for the issuance of a new Use Permit (U11 008; Amended Use Permit) as well as an Amended Reclamation Plan (RP11-001; 2011 Reclamation Plan) to correspond with the proposed mine expansion and to allow import of clean fill material for pit backfilling. The Boca Quarry is an approximately 230-acre site with a currently permitted approximately 40-acre extraction/disturbance area in the area referred to as the East Pit. The proposed project would increase the allowable extraction/disturbance area by approximately 118 acres in the area referred to as the West Pit for a total area of approximately 158 acres (ultimate disturbed area) and increase the maximum annual production from 100,000 tons to one million tons for 30 years.

The proposed expanded quarry operation would continue to use the existing haul route for the permitted quarry operations, which includes West Hinton Road from the quarry to Stampede Meadows Road, and Stampede Meadows Road south to I-80 and prohibits haul trucks from using Hirschdale Road through the Hirschdale Community to access the project site.

The proposed project includes improvements along an approximately 1.3-mile long segment of Stampede Meadows Road (22-acre off-site roadway improvement area) to address concerns regarding bicyclist safety that were expressed by the public during the public review process for the previously circulated EIR (September 2012), and to address existing sight-distance deficiencies at the intersection of Stampede Meadows Road with West Hinton Road.

The total project area, therefore, includes the entire 230-acre Boca Quarry (project site) and the 22-acre off-site roadway improvement area. Potential new ground disturbance within the project area would total up to approximately 131.2 acres, which would include 118 acres of new ground disturbance in the West Pit and approximately 13.2 acres of ground disturbance associated with the off-site roadway improvements. As previously mentioned, the ultimate disturbed area consists of the 158-acre area of disturbance within the project site from mining in the East and West Pits, combined.

While the permit modification would allow for the expansion of the levels of extraction and production to a maximum of one million tons of aggregate per year, the actual yearly production would vary and would depend on the local market demand. The 2011 Reclamation Plan envisions the removal of 17 million tons (approximately 13 million cubic yards) of material in three phases over a 30-year period. Blasting would be utilized as part of the proposed mining activities. An amendment to the current Reclamation Plan (RP06-001) is required to authorize the proposed West Pit in accordance with Nevada County Codes and SMARA. The project applicant would enter into a Development Agreement with the County (Appendix C) which would outline timing of reclamation, payment of roadway maintenance costs to Nevada County and the Town of Truckee, the terms of agreement for the development and the expiration dates of approvals and permits.

The East Pit has been idle since 2008; however, the East Pit is currently permitted to operate pursuant to Use Permit (U06-012) and is subject to the conditions and mitigation measures contained in Use Permit (U06-012) which was approved on July 26, 2007, until its expiration on July 26, 2027. Pursuant to

the Development Agreement, the aggregate material mined from the West Pit and sold by the applicant would be subject to the conditions and mitigation measures contained in the currently proposed Use Permit (U11-008). Upon expiration of Use Permit (U06-012), any remaining mining in the East Pit would be subject to the conditions and mitigation provided in the currently proposed Use Permit (U11-008). Reclamation of the East Pit would be subject to Reclamation Plan (RP06-001) which was approved on July 26, 2007 and reclamation of the West Pit would be subject to the currently proposed 2011 Reclamation Plan (RP11-001).

3.2 PROJECT OBJECTIVES

The primary objective of the proposed project is to maximize the local source of high-quality construction aggregate to support existing and future construction projects in the region. The applicant's specific project objectives include:

- **Location.** Secure approvals to continue mining of known reserves on site, which is located within the eastern portion of Nevada County and convenient to the I-80 corridor, thus providing a reliable and economic source of construction grade sand and gravel to meet current and projected demand in the region. This would help minimize potential greenhouse gas emissions generated by providing a local source of aggregate resources which would reduce the need to transport similar materials from sources outside of the region.
- **Market Position.** Maintain current company position and market share as a leading regional provider.
- **Production and Timeframe.** Extract, crush, and sell approximately 17 million tons of high-grade construction aggregate to meet local needs over a period of up to 30 years; annual production rates vary substantially but would not exceed one million tons in active construction years.
- **Employment.** Provide for continued on-site employment of between six and 15 people. Related employment also would be generated by the transport of product to construction sites, construction projects using the supplied aggregate, and secondary expenditures for goods and services.
- **Site Reclamation.** Continue to implement responsible and environmentally sound aggregate removal. Preserve sensitive natural resources; minimize aesthetic impacts through site design, phasing, and concurrent reclamation; and implement reclamation concurrently with operations throughout the life of the mine. Provide an economically feasible and responsible reclamation plan that would result in a beneficial end use, in accordance with the requirements of SMARA. Implementation and monitoring of final reclamation activities would be completed within five years after completion of mining.
- **Development Agreement.** Adhere to the Development Agreement so that operation of the mine may proceed and site reclamation, implementation of the off-site roadway improvements, and maintenance fees owed to Nevada County and the City of Truckee are implemented at the appropriate time.

3.3 PROJECT CHARACTERISTICS

This section describes the components and activities of the proposed project which includes preparation, operation, and reclamation of the quarry, including the proposed West Pit. The proposed project also includes off-site roadway improvements along Stampede Meadows Road that would be implemented pursuant to a Development Agreement with the County. Comments were received during and following the public review period of the 2012 Draft EIR regarding the project description from the following agencies and individuals: California Department of Forestry and Fire Protection (10/4/2012), California Department of Transportation (10/4/2012), Taylor & Wiley Attorneys of Counsel on behalf of the project applicant (11/6/2012), the Hirschdale Community (10/29/2012 and 2/21/2013), Law Office of Donald B. Mooney on behalf of Mr. McGinity (2/21/2013) and on behalf of the Buckhorn Ridge Homeowners Association (2/21/2013), and Union Pacific Railroad (1/3/2013). Refer to Appendix A for the comments received and responses to those comments.

Table 3-1 summarizes the key components of the proposed project. The project site would include the mining areas (East and West Pits). As described in Section 2.3, the currently permitted operations in the East Pit include the excavation area, an aggregate processing area, scale, office, and ancillary facilities. These facilities would remain in use for the duration of the operation period. The existing spring in the southern portion of the project site would be the water source of the proposed project. Figure 3-1 and Figure 3-2 depict the mine plan and cross-sections, respectively.

Table 3-1
BOCA QUARRY EXPANSION PROJECT CHARACTERISTICS

Design/Operating Characteristics	Description/Parameters/Assumptions¹
Operational Activities	
Timber Harvest	Harvest approximately 750 trees
Mining	Excavation using dozers, scrapers, and excavators with occasional use of a drill rig and blasting.
Processing	Aggregate processing plant, screens, and conveyors
Reclamation	Place soil on 3:1 and gentler slopes. Revegetate with species common to the area.
Mine and Reclamation Plan Data	
Acreages	
Project Site	230 acres
Off-site Roadway Improvement Area	22 acres
Acreage to be Disturbed	118 acres (West Pit); 13.2 acres (Off-site Roadway Improvement Area)
Acreage to be Reclaimed	114 acres
Volume²	
Annual Mine Production	1 million tons maximum; approximately 570,000 tons average
Total (Maximum) Mine Production	Up to 17 million tons (approximately 13 million cubic yards)
Operation Period³	
Mining	30 years (maximum)
Reclamation	Concurrent as slopes are completed. Final reclamation five years after completion of mining.

Table 3-1
BOCA QUARRY EXPANSION PROJECT CHARACTERISTICS (cont.)

Design/Operating Characteristics	Description/Parameters/Assumptions¹
Mine Excavation Area Dimensions – West Pit	
Approximate Maximum Length ⁴	3,500 feet
Approximate Maximum Width ⁴	1,700 feet
Vertical Extent of Mining	<200 feet
Operating Schedule and Workforce	
Typical Operating Schedule ⁵	May 1 through October 31 Monday – Friday: 6:00 a.m. – 6:00 p.m. Saturday: 7:00 a.m. – 4:00 p.m.
Blasting	Up to two times per week Monday – Saturday: 7:00 a.m. – 4:00 p.m.
Employment	6 – 15 employees
Reclamation	
Annual Backfill Import	250,000 tons maximum
Open Space	114 acres would be revegetated; some areas would remain as highwalls/talus slopes due to their steepness rendering them unsuitable for revegetation.

Notes:

¹ All values are approximate.

² Quantity based on current maximum production, and foreseeable demand. Actual demand would fluctuate based on economic conditions and regional growth requiring construction aggregate.

³ Total construction aggregates for the planned 30-year life of the permit. Mining and reclamation may be completed within a shorter timeframe depending on the market demand for the product.

⁴ Measured at the longest and widest points.

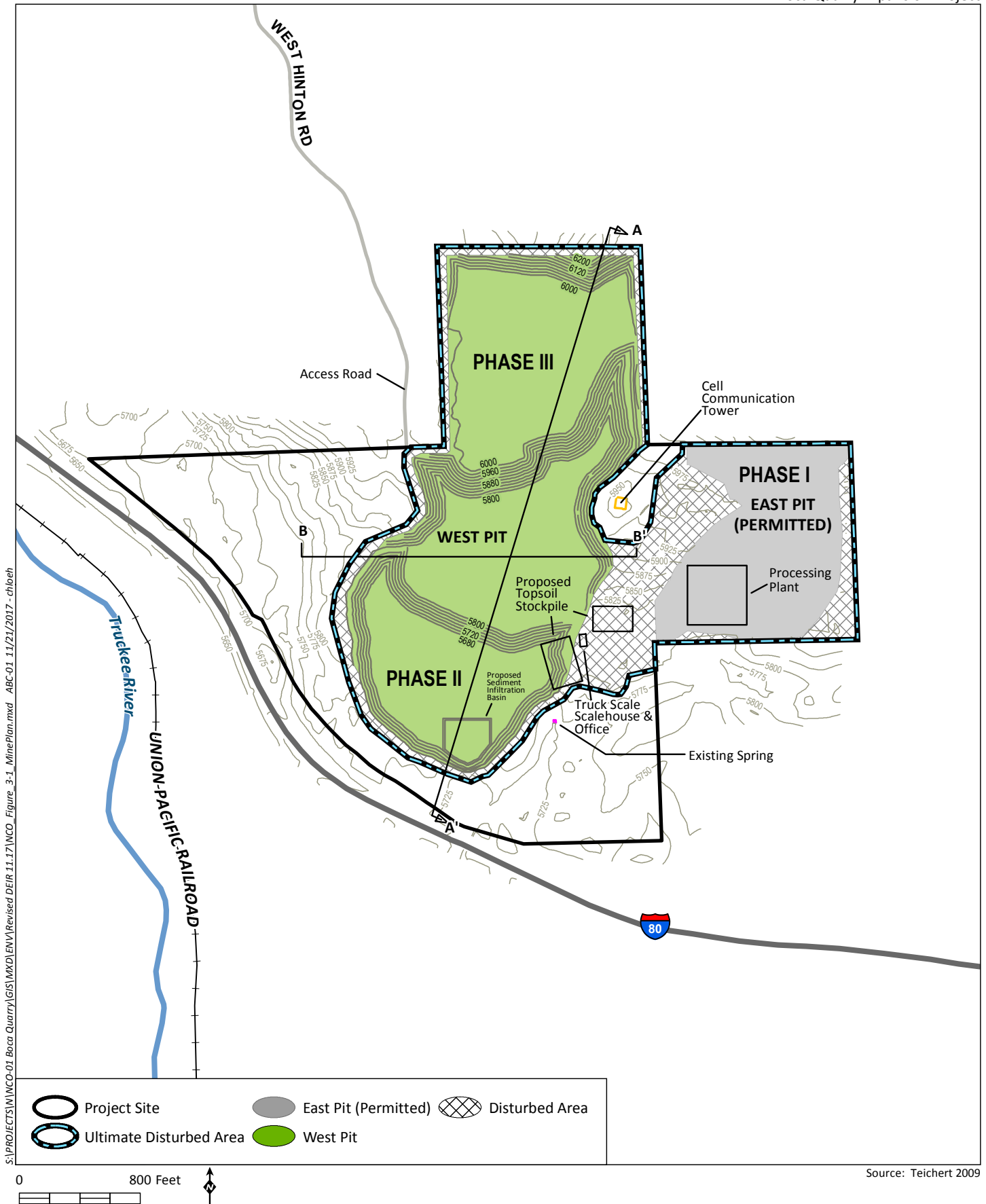
⁵ Occasionally operating hours may be 5 a.m. to 9 p.m. as a result of customer demand and/or operational considerations. The project may also periodically operate 24 hours per day, 7 days per week for limited durations to service nighttime and road improvement projects. The only operation allowed after 9 p.m. and before 6:00 a.m. is material loadout. Operating season is typically May 1 – October 31; opening and closing dates may occasionally be earlier or later, but not exceeding 180 operating days per year.

3.3.1 Phasing, Mining, Engineering, and Storm Water Management

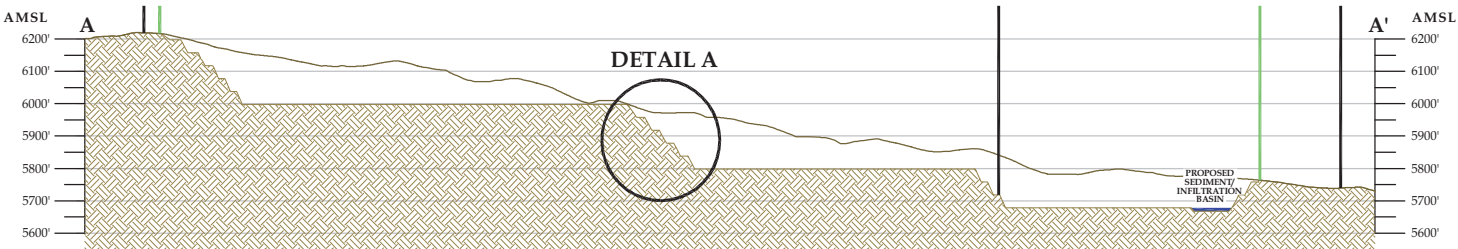
Mining Pit Phasing

Mining for the proposed project would occur in three phases: under Phase I, the existing permitted mining operations in the East Pit (which is nearly complete) would continue and Phases II and III would involve mining the West Pit. During Phase II, the lower (southern) portion of the West Pit would be mined to its maximum width and depth. The upper ridge of the West Pit would then be mined (Phase III), and the overburden from the ridge would be moved to the lower area to be used as backfill in the lower pit, which would allow concurrent, partial reclamation of the lowest bench in the Phase II area. Refer to Figure 3-1 for the proposed phasing.

Market demands determine what geologic resources are salable; however, those demands change. The aggregate materials in the pits vary from one area to the next. In order to maximize utilization of the resources in compliance with SMARA, as much of the pits as possible must remain uncovered and accessible to mining for the life of the mine. Premature backfilling would preclude the desired

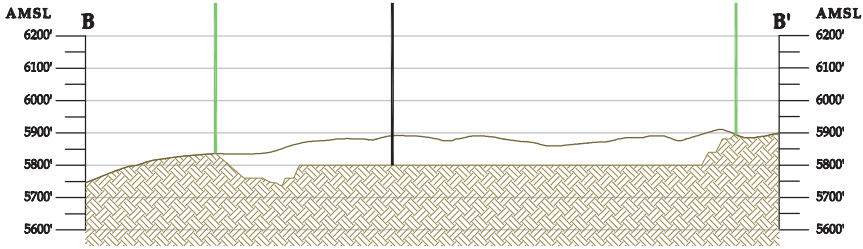
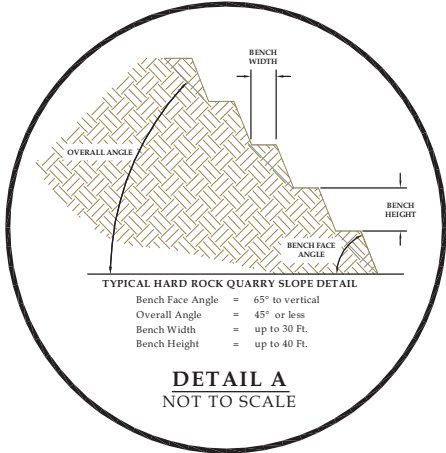


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CROSS SECTION A - A'

SCALE: 1" = 400'



CROSS SECTION B - B'

SCALE: 1" = 400'

LEGEND:

- Existing Surface
- Final Grade
- Edge of Pit
- Proposed Sediment/ Infiltration Basin
- Parcel Boundary

Source: Teichert 2009

operational flexibility; therefore, while the proposed extraction is presented in phases, both pits may remain active for the life of the mine to allow mixing of the various materials from different parts of the mine. Reclamation would occur concurrently with extraction, as described in Section 3.3.8, Reclamation.

Mining and Engineering

The proposed expansion would be primarily a sidehill quarry operation, involving excavation of the West Pit floor to a depth of between 40 and 60 feet below the rim formed by the surrounding land surface. The maximum depth of mining below existing grade would be 200 feet. Refer to Figure 3-2 for cross sections depicting the existing and proposed ground surface of the West Pit.

Site Preparation

Prior to initiation of mining activities in the West Pit, the area would be prepared by removal of all organic material and salvage of the existing top soil. All trees within the footprint of the area to be mined would be removed using both heavy equipment and hand tools. The removal of trees and wood products would be handled and disposed of in accordance with the Z'berg-Nejedly Forest Practice Act of 1973. Accordingly, a Timberland Conversion Permit (14 CCR Section 1105) would be obtained from the California Department of Forestry and Fire Protection, which includes approval of a Timber Harvest Plan. A total of approximately 750 commercially viable trees would be harvested (pers. commun. with Adrian Juncosa on August 17, 2018).

To maintain biological values and to minimize erosion and the resultant sedimentation, the existing vegetation would not be removed until work is imminent. Once the area is cleared of vegetation, the uppermost layer of soil would be salvaged using dozers and/or scrapers and the available soil would be stockpiled for use in future reclamation activities (refer to Figure 3-1 for the proposed locations of the topsoil stock piles). As described in the 2011 Reclamation Plan for the project, slash and brush derived from clearing and grubbing of the new mining areas would be burned on top of the topsoil stockpiles to incorporate mineral nutrients and to stimulate the germination of desirable native species.

Site preparation may occur all at once or in phases which would be determined based on the mining pit phasing and areas being accessed based on market demand.

Blasting to Remove Hardrock Aggregate

Overburden above the construction-grade aggregate would be removed, followed by removal of hardrock aggregate (product) from the geologic formation through a multi-step process including drilling, blasting, and excavation using heavy equipment. Due to the nature of the hard rock product on the site, drilling and blasting would be required to loosen the aggregate from the host rock formation. This is typically accomplished by drilling holes in a grid pattern over a portion of the formation. The design of shot configurations (i.e., drill hole patterns, diameter, depth, quantity, and delay) depends on the site rock conditions and the specific purpose of each shot. Blasting would be conducted by a licensed explosives contractor. An emulsion of ammonium nitrate and fuel oil would be mixed in the drill holes. These components are only explosive once combined and mixed; thus, in-hole mixing minimizes the potential for hazardous conditions during transport, storage and use. Blasts would be detonated with a delay system to limit the quantity of explosive detonated in each delay period and to provide control over detonation. Blasting activities would occur up to two times per week (pers. comm. with Becky Wood of Teichert Materials on August 7, 2018) and the Nevada County Sheriff's Department would be given a 24-hour notice prior to each blast. Blasting would occur only between the daytime hours of

9 a.m. and 4 p.m. during the allowable operating days of Monday through Saturday and the operating period of May 1 through October 31. Explosives would be used according to the technical specifications of the manufacturer and records would be kept, as required by the federal Bureau of Alcohol, Tobacco and Firearms (ATF). Refer to Section 3.3.6, Hazardous Materials Transport and Storage, for a discussion of the transport and storage of the blasting materials.

Engineered Slopes

Blasting and subsequent removal of product would create a series of benches extending into the face of the mountain's sidewall. West Pit development would involve sequential excavation, benching, and slope grading, followed by site reclamation. The design of the quarry walls incorporates the recommendations contained in the Stability Evaluation of West Pit (Golder 2010a, Appendix E) which would involve constructing the walls at a reclaimed grade to achieve a stable final slope. The Stability Evaluation Report is incorporated into the 2011 Reclamation Plan for the project and is enforceable pursuant to SMARA. The engineered slopes would include the following specific design elements as identified in the Stability Evaluation Report (Golder 2010a, Appendix E):

- Slopes in the basalt flows would require a maximum angle of 45 degrees (1:1, horizontal to vertical), with proposed bench heights (40 feet) and widths (30 feet) requiring a maximum bench face angle of 75 degrees.
- Slopes in highly-weathered tuff and ash deposits would require maximum slope angles of between 38 and 22 degrees, for corresponding slope heights ranging from 20 to 60 feet. Slopes less than 20 feet in height within this material can be developed at a maximum angle of 45 degrees.
- Slopes in fresh (unweathered) tuff and ash deposits would require maximum slope angles of between 45 and 34 degrees, for corresponding slope heights ranging from 30 to 60 feet. Slopes less than 30 feet in height within this material can be developed at a maximum angle of 45 degrees.
- A 20-foot-wide catch bench would be constructed at the top and base of any fresh or highly weathered tuff and ash units encountered in the pit wall that are more than 20 feet thick.
- The basalt boulders, cobbles and rubble unit were modeled with no cohesion, with the maintenance of a static FOS of 1.3 therefore not dependent on slope height. Accordingly, a maximum slope angle of 25 degrees would be required for slopes in this unit.
- Slopes in soil or fill deposits would require a maximum slope angle of approximately 26 degrees (2:1).

The exact dimensions of highwalls and benches would be subject to revision in accordance with regular geotechnical examination of the exposed materials. Highwall angles and heights would be evaluated, and if necessary, revised to ensure slope stability.

Following blasting, bulldozers or similar excavating equipment would be used to load aggregate material into internal project haul trucks for transport to the crusher (processing plant) located in the East Pit. Rock fragments that are too large for transporting to the processing plant would undergo primary crushing in the active quarry area and would then be transported via haul trucks to the processing area.

Overburden and/or other non-commercial material would be stockpiled or loaded into haul trucks for backfilling and concurrent reclamation of surfaces that are at their final configuration. These waste materials, combined with over-burden or non-commercial clean fill imported from construction sites outside the project site, would be used to backfill the lower (Phase II) pit.

Inspections

As identified in the 2011 Reclamation Plan for the project, cut slopes would be monitored on a daily basis by the mine operators to ensure stable operating conditions are maintained and potentially hazardous conditions are identified. In the event that hazardous conditions or unstable conditions are identified, a qualified geotechnical engineer would perform an inspection and recommend the proper course of action.

Storm Water Detention Management

No release of surface water from the mining pits would occur. During operation, all runoff from disturbed surfaces would be collected by temporary diversion ditches and carried to a temporary zero-discharge detention basin that would be maintained at the lowest elevation of the operations in the West Pit. The pattern of drainage would be modified during operation as the configuration of the surrounding areas are mined; therefore, the location of the basin would change during operation in accordance with the location and extent of mining activities. At site closure, the final detention basin would be located in the southern-most portion of the West Pit (see Figure 3-1 for the proposed location of the final detention basin and refer to Section 3.3.8 for a discussion of the final storm water detention basin).

SMARA requires that storm water facilities be designed for a 20-year, 1-hour storm event, however, a zero-discharge basin should be based on a more conservative criterion. Therefore, the temporary and final storm water detention basins for the project were conservatively designed to contain two 100-year, 24-hour precipitation events occurring within seven days without surface water discharge. The detention basins would be a minimum of two acres and 12 feet deep founded in bedrock to maximize infiltration. The shared design of the temporary and final detention basins for the West Pit is contained in the Storm Water Management Plan (SWMP) prepared for the project, which is included in Appendix E (Golder 2010b).

As identified in the SWMP and the 2011 Reclamation Plan RP-11-001, sediment would be periodically removed from the temporary detention basins during operation to maintain sufficient capacity. Refer to Section 3.3.9, Environmental Design Measures, for the measures contained in the SWMP and 2011 Reclamation Plan specific to management of the temporary detention basin during operation. Temporary detention basins no longer operational would be backfilled and reclaimed.

3.3.2 Project Reserves, Production and Operating Life

Total aggregate reserves for the quarry (East and West Pits combined) are estimated at over 17 million tons (about 13 million cubic yards, depending on the density of the material). As such, the annual average production volume would be 570,000 tons per year over the estimated 30-year life of the mining operation. The annual volume to be mined would vary depending on market demand but could reach a maximum of 1 million tons per year in very active construction years.

The maximum daily quarry production is limited by the rate at which trucks can be loaded and leave the site; therefore, the estimated maximum daily production is 10,080 tons (for a maximum annual production of 1 million tons over 93 working days). While the longevity of the Boca Quarry is currently estimated at 30 years, this would be a function of production levels and market demand. Thus, if annual production averages more than 570,000 tons per year, the life of the quarry would decrease accordingly.

3.3.3 Processing and Materials Transport

On-Site Processing

Aggregate material loosened from the West Pit would be taken to the processing plant in the East Pit for screening and crushing, and then it would be stockpiled for shipping. Processing to create construction aggregate products involves only crushing and screening of sorted graded materials. Because the processing plant in the East Pit would continue to operate for the duration of the life of the West Pit, final reclamation of this portion of the East Pit would be delayed until the end of the entire project life.

Site Access and Haul Route

Ingress and egress to/from the site is via a private haul road which intersects West Hinton Road northwest of the project site. The route proceeds from the quarry along West Hinton Road through USFS lands to Stampede Meadows Road, then south to the Hirschdale Road/I-80 interchange. The project applicant maintains an annual Road Use Permit with the USFS for use of West Hinton Road through USFS lands.

Hinton Road accesses the project site from the south, and the route to I-80 is along Hirschdale Road through the Hirschdale Community. Use of this site entrance for quarry operations is not allowed under the current Use Permit (U06-012) and would not be allowed under the proposed project. Access from the south would be allowable for only emergency situations and occasional use by employees outside of the annual operational timeframe of May 1 through October 31. Use of the Hinton Road access by haul trucks would be prohibited.

Materials Transport

As described in Section 3.3.2, a maximum of 10,080 tons of aggregate material are proposed to be hauled out of the site on a peak day in a peak year. Commercial aggregate would be loaded onto haul trucks in the project operational area and would be sold by weight at the time of loading. The project applicant does not own or operate the commercial haul trucks that carry aggregate from the mining site to construction sites where the material is used. Based on recent sales information and the size of the average load from the nearby Martis Valley Quarry — which is also in operation by the project applicant — the project applicant estimates the average load of the proposed project to be 18 tons. That is, roughly half of the trucks hauling aggregate from the site are single 12-ton dump trucks, and half are trucks with other configurations (such as long-bed trucks or ones towing a trailer) with approximately double that capacity.

The daily number of haul truck trips is based on the rate at which trucks can be loaded, weighed, and charged. The estimated maximum number of truck loads that can be processed per day is 560 loads. As each truck load involves an empty truck entering the site and a full truck exiting the site, the total number of one-way trips per day generated by aggregate exporting trucks would be 1,120 trips.

Based on the applicant's experience at the Martis Valley Quarry, the maximum amount of backfill to be delivered to the Boca Quarry in any one year would be approximately 250,000 tons, or less in years with lower construction activity. The amount of clean fill delivery correlates generally with aggregate demand, so years of lower aggregate production are also years of lower backfill acceptance. The backfill trucks are estimated to haul at most one-quarter of the amount hauled by aggregate exporting trucks, or a total of 2,520 tons per day. With an average of 18 tons per truck, this would generate approximately 140 round trips, or 280 one-way trips.

The actual amount of truck traffic between the Hirschdale Road/I-80 interchange and the site where aggregate is delivered for use in construction or maintenance projects would be determined by regional aggregate demand. This regional aggregate demand and associated local truck traffic would not change regardless of whether aggregate is mined at the project site or at the nearest alternative sources in the Reno/Sparks area, but the truck lengths and vehicle miles traveled would differ.

3.3.4 Support Facilities and Equipment

Buildings and Stationary Equipment

Equipment and structures at the project site include both stationary and mobile equipment such as screens, conveyors, an office building, and scales. These facilities exist and would essentially remain unaltered as part of the proposed project.

As described in Section 3.3.6, the applicant may relocate hazardous materials used for the mining operations that are currently stored at the Martis Valley Quarry to the project site. Should the hazardous materials storage be relocated to the project site, the location of the storage facility on the project site would be within the ultimate disturbed area, and the site location, transport, and storage would be handled in accordance with all applicable regulations.

Mobile Equipment and Machines

The types of mobile equipment and/or machines that would be used for the proposed expansion area are the same as those that may be used in the currently permitted East Pit. Equipment would include: a dozer, self-loading scraper, front-end wheel loader, portable water pump, motor grader, conveyers, haul trucks, and a hydraulic excavator. A water truck would be used for maintenance of surfaces and dust control. The type of vehicles would vary somewhat, depending on availability, as well as the introduction of new models to suit changing on-site conditions and meet current emission standards. Short-term reclamation tasks may require the occasional use of specialized equipment which would be imported along the approved haul route (West Hinton Road and Stampede Meadows Road).

Exterior Lighting

Existing outdoor lighting is associated with the existing office building and scale, and processing and ancillary equipment in the East Pit. No new lighting would be installed as part of the proposed project. Limited lighting may be required during occasional nighttime operations of loadout material; however, the existing lighting associated with the existing facilities in the East Pit would be used.

Operating Schedule

The quarry would operate, on a single-shift basis from May 1 until October 31, six days per week (total of 158 operating days minus any holidays). Based upon market demand or emergency needs such as urgent response to flood events, the quarry may open earlier or continue operations later than the operating duration stated above but would not exceed 180 operating days per year. As noted in Table 3-1, mining, processing, sales, and truck transport from the site would generally take place between 6 a.m. and 6 p.m., Monday through Friday, and between 7 a.m. and 4 p.m. on Saturday. From time to time, customer demand and/or operational considerations may dictate periods of extended hours which could involve two shifts and result in operating hours starting at 5 a.m. and ending as late as 9 p.m. Certain public agency projects (such as Caltrans road improvement projects) may operate during nighttime hours to prevent traffic congestion associated with lane closures and heavy vehicle operations, in addition to road repairs made necessary by natural disasters (e.g., flooding) or other unforeseen events. These road improvement or repair projects accordingly require materials to be supplied at night. The only operation allowed after 9 p.m. and before 6 a.m. is material loadout. Loadout could occur 24 hours per day and up to seven days per week for limited periods to serve these projects. The duration of these expanded hours of operation would depend on the duration of the projects being supplied.

Workforce

Site operations, including timber harvest and site preparation, mining, processing, and administrative functions, would employ between six and 15 people. The employees would be skilled workers in the construction industry such as heavy equipment operators, maintenance personnel and support staff.

3.3.5 Utilities, Water Use and Supply

Electric power is provided to the site by Liberty Energy–CalPeco. No back-up generating system would be required. The project site features an County-permitted on-site septic system to meet sewage disposal needs. The on-site septic system is permitted by the County (pers. comm. with Coleen Shade, Nevada County on August 8, 2018). Refer to Appendix D for the septic system design.

During operation of the quarry, water would be used for dust suppression (no water would be needed for the on-site aggregate processing operation). Water used for dust suppression would be provided by the existing Dobbas Spring in the southern portion of the project site (see Figure 3-1 for the location of the spring). The spring is the water source for the currently permitted mining operation in the East Pit and features existing improvements that allow for use of the water; therefore, no additional improvements to the spring would be required under the proposed project. Annual springflow is estimated to range from 47 to 335 acre-feet (annualized flow rate of 29 to 207 gpm), with an average value of 142 acre-feet (88 gpm). Operation of the proposed project would require an estimated consumption rate of 25 to 35 gallons per minute (gpm) or 39 to 56 acre-feet per year for the quarry operation. In most years, the flow rate of the spring would be adequate for dust control use.

Potable water for use by employees (e.g., drinking, first aid, emergency eye-wash station, hand washing) would be delivered by a water delivery service or brought to the site by employees. If needed, water for fire suppression would be provided by Dobbas Spring and the catchment pond.

3.3.6 Hazardous Materials Transport and Storage

Hazardous materials associated with operation of the quarry include blasting materials, and fuels and oils for vehicles and equipment maintenance and repair. No hazardous materials are currently stored at the project site – they are stored at the Martis Valley Quarry pursuant to a Hazardous Materials Business Plan (HMBP) and transported to the project site as-needed. Under the proposed project, the applicant may continue to transport hazardous materials stored at the Martis Valley Quarry to the project site as needed or the applicant may relocate hazardous materials storage to the project site. While hazardous materials are stored at the Martis Valley Quarry, blasting materials would be transported to the project site up to two times per week and a truck carrying fuels and oils for vehicle and equipment maintenance and repair would travel to the project site once per day.

Should hazardous materials be stored at the project site, they may be stored in above ground storage tanks or locked storage facilities in their appropriate containers. The blasting materials include ammonium nitrate and fuel oils which are stored in cylinders. Additional materials include propane, fuel, various oils, lubricants and greases, antifreeze, fire suppressants, and oxygen. The location of the hazardous materials storage would be based on the site conditions at the time the relocation occurs. A HMBP would be prepared and implemented for the storage and transport of hazardous materials during mining operations.

3.3.7 Mine Waste Management and Closure of Surface Openings

The proposed project would not generate waste material requiring any special tailing or waste management procedures. As described in Sections 3.3.1 and 3.3.3, overburden and/or other non-commercial rock materials from the site and clean fill from off-site sources would be used as backfill in the mining pits.

The Boca Quarry is a surface mine without any underground shafts or adits. Any drill holes, water wells, and monitoring wells would be abandoned in accordance with applicable State and local ordinances.

3.3.8 Reclamation

SMARA requires mines to be reclaimed to a usable condition that is readily adaptable for a productive land use that creates no danger to public health or safety. As discussed previously, a Reclamation Plan has been submitted as part of the application package in compliance with SMARA. The proposed Reclamation Plan RP11-001, dated July 2011 (2011 Reclamation Plan), is on file with the County of Nevada Planning Department and provides specific details about the proposed reclamation procedures. As identified in the proposed 2011 Reclamation Plan, the project site would be restored to a natural condition which would allow the site to be readily adapted to alternative and beneficial land uses consistent with the existing County Zoning Code designation of FR which provides for production, protection, and management of timber (and support uses); equipment storage; temporary offices; low intensity recreational uses; and open space.

Reclamation Phasing

Under the 2011 Reclamation Plan, mining and reclamation would be concurrent activities throughout the life of the quarry, and the implementation of reclamation would be timed to allow maximum extraction of salable resources from both pits for the life of the mine. Implementation and monitoring of

final reclamation activities would be completed within five years after the completion of mining. Figure 3-3 depicts the reclamation plan and Figure 3-4 depicts the cross sections.

Engineered Slopes

The reclaimed quarry would consist of multiple benches of variable width, portions of which may be partially backfilled, separated by highwall cut slopes that have been reduced to varying (stable) angles according to the nature of the material. The removal, handling, and replacement of soil to be used in reclamation would be accomplished in accordance with SMARA guidelines. Inactive topsoil and growth media stockpiles would be protected from inadvertent destruction and erosion.

The benches would be reclaimed by placement of a minimum of 0.5 foot of topsoil or other clean fill suitable to support native vegetation, separated by stable highwall cut slopes. The lowest portion of the West Pit may be backfilled with non-commercial materials and fine materials from the mining operations, imported clean construction fill, and salvaged topsoil to the lowest bench. The depth of the backfill in the bottom of the West Pit would depend on the nature of the material encountered at depth. The angles of the cut slopes would be reduced to a stable slope and revegetated as feasible. Steep, rocky slopes would feature limited vegetation similar to the existing talus and exposed bedrock slopes within and outside of the project site.

Final Storm Water Management

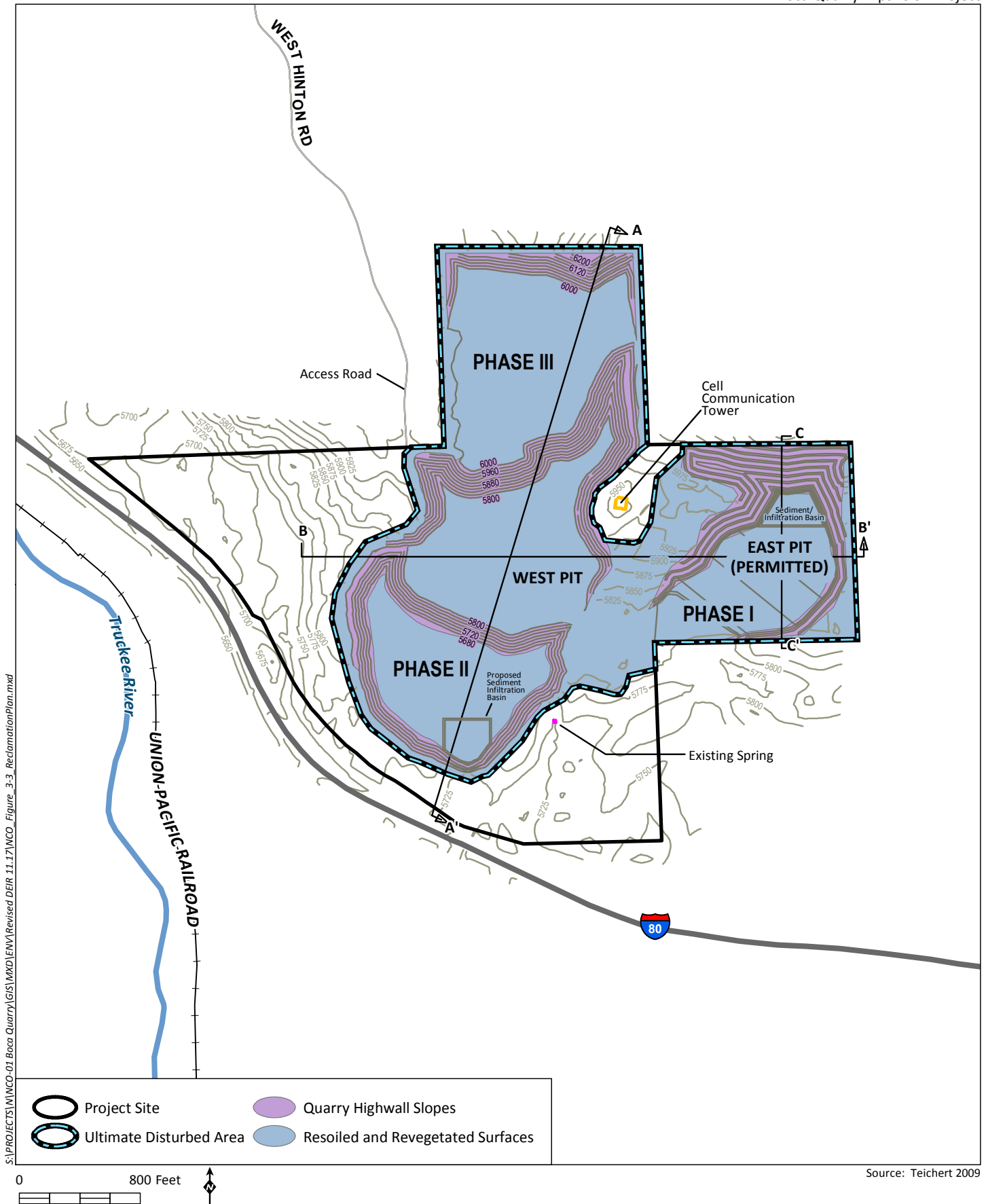
The topography of the largest pit benches would slope to form permanent infiltration basins. Coarse rock substrate would be placed to allow precipitation to infiltrate and reduce surface runoff or erosion.

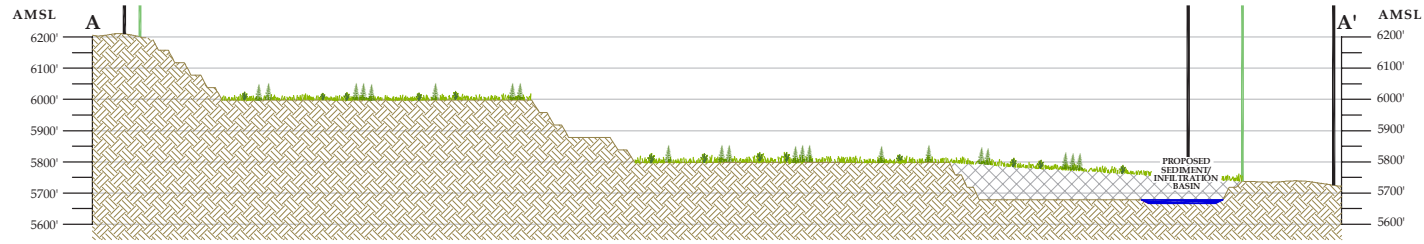
The final storm water detention basin would be constructed to prevent water from leaving the West Pit following reclamation. As previously described, the final storm water detention basin would be located in the southern-most portion of the ultimate disturbed area (see Figure 3-1 for the proposed location of the final detention basin). Like the temporary detention basins, the final detention basin was designed to contain two 100-year, 24-hour precipitation events occurring within seven days without surface water discharge. The detention basins would be a minimum of two acres in size and 12 feet deep founded in bedrock to maximize infiltration. The minimum depth of the West Pit at completion would be approximately 45 feet, indicating that the pit would have a much larger surface water storage capacity than required to maintain a zero-discharge basin. To maintain the performance and capacity of the basin, no backfill would be placed in the basin, and temporary erosion and sediment control measures would be put in place until permanent stabilization control measures are in place.

Backfill, Soils, and Stockpiling

Non-commercial materials encountered during mining and fine materials from processing would be used as backfill. As previously discussed, clean material from construction sites outside the project site may be imported (approximately 250,000 tons per year or less) to supplement backfill operations. Stockpiled soils from the project site would be used for resoiling. Imported fill materials, as well as fine materials from processing could be used to supplement the salvaged topsoil to provide a suitable plant growth medium. The existing soils contain a significant portion of gravel and stones which are valuable for erosion control and contribute to the biological function of the soil.

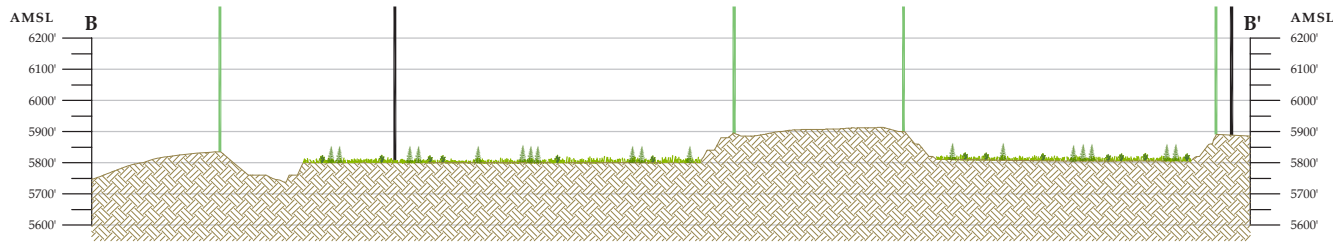
Stockpiles would be compacted to the minimum degree possible to maintain the biological function of the soils to the extent feasible. Stockpiles would be revegetated with native species. Slash and brush





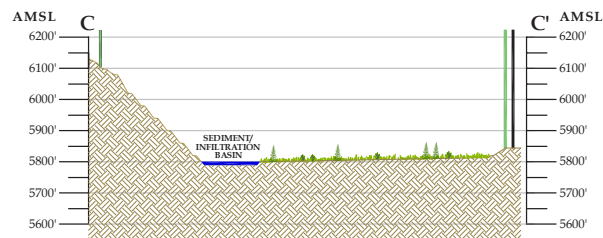
CROSS SECTION A - A'

SCALE: 1" = 400'



CROSS SECTION B - B'

SCALE: 1" = 400'



CROSS SECTION C - C'

SCALE: 1" = 400'

LEGEND:

- Final Grade
- Edge of Pit
- Proposed Sediment/ Infiltration Basin
- Parcel Boundary
- ××× Proposed Backfill Area
Final Elevation TBD

Source: Teichart 2011

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from site preparation would be burned on top of topsoil stockpiles to incorporate mineral nutrients into the material. The stockpiles would be protected from erosion by constructing slopes with a maximum gradient of 4:1; diverting potential stormwater flows from the stockpile; applying mulches such as pine needles or ground wood and bark.

Surface Preparation and Resoiling

Prior to application of reclamation soil/growth media, any areas that are not backfilled would be deep-ripped to a depth of two feet (unless the presence of resistant, unweathered rock precludes ripping). In particular, if any highly compacted areas such as the pit floor are to be reclaimed with less than three feet of backfill, they would be deep-ripped prior to soil application. Resoiling would occur on both the wide Phase II pit floors (once backfilling is completed) and the narrow benches separating the Phase III highwalls of the West Pit. Resoiling would occur over all areas where it would reasonably be expected to remain in place or would fall into the gaps between the shallow layers of broken rock. Application of approximately 0.5-foot of soil prior to revegetation would require a minimum of 86,300 cubic yards of material.

Revegetation and Vegetation Monitoring

Approximately 114 acres of the ultimate disturbed area would be resoiled and revegetated as a mountain shrubland community. Areas that are too steep (>3:1 slope) or too rocky to retain soil would remain as exposed rock with limited vegetation. Following soil placement, native grasses, shrubs, and trees would be broadcast seeded. Revegetation of the final surface is intended to consist of vegetation types and species similar to the vegetation currently existing on the project site.

Monitoring and reporting on revegetation success would be required as outlined in the 2011 Reclamation Plan for five years after seeding to ensure that performance standards have been met and adequate vegetative cover have been reestablished. The monitoring parameters and performance standards outlined in the 2011 Reclamation Plan include requirements for annual surveys to monitor and appropriately manage: 1) Native Plant Density – establishing a minimum density of 90 target species, as identified in the 2011 Reclamation Plan, per 200 square meters; 2) Native Plant Cover – establishing a minimum 40 percent cover of native plant species and minimum 10 percent canopy cover of targeted woody vegetation identified in the 2011 Reclamation Plan; 3) Native Plant Species Richness – successfully establish a minimum of 5 target shrub and tree species per 200 square meters; and 4) Noxious Weeds – identify and maintain noxious weeds to below 5 percent cover.

Removal of Buildings, Structure, and Equipment

Following completion of mining and reclamation activities, mobile equipment associated with the mining operation would be removed from the site, as well as stationary equipment including, but not limited to, the office building, scale, screens, and conveyors. All buildings, structures, and equipment would be removed and disposed of according to applicable laws and standards.

Roads

The current access road to the project site would remain, but at the conclusion of reclamation, no mining roads would remain within the project site. The maintenance road for the existing telecommunications tower and the road for the private use of the property owner would be retained on the project site.

Financial Assurances of Reclamation

SMARA requires surface mining operations to obtain Lead Agency-approved financial assurance for the reclamation of mined lands, so the public would not have to bear the cost of reclaiming abandoned operations. In the event of financial incapability by the operator, the financial assurance funds would be used by the Lead Agency (or the Department of Conservation) to reclaim the mined site and to ensure that quarry operations comply with the approved reclamation plan. A financial assurance is in place for the currently authorized operation and would continue to be annually reviewed in accordance with SMARA requirements.

3.3.9 Environmental Design Measures

The following project design and operational requirements are outlined in the project SWMP and/or 2011 Reclamation Plan (Golder 2010b and ESRS 2011 in Appendices D and B, respectively) and adherence to these measures is enforceable pursuant to SMARA and Section 402(P)(3)(A) of the Clean Water Act. These measures would address potential runoff/storm water and related erosion/sedimentation concerns during site operation and reclamation and are incorporated into the project design:

- Native topsoil would be salvaged, stored/stabilized and reapplied during reclamation efforts wherever feasible.
- All surface flows from the ultimate disturbed area during operation and following reclamation would be collected and conveyed to on-site zero-discharge detention basins that are conservatively and adequately sized to prevent water from leaving the West Pit (Golder 2010b, Appendix F).
- Stockpiled topsoil (i.e., soils to be stored and reapplied during reclamation) would be protected from erosion. Measures include: limiting slopes to a maximum grade of 4:1 (horizontal to vertical); diverting any potential flow around the stockpiles (e.g., with compacted soil berms or ridges); and using protective devices to avoid/minimize erosion/sedimentation potential, including organic mulches (e.g., pine needles and/or tub-ground wood and bark), crimped straw (under appropriate conditions such as relatively gentle slopes with low rock content), silt fences and fiber rolls. Stockpiled top soil would be broadcast seeded with native grasses and shrubs to provide temporary vegetation cover and erosion control (ESRS 2011, Appendix B).
- Erosion and sediment control measures would be implemented to avoid/reduce erosion and minimize the potential for sediment transport into the detention basins. Appropriate measures include the erosion control and minimization measures identified for soil stockpiles. Additional measures may include straw wattles, silt fences, hydraulic straw or wood mulches (Golder 2010b, Appendix F).
- For reclamation soils containing a moderate proportion (up to approximately 25 percent) of small rock fragments within the reclamation growth medium (topsoil), as needed additional erosion control measures such as coarse organic mulch or crimp straw would be applied (Golder 2010b, Appendix F).

- Following soil placement and backfilling during reclamation, exposed soils would be broadcast seeded with native grass and shrubs to provide temporary vegetation cover and erosion control (Golder 2010b, Appendix F).
- To maintain proper function and adequate capacity of the temporary detention basin during operation the following best management practices would be implemented as identified in the SWMP for the project (Golder 2010b, Appendix F): 1) no backfill would be placed in the detention basin. and 2) the basin would be inspected annually, and the excess sediment removed by the start of each rainy season (typically October 1) of each year.
- To maintain function and adequate capacity of the final detention basin at site reclamation, no backfill would be placed in the detention basin, and areas with backfilled soil would be stabilized against excessive erosion and scour to minimize sediment accumulation in the basin. At a minimum, the temporary erosion and sediment control measures would be put in place until permanent stabilization (Golder 2010b, Appendix F).
- All erosion and sediment control BMPs would be regularly inspected and repaired, replaced or (if applicable) removed as-needed, including an annual inspection conducted prior to the beginning of the rainy season. An annual report would be prepared by the site operator and submitted to the County in accordance with applicable SMARA requirements, to document the status and effectiveness of the existing measures, and to provide recommendations for additional or enhanced erosion and sediment control BMPs.

3.3.10 Off-site Roadway Improvements

The project includes improvements along an approximately 1.3-mile long segment of Stampede Meadows Road to address concerns regarding bicyclist safety that were expressed by the public during the public review process for the previously circulated Draft EIR (September 2012), and to address existing sight-distance deficiencies at the intersection of Stampede Meadows Road with West Hinton Road. Bicycle safety and sight-distance deficiencies were evaluated in the Traffic Impact Analysis (TIA) prepared for the project (LSC 2017) and the associated off-site roadway improvements have been incorporated into the project design.

The proposed improvements would extend along Stampede Meadows Road from approximately 500 feet north of West Hinton Road to approximately 1.2 miles south of West Hinton Road. The improvements include: 1) pavement widening and shoulder improvements along the roadway segment; and 2) sight distance improvements at the Stampede Meadows Road and West Hinton Road to provide adequate driver sight distance at this intersection. The off-site roadway improvements would result in ground disturbing activities to approximately 13.2 acres within the approximately 22-acre off-site improvement area and would result in an additional approximately 1 acre of paved surface. Refer to Figure 3-5 and Figure 3-6 for the off-site roadway improvements.

The segment of Stampede Meadows Road in the off-site roadway improvement area includes portions under jurisdiction of the Town of Truckee, CPUC, the County and USFS. As previously mentioned, the UPRR corridor is under jurisdiction of the CPUC. In addition, the segment of road north of the UPRR corridor is located entirely within Tahoe National Forest (USFS lands) but has been granted to the County maintenance record pursuant to Board of Supervisors Resolution 74-24.

Pavement Widening and Shoulder Improvements

The proposed widening and shoulder improvements would be constructed along Stampede Meadows Road between the I-80 interchange and West Hinton Road (refer to Figure 3-5 for the conceptual roadway widening design). The design for the roadway widening is conceptual, with areas of potential widening identified based on existing constraints (e.g., guardrails, steep slopes, wetlands, or cultural resources). The improvements would include widening the existing 20- to 24-foot-wide pavement to achieve a 32-foot-wide paved area where feasible, and constructing new shoulders as needed and where feasible to provide 1-foot-wide unpaved shoulders along the entire length. Paved vehicle pull-out areas would be constructed at three locations along the roadway segment. “Share the Road” signs (specifically, sign type W11-1 with supplemental plaque W16-P) would be installed along Stampede Meadows Road between the I-80/Hirschdale Road interchange and West Hinton Road to alert motorists to the presence of cyclists along Stampede Meadows Road. Stampede Meadows Road crosses the existing UPRR corridor at-grade. The shoulder widening improvements would avoid the existing UPRR right-of-way; thereby avoiding impacts to areas under jurisdiction of the CPUC. The pavement widening activities would extend beyond the County easement and into the USFS lands; therefore, an encroachment permit from USFS would be required. Encroachment permits from the County and Town of Truckee would also be required.

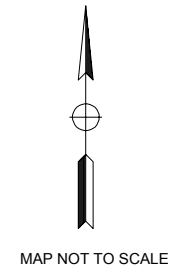
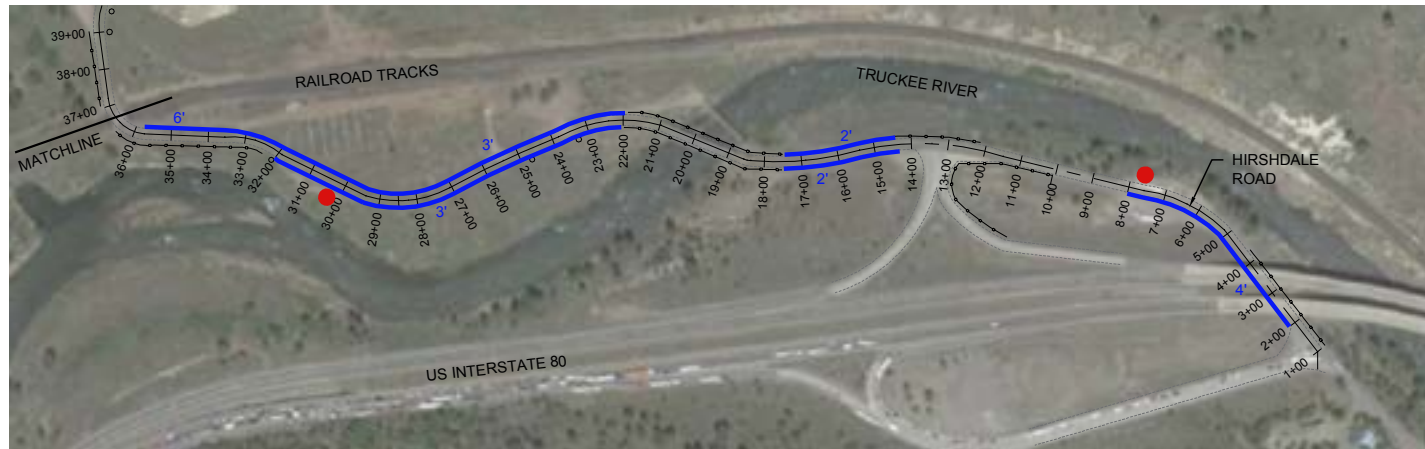
Sight Distance Improvements

The sight distance improvements at the Stampede Meadows Road and West Hinton Road intersection include an approximately 14,100 square foot area directly north of West Hinton Road and east of Stampede Meadows Road and an approximately 15,100 square foot area directly south of West Hinton Road and east of Stampede Meadows Road (refer to Figure 3-6 for the conceptual intersection design). These areas would be cleared of vegetation and large trees and graded to remove site obstructions and to allow for an adequate sight distance at the intersection. In addition, the intersection would be designed to ensure that adequate entry radius is provided for right turns made from Stampede Meadows Road onto West Hinton Road, in accordance with County Standards.¹ The improved areas would be revegetated following construction. “Truck Crossing” warning signs would be installed in both directions along Stampede Meadows Road approximately 500 feet in advance of West Hinton Road. Specifically, the signs would include a picture of a truck on it (a “W11-10” vehicular traffic sign) with a supplemental warning plaque (a “W16-2aP” sign) indicating “500 FT” would be placed in each direction along Stampede Meadows Road. The proposed advance warning signs are included in Appendix G of the TIA (LSC 2017, Appendix J).

Construction Equipment

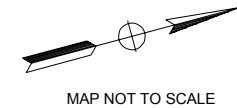
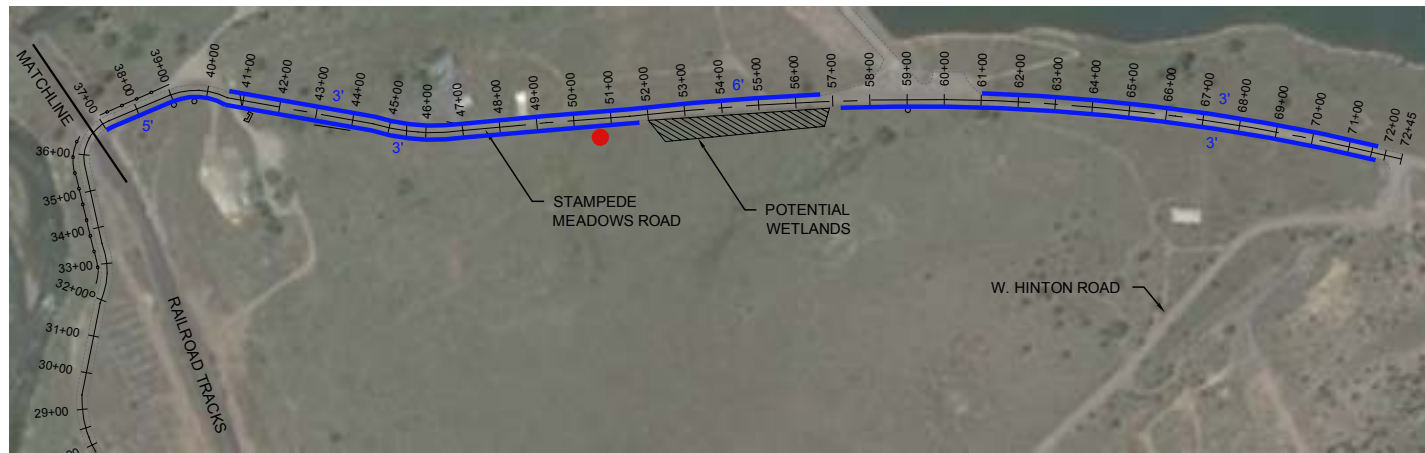
Construction of the off-site roadway improvements would involve heavy equipment for grubbing and clearing, grading and excavation, drainage and utilities installation and subgrading, and paving. Construction activities would also require two water trucks for grubbing and clearing, two water trucks for grading and excavation, one water truck for drainage/utilities/subgrading, and one water truck for paving per day. Refer to Table 4.9-4 for a comprehensive list of the construction equipment and the quantities.

¹ The Traffic Impact Analysis prepared for the project (LSC 2017) includes an example of the minimum edge-of-traveled-way design is provided in Figure 9-26 of the American Association of State Highway and Transportation Officials’ (AASHTO) A Policy on Geometric Design of Highways and Streets.



NOTES:

1. SHOULDER IMPROVEMENTS INTENDED TO DEVELOP A 32-FOOT PAVED SECTION WITH 1-FOOT DIRT SHOULDERS.
2. CENTERLINE SHIFTS MAY BE REQUIRED.
3. SIGNAGE NOT SHOWN.



DRAFT

EXHIBIT MAP

PROPOSED SHOULDER IMPROVEMENTS
HIRSHDALE RD/STAMPEDE MEADOWS RD
TEICHERT
2200.31 3/26/2014

- 3' SHOULDER WIDENING AS NOTED
- PULLOUT AREA

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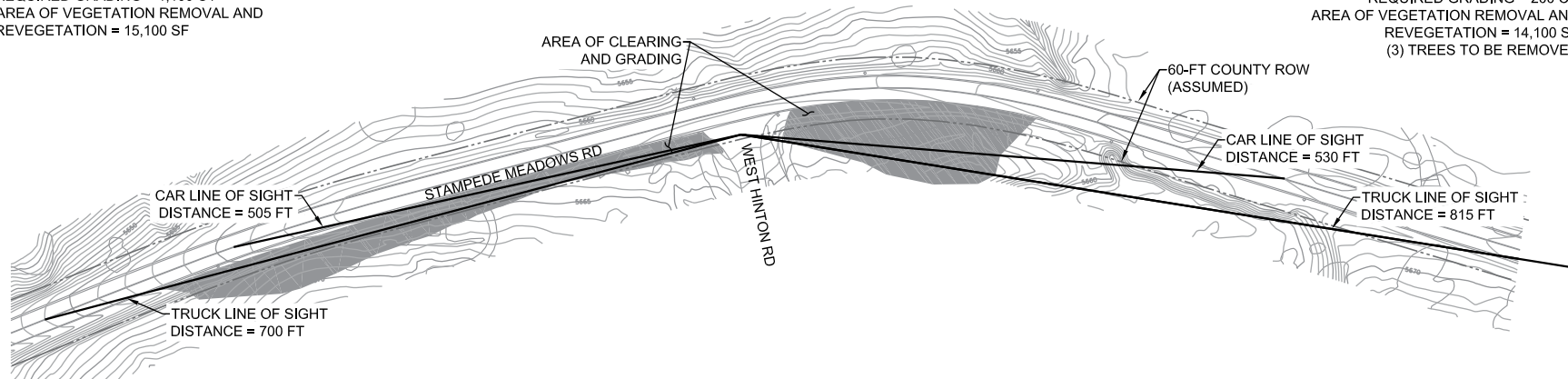
AUERBACH ENGINEERING CORPORATION

Source: Auerbach Engineering Corporation

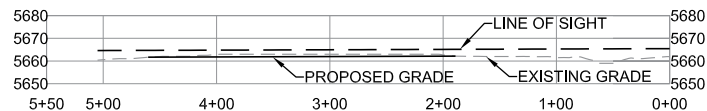
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SOUTH
 REQUIRED GRADING = 1,100 CY
 AREA OF VEGETATION REMOVAL AND
 REVEGETATION = 15,100 SF

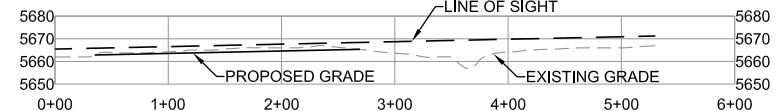
NORTH
 REQUIRED GRADING = 200 CY
 AREA OF VEGETATION REMOVAL AND
 REVEGETATION = 14,100 SF
 (3) TREES TO BE REMOVED



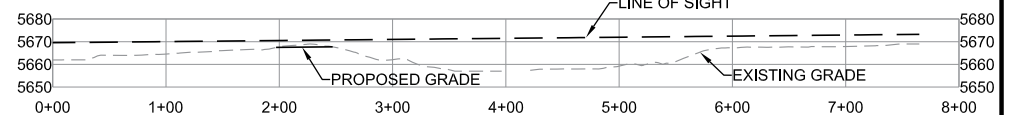
SOUTH CAR PROFILE



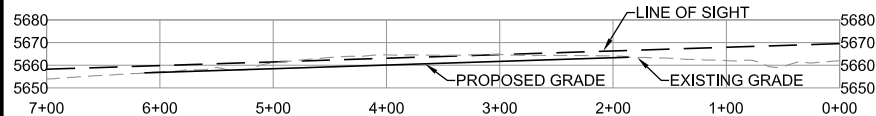
NORTH CAR PROFILE



NORTH TRUCK PROFILE



SOUTH TRUCK PROFILE

**NOTES:**

1. CAR DRIVER'S EYE HEIGHT = 3.5 FT.
2. TRUCK DRIVER'S EYE HEIGHT = 7.6 FT.
3. OBJECT HEIGHT ON STAMPEDE MEADOWS RD = 4.25 FT.
4. REQUIRED GRADING ALLOWS FOR 3 FT CLEARANCE BELOW LINE OF SIGHT FOR VEGETATION GROWTH.

SIGHT DISTANCE EXHIBIT

Stampede Meadows Rd./West Hinton Rd.
 Teichert Boca Quarry
 Project: 2200.31 October, 2013

AUERBACH ENGINEERING CORPORATION

Source: Auerbach Engineering Corporation

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Construction Schedule and Workforce

Road improvement construction would likely occur Monday through Saturday from 7:00 a.m. to 3:30 p.m. and would only occur on Sundays in emergency. The construction crew would likely be based out of Teichert Construction's Lincoln office. Most employees live in the Roseville and Rocklin area (approximately 90 miles from the project area) and although hotels may be provided for workers, it is assumed, as a worst-case scenario, that all employees would commute from the Roseville and Rocklin area. Approximately 22 construction workers and four managers/inspectors would be required on site each day for construction.

3.3.11 Trip Generation

Quarry Operation

Worst-case daily vehicle trips associated with operation of the proposed project would be 1,432 trips per day. The trip generation is summarized below:

- **Timber Harvest:** During site preparation, approximately 750 commercially viable trees would be harvested and transported to a lumber mill located in Quincy (approximately 75 miles from the project site). Harvested trees would be transported via heavy duty diesel trucks and would generate a total of 188 one-way trips over the 30-year life of the project. Up to 20 one-way trips per day could occur during the timber harvest. If the timber harvest occurs during operation of the site, these trips would replace aggregate exporting truck trips and would not affect the overall worst case hourly and daily vehicle trips. Also, if the loads are spread out over a single operating season, the timber harvest would result in less than one load per day.
- **Aggregate Exporting Trucks:** The estimated maximum number of truck loads that can be processed per day is 560 loads. As each truck load involves an empty truck entering the site and a full truck exiting the site, the total number of one-way trips per day generated by aggregate exporting trucks would be 1,120 trips (560 round trips).
- **Backfill Importing Trucks:** Backfill trucks would generate approximately 280 one-way trips per day (140 round trips).
- **Employees and Maintenance Trucks:** The project would generate up to 30 one-way trips per day for employees (15 round trips) and two (one round trip) for a maintenance truck to transport fuels and oils for the trucks and equipment. An additional truck would transport blasting materials up to two times per week.

Off-site Roadway Improvements

Worst case daily vehicle trips associated with construction of the off-site roadway improvement area would be 118 total trips daily. The trip generation is summarized below:

- **Import/export trucks:** A maximum of 34 import/export trucks would visit the site per day resulting in 68 one-way trips per day (34 round trips).

- Employees: A maximum of 22 construction workers per day, resulting in 38 one-way trips per day (19 round trips). An additional 12 one-way daily trips (six round trips) are assumed for managers/inspectors.

3.3.12 Overall Schedule

Operation of the East Pit may resume at any time (mining may occur under the existing permit for the East Pit). Construction of the proposed off-site roadway improvements may begin as early as 2020 and are expected to be complete within one month (approximately 22 working days). West Pit mining may commence as early as 2020, after completion of the off-site roadway improvements, and would continue for a duration of 30 years. Reclamation would be complete, including the removal of equipment, five years following completion of operations.

3.3.13 Development Agreement

As part of the proposed project, the applicant plans to enter into a Development Agreement with the County and the property owner which would establish a framework for: (1) how the current Use Permit (U06-012) and Reclamation Plan (U06-012) and the Amended Use Permit (U11-008) and 2011 Reclamation Plan (RP11-001) would apply to the mining and reclamation phasing of the project; and (2) costs and timing for the payment of a cost per ton fee to the County and Town of Truckee for roadway maintenance. The Development Agreement also includes a timeframe for which the County and Town of Truckee would be responsible for conducting roadway maintenance activities and the scope of those activities. The costs are based on two scenarios: (1) a standard maintenance schedule due to full quarry activities (152,250 to one million tons hauled per year); and (2) a maintenance schedule based on limited operation (less than 152,250 tons hauled per year). For Scenario 1 the County and Town of Truckee would be responsible for conducting biannual patching and maintenance work and a full overlay in year seven of operation. For Scenario 2 the County and Town of Truckee would be responsible for conducting chip seal and patch and crack seal during operational years 7 and 14 with a full overlay in year 21 of operation.

The Development Agreement would allow the project applicant to continue operations in the currently permitted East Pit, but would ensure the site reclamation, off-site roadway improvements, and owed fees associated with the proposed expansion are implemented at the appropriate time based on the phased operations. Costs associated with the off-site roadway improvements identified in Section 3.3.10, Off-site Roadway Improvements, are not covered by the maintenance fees identified in the Development Agreement.

As identified in the Development Agreement, mining of the East Pit is subject to Use Permit U06-012 which was approved by the County Planning Commission on July 26, 2007 and expires on July 26, 2027. Reclamation of the East Pit is subject to Reclamation Plan RP06-001, also approved on July 26, 2007. Upon the expiration of Use Permit U06-012, any remaining mining in the East Pit would be subject to the conditions and mitigation provided in U11-008. Reclamation of the East Pit would be subject to Reclamation Plan (RP06-001) and reclamation of the West Pit would be subject to the currently proposed 2011 Reclamation Plan (RP11-001). The term of the Development Agreement would commence upon the effective date, concurrent with the approval of the proposed 2011 Reclamation Plan (RP11-001) and would be in effect for 30 years thereafter, with the opportunity to renew concurrent with the permitted duration of the mining operations on the project site.

Benefits

Public benefits of the proposed project and implementation of the Development Agreement have been identified by the County in the Development Agreement, and include: (a) providing a local source of aggregate to keep infrastructure construction and maintenance costs down; (b) implementing the County's General Plan goals and policies by reducing vehicle miles traveled (VMT) and associated traffic, air quality, and noise impacts associated with the importation of aggregate from outside of the region; (c) mining of valuable mineral resources recognized by the State and County (as reflected by the State Department of Conservation's MRZ and County's ME designations); (d) generating sales tax revenue for the County; and (e) the applicant is responsible for constructing the off-site roadway improvements and associated mitigation measures related to sight distance and bicyclists prior to the commencement of sales of aggregate material mined from the West Pit.

The Development Agreement would also provide benefits to the project applicant, County, and Town of Truckee. The agreement would benefit the County and Town of Truckee through the establishment of fees that the project applicant would pay based on the amount of exported aggregate. The establishment of fees is discussed in detail below. The Development Agreement would establish a binding contract to which the project applicant is legally held. With execution of this Development Agreement, both Parties could be assured that the project could proceed without disruption caused by a change in County planning and development policies and requirements, which assurance would thereby reduce the actual or perceived risk of planning, financing and proceeding with the proposed project.

Fees

The project applicant would pay cents per ton funding ("Cents Per Ton") to the County and Town of Truckee pursuant to rates listed in the Development Agreement, as adjusted for inflation in accordance with annual inflation adjustment based on the Engineering News Record (ENR) index for California Cities. The purpose of the Cents Per Ton fee is to compensate the County and the Town of Truckee for roadway maintenance costs on Stampede Meadows Road between West Hinton Road and the I- 80/Hirschdale Road interchange resulting from the transport of aggregate produced from the West Pit as laid out in Use Permit U11-008, as well as any remaining aggregate produced from the East Pit after the expiration of Use Permit U06-12.

Payments would be made annually after the close of each calendar year (December 31). The payment would be made to Nevada County and delivered to the County Executive Office, or such address as County may designate in writing. The County shall forward payments to the Town of Truckee and shall copy the applicant on the transmittal. Within 30 days of the close of the calendar year, the applicant shall provide the County with a statement indicating the tons of aggregate from the West Pit (and East Pit after expiration of U06-012) sold and a calculation of the cents per ton contribution to be made as a result of said production. The County may audit, as often as it determines is necessary, the tonnage of aggregate mined from the East Pit, and/or the West Pit and sold at the project site and the payments to the County or to the Town of Truckee to verify that the amount of payment correctly reflects actual tonnage sold.

3.4 REQUIRED PERMITS AND APPROVALS

This EIR is intended to cover all approvals, actions and determinations to implement the proposed project described above, whether explicitly listed or not. The County has the authority to review and approve the proposed Conditional Use Permit, 2011 Reclamation Plan, and Development Agreement.

Other local, state, and federal entitlements required by the project include:

- National Pollutant Discharge Elimination System (NPDES) General Construction Permit administered by the State Water Resources Control Board (SWRCB) and an associated Stormwater Pollution Prevention Plan (SWPPP) for the roadway improvements.
- Timberland Conversion and Timber Harvest Plan would need to be filed with the California Department of Forestry and Fire Protection, and a Timberland Conversion Permit obtained.
- Transportation Permit application with the specific route(s) for the shipper to follow from origin to destination if any oversized loads (i.e., large equipment) would need to be submitted to the State of California Department of Transportation (Caltrans).
- Encroachment permit from the County for improvements to Stampede Meadows Road involving County right-of-way.
- Encroachment permits from the USFS for improvements to Stampede Meadows Road in areas under their jurisdiction (where there is no existing County right-of-way).
- Encroachment permit from the Town of Truckee for improvements to Stampede Meadows Road in areas under their jurisdiction.
- A permit for the storage of hazardous materials and/or the generation of hazardous wastes is required from the Nevada County Department of Environmental Health's (NCDEH) CUPA prior to storing or generating hazardous wastes.
- The County approved Final EIR, Reclamation Plan and Development Agreement will be submitted to the State Department of Conservation for their final review.

4.0 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This section comprises the main body of the EIR and contains the environmental impact analysis of environmental issue areas considered to be potentially affected by the proposed project. While all environmental issue areas identified in Appendix G of the State CEQA Guidelines are examined, some environmental issue areas were determined to be not applicable to the proposed project or any potential effects would be less than significant and did not warrant detailed analysis in this section of the EIR.

As described in Section 1.5, the scope of this Recirculated Draft EIR is based, in part, on public comments received on the 2012 NOP, as well as comments received on the previously circulated 2012 Draft EIR. Refer to Appendix A for a table summarizing the comments received on the previously circulated 2012 Draft EIR and responses to those comments. Each environmental issue section is addressed according to the following format:

- **Existing Conditions:** A discussion of the existing conditions and physical environment of the project area.
- **Regulatory Framework:** A discussion of the federal, state, and local regulations relevant to the proposed project.
- **Significance Thresholds:** A discussion of the thresholds of significance according to Appendix G of the State CEQA Guidelines and other applicable guidelines.
- **Impact Analysis:** A discussion of the impacts of the proposed project is presented in quantitative and/or qualitative terms, based on the stated project description. Impact determinations are made according to Appendix G of the State CEQA Guidelines as follows: significant and unavoidable; significant, but can be mitigated, avoided, or substantially lessened; less than significant; or, no impact.
- **Level of Significance Before Mitigation:** A discussion of the level of impacts prior to implementing measures to avoid, minimize, or mitigate for those impacts.
- **Mitigation Measures:** A description of the measure required to avoid, minimize, or mitigate significant impacts to below a level of significance.
- **Level of Significance Following Mitigation:** A discussion of the level of significance of the identified impacts following implementation of the proposed mitigation measure(s).

Areas of Potential Environmental Impact Addressed in Detail in this EIR:

1. Geology and Soils
2. Hydrology and Water Quality
3. Biological Resources
4. Aesthetics
5. Traffic and Circulation
6. Noise
7. Air Quality
8. Greenhouse Gas Emissions
9. Energy
10. Hazards and Hazardous Materials
11. Cultural and Tribal Resources

4.1 GEOLOGY AND SOILS

Technical studies used for the following analysis include: (1) Boca Quarry 2011 Reclamation Plan (ESRS 2011), and (2) Stability Evaluation of the West Pit, Boca Quarry, Hirschdale, California (Golder Associates [Golder] 2010a). These studies are summarized in this section along with other applicable data, with the complete technical reports included in Appendices B and C, respectively, of this EIR.

Comments were received following the public review period of the 2012 Draft EIR regarding this topic from Law Office of Donald B. Mooney on behalf of the Buckhorn Ridge Homeowners Association (2/21/2013). Refer to Appendix A for the comments received and responses to those comments.

4.1.1 Existing Conditions

Regional Geologic and Topographic Setting

The project site and the off-site roadway improvement area are located in the Sierra Nevada Geomorphic Province near its border with the Basin and Range Geomorphic Province to the east. The Sierra Nevada Province is characterized by a 400-mile long and 80-mile wide tilted fault block extending between the Cascade Range Province on the north and the Mojave Desert Province to the south. The east face of this Province exhibits rugged, high-elevation scarp faces with associated grades and elevations generally decreasing to the west and eventually transitioning into the adjacent alluvial plain of the Great Valley Province. The Sierra Nevada range encompasses extensive granitic (and other plutonic) deposits of primarily Mesozoic-age (between approximately 65 and 250 million years old), overlain by locally extensive and younger volcanic, metamorphic and sedimentary rocks (particularly in the northern Sierra Nevada). Many of the high-elevation deposits, especially on the eastern faces, are cut by deep river canyons and have been modified by glacial sculpting. The resulting topography is typically large-scale, rugged, and includes unique features such as Yosemite Valley and Mount Whitney. The Basin and Range Province occurs along the Nevada boundary in northern California and extends into the Owens/Death Valley region further south, with this province continuing east and including much of Nevada and western Utah. The Basin and Range Province is characterized by parallel or sub-parallel, north-south trending block-faulted mountains (or horsts) and relatively low valley basins (or grabens), with intervening faults and internal drainage.

Project Site Geologic and Topographic Setting

General Geology/Topography

The project site is characterized by a sequence of Pleistocene-age (between approximately 2.6 million and 12,000 years old) volcanic and sedimentary rocks, locally overlain by recent, or Holocene-age (less than approximately 12,000 years old), surficial deposits. The volcanic units include basalt flows and other deposits, with the underlying sedimentary rocks consisting of a sequence of claystone and sandstone strata. Surficial materials within the site encompass topsoils and related deposits derived from local volcanic rocks, with these materials and the noted volcanic units described in more detail below under Stratigraphy. The underlying sedimentary rocks are not further described in this analysis, based on the fact that proposed mining and related excavation/reclamation activities would not extend below the on-site volcanic deposits (and thus would not encounter the underlying sedimentary units).

Topography on the project site includes relatively level areas in the East Pit that have been excavated and/or graded for the existing operations with adjacent benches and highwall [vertical face] slopes, and generally steep, rugged slopes in the West Pit. The overall topographic grade of the project site is to the south and west, with existing elevations in the East Pit and adjacent areas ranging from approximately 5,800 feet amsl to 6,100 feet amsl, and the elevations in the West Pit area ranging from approximately 5,700 feet amsl to 6,200 feet amsl. Surface drainage patterns within the project site and adjacent areas are generally to the south and west (with local flow directions varying with topography). However, based on the extremely high infiltration rates of the local surficial materials, little or no runoff has been observed within or from the project site (Golder 2010b). Refer to Section 4.2, Hydrology and Water Quality, for additional description of local drainage conditions.

Stratigraphy

Surficial and geologic exposures within the project site include native topsoils and related deposits, as well as Pleistocene-age volcanic and sedimentary rocks (Golder 2010a). The description of surficial deposits and volcanic units of the West Pit is based, in part, on subsurface investigations conducted during 2005 and 2008. Specifically, seven coreholes extending to depths of between approximately 72 and 163 feet below the surface were drilled in the West Pit (Golder 2010a). The surficial deposits and volcanic units of the project site are described below in order of increasing age, with the sedimentary strata underlying the Pleistocene-age sediments not described due to their location below the proposed excavation levels.

Holocene Native Topsoils and Related Deposits

Topsoils within the project site and vicinity encompass a relatively complex sequence of materials derived from local volcanic rocks. Specifically, on-site soils are all well-drained, include a moderate to high content of rock fragments (generally ranging in size from gravel to cobbles), and are moderately to highly acidic at depth. The following four soil complexes were identified within the proposed project impact footprint, with related soil series descriptions provided in Table 4.1-1: (1) Kyburz-Rock Outcrop-Trojan Complex, 2 to 50 percent slopes, mapped in a substantial portion of the proposed impact footprint, including the northwestern and southern portions of the West Pit; (2) Cinder land-Sierraville-Kyburz Complex, 30 to 50 percent slopes, mapped in the northern portion of the East Pit and processing areas, and the eastern portion of the West Pit; (3) Rubble-Land-Jorge Complex, 30 to 75 percent slopes, mapped in the northern portion of the West Pit; and (4) Sierraville-Trojan-Kyburz Complex, 2 to 30 percent slopes, mapped in the southern portion of the East Pit and processing areas.

As noted in Table 4.1-1, the project site also includes areas of surficial rock outcrops, cinders and rubble derived from local volcanic units. While the total depth of the combined surficial materials varies, it was observed at depths of up to 13.5 feet in the West Pit during exploratory drilling, and reportedly can extend to depths of up to 35 feet locally (ESRS 2011, Golder 2010a).

Pleistocene Volcanic Deposits

Volcanic deposits at the project site exhibit thicknesses of up to 170 feet and consist generally of a sequence of basalt flows and breccias (angular rock fragments cemented in a fine-grained matrix), with lesser amounts of cinders, ash, and rhyolitic (the volcanic equivalent of granitic) tuff (consolidated volcanic ash). Specifically, the northern portion of the proposed West Pit includes of a series of generally horizontal basalt flows separated by layers of ash and tuff, or by intervals of basalt boulders, cobbles, and rubble. In the southern portion of the West Pit, soil, basalt, and lithic tuff (tuff containing numerous

rock fragments) are exposed at the surface and are underlain by a layer consisting of basalt boulders in a clay matrix, with local cinder interbeds. The basalt boulder layer is underlain by another layer of lithic tuff, with deposits in the southern area generally poorly consolidated and exhibiting moderate to strong clay alteration.

Table 4.1-1
DESCRIPTION OF WEST PIT SOIL SERIES

Soil Series¹	Description
Kyburz Series	Relatively shallow, well-drained soils derived from volcanic rock and lake sediments. These soils extend to depths of approximately 34 inches locally and overlie fractured volcanic rock. Upper horizons include sandy loams with 10 to 20 percent gravel and cobbles, with more clayey and very strong acidic conditions (down to pH 5.0) in lower horizons. Kyburz soils are the most common soils within the impact footprint.
Sierraville Series	Moderately deep (up to 75 inches) and well-drained stony to sandy loams derived from volcanic rocks. Similar increasing clay content with depth as noted for Kyburz soils. These soils exhibit slightly to moderately acidic (down to pH 6.0) conditions throughout and occur mostly in the eastern portion of the impact footprint.
Trojan Series	Moderately deep (up to 72 inches), well-drained gravelly sandy loams derived from volcanic rocks. Relatively high and well-distributed organic content in the upper horizon, with clay content increasing with depth, and slightly to moderately acidic (down to pH 6.0) conditions throughout. These soils occur primarily in the southern portion of the East Pit.
Jorge Series	Moderately deep (up to 85 inches), well-drained, sandy to stony loams derived from volcanic rocks. Rock content varies from less than 20 percent at the surface (although exposed rock talus is present in the northern portion of the East Pit), to approximately 50 percent in deeper horizons. Increasing clay content with depth, and moderately acidic (pH 5.6 to 5.8) conditions throughout. These soils occur primarily in the northern portion of the East Pit.
Cinder, Rubble and Rock Outcrops	Not a soil series per se, but encompassing areas of exposed volcanic rock outcrops, cinder deposits and rubble (with rubble typically accumulating along slope bottoms). These materials occur in various portions of the East Pit.

Source: ESRS 2011; U.S. Department of Agriculture (USDA) 2012

¹ Soil series typically include a number of individual soil types that are not differentiated herein.

The existing excavations in the East Pit are in the side of a cinder cone that has been intruded by basalt. The current north wall is composed predominantly of this intrusive basalt, with a cinder layer exposed in the lower portion of the wall. On the western side of the excavation, the upper portion of the quarry wall is composed of cinders, while further to the west the wall consists almost entirely of cinders or ash (ESRS 2011, Golder 2010a).

Groundwater

While areas of the project site feature indicators of shallow groundwater occurrence (i.e., the developed spring in the southern portion of the site), shallow groundwater has not been encountered during prior quarry operations in the East Pit and was not observed during subsurface investigation of the West Pit. The 2011 Reclamation Plan concludes that local groundwater “[i]s located below the proposed maximum depth of the expanded mining area” (ESRS 2011). Refer to Section 4.2 for additional description of local/regional groundwater conditions.

Structure/Seismicity

The eastern portion of Nevada County, including the project site, is located within Seismic Zone 3, the second highest of four nationally designated seismic risk zones. Accordingly, the project site and off-site roadway improvement areas are considered to be located within a potentially hazardous seismic area with several active fault segments mapped to the west, north and south in association with the Dog Valley and Polaris faults (CGS 2010). Based on the USGS seismic hazards database, the estimated peak ground acceleration (PGA) level at the project site is approximately 0.26g (where g is a percentage of gravity that expresses the ground acceleration; Golder 2010a). The noted PGA is associated with an earthquake event that has a 10 percent probability of being exceeded in a 50-year period, with this design earthquake event exhibiting an expected recurrence interval of 475 years. The Stability Evaluation also notes that the largest significant earthquake sources relative to the project site are located approximately nine miles to the west (i.e., along the previously noted Dog Valley and Polaris faults) and have a potential magnitude of approximately 7.0.

No major (active or potentially active) fault structures or CGS Earthquake Fault Zones are present within the project site or vicinity. Active faults are defined as those exhibiting historic seismicity or displacement of Holocene materials, while potentially active faults have no historic seismicity and displace Pleistocene but not Holocene strata. The described CGS fault zone designations are generally intended to “[r]egulate development near active faults so as to mitigate the hazard of surface fault rupture” (CGS 2007). While no major faults are known (or expected) to occur within the site or immediate vicinity, the project Stability Evaluation notes that “[s]everal faults have been identified in the East Pit. One steeply-dipping fault is exposed in the north wall...and several other faults are located in the northwest wall.” The project Stability Evaluation also identified a number of discontinuities, or joint sets, within local basalt flows, with associated dips (inclinations) ranging between 0 to 10 or 20 to 55 degrees. Most observed on-site joint surfaces were clean and joint infill (which can affect potential movement/instability) was rare, although up to approximately 0.1 inch of clay, silt or sand infill is present locally (Golder 2010a).

4.1.2 Regulatory Framework

Development of the proposed project is subject to a number of regulatory requirements and industry standards related to potential geologic hazards. These requirements and standards typically involve measures to evaluate risk and mitigate potential hazards through design and construction techniques. Specific guidelines encompassing geologic criteria that may be applicable to the design and construction of the proposed project include: (1) the International Code Council, Inc. (ICC) International Building Code (IBC; ICC 2006), and the related California Building Code (CBC; CCR Title 24, Part 2); (2) SMARA (PRC Division 2, Chapter 9, Section 2710 et seq.), and related County standards; and (3) Safety Element of the Nevada County General Plan (Chapter 10; 1995). Summary descriptions of these regulations are provided below, with specific elements applicable to the proposed project evaluated in Section 4.1.4, Impact Analysis. Discussion of erosion-related issues and associated requirements under federal, state, and County standards is provided in Section 4.2 due to the relationship between those issues and storm water concerns.

Federal and State Regulations

International Building Code and California Building Code Standards

The IBC, formerly the Uniform Building Code (UBC), is produced by the ICC to provide standard specifications for engineering and construction activities, including measures to address geologic and soil concerns. Specifically, these measures encompass issues such as seismic loading (e.g., classifying seismic zones and faults), ground motion, and engineered fill specifications (e.g., compaction and moisture content). The referenced guidelines, while not comprising formal regulatory requirements per se, are widely accepted by regulatory authorities and are routinely included in related standards such as municipal grading codes. The IBC guidelines are regularly updated to reflect current industry standards and practices, including criteria such as the American Society of Civil Engineers (ASCE) and ASTM International (ASTM).

The previously referenced CBC guidelines are derived from the IBC and encompass criteria specific to California such as geologic and seismic characteristics. Specifically, the CBC includes the following requirements related to geologic issues: general provisions (Chapter 1); structural design, including soil and seismic loading (Chapters 16/16A); structural tests and special inspections, including seismic resistance (Chapters 17/17A); soils and foundations (Chapters 18/18A); construction safeguards (Chapter 33); and grading, including excavation, fill, drainage, and erosion control criteria (Appendix K).

SMARA Standards

California Geological Survey is the State agency with responsibility for overseeing mining operations and establishing performance standards (Section 3500 et seq. of Title 14 of the CCR) and the California Department of Conservation Office of Mine Reclamation oversees reclamation requirements and maintains the lead agencies enforcement of SMARA (via audits, etc.). Mining and reclamation standards are set forth in SMARA (PRC Section 2710 et seq.), which requires Lead Agency approval of a reclamation plan for surface mining operations under state jurisdiction. Pursuant to the Nevada County Zoning Code (Land Use and Development Code Chapter II, Zoning Regulations) and related ordinances, the County is the SMARA Lead Agency for applicable operations, including the proposed project. SMARA and related County requirements include the implementation of approved reclamation plans to define both the proposed mining operations and the activities/uses proposed after completion of mineral extraction. With respect to site reclamation, extraction areas (and related sites used for purposes such as processing) must be returned to a “useful, approved alternative purpose.” Associated reclamation efforts typically involve activities such as regrading or contouring, construction of appropriate manufactured slopes (i.e., to ensure stability and public safety), erosion control, and/or revegetation. As previously mentioned, SMARA (and other regulatory requirements) related to erosion/sedimentation and associated elements of the 2011 Reclamation Plan are addressed in Section 4.2 of this EIR.

Local Regulations

Nevada County General Plan

The Safety Element of the Nevada County General Plan (Chapter 10; Nevada County 1995) identifies the primary goal (GH-10.2) for geologic hazards to “Minimize injury and property damage due to geologic and seismic hazards” and the related objective (GH-10.2.1) to “ensure that new construction meets current structural and safety standards. Three associated policies are identified, including:

- Action Policy GH-10.2.1.1 – This policy mandates coordination/cooperation with the CGS to ensure that: (1) the most current data regarding geologic/seismic hazards are incorporated into project plan reviews; (2) appropriate mitigation measures are assessed/incorporated where applicable in accordance with associated federal, State and local standards; and (3) the project review process includes appropriate soils and geologic investigations to address potential hazards including seismicity, slope instability and erosion.
- Directive Policy GH-10.2.1.2 – This policy requires that applicable elements of the IBC be implemented – in particular, those in regard to seismic design.
- Directive Policy GH-10.2.1.3 – This policy requires that underground utility lines, particularly water and natural gas mains, be designed to withstand seismic forces.

Nevada County Land Use and Development Code

While Chapter V (Buildings), Article 13 (Grading) of the Nevada County Land Use and Development Code includes a number of grading requirements associated with geologic hazards, mining operations (including aggregate quarrying, excavating, processing and stockpiling) are specifically exempt from these requirements per Section L-V 13.3(B)(6) of the Code. Under the proposed project, mining and fill placement operations would operate under the 2011 Reclamation Plan which is subject to SMARA. The final fill slopes and mining pit phasing contained in the 2011 Reclamation Plan have been designed for compliance with SMARA.

4.1.3 Significance Thresholds

The project would have a significant impact if implementation of a project-related component would:

1. Expose people or structures to potential adverse effects, including the risk of loss, injury, or death, from earthquakes and related effects such as seismically-induced ground rupture, ground acceleration, ground failure (including liquefaction), or landslides.
2. Result in substantial erosion or the loss of topsoil.
3. Be located on a geologic unit or soil that is unstable or would become unstable as a result of the project, and that could result in on- or off-site landslide, lateral spreading, subsidence or collapse.

The guidelines for significant geologic and soil impacts are based on the previously described regulatory standards, as well as applicable portions of the State CEQA Guidelines.

4.1.4 Impact Analysis

Significance Thresholds 1 and 3 – Seismically-Induced Hazards and Unstable Soils

Earthquakes and Seismically-Induced Ground Rupture

No active faults or CGS Earthquake Fault Zone designations are located within or adjacent to the project site and off-site roadway improvement area. The closest active faults are located along the Dog Valley

and Proctor faults, approximately nine miles west of the project site at their closest points. Based on these conditions, the potential risk of damage to the proposed project as a result of seismic ground rupture is considered low, and associated potential impacts are less than significant.

Seismically-Induced Ground Acceleration

The Stability Evaluation for the proposed project (Golder 2010a, Appendix E) identified an estimated on-site PGA value of approximately 0.26g in association with a design (magnitude 7.0) earthquake along proximal active fault segments. While this represents a moderate level of ground acceleration (or ground shaking) that could potentially affect facilities such as structures and subsurface pipelines, no associated significant impacts are anticipated for the proposed project. Specifically, this conclusion is based on the following considerations: (1) the project site and surrounding areas are founded on generally competent and relatively shallow igneous bedrock, which tends to reduce the potential for severe ground shaking effects; and (2) the nature of the project is such that on-site ground shaking at the noted PGA level would not be expected to result in substantial adverse effects. That is, the project does not include facilities that would be subject to extensive damage or associated risks, such as buildings/structures that could collapse, underground utility lines that could be damaged or severed, foundations or footings, or other large-scale facilities susceptible to damage or risks from ground shaking.

Seismically-Induced Liquefaction

Liquefaction is a phenomenon in which loose, saturated, and granular (i.e., little or no clay content and no cohesive strength) soils lose shear strength, develop high pore water pressure, and exhibit fluid-like behavior after the occurrence of earthquakes or other sources of ground shaking. Liquefaction can also generate related effects, such as dynamic (or seismically-induced) settlement of liquefied soils, or lateral spreading (i.e., horizontal displacement on gently sloping surfaces as a result of underlying liquefaction). Potential impacts related to liquefaction and related hazards for the proposed project would be less than significant, based on the following considerations: (1) surficial materials at the site are relatively shallow, founded on generally stable and competent bedrock, poorly sorted (i.e., include larger rock fragments), and include increasing clay content with depth; (2) shallow groundwater has not been observed on site, with local groundwater levels expected to be below the proposed maximum excavation depth of approximately 200 feet; and (3) even in the unlikely event that on-site liquefaction would occur, the nature of the project is such that no associated substantial adverse effects would result (i.e., for similar reasons as noted above under the discussion of ground acceleration).

Landslides and Manufactured Slope Instability

Landslides and related slope movements such as soil creep and rockfalls can be associated with factors including slope grades, seismic activity, precipitation, and fires (i.e., from the loss of stabilizing vegetation). The project site and vicinity encompass steep terrain and are potentially subject to other factors that may contribute to landslide susceptibility as noted above under the discussion of Stratigraphy. Specifically, the potential for slope instability in undeveloped portions of the site is evidenced by the occurrence of several talus slopes, wherein rock weathered from local outcrops (along with other surficial materials) has moved downslope. It should be noted, however, that no areas of designated high landslide activity or susceptibility are identified within or adjacent to the project site in the Nevada County General Plan Safety Element, which concludes that a “low risk” landslide hazard rating is applicable to most areas of the County due to the presence of shallow igneous and metamorphic bedrock (Chapter 10; Nevada County 1995).

The proposed project entails extensive excavation to conduct aggregate mining operations, with these activities and related (ultimate) site reclamation to result in large-scale benches and highwalls. Maximum proposed wall heights are approximately 200 feet, with proposed walls to encompass previously described surficial and geologic units including soil; basalt flows; tuff and ash (including fresh [unweathered] and highly-weathered deposits); and basalt boulders, cobbles and rubble. Based on the noted topographic and geologic conditions, proposed excavation and mining activities could potentially result in unstable manufactured slopes (with related slope failure hazards), and a Stability Evaluation was conducted for the proposed project. The Stability Evaluation included an analysis of the proposed quarry walls for rock mass stability based on their proposed dimensions and locations within the noted geologic units, with the assumption (as previously noted) that local groundwater levels are below the maximum proposed excavation depth. Specific methodology for the stability analysis included site reconnaissance, review of existing excavations, core/core logs and related data from the previously described exploratory drilling in the West Pit area; use of the Hoek-Brown criterion, (an established industry methodology) to assess rock mass strength; and computer modeling (the Slide Program) to identify the maximum slope heights/grades that would exhibit a static factor of safety (FOS) of 1.3, which was identified as the appropriate FOS for the proposed post-reclamation condition of the site as an undeveloped FR-zoned property available for allowable FR land uses (Golder 2010a, Appendix E). As described in Section 3.3.1, the design criteria contained in the Stability Evaluation Report to achieve a static FOS of 1.3 have been incorporated into the project design (Golder 2010a, Appendix E).

The stability evaluation for the project also included an assessment of the proposed slopes under pseudo-static (seismic loading) conditions and concluded that acceptable FOS values would be provided “[f]or the Basalt Flows, the Tuff and Ash units, and the Basalt Boulders, Cobbles, and Rubble unit at the slope angles required for a static FOS = 1.3” (Golder 2010a, Appendix E). While the project has been designed to achieve manufactured slope stability, the Stability Evaluation Report (Golder 2010a, Appendix E) notes that because a detailed geologic model of the West Pit is not currently available “the approach taken has therefore been to develop preliminary slope design recommendations based on available information and our experience with stability of slopes in similar materials under similar conditions, making certain assumptions regarding the geologic model and the geotechnical characteristics of the units. As the West Pit is developed, geologic mapping and geotechnical testing should be completed to confirm our assumptions. Should the assumptions prove not to be valid, additional stability analyses based on the actual geological and geotechnical conditions will be required.”

Accordingly, project-related impacts from manufactured slope instability would be potentially significant if site-specific conditions vary substantially and require modification from preliminary observations/recommendations. Mitigation measures GEO-1 and GEO-2 include measures to reduce the potential for impacts from project manufactured slopes to achieve an acceptable FOS.

Expansive or Corrosive Soils

Expansive (or shrink-swell) behavior is attributable to the water-holding capacity of clay minerals and can adversely affect the integrity of facilities such as pavement or structure foundations. While a number of on-site soils exhibit clayey horizons (as outlined in Table 4.1-1), potential impacts related to expansive soils are less than significant. Specifically, this conclusion is based on the following considerations: (1) clayey horizons in on-site soils are typically loamy (i.e., encompassing a mixture of sand, silt and clay size particles), which reduces the potential for expansive behavior; and (2) as noted above under the discussion of Seismically-Induced Ground Acceleration, the nature of the project is such

that in the unlikely event of on-site soil expansion, no associated substantial adverse effects would be anticipated.

On-site soils also exhibit acidic conditions at depths ranging from slight to very strong (Table 4.1-1). Associated potential impacts would be less than significant, however, based on the fact that the proposed project does not include subsurface facilities (e.g., utility lines or foundations/footings) that would be subject to potentially significant corrosive effects.

Significance Threshold 2 - Substantial Erosion

The ultimate disturbed area in the project site features topsoil and related deposits that were mapped as having moderate to high erosion potential. Ground disturbing activities associated with mining operation would increase the risk of erosion. Specifically, ground disturbing activities in the project site would involve: (1) removal of surface stabilizing features (i.e., vegetation); (2) creation of manufactured slopes; (3) excavation of existing compacted materials from quarry areas; (4) on-site storage of excavated topsoil for use in reclamation efforts; and (5) placement of excavated and imported material as backfill in reclamation sites. As mentioned in Section 4.1.2, SMARA and related County requirements include the implementation of approved reclamation plans to define both the proposed mining operations and the activities/uses proposed after completion of mineral extraction. Associated reclamation efforts include erosion and sediment control. The 2011 Reclamation Plan (ESRS 2011) for the proposed project includes a number of measures in regard to erosion, and incorporates the SWMP (Golder 2010b) prepared for the project which also addresses erosion. Adherence to these measures is enforceable pursuant to SMARA and Section 402(P)(3)(A) of the Clean Water Act., and these measures have been incorporated into the project design (Section 3.3.9).

Design measures specific to erosion control include: 1) collecting and storing native topsoil for site reclamation; 2) the use of appropriate slopes, diverting flows, applying groundcover such as mulch, straw, or other erosion control devices, applying a temporary vegetation cover to control erosion on stock piles and exposed slopes; 3) using coarse/rocky soils and straw, mulch, and temporary vegetation for erosion control; 4) regularly inspecting erosion and sediment control BMPs. An additional measure includes annual reporting to the County in accordance with applicable SMARA standards. Erosion-related issues and requirements associated with storm water management and water quality are discussed in detail in Section 4.2, due to the relationship between those issues and storm water concerns. With adherence to the erosion control design measures contained in the SWMP and 2011 Reclamation Plan (and incorporated in the project design), potential impacts associated with substantial erosion would be less than significant.

Construction of the off-site roadway improvements would result in ground disturbing activities which would increase the potential for erosion. Construction activities would be conducted in accordance with the County's grading regulations and BMPs would be implemented to minimize the potential for erosion from expose soils. A SWPPP would be prepared and implemented to address erosion, stormwater runoff, sedimentation, and other construction-related pollutants during construction of the proposed project. The SWPPP would comply with the requirements of the County's grading and erosion control ordinance and the NPDES general construction activity stormwater permit. BMPs would be incorporated into the SWPPP to reduce the potential for erosion and sedimentation as a result of the construction activities. Implementation of the County's grading regulations, and with SWPPP with associated BMPs would reduce the potential for erosion or loss of topsoil associated with project activities to a less than significant level.

The proposed project would not expose people or structures to potential adverse effects related to erosion. Impacts would be less than significant.

4.1.5 Level of Significance Before Mitigation

Based on the above analysis, all impacts related to geology and soils from the proposed project would be less than significant, with the potential exception of manufactured slope instability in the West Pit. That is, project impacts related to manufactured slope instability would be potentially significant if site-specific conditions in the West Pit vary substantially and require modification from preliminary observations/recommendations (with associated mitigation provided below).

4.1.6 Mitigation Measures

The proposed project would potentially result in significant impacts related to manufactured slope instability in the West Pit, if site-specific conditions observed during mining vary substantially and require modification from preliminary observations/recommendations. Accordingly, the following mitigation measures shall be implemented to ensure that any potential adverse impacts from project-related manufactured slope instability would be reduced below a level of significance.

- GEO - 1** The final design of manufactured slopes in the proposed West Pit shall incorporate all available geologic/geotechnical data, with slope heights/grades and other applicable project features to reflect these data and include any applicable deviations from the recommendations provided in the August 2010 project Stability Evaluation.
- GEO - 2** Manufactured slopes in the West Pit shall be regularly inspected by a qualified geotechnical engineer during mining operations, and slope performance and geological conditions shall be documented and submitted to the County as required. This information shall be used to review and, as appropriate, revise the geological and geotechnical models and slope design recommendations provided in the Stability Evaluation of the West Pit (Golder 2010a). These inspections and slope design reviews shall be performed by a qualified geotechnical engineer as follows: (1) annually at a minimum; (2) at any time mining operations encounter conditions that vary significantly from the geological and geotechnical models documented in the Stability Evaluation of the West Pit (Golder 2010a); and (3) at any time that slopes developed according to the project design based on the recommendations of the Stability Evaluation of the West Pit (Golder 2010a) show indications of significant instability. This observational and review approach, supported by strength testing of representative materials, shall be used to update or provide more appropriate FOS calculations for slopes prior to pit closure, with any and all associated modifications from recommendations contained in the Stability Evaluation of the West Pit (Golder 2010a) to be incorporated into the design and operation of mining activities at the West Pit. Specifically, such modifications would typically include standard geotechnical measures such as updating/revising individual slope heights/grades to reflect observed/tested conditions and ensure an acceptable FOS, as determined by a qualified geotechnical consultant. Specific elements of the inspection process shall include, but not be limited to, the following: (1) if, during excavation, a basalt boulders, cobbles, and rubble unit is discovered to be more than 60 feet thick, a qualified engineer shall sample and conduct laboratory testing of the material to confirm the project design based on the assumptions and recommendations

in the Stability Evaluation of the West Pit (Golder 2010a), or to provide updated recommendations, including slope design as noted; (2) any highly weathered or fresh tuff and ash layer that is more than 15 feet thick shall be sampled and tested to confirm the project design based on the assumptions and recommendations in the Stability Evaluation of the West Pit (Golder 2010a), or to provide updated recommendations, including slope design as noted; and (3) if any major geological structures (i.e., faults, joints, etc.) are identified in the vicinity of the proposed new pit walls, they shall be evaluated by a qualified geotechnical engineer, and associated recommendations shall be incorporated into the project design and operational specifications (potentially including efforts such as revising manufactured slope grades/dimensions, and/or modifying proposed excavation to avoid problematic areas).

4.1.7 Significant Unavoidable Adverse Impacts

Based on the above analysis, potentially significant impacts related to geology and soils from project implementation would be limited to potential instability of manufactured slopes in the West Pit if site-specific conditions observed during mining are concluded to vary substantially and require modification from preliminary observations/recommendations. These potential impacts would be reduced to less than significant levels through the identified mitigation measures to incorporate updated geologic/geotechnical data into the final project design, conduct regular inspections of the West Pit slopes during operation, and to incorporate the results of these inspections into the ongoing project design and operational specifications at the West Pit to maintain an acceptable FOS for all manufactured slopes. No significant, unavoidable adverse impacts to geology and soils would result from implementation of the proposed project.

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4.2 HYDROLOGY AND WATER QUALITY

Technical studies used for the following analysis include: (1) Boca Quarry 2011 Reclamation Plan (ESRS 2011); (2) Stormwater Management Plan, Boca Quarry West Pit, Hirschdale, California (SWMP; Golder 2010b); (3) Water Supply Assessment, Boca Quarry Expansion EIR, Nevada County (WSA; Balance Hydrologics, Inc. [BHI] 2018). These studies are summarized in this section along with other applicable data, with the complete technical reports included in Appendices B, F, and G, respectively, of this EIR.

Comments were received during and following the public review period of the 2012 Draft EIR regarding this topic from the following agencies and individuals: California Department of Transportation (10/4/2012), California Department of Water Resources (10/22/2012), Taylor & Wiley Attorneys of Counsel on behalf of the project applicant (11/6/2012), and Law Office of Donald B. Mooney on behalf of the Buckhorn Ridge Homeowners Association (2/21/2013). Refer to Appendix A for the comments received and responses to those comments.

4.2.1 Existing Conditions

Watershed and Drainage Characteristics

The project site is located within the Truckee River Hydrologic Unit (HU), 1 of 14 such drainage areas designated for the North Lahontan Hydrologic Basin in the 1995 (as amended) Lahontan RWQCB Water Quality Control Plan (Basin Plan). The southern portion of the off-site roadway improvement area also falls within the Truckee River HU, while the northern half falls within the Little Truckee River HU. The Truckee River HU is an irregularly shaped area of approximately 257 square miles and includes the western and/or central portions of Sierra, Nevada, and Placer counties. The Truckee River HU is divided into a number of hydrologic areas (HAs) based on local drainage characteristics, with the project site and vicinity located within the 218-square mile Truckee River HA (refer to Figure 4.2-1). Drainage within the Truckee River HU and HA is primarily through the Truckee River and associated tributaries. The Truckee River generally follows the south side of I-80 and is approximately 550 feet from the project site at its closest point (refer to Figure 2-2). The Truckee River originates at the Tahoe Dam outlet along the northwestern side of Lake Tahoe (near Tahoe City) and continues north and east for approximately 120 miles before ultimately entering Pyramid Lake in the State of Nevada. Average annual precipitation in the general vicinity of the project site (Boca Reservoir) is approximately 22.2 inches, with an average annual snowfall level of approximately 108.7 inches with most snowfall occurring between November and April (Golder 2010b).

Drainage in the project site is derived from both seasonal storm water flows and ground water sources. Storm water occurs as sheet flow runoff and as discharge in several poorly defined and unnamed surface drainage features (swales). The spring (Dobbas Spring) and associated water catchment pond are located in the southern portion of the project site and outside of the ultimate disturbed area. Existing drainage facilities associated with the permitted mining operations consist of a series of diversion channels or ditches in the East Pit, which are designed to collect storm water runoff from the currently permitted mining operations to ensure that no flows from the associated mining/processing areas leave the site as runoff (ESRS 2011; Golder 2010b).

Stampede Meadows Road in the off-site roadway improvement area lacks drainage facilities. Storm water from topographically higher areas surrounding the off-site improvement area would flow over land towards Stampede Meadows Road where in some areas it may flow along the side of the road. In

general, storm water would flow from the road surface to adjacent areas that are topographically lower, toward Boca Quarry or the Truckee River. The off-site roadway improvement area crosses the Truckee River via a two-lane bridge.

While local flow directions vary with topography, surface drainage patterns within the site and vicinity are generally to the south and west towards the Truckee River, however, there are no existing drainage facilities discharging flows from the project site to the river and due to the high filtration rate of the local soils sheet flow runoff from the project site does not reach the river. As previously mentioned, the series of diversion channels in the East Pit have been designed to prevent flows from the East Pit leaving the site. In addition, the extremely high infiltration rates of local soils minimize surface runoff, and little evidence of surface runoff related to storm water has been observed in either the natural drainage swales or the constructed diversion channels (Golder 2010b). In addition, there is no surface water connection between the spring-fed surface waters and the Truckee River (ESRS 2012). Refer to the discussion of groundwater below for additional information regarding the spring.

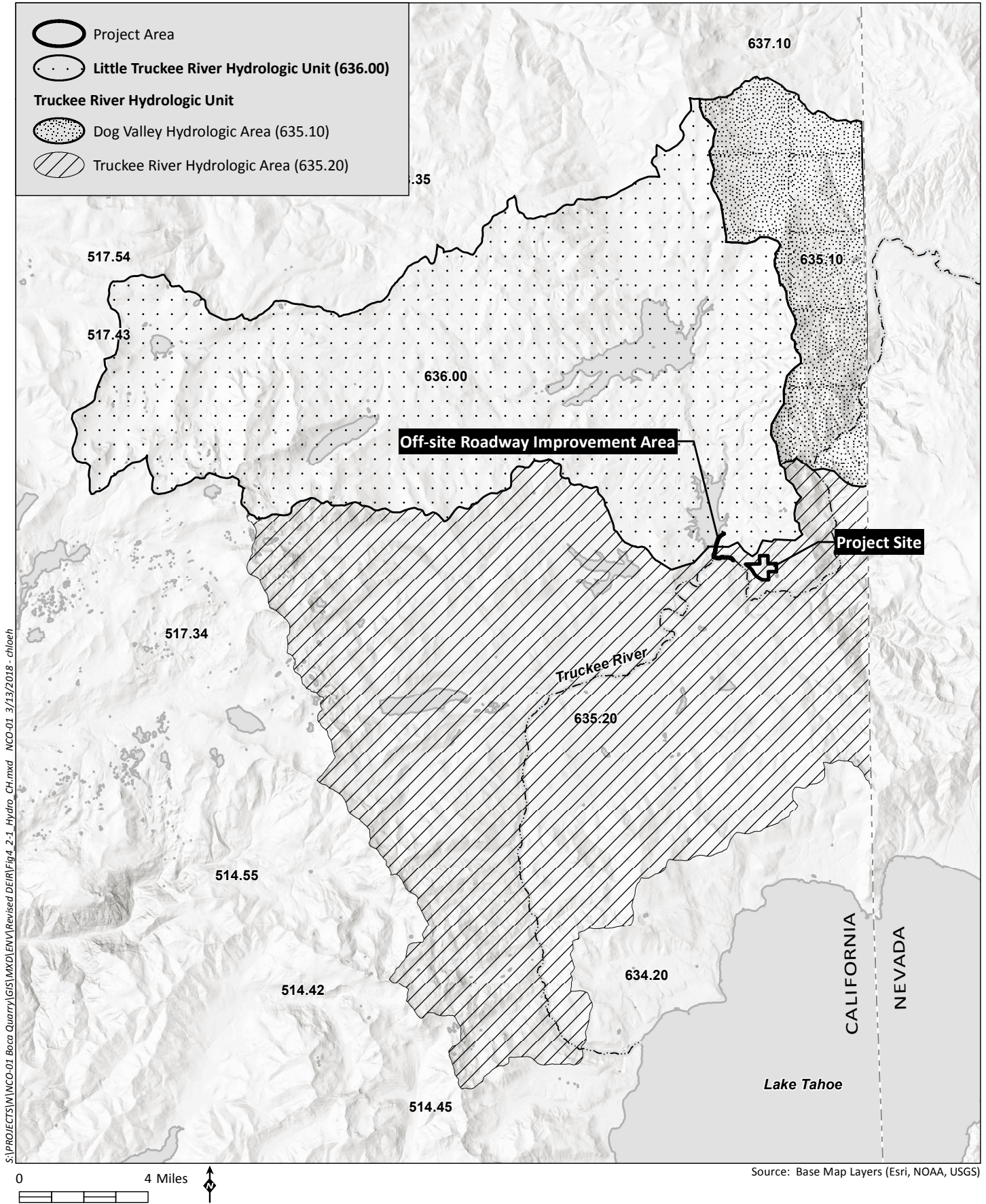
Flood Hazards

The project area has been mapped for flood hazards by the Federal Emergency Management Agency (FEMA). The project site and off-site roadway improvement area are on FEMA panel #06057C0300E effective 2/3/2010. The project site and adjacent areas are designated as Zone X which is an area determined to be outside the 0.2 percent annual chance floodplain (or 500-year floodplain), and therefore also outside of the 100-year (or 1 percent annual chance) floodplain. While most of the off-site roadway improvement area is also outside of the 100-year floodplain, the segment of the off-site improvement area that crosses the Truckee River falls within Special Flood Hazard Zone A which is an area subject to inundation by the 100-year flood event where no base flood elevation has been determined (FEMA 2010).

Groundwater

The project site is not located within a mapped regional groundwater basin. The closest such basin, the Martis (Truckee) Valley Groundwater Basin, is located west and south of the site, and exhibits a subsurface extent of approximately 36,000 acres (California Department of Water Resources [DWR], 2003; refer also to Figure 2 of BHI 2018 in Appendix G). Water-bearing units in the Martis Valley Groundwater Basin include interbedded alluvial and volcanic deposits, similar to those in the project site area (refer to Section 4.1, for additional description of local geology). Groundwater in the project site and vicinity, however, is interpreted as being disconnected from the Martis Valley Groundwater Basin, due to conditions such as hydrologic separation and geologic structure (BHI 2018). A portion of the off-site roadway improvement area at its southernmost extent overlaps the Martis Valley Groundwater Basin; however, the proposed improvements would not involve excavations and would not affect the groundwater basin.

While the project site is not within a designated/mapped regional groundwater basin, the presence of local groundwater is evidenced by the spring and associated water catchment pond and an on-site well (refer to Figure 2-3). As described in Section 2.3, the spring was formerly used for a commercial water bottling operation, as well as for dust control in association with the permitted mining activities at the



East Pit. Past water use from Dobbas Spring for the on-site mining activities was approximately 10 to 14 acre-feet¹ per year (BHI 2018).

Regional geologic structure (such as vertical faults and highly-fractured shear zones) is known to transmit groundwater in the region, with similar conditions potentially contributing to the occurrence of groundwater at Dobbas Spring (BHI 2018). For purposes of the project WSA, however, it was assumed that the recharge area for Dobbas Spring is associated solely with local geologic and topographic conditions. Accordingly, the related recharge area for Dobbas Spring is assumed to include approximately 300 acres located upgradient (generally to the northeast of the spring), with groundwater movement generally to the south and west towards the Truckee River. If, as noted, more regional geologic structure also contributes to the occurrence of groundwater at Dobbas Spring, then the associated recharge area would be correspondingly larger. Based on available information, annual flow at Dobbas Spring is estimated to range between 47 and 335 acre-feet (29 to 207 gpm), with an average annual flow of 142 acre-feet (88 gpm). The maximum flow levels (and related precipitation) occurred in 2017, while the minimum level was in 2001 (BHI 2018). Because the project site and Dobbas Spring are not located within a defined groundwater basin, the area does not have a groundwater management plan and is not identified as overdrafted (or projected to become overdrafted) under current conditions (BHI 2018).

Very few wells or borings have been drilled in the project site and vicinity. The domestic well on the property was drilled in 1985 to an unknown depth and produces approximately 15 gpm, apparently from sandy clay units located approximately 330 feet below ground surface (BHI 2018). Seven exploratory geotechnical borings were drilled in the vicinity of the West Pit in 2005 and 2008 and five cores were drilled in the East Pit in 2005. None of the borings encountered water; however, all borings were in years following below-average precipitation (BHI 2018). The borings extended to depths of approximately 72 and 163 feet below the surface and groundwater has also not been encountered during previous quarry operations in the East Pit (ESRS 2011). A series of monitoring wells located approximately 0.3 mile south of the project site penetrated stratigraphic units similar to those found on the project site, but with water found at shallower depths than the domestic well, but roughly similar elevations (BHI 2018).

Water Quality

As previously described, surface water in the project site and off-site roadway improvement area consists primarily of ephemeral flows from storm events, with perennial water on the project site associated with Dobbas Spring and the water catchment pond. No known water quality data are available for the water catchment pond. Water quality monitoring data for the spring may be available for the spring during the bottling operations; however, the data would not be current and the minimal timeframe the data would have been collected would not affect the analysis. Local surface and groundwater quality in the project site is anticipated to be generally good based on the following considerations:

- Due to the nature of on-site soils and historical operations, little or no surface flow has been observed in on-site drainage courses or engineered storm drain channels. Any surface flows that do occur in relation to the permitted mining operations are conveyed into the East Pit via the

¹ One acre-foot is the amount of water needed to cover an area of one acre to a depth of one foot and equals approximately 326,000 gallons.

noted storm drain channels and subsequently evaporate and/or infiltrate, with any associated contaminants related to erosion (sediment) or equipment/vehicle operations (fuels, etc.) therefore detained in the pit and not discharged downstream.

- The proposed West Pit site is predominantly undeveloped, with associated potential contaminants limited mainly to sediment (i.e., from natural erosion). That is, because this site does not support mining or other substantial development, there is limited related potential for the generation and discharge of other pollutant types.
- Dobbas Spring was formerly used as a commercial bottled water operation. It is considered unlikely that this type of use would have occurred if the associated groundwater exhibited moderate or high pollutant levels (e.g., due to high filtering/treatment costs).

The principal waterway in the project vicinity is the Truckee River, located approximately 550 feet southwest of the project site at its closest point, and passing under Stampede Meadows Road in the off-site roadway improvement area. While no known quantitative water quality data are available for the Truckee River in the immediate project site vicinity or adjacent downstream reaches, qualitative/quantitative water quality information for the Middle Truckee River (i.e., the portion of the river between Lake Tahoe and the Nevada State line) are available from sources including the State SWAMP, biannual water quality assessments conducted by the SWRCB, and RWQCB Lahontan Region Basin Plan, as outlined below.

State Surface Water Ambient Monitoring Program (SWAMP)

Monitoring conducted under the SWAMP periodically rotates among watersheds. While no monitoring has been conducted in the Truckee River HU as part of SWAMP efforts conducted to date, the Lahontan Region SWAMP Report (RWQCB 2007) provides the following qualified assessment of associated water quality.

In the Truckee River watershed (Nevada County), nonpoint source impacts potentially result from transportation corridors (railways and roads), urban runoff and construction-related impacts from rapid land development, ski areas and other recreation developments, livestock grazing, and timber harvests. Sediment resulting from hydromodification activities, such as reservoir management, is also a concern, as are impacts to wetlands and riparian areas from fill or channelization.

In addition, a statewide summary report of toxicity in surface waters did not identify any toxicity issues for local reaches of the Truckee River (SWAMP 2010). Toxicity generally indicates a “statistically significant adverse impact on aquatic test organisms” (e.g., algae and fish species), with most toxicity issues associated with the presence of chemical pesticides. A similar analysis conducted in 2011 did not include testing in the Truckee River (SWAMP 2011).

Bi-annual Clean Water Act Assessments

The SWRCB produces bi-annual qualitative assessments of statewide and regional water quality conditions. These assessments are focused on CWA Section 303(d) impaired water listings and priority status for assignment of total maximum daily load (TMDL) requirements. Specifically, the Section 303(d) and TMDL assessments involve prioritizing waters on the basis of water quality (i.e., impaired) status and the necessity for assigning quantitative contaminant load restrictions (i.e., TMDLs), with these data

submitted to the USEPA for review and approval. Impaired downstream waters identified in the most current (2010) approved assessment include 39 miles of the Truckee River listed for sedimentation/siltation, with sediment listed as the primary pollutant category (SWRCB 2010). An associated TMDL for the Middle Truckee River watershed was adopted by the Lahontan Region RWQCB in 2008 (through Resolution R6T-2008-0019), with a related Basin Plan Amendment approved in 2008 and SWRCB/USEPA approval issued in 2009. This TMDL identifies numeric limits for sediment discharge to the Middle Truckee River and associated tributaries, establishes discharge allocations for applicable stakeholders, and lists related monitoring and reporting requirements (RWQCB 2008).

Lahontan Region Basin Plan

While the Basin Plan does not include water quality data per se, it does provide regulatory standards that are based on factors including local water quality (with additional discussion of regulatory standards provided in Section 4.2.2, Regulatory Framework). Specifically, as noted above under the discussion of CWA Assessments, a Basin Plan amendment was adopted by the RWQCB in 2008 to reflect the Middle Truckee River sediment TMDL.

4.2.2 Regulatory Framework

The proposed project is subject to appropriate elements of the CWA, including NPDES, along with applicable requirements under SMARA and Nevada County (County) standards, as summarized below.

Federal Regulations

National Pollutant Discharge Elimination System Standards

Industrial General Permit

Industrial storm water discharges are regulated by the State Water Resources Control Board pursuant to CWA Section 402(P)(3)(A). Mining activities, such as the proposed project, are considered industrial storm water discharges and are typically subject to NPDES standards under the Statewide General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Permit; SWRCB Order 2014-0057-DWQ which became effective July 1, 2015 pursuant to NPDES No. CAS000001). The currently adopted Industrial General Permit replaces SWRCB Order 97-03-DWQ. The SWRCB is proposing an amendment to the Industrial General Permit to incorporate: (1) implementation language for TMDLs listed in Attachment E of the Industrial General Permit; (2) compliance incentives for industrial storm water capture; and (3) implementation of the recently promulgated U.S. Environmental Protection Agency sufficiently sensitive method requirements.

The Industrial General Permit is intended to regulate storm water “[a]ssociated with industrial activity...that discharges either directly or indirectly to waters of the United States.” The basic requirements for conformance with the Industrial General Permit include: (1) submission of a properly completed Notice of Intent (NOI) prior to operation; (2) identification and elimination of unauthorized non-storm water discharges; (3) development and implementation of a SWPPP, including best management practices (BMPs) to reduce or prevent industrial pollutants in storm water discharges; and (4) monitoring/reporting of storm water discharges to determine the effectiveness of the project SWPPP (including sampling and analysis for appropriate projects).

The currently adopted Industrial General Permit includes a number of requirements beyond those noted above for the existing permit, including the use of: (1) technology-based numeric action levels (NALs) for applicable projects; (2) minimum BMP requirements; (3) enhanced monitoring, testing, and reporting; and (4) mandatory SWPPP training qualifications and certifications (i.e., Qualified Industrial Storm Water Practitioner [QISP]).

Entities that operate facilities generating storm water associated with industrial activities that do not discharge to waters of the U.S. are not required to obtain coverage under the Industrial General Permit. Due to regulatory inconsistency and uncertainty regarding “No Discharge” claims, Section S of the Industrial General Permit Fact Sheet provides guidance and requirements for determine whether or not an entity is eligible to indicate “No Discharge” when requested by the SWRCB to obtain General Permit coverage.

As described in Section 3.3.1, a SWMP has been prepared for the project, and the proposed project includes design and operational measures to preclude the discharge (or runoff) of storm water associated with proposed mining operations and related activities/facilities. Based on the current design, the proposed project would be exempt from obtaining coverage under the Industrial General Permit. If the proposed design or operation is subsequently changed such that any discharge of storm water to surface waters would occur from the project site, the project would be subject to the requirements of the Industrial General Permit.

Construction General Permit

Under NPDES, the applicable RWQCB (in the case of the proposed project, the Lahontan Region RWQCB) requires an application under the Construction Activities Storm Water General Permit (Executive Order 2009-009-DWQ) for storm water discharges associated with any construction activity including clearing, grading, and excavation, that results in the disturbance of at least one acre of total land area. Because construction of the off-site roadway improvements would disturb more than one acre, a Construction General Permit and approved SWPPP would be required.

Truckee River Operating Agreement

The Truckee River Operating Agreement (TROA) was negotiated between the States of California and Nevada for the operation of Truckee River Reservoirs (the five Federal reservoirs in the Truckee River basin). Pursuant to Section 205(a)(5) of the Truckee-Carson-Pyramid Lake Water Rights Settlement Act (P.L. 101-168 or “Settlement Act”), the TROA was promulgated as a Federal Regulation (43 CFR Part 419) in 2008. The agreement took effect in December 2015 after 26 years of federally facilitated negotiations, environmental studies, and legal challenges.

Section 204(c)(1)(B) of the Settlement Act required that “all new wells drilled after the date of enactment of this title shall be designed to minimize any short-term reductions of surface stream flows to the maximum extent feasible.” To achieve this, Section 10.C of TROA requires notification for any wells installed after May 1, 1996, and review of well sites and design by the TROA Administrator to ensure that they comply with Section 204 of the Settlement Act.

Within the Special Zones along the Truckee River between Lake Tahoe and the California-Nevada border, wells are conclusively presumed to meet the terms of Section 204(c)(1)(B) if they meet criteria stated in Section 10.B of TROA. Notably, new wells within the Special Zones that are located more than 500 feet from the Truckee River (and in some cases, closer to the river) meet the criteria.

Dobbas Spring, which provides the water supply for currently permitted mining operations and is the proposed water supply for the proposed project, has been fitted with improvements to enable the economic use of the spring's surface waters. This was approved by a conditional use permit issued by Nevada County in 1998. The project applicant's lease allows for use of these surface waters for the quarry operations.

The spring does not meet the Nevada County Water Supply Ordinance definition of a "well" which is an artificial excavation constructed for the purpose of extracting water from, or injecting water into, the underground (Section L-X1.2(LL) of the County Land Use and Development Code). Therefore, the spring is not subject to the notification requirements of Section 10.C of TROA. The spring is located about 2,600 feet from the centerline of the Truckee River, but is contiguous with a channel, pond, and on- and off-site wetlands. The nearest point of any of these other surface waters and off-site wetland is about 1,700 feet from the centerline of the Truckee River in a direct line, and over 1,800 feet in the direction of flow. Further, it is anticipated that, if the developed spring were to be considered to be a well, it would be in compliance with Section 204 of the Settlement Act.

State Regulations

Surface Mining and Reclamation Act Standards

All mineral extraction operations under state jurisdiction are required by SMARA to implement a reclamation plan approved by the Lead Agency (i.e., the County), as outlined under the discussion of Regulatory Framework in Section 4.1 of this EIR. Applicable requirements related to hydrology and water quality under SMARA include the preparation of a reclamation plan and associated erosion and sediment control measures. The application of these standards to project implementation is described as appropriate in Section 4.2.2.

Water Rights

California Water Code Division 2 Sections 1200 to 1851 requires a water right from the SWRCB for take of water from a lake, river, stream, or creek, or from underground supplies for a beneficial use. The planned use of self-supplied water from Dobbas Spring falls under the category of a correlative right that automatically accrues to landowners overlying a "percolating" groundwater resource. Consistent with this interpretation, the SWRCB Division of Water Rights has determined that an appropriative water right is not needed for use of the spring water (refer to Attachment A of the WSA in Appendix G of this EIR). All water rights in California are subject to the restriction that the use of water be reasonable and beneficial. Use of groundwater for dust control as proposed for this project meets that standard. Because the water features on the project site are not tributaries to the Truckee River, and the spring is considered a ground water source, the project would not use surface waters and a riparian right is not required.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 et seq.) is California's statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to

notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals.

Lahontan Basin Plan Standards

The RWQCB Lahontan Basin Plan (RWQCB 1995; amended through 2016) establishes a number of beneficial uses and water quality objectives for surface and groundwater resources. Beneficial uses are generally defined as the uses of water necessary for the survival or well-being of man, plus plants and wildlife. Identified beneficial uses for waters located downstream of the project impact footprint (the Truckee River) include municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); groundwater recharge (GWR); freshwater replenishment (FRSH); hydropower generation (POW); contact and non-contact water recreation (REC-1 and REC-2); commercial and sportfishing (COMM); cold freshwater habitat (COLD); wildlife habitat (WILD); rare, threatened, or endangered species (RARE); migration of aquatic organisms (MIGR); and spawning, reproduction, and/or early development (SPWN). While no beneficial uses are listed for local groundwater, beneficial uses identified for the nearby Martis Valley Groundwater Basin include MUN, AGR, and FRSH.

Water quality objectives identified in the Basin Plan are based on established beneficial uses and are defined in the Porter-Cologne Water Quality Control Act as “the allowable limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.” Water quality objectives include both narrative requirements (which can encompass qualitative and quantitative standards) and specific numeric objectives for identified contaminants and waters. Numeric water quality objectives for surface waters in applicable segments of the Truckee River HU are summarized in Table 4.2-1. All groundwater resources in the Lahontan Basin with a MUN beneficial use are subject to narrative water quality objectives related to coliform bacteria, chemical constituents (e.g., drinking water standards), radioactivity and taste/odor, with groundwater in the Truckee River HU also including the requirement that “taste and odor shall not be altered” (RWQCB 1995; amended through 2016).

Table 4.2-1
SURFACE WATER QUALITY OBJECTIVES FOR THE
TRUCKEE RIVER HYDROLOGIC UNIT

Applicable Surface Waters	Objective (mg/L)								
	TDS	Cl	SO ₄	P	B	NO ₃ -N	N	TKN	Fe
Truckee River at Nevada State Line	75	8.0	5.0	0.05	1.0	0.08	0.40	0.32	0.30
Truckee River below Little Truckee River	75	9.0	5.0	0.05	--	0.10	0.40	0.30	0.30

Source: RWQCB 1995; amended through 2016

Local Regulations

Nevada County General Plan

The Water Element of the Nevada County General Plan (Chapter 11; 1995) identifies the primary goal (Goal 11.1) to “Identify, protect and manage for sustainable water resources and riparian habitats” with the following related objectives: (1) Objective 11.1, promote and provide for conservation of domestic and agricultural water; (2) Objective 11.2, preserve and, where feasible, improve surface and subsurface

water quality; (3) Objective 11.3, preserve and, where economically feasible, restore the density and diversity of water-dependent species and continuous riparian habitats; (4) Objective 11.4, preserve the integrity and minimize disruption of watersheds and identified critical water courses; and (5) Objective 11.5, support appropriate acquisition, development, maintenance and restoration of habitats suitable for wildlife enhancement. The following policies are associated with Objectives 11.1 through 11.5:

- Objective 11.1 – One action policy and three directive policies are identified, including: (1) Policy 11.1, adopt water conservation standards consistent with state standards (action policy); (2) Policy 11.2, encourage protection of resources that produce water for domestic and agricultural use; (3) Policy 11.3, promote protection of water quality where water is transported in open canals; and (4) Policy 11.3A, provide a comprehensive and organized system of well log data.
- Objective 11.2 – The following five directive policies are identified: (1) Policy 11.4, cooperate with state and local agencies to identify and reduce acceptable levels of point and non-point source pollution; (2) Policy 11.5, maintain operation of the Nevada County Water Agency Advisory Council to continue efforts to protect and enhance County water resources; (3) Policy 11.6, continue to enforce regulations related to the installation and operation of private sanitary waste disposal systems; (4) Policy 11.6A, minimize the discharge of pollutants from new developments through appropriate design and maintenance requirements; and (5) Policy 11.6B, provide a comprehensive and organized database on the effects of septic tank/leach field systems on groundwater quality.
- Objective 11.3 – The following two action and directive policies are identified: (1) Policy 11.7, establish appropriate building setback requirements for perennial streams and significant wetlands to protect associated resource values (action policy); and (2) Policy 11.8, use voluntary clustering of development to preserve stream corridors, riparian habitat, wetlands, and floodplains.
- Objective 11.4 – The following four directive policies are identified: (1) Policy 11.9, maintain low development densities in rural areas to protect existing watersheds; (2) Policy 11.9A, ensure that grading and development plans include appropriate flood hazard protections and avoidance of additional flood damage potential prior to approval; (3) Policy 11.9B, require that new utilities, critical facilities and non-essential public structures be located outside of 100-year floodplains where feasible, or avoid any associated increase to flood-related hazards; and (4) Policy 11.9C, require that the habitable portions of residential structures within a 100-year floodplain be located above the 100-year flood level, and require that non-residential structures be appropriately elevated or flood-proofed without causing floodwater displacement where appropriate.
- Objective 11.5 – The following two directive policies are identified: (1) Policy 11.10, cooperate with state/federal agencies and other applicable organizations to acquire, restore, and maintain habitat areas; and (2) Policy 11.11, encourage the U.S. Bureau of Land Management and U.S. Forest Service to restore/maintain habitat areas on federal lands.

The Soils Element of the Nevada County General Plan (Chapter 12; Nevada County 1995) identifies the primary goal (12.1) to “Minimize adverse impacts of grading activities, loss of soils and soil productivity” with the following related objectives: (1) Objective 12.1, minimize earth movement and disturbance; (2) Objective 12.2, minimize erosion due to road construction and maintenance; and (3) Objective 12.3,

minimize vegetation removal. The following policies are associated with objectives 12.1 and 12.2 (with no policies identified for objective 12.3 in Chapter 12):

- Objective 12.1 – Three associated directive policies are identified, including: (1) Policy 12.1, enforce grading and erosion control requirements through appropriate monitoring efforts; (2) Policy 12.2, enforce grading and vegetation removal requirements for activities not associated with a development project; and (3) Policy 12.3, coordinate/encourage erosion control through efforts such as provision of public educational materials.
- Objective 12.2 – Two associated directive policies are identified, including: (1) Policy 12.4, require erosion control measures as an element of all County contracts, discretionary permits and ministerial projects; and (2) Policy 12.5, provide support to the Resources Conservation District and related agencies in providing education/support to assist the general public in implementing techniques to minimize erosion.

Nevada County Land Use and Development Code

While Chapter V (Buildings), Article 13 (Grading) of the County Land Use and Development Code includes a number of grading requirements associated with geologic hazards, mining operations (including aggregate quarrying, excavating, processing, and stockpiling) are specifically exempt from these requirements per Section L-V 13.3(B)(6) of the Code. Under the proposed project, mining and fill placement operations would operate under the 2011 Reclamation Plan which is subject to SMARA. The final fill slopes and mining pit phasing contained in the 2011 Reclamation Plan have been designed for compliance with SMARA.

4.2.3 Significance Thresholds

The following thresholds for determining significance under CEQA are based on the previously described regulatory standards, as well as applicable significance thresholds from Appendix G of the State CEQA Guidelines. In the following analysis, project-related impacts to hydrology and water quality would be significant if the proposed project would:

1. Substantially alter the existing drainage patterns or storm water flows of the site or area, in a manner that would substantially affect downstream drainage patterns or flows, increase the rate or amount of surface runoff, generate erosion/sedimentation, or result in flooding on- or off-site.
2. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems.
3. Expose people or structures to a significant risk of loss, injury or death involving flooding, and/or place structures within a 100-year flood hazard area which would impede or redirect flows.
4. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

5. Potentially degrade the water quality of any impaired water course or water body listed on the CWA Section 303(d) list and contribute additional pollutants for which the receiving water body is already listed.
6. Not conform to applicable federal, state or local statutes and regulations related to surface or groundwater quality, including but not limited to the CWA/NPDES, California Porter-Cologne Water Quality Control Act, Basin Plan, and County standards.

4.2.4 Impact Analysis

Significance Threshold 1 – Drainage Alteration and Related Effects

Drainage Patterns/Flow Directions

As previously described, existing surface drainage within the project site flows generally to the west and south towards the Truckee River. Project-related alteration of the overall existing surface drainage patterns and flow directions would include effects to several small, ephemeral on-site drainages, as well as sheet flow on local slopes within the ultimate disturbed area. The associated effects to drainage patterns in these areas would be minor, however, based on the small size and ephemeral nature of the subject drainages, as well as the limited amount of associated runoff. As described in Section 4.2.1, due to the extremely high infiltration rates of local soils, little evidence of storm water runoff associated with mining operations at the East Pit has been observed (Golder 2010b, Appendix F). Additionally, the currently permitted mining activities and the proposed project contain storm water management design elements to capture storm water runoff from the ultimate disturbed area in constructed drainage channels and zero-discharge detention (retention/infiltration) basins. The contained storm water would either infiltrate or evaporate with no discharge to waterbodies outside of the ultimate disturbed area. Refer to the following discussion of Runoff Volumes/Velocities and Storm Water Management for additional information on the proposed storm water detention basin during operation and following reclamation. Existing drainage on the project site includes Dobbas Spring and associated water catchment pond. While the proposed project would rely on Dobbas Spring for water for operations, the spring and associated water catchment pond are outside of the ultimate disturbed area and the proposed project would not alter the on-site flows associated with Dobbas Spring. Due to the proposed storm water detention basins and avoidance of existing drainages in the project site, the proposed project would not result in significant impacts to drainage patterns or directions within or downstream of the site.

The off-site roadway improvement area drains into the Truckee River and Boca Reservoir. The proposed pavement widening, shoulder improvements and site distance improvements would result in approximately 13.2 acres of ground disturbance. While the off-site roadway improvements area crosses over the Truckee River, the proposed improvements do not include any modifications to the existing structure over the river, or the banks of the river. Construction of the off-site roadway improvements would not substantially alter the existing drainage pattern of the site or area. While the proposed improvements would result in minor increases in impervious surfaces and would involve modifications to the existing topography at the Stampede Meadows Road intersection with West Hinton Road, any resulting modifications to drainage patterns would be minor and localized.

Because construction of the off-site roadway improvement area would involve ground disturbance to more than one acre of soil, the applicant would be required to obtain coverage for the project under the

Construction Stormwater General Permit from the Lahontan RWQCB and comply with all conditions of the permit. The project would also implement an approved SWPPP, which would be developed based on final engineering design and would include all project components. The SWPPP would include erosion and sediment control measures to reduce the potential for construction and post-construction erosion and siltation.

The proposed project would not substantially alter the existing drainage patterns or storm water flows of the site or area that would substantially affect downstream drainage patterns or flows. Potential impacts related to drainage patterns and flows would be less than significant.

Runoff Volumes/Velocities and Storm Water Management

Implementation of the proposed project would not result in the addition of substantial areas of impervious surfaces (such as pavement and structures) that would reduce existing infiltration and result in increased runoff volumes and/or velocities. The proposed operations would involve mineral resource extraction, with reductions to on-site infiltration limited to minor (and temporary) areas associated with project facilities (e.g., crushers, conveyers, and office trailers), as well as compaction of unpaved vehicle-equipment access/parking and material storage areas. The currently permitted mining activities in the East Pit and the proposed project contain storm water management design elements to capture any runoff that does occur within the ultimate disturbed area in constructed drainage channels and zero-discharge detention basins.

As described in Sections 3.3.1 and 3.3.9, the storm water management for the project includes the construction of temporary detention basins during operation of the mine and a final detention basin following reclamation. The storm water management design would convey all water from the ultimate disturbed area into the detention basins with no discharge outside of the West Pit. The location of the temporary basin would change in accordance with the location and extent of mining activities and the permanent basin would be located at the southern end of the West Pit (refer to Figure 3-1). The detention basins would be a minimum of two acres and 12 feet deep founded in bedrock to maximize infiltration. The shared design of the temporary and final detention basins is contained in the SWMP prepared for the project, which is included in Appendix F (Golder 2010b). Runoff from the East Pit would be collected in a detention basin in the East Pit which would be maintained and reclaimed in accordance with the existing User Permit 06-012 and Reclamation Plan RP06-001. The proposed project would not affect the operation or reclamation of the storm water management controls in the East Pit.

The proposed detention basin would collect runoff from the surrounding upslope areas north and northeast of the project site. Inflow was assumed to be solely from storm water runoff and the losses were primarily due to infiltration (evaporation would be negligible due to the highly permeable soils). It was assumed that 20 percent of precipitation in the upland areas would enter the ultimate disturbed area. The amount of precipitation in the ultimate disturbed area was estimated at 60 and 40 percent, respectively. Assumed permeability rates for the sediment layer in the retention/infiltration basins and the underlying bedrock were conservative, and a conservatively low hydraulic gradient was assumed to reflect levels that could ultimately result during long-term basin operation/infiltration (with shorter-term gradients and infiltration rates anticipated to be considerably higher). The runoff generation and overflow potential for larger storms were also evaluated. While SMARA requires the use of a 20-year, 1-hour storm event for the design of storm water facilities, the project SWMP conservatively assumed that two 100-year, 24-hour storm events would occur within a 7-day period for proposed basin sizing (with the two noted storms generating approximately 32 percent of the average annual precipitation at

the site within one week). The basin sizes would be adequately sized to prevent water from leaving the West Pit. As mentioned in Section 3.3.1, the minimum depth of the West Pit at completion would be approximately 45 feet, which is a more than adequate depth to contain the worst-case precipitation event.

As described in Section 4.2.2, the proposed project would be subject to all applicable requirements under SMARA and NPDES. Because a SWMP has been prepared for the project, and the proposed project includes design and operational measures to prevent the discharge (or runoff) of storm water from the West Pit, the proposed project is exempt from obtaining coverage under the NPDES Industrial General Permit. However, SMARA requires implementation of an approved Reclamation Plan for operational water quality and applicable long-term (post-reclamation) water quality controls. The associated efforts related to erosion/sedimentation and other water quality concerns under SMARA and NPDES are coordinated to increase the overall efficiency and effectiveness, with the 2011 Reclamation Plan incorporating the SWMP for operational and long-term controls.

A number of design and operational requirements from the project SWMP and 2011 Reclamation Plan have been incorporated into the project design. The requirements include measures to ensure proper function and capacity of the detention basins as well as adherence to annual reporting to the County in accordance with applicable SMARA requirements. Because the function and capacity of the storm water detention basin could be affected by excessive sedimentation and erosion, the erosion and sedimentation control measures would also apply. The annual reporting would document the status and effectiveness of the storm water detention basin and would include recommendations for additional or enhanced erosion and sediment control BMPs.

The measures include: 1) collecting and storing native topsoil for site reclamation; 2) preventing storm water flows from leaving the West Pit; 3) the use of appropriate slopes, diverting flows, applying groundcover such as mulch, straw, or other erosion control devices, applying a temporary vegetation cover to control erosion on stock piles and exposed slopes; 4) using coarse/rocky soils and straw, mulch, and temporary vegetation for erosion control; 5) regularly inspecting erosion and sediment control BMPs. In addition, the capacity of the temporary and final detention basins would be maintained. With adherence to the environmental design measures incorporated into the project design, the project would remain in compliance with runoff volumes and velocities.

As described in the SMWP, because operation of the project would occur over many years, more quantitative data could be collected regarding the volumes of surface water runoff in the basin. If it is found that the design assumptions are overly conservative, the basin size could be modified based on actual surface water runoff volumes. In addition, once the infiltration rates for the backfill soils are known, it may be possible to place the basin within the backfill soils (rather than bedrock). While the proposed design is in compliance with runoff volumes and velocities, revisions to the design following project approval have the potential to result in inadequate capacity or performance to retain storm water in the West Pit. Therefore, revisions to the design following project approval would result in a potentially significant impact and mitigation would be required.

As previously described under the discussion of Drainage Patterns/Flow Directions, the proposed improvements in the off-site roadway improvement area would result in a minor increase in impervious surfaces. An increase in impervious surfaces has the potential to increase runoff volumes and velocities which may result in erosion or siltation on- or off-site. The off-site improvements would be designed in compliance with the County standards, and the applicant would be required to obtain coverage for the

project under the Construction Stormwater General Permit from the Lahontan RWQCB and comply with all conditions of the permit. The project would also implement an approved SWPPP, which would be developed based on final engineering design and would include all project components. The SWPPP would include erosion and sediment control measures to reduce the potential for construction and post-construction erosion and siltation. With implementation of the SWPPP and associated BMPs, as well as implementation of County standards, potential impacts to runoff volumes and velocities would be less than significant.

Revisions to the design of the storm water detention basin following project approval would result in potentially significant impacts related to erosion and sedimentation and mitigation would be required. Implementation of Mitigation Measure HYD-1 would reduce impacts to a level of less than significant.

Significance Threshold 2 – Existing or Planned Storm Drain System Capacity

Existing storm water controls in the project site consist of a series of diversion channels or ditches in the East Pit which are designed to retain storm water runoff in the East Pit and prevent storm water from leaving the site as runoff. Under the proposed project, all surface flows within the ultimate disturbed area on the project site would be conveyed into the East and West Pits and would be captured in engineered retention/infiltration basins, with no related off-site discharge. SMARA requires that storm water facilities be designed for a 20-year, 1-hour storm event; however, the basin designed for the West Pit under the proposed project was conservatively designed for two 100-year, 24-hour precipitation events to occur within a 7-day timeframe. The proposed storm water management facilities are designed to adequately handle possible storm water volumes without resulting in discharge.

As previously mentioned in Section 4.2.1, there are no existing drainage facilities discharging from the project site to the Truckee River and runoff from the project site does not reach the river. The proposed project would not result in additional flows off-site nor would it discharge to an off-site storm drain system, so it would not result in additional flows affecting existing storm drain systems. As previously mentioned, the SWMP for the project notes that the design of the storm water detention basin could be revised based on subsequent findings of the design assumptions, including size and soil infiltration. Should the revised design result in inadequate capacity or performance to retain storm water in the West Pit, flows from the project site would not be expected to reach the Truckee River due to the high infiltration rate of the local soils. Even with the unlikely chance of an inadequately designed storm water detention basin, due to the lack of existing or planned storm drain systems, and the low likelihood of runoff reaching the river, impacts would be less than significant.

There are no existing storm drain systems in the off-site roadway improvement area and the proposed project does not include installation of a storm drain system. As previously described, the off-site roadway improvements would not result in a significant increase in runoff. Implementation of the SWPPP and construction BMPs would reduce potential pollution impacts during construction.

The proposed project would result in less than significant impacts related to the capacity of existing or planned storm drain systems.

Significance Threshold 3 – Flooding/Floodplain Hazards

The project site is outside of mapped 100-year and 500-year floodplains, with the closest mapped 100-year floodplain located approximately 0.25 mile to the west-southwest (FEMA 2010). The majority

of the off-site roadway improvement area is outside of the 100-year floodplain but the segment that crosses the Truckee River falls within the 100-year floodplain for the river. The roadway improvements do not involve improvements to the existing structure over the river or its banks. No work will occur within the mapped 100-year floodplain for the river.

The proposed project would not generate or be subject to any impacts associated with flooding/floodplain hazards or the related impediment or redirection of flood waters and would not expose people or structures to a significant risk of loss, injury or death involving flooding, and/or place structures within a 100-year flood hazard area which would impede or redirect flows.

Significance Threshold 4 – Groundwater Supplies/Recharge

The currently permitted mining operation in the East Pit (which has been idle since 2008) relies on water from Dobbas Spring in the southern portion of the project site and outside of the ultimate disturbed area. As previously described, while the spring is a groundwater source, it has been fitted with improvements to enable the economic use of the spring's surface waters. This was approved by a conditional use permit issued by Nevada County in 1998. The project applicant's lease allows for use of these surface waters for the quarry operations, and the spring is the proposed water source for the proposed project.

Past use of the spring for the currently permitted mining activities has been approximately 10 to 14-acre feet per year. With implementation of the proposed project, the anticipated use is expected to range from approximately 39 to 56 acre-feet per year for operations on the site. The WSA prepared for the project presents estimated annual flows at Dobbas Spring, which range from approximately 47 to 335 acre-feet per year, with an average annual flow of 142 acre-feet (BHI 2018). These figures are derived from a number of considerations and assumptions related to the geologic and hydrologic characteristics of local water-bearing rocks, local recharge area(s), historic/current groundwater use, and associated precipitation/recharge levels. The recorded annual flow at Dobbas Spring during a critical dry year of 47 acre-feet would be insufficient to meet the higher end of project demand (56 acre-feet per year). The estimated recurrence interval of the critical dry year is approximately 100 years, with the last occurrence in 2001; therefore, the likelihood of a critical dry year occurring during the 30-year project operation period is relatively low. However, the potential for a critical dry year to occur during the proposed mining operations cannot be completely disregarded. Project consumption exceeding the water supply at Dobbas Spring would be a potentially significant impact.

A portion of the off-site roadway improvement area at its southernmost extent overlaps the Martis Valley Groundwater Basin and increases to impervious surfaces may minimally affect groundwater recharge by decreasing the area available for runoff to infiltrate the soil. The proposed improvements involve widening the existing 20 – 24-foot-wide roadway to achieve a 32-foot-wide paved roadway. Assuming an additional 12 feet of paved surface along the entire 1.2-mile-long segment to be widened, the improvements would involve approximately 1 acre of additional paved surface within the approximately 22-acre off-site improvement area. The additional impervious surface would be insignificant and would not result in an impact to local groundwater supplies, aquifer volumes, or local groundwater tables. The proposed improvements would not involve excavations and would not otherwise affect the groundwater basin. Impacts to groundwater supply and recharge from construction of the off-site roadway improvement would be less than significant.

Operation of the proposed project would result in potentially significant impacts to ground water supplies and recharge at Dobbas Spring. Mitigation Measure HYD-2 would be required to reduce the potential for impacts to less than significant.

Significance Thresholds 5 and 6 - Water Quality

Potential impacts to water quality associated with the proposed project include erosion and sedimentation, and operational contaminants.

Erosion and Sedimentation

The ultimate disturbed area in the project site includes topsoil and related deposits with moderate to high erosion potential (refer to Section 4.1). Ground disturbing activities associated with mining operation would increase the risk of erosion. Specifically, ground disturbing activities in the project site would involve: (1) removal of surface stabilizing features (i.e., vegetation); (2) creation of manufactured slopes; (3) excavation of existing compacted materials from quarry areas; (4) on-site storage of excavated topsoil for use in reclamation efforts; and (5) placement of excavated and imported material as backfill in reclamation sites.

As previously mentioned, the storm water detention basins that would be constructed during operation, and the final detention basin that would be constructed as part of site reclamation would convey all water from the ultimate disturbed area into the detention basins with no discharge outside of the West Pit. Therefore, the project, as proposed, would not result in erosion and sedimentation in waterbodies outside of the West Pit.

Because a SWMP has been prepared for the project, and the proposed project includes design and operational measures to prevent the discharge (or runoff) of storm water from the West Pit, the proposed project is exempt from obtaining coverage under the NPDES Industrial General Permit. However, SMARA requires implementation of an approved Reclamation Plan for operational water quality and applicable long-term (post-reclamation) water quality controls which include erosion and sediment controls. Refer to the discussion of Runoff Volumes/Velocities and Storm Water Management, for a detailed discussion of applicable regulations.

Design and operational requirements from the project SWMP and 2011 Reclamation Plan have been incorporated into the project design (see Section 3.3.9), which include measures to address potential runoff/storm water and related erosion/sedimentation concerns during site operation and reclamation. Additional measures require maintenance and preventative measures for proper function and capacity of the detention basins, and annual reporting to the County in accordance with applicable SMARA requirements. The annual reporting would document the status and effectiveness of the storm water detention basin and would include recommendations for additional or enhanced erosion and sediment control BMPs. With adherence to the environmental design measures incorporated into the project design, the project would avoid impacts associated with erosion and sedimentation.

As described in the SMWP, because operation of the project would occur over many years, more quantitative data could be collected regarding the volumes of surface water runoff in the basin. If it is found that the design assumptions are overly conservative, the basin size could be modified based on actual surface water runoff volumes. In addition, once the infiltration rates for the backfill soils are known, it may be possible to place the basin within the backfill soils (rather than bedrock). While the currently proposed design would result in minimal impacts to erosion and sedimentation, should the

revised design result in inadequate capacity or performance to retain storm water in the West Pit, a potentially significant impact would occur and mitigation would be required.

As previously described under the discussion of Drainage Patterns/Flow Directions, the proposed improvements in the off-site roadway improvement area would result in a minor increase in impervious surfaces. An increase in impervious surfaces has the potential to increase runoff volumes and velocities which may result in erosion or siltation on- or off-site. The off-site improvements would be designed in compliance with the County standards, and the applicant would be required to obtain coverage for the project under the Construction Stormwater General Permit from the Lahontan RWQCB and comply with all conditions of the permit. The project would also implement an approved SWPPP, which would be developed based on final engineering design and would include all project components. The SWPPP would include erosion and sediment control measures to reduce the potential for construction and post-construction erosion and siltation. With implementation of the SWPPP and associated BMPs, as well as implementation of County standards, potential impacts to runoff volumes and velocities would be less than significant.

Revisions to the project design of the storm water detention basin following project approval would result in potentially significant impacts related to erosion and sedimentation and mitigation would be required. Implementation of Mitigation Measure HYD-1 would reduce impacts to a level of less than significant.

Operational Contaminants

As described in Section 3.0, the proposed project would involve the use of mechanized vehicles and equipment for excavation, processing, and transport of aggregate and related materials (e.g., backfill). Potential contaminants associated with the vehicles and equipment include diesel fuel, gasoline, lubricants, solvents, and coolants. There is the potential for discharges of hazardous materials that could adversely affect water quality. Spills or leaks from heavy equipment and machinery can result in storm water contamination. Trash, debris, and organic matter released during operation and reclamation activities may enter waterways and impact water quality. Due to the proposed project design, flows from within the ultimate disturbed area would be contained within the mining pits and would not affect downstream surface receiving water quality.

While downstream water quality would not be affected due the project design and adherence to the 2011 Reclamation Plan and SWMP, accidental spills of contaminants could enter the detention basin directly, or contaminated soils could carry pollutants as sedimentation to the detention basin. A concentration of pollutants in the detention basin could affect groundwater quality – specifically, if contaminants such as hydrocarbons from a concentration of petroleum products are able to percolate to the groundwater basin, the groundwater system could fall below drinking water standards. In addition, kyburz soils are highly acidic. Leachate from the soils could increase the acidity of the water in the detention basin. Project operations would also involve the generation of solid waste (e.g., trash, etc.), with associated pollutants (such as organic materials) also potentially conveyed to the on-site basin. Impacts to groundwater from contamination of the detention basin would be a potentially significant impact.

While the acidic soils could increase the acidity of the water in the detention basin, the percolated water would not be expected to affect groundwater quality over existing conditions due to the quality of the existing surrounding soils. In regard to contaminants and solid waste affecting water quality of the

detention basin and the associated groundwater, the proposed project would include a number of “good housekeeping” and other appropriate measures similar to operations in the East Pit to address the potential water quality concerns related to operational contaminants. Those BMPs have been incorporated as mitigation (Mitigation Measure HYD-3) to reduce potentially significant impacts to a level of less than significant.

4.2.5 Level of Significance Before Mitigation

Based on the above analysis, implementation of the proposed project would result in potentially significant project-specific impacts related to groundwater supplies/recharge and operational contaminants. In addition, if the storm water basin design is revised after project approval, the project would result in potentially significant impacts related to runoff volumes/velocities and stormwater management, and water quality - erosion and sedimentation. All other impacts related to hydrology and water quality from the proposed project would be less than significant, based on the implementation of pertinent design and operational measures as described and related conformance to SMARA, NPDES, and other applicable regulatory standards.

4.2.6 Mitigation Measures

HYD-1 In accordance with SMARA, the applicant shall adhere to all erosion and sediment control measures as identified in the SWMP (Golder 2010b) and 2011 Reclamation Plan (ESRS 2011) for the project. Any revisions to the storm water management design for the project after project approval shall be prepared by a qualified registered engineer and shall be provided to the County for review and approval. The revised storm water management system shall be designed to prevent discharge of storm water from the project site. As required, the applicant shall update the SWMP based on the revised design or if required, shall file a Notice of Intent to comply with the Industrial General Permit from the RWQCB.

The applicant shall provide the County Planning Department with an updated SWMP every seven years which will also be tracked through the annual review of the Development Agreement.

HYD-2 The project applicant and/or operator shall monitor precipitation levels at the project site and flows at Dobbas Spring on a monthly and annual basis. The results of this monitoring shall be documented and submitted to the County on an annual basis, along with a summary description of the resultant water balance (i.e., spring flow versus project-related use).

If the noted monitoring data indicate that current or projected future project-related water demand equals or exceeds the flow at Dobbas Spring, the project applicant/operator shall adjust quarry production and/or water supply source(s) accordingly. Specifically, this could include an appropriate reduction of quarry production (with a corresponding reduction in water use), and/or the procurement of alternate water supplies, such that water use from Dobbas Spring does not exceed available supply.

HYD-3

The following avoidance and minimization measures shall be implemented for the duration of operation of the project to avoid impacts to groundwater resources in the project site:

- All imported fill material proposed for use as backfill at the project site shall be “clean” and free from contaminants that are potentially deleterious to surface or groundwater, public health, and the environment in general. The site operator shall visually inspect all imported fill loads for debris and foreign material and shall maintain a written log of all imported fill loads. Because the imported fill shall come from a known, clean source, a chemical inspection would not be required. The inspection log shall include the name, source, address, phone number and vehicle license plate number associated with each fill load, with this information to be submitted to the County for review and verification on a monthly basis.
- All project-related vehicles and equipment shall be regularly inspected and maintained (per manufacturer’s specifications) to ensure proper operation and minimize the potential for accidental spills and leaks of associated pollutants.
- The project impact footprint shall be inspected by the site operator on a daily basis to identify and (as necessary) maintained to identify/remove potential pollutant sources such as trash/debris, spills of vehicle/equipment-related pollutants, and other potential contaminants.
- Storage of potential pollutants (such as fuels and lubricants), as well as maintenance of vehicles/equipment, shall not occur within the project site to reduce to potential for discharge of associated contaminants.
- Appropriate containment and disposal shall be provided for project-generated solid waste (e.g., operational and office trash/debris), through efforts such as use of appropriate storage/containment facilities (e.g., enclosed dumpsters with lids, secondary containment fencing, and an impermeable base), and contracting for regular pickup and disposal of solid waste at an approved off-site facility.
- Training shall be provided at appropriate regular intervals to employees responsible for activities related to installation, operation and/or maintenance of project equipment/vehicles, mining activities, storm drain systems, and erosion/sedimentation facilities and operations. This training shall also include spill response procedures to ensure that staff are capable of appropriately addressing issues and conditions related to pollutant discharge.
- Detailed records shall be kept on-site for efforts including inspections, maintenance activities, corrective actions, material deliveries and inventories, testing/sampling results, and spills and responses.

4.2.7 Significant Unavoidable Adverse Impacts

With proper implementation of the mitigation measure included above, all potentially significant impacts would be reduced to below a level of significance, and no significant unavoidable adverse impacts to hydrology and water quality would result from implementation of the proposed project.

4.3 BIOLOGICAL RESOURCES

This section is summarized, in part, from the Final Biological Inventory completed for the project site by EcoSynthesis Scientific and Regulatory Services Inc. (ESRS 2009), the Biological Inventory Addendum prepared for the off-site improvement area by ESRS in 2014, and a Biological Review of the project area performed in 2017 (ESRS 2018). Additional information and analysis contained in this chapter was prepared by HELIX Environmental Planning, Inc. (HELIX) to supplement the biological inventories. The project area for this analysis consists of the project site and off-site roadway improvement area.

The Final Biological Inventory (ESRS 2009), Biological Inventory Addendum (ESRS 2014), and Biological Review (ESRS 2018) are contained in Appendix H of this EIR and include existing vegetation and wildlife mapping based on field surveys. A series of focused botanical and wildlife surveys for sensitive species were conducted by ESRS between 2006 and 2009 within the ultimate disturbed area and to a lesser extent throughout the remainder of the project site and are documented in the biological reports (ESRS 2009; 2018).

Background information for the project area and for regional biological resources was obtained from the following sources: Nevada County Natural Resources Report (NCNRR 2002); Nevada County General Plan (1995); Nevada County Land Use and Development Code (2007); California Department of Fish and Wildlife (CDFW 2017); Sawyer, Keeler-Wolf, and Evens (2009); California Native Plant Society Inventory (CNPS 2001; on-line update also consulted); and the Biological Inventory (ESRS 2009), Biological Inventory Addendum (ESRS 2014), and Biological Review (ESRS 2018b).

Comments were received during and following the public review period of the 2012 Draft EIR regarding this topic from the following agencies and individuals: Taylor & Wiley Attorneys of Counsel on behalf of the project applicant (11/6/2012), the Hirschdale Community (10/29/2012), Law Office of Donald B. Mooney on behalf of Mr. McGinity (2/21/2013), and Jamie Cole during the Public Hearing (10/11/2012). Refer to Appendix A for the comments received and responses to those comments.

4.3.1 Existing Conditions

Project Site

The predominant habitat type in the project site is Jeffrey Pine-Antelope Bitterbrush Association, with extensive areas of Bitterbrush Scrub and Curl-leaf Mountain Mahogany Woodland, as well as largely barren Rock Outcrop and Talus. A pond and two other small patches of wetland vegetation are located in the extreme southern part of the project site, all of which are supported by a natural spring also located on the project site, outside of the ultimate disturbed area. Potential habitat for special-status species exists within the pond and small patches of Riparian Scrub, but these resources are not within the ultimate disturbed area. No special-status plant or wildlife species were found during the biological surveys of the project site (ESRS 2009; 2018b). Mule deer migrate through the region and likely forage in the project site during a portion of the summer season. Special status species with the potential to occur in habitats on the project site are discussed under Sensitive Biological Resources in Section 4.3.1.

Off-Site Roadway Improvement Area

The predominant habitat types within the roadway improvement area are Mountain Sagebrush-Bitterbrush Shrubland and Ruderal and Disturbed with scattered areas of Jeffery Pine Woodland,

Lemmon's Willow Thicket, Quaking Aspen, and Wet Meadow. A short segment of the Truckee River, a federal jurisdictional water, exists within the roadway improvement area. The Wet Meadow and Lemmon's Willow Thicket habitats support hydrophytic vegetation and could possibly be jurisdictional wetlands. No special-status species were observed within the roadway improvement area, however the willow thicket habitat along Stampede Meadows Road provides potentially suitable nesting habitat for one sensitive bird species, the yellow warbler. The sagebrush-bitterbrush habitat located west of the quarry area and extending to Stampede Meadows Road is used by mule deer for migration and foraging.

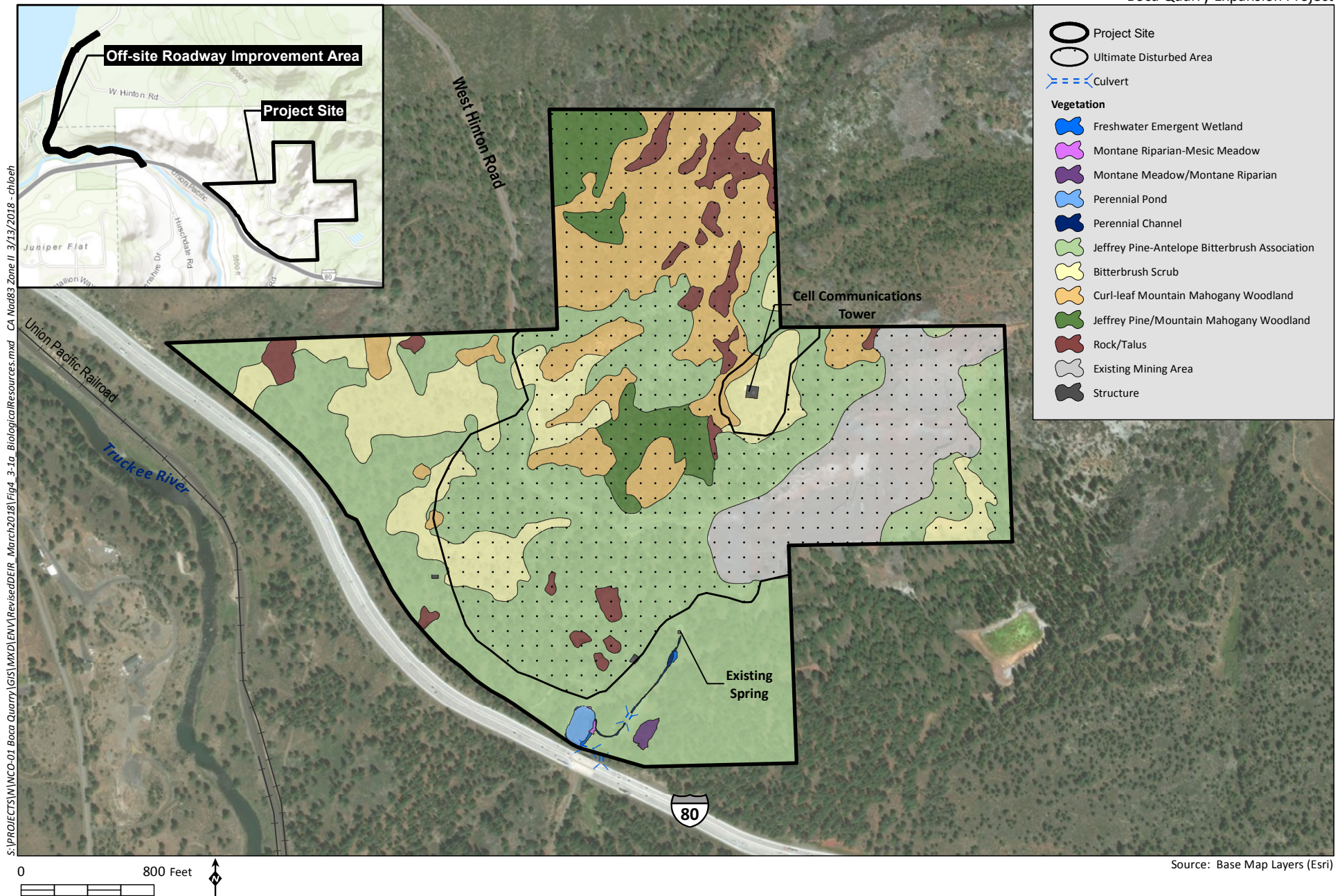
Biological Resources

The existing vegetation communities/habitats in the project site and off-site roadway improvement area were determined during the field surveys conducted for the Biological Inventory (ESRS 2009) which covered the project site, and the Biological Inventory Addendum (ESRS 2014) which covered the off-site improvement area. The exiting conditions for the entire project area were confirmed during the Biological Review (ESRS 2018). The vegetation community/habitat names used generally follow the alliances described in Sawyer, Keeler-Wolf, and Evens (2009); however, inclusive generalized names are used for the wetland communities (ESRS 2009). Vegetation communities/habitats identified in the project site and off-site improvement area are presented in the following sections. The characteristics of each of those habitats occurring in the project area are described individually in the discussions of Upland Habitats, Aquatic/Riparian Habitats, and Disturbed Areas, below.

In addition to mapping the vegetation on-site, the Biological Inventory and Biological Inventory Addendum utilized the Nevada County Natural Resources Report (NCNRR) and the Manual of California Vegetation 2nd edition (MCV2) to characterize the existing biological communities within a regional context. In some cases, the nomenclature varies between that used in this EIR and the nomenclature used in the NCNRR. For example, Jeffrey Pine-Antelope Bitterbrush Association and Bitterbrush Scrub habitat are categorized as "Eastside Pine" and "Eastside Scrub" by the NCNRR. Lemmon's Willow Thicket is described as "Montane Riparian" in the NCNRR. Mountain mahogany (which is described as "Montane Hardwood" in the NCNRR) is a minor but common habitat type in the on-site mining expansion area. The on-site mining expansion area includes a higher proportion of nearly unvegetated rock and talus (categorized as "Barren" by the NCNRR) than is generally found over the area surrounding the project site. Curl-leaf Mountain Mahogany occurs only in the extreme eastern end of the County, east of the Town of Truckee, and is not described in the NCNRR. It is a community type that occurs commonly; however, it usually is present in small patches in very rocky sites in the eastside pine zone, it transitions to Great Basin scrub vegetation, and is included in Sawyer et al. (2009) as a vegetation alliance. Additionally, the majority of plants in the project area qualify as small trees rather than shrubs.

Project Site

The project site supports seven vegetation communities: Jeffrey Pine-Antelope Bitterbrush Association, Bitterbrush Scrub, Curl-leaf Mountain Mahogany Woodland, Jeffrey Pine-Mountain Mahogany Woodland, Freshwater Emergent Wetland, Montane Riparian, and Montane Riparian-Mesic Meadow, plus several non-vegetated habitats including Rock/Talus areas, Pond, and the Existing Mining Area (East Pit). Table 4.3-1 presents the area of each vegetation community in the project site, and Figure 4.3-1a depicts the locations of the vegetation communities in the project site.



**Table 4.3-1
EXISTING VEGETATION COMMUNITIES AND OTHER HABITATS WITHIN
THE PROJECT SITE**

Vegetation Community	Area*
Upland Habitats	
Jeffrey Pine-Antelope Bitterbrush Association	116.2
Bitterbrush Scrub	29.2
Curl-leaf Mountain Mahogany Woodland	36.9
Jeffrey Pine-Mountain Mahogany Woodland	11.6
Rock/Talus	8.6
Aquatic/Riparian Habitats	
Perennial Channel	0.2
Perennial Pond	0.7
Montane Riparian	0.1
Montane Riparian-Mesic Meadow	0.4
Freshwater Emergent Wetland	0.1
Disturbed Areas	
Existing Mining Area (East Pit)	26.5
TOTAL	230.5

Source: ESRS 2009; 2018

*All areas are presented in acre(s) rounded to the nearest 0.1.

Off-Site Roadway Improvement Area

The off-site roadway improvement area supports eight vegetation communities: Disturbed/Ruderal Areas (road), Disturbed/Ruderal Areas, Jeffery Pine-Antelope Bitterbrush Association, Lemmon's Willow Thicket, Mountain Sagebrush-bitterbrush Shrubland, Quaking Aspen, Truckee River, and Wet Meadow. Table 4.3-2 presents the area of each vegetation community in the off-site roadway improvement area, and Figure 4.3-1b depicts the locations of the vegetation communities.

**Table 4.3-2
EXISTING VEGETATION COMMUNITIES AND OTHER HABITATS WITHIN
THE OFF-SITE ROADWAY IMPROVEMENT AREA**

Vegetation Community	Area*
Upland Habitats	
Jeffrey Pine -Antelope Bitterbrush Association	0.3
Mountain Sagebrush-Bitterbrush Shrubland	10.7
Quaking Aspen Woodland	0.1
Aquatic/Riparian Habitats	
Lemmon's Willow Thicket	0.1
Truckee River	0.3
Wet Meadow	0.2
Disturbed Areas	
Disturbed/Ruderal Areas (road)	3.9
Disturbed/Ruderal Areas	6.5
TOTAL	22.1

Source: ESRS 2014, 2018

*All areas are presented in acre(s) rounded to the nearest 0.1.

Upland Habitats

Jeffrey Pine-Antelope Bitterbrush Association

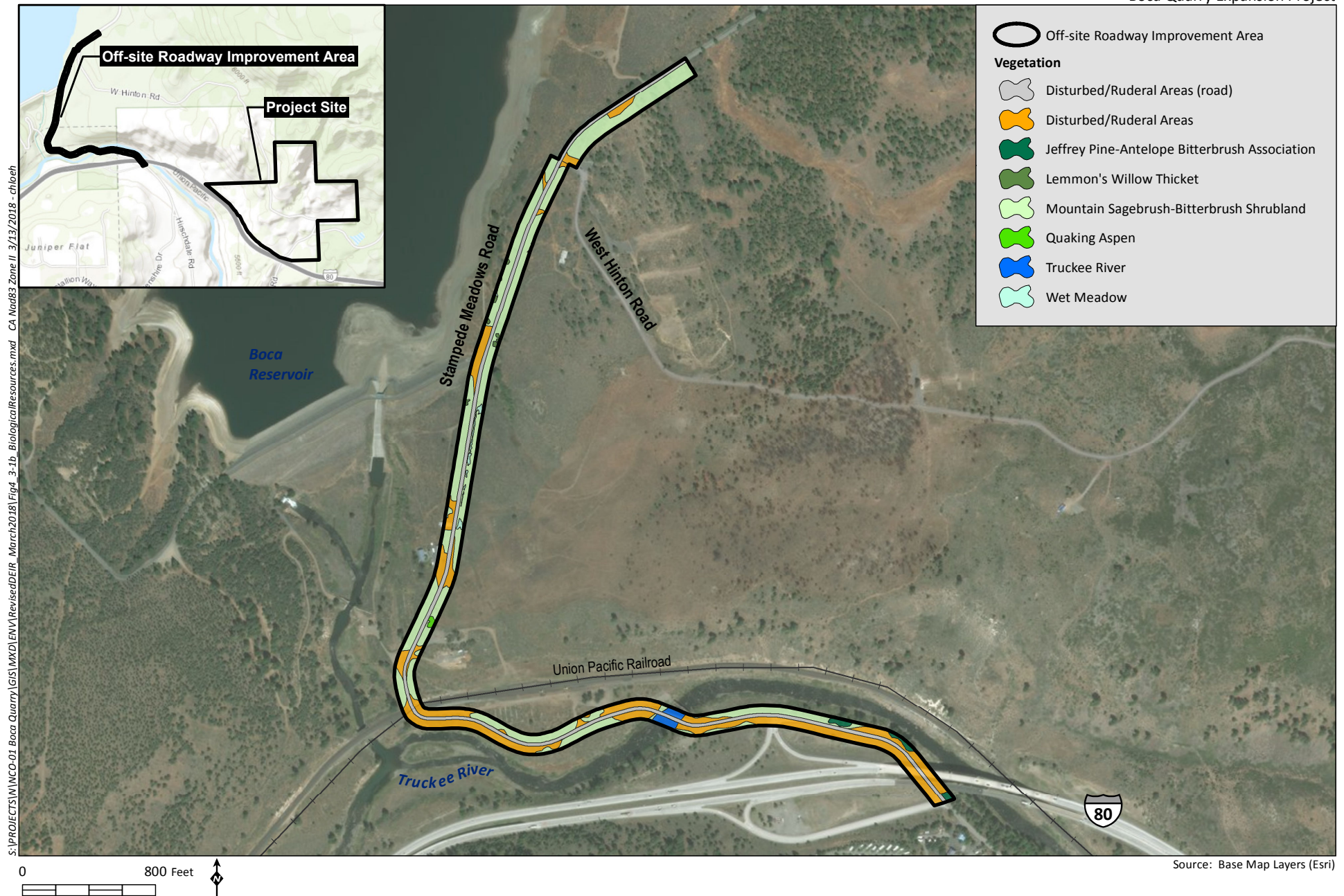
This is the most extensively distributed habitat in the project region, also known as Eastside Pine-Bitterbrush. It is one of the most common associations within the Jeffrey Pine Series (Sawyer and Keeler-Wolf 1995). It is an open woodland to savannah habitat type, with a canopy dominated primarily by Jeffrey pine (*Pinus jeffreyi*), locally mixed with or even replaced by ponderosa pine (*Pinus ponderosa*) – a different genotype that is prevalent in the lower elevations of the Sierra Nevada foothills. White fir (*Abies concolor*) is present, if at all, usually only as scattered seedlings or saplings, but a few sizeable trees (>18 inches diameter at breast height [dbh]) of fir occur.

The shrub layer of this habitat is dominated almost everywhere by antelope bitterbrush (*Purshia tridentata*). The project site lies exactly in the transition zone between the more familiar var. *tridentata* of the eastern slopes of the Sierra Nevada, and var. *glandulosa* which is the typical bitterbrush of the Mojave Desert, California desert mountains, and parts of the Great Basin. Other shrubs that occur commonly (although only occasionally to the level of co-dominance) include rabbitbrush (*Ericameria* [*Chrysothamnus*] *nauseosus* and *E. viscidiflorus*), mountain sagebrush (*Artemisia tridentata* ssp. *vaseyana*), tobacco brush (*Ceanothus velutinus*), wax currant (*Ribes cereum*), and sometimes greenleaf manzanita (*Arctostaphylos patula*). Less commonly, blackcap raspberry (*Rubus leucodermis*) and species that are typical of other communities are found (Sierra cherry, curl-leaf mountain mahogany; see below). Notably, plants of Scouler's willow (*Salix scouleriana*) and patches of numerous blue elderberry (*Sambucus mexicana*) are found in places in the arid slopes.

The herbaceous layer is dominated by grasses such as squirreltail (*Elymus elymoides*) and one-sided bluegrass (*Poa secunda*), occasionally with substantial amounts of the invasive non-native annual cheatgrass (*Bromus tectorum*). Also common in this habitat are *Penstemon deustus* (no widely used common name) and scorpion-weed (*Phacelia hastata*). Less steeply sloping habitat supports a slightly different herbaceous stratum, specifically with fewer grasses and characterized by the common presence of the dry site sedge *Carex rossii*. The project site supports approximately 116.2 acres of Jeffrey Pine-Antelope Bitterbrush Association while the off-site roadway improvement area supports 0.3 acre of this habitat type.

Bitterbrush Scrub/Mountain Sagebrush-Bitterbrush Shrubland

This habitat type is very similar to Jeffrey Pine-Antelope Bitterbrush in structure and species composition, except that trees are very sparsely distributed or absent, or are small, so that the predominant character is scrubland rather than woodland (much less than 10 percent tree canopy cover). This is important for general wildlife use and for determining appropriate reclamation goals. Large areas of the project site appear to have burned in a stand-replacing fire that occurred decades ago but has since naturally recovered with large trees and shrubs over most of the area. Therefore, it is reasonable to conclude that the areas mapped as Bitterbrush Scrub are in fact areas that naturally do not support a high density of tree cover. The forb assemblage within this habitat in the off-site roadway improvement area is similar, but not identical to, that within the project site. Bitterbrush Scrub covers approximately 29.2 acres of the project site and approximately 10.7 acres of the off-site roadway improvement area.



Curl-leaf Mountain Mahogany Woodland

This habitat type occurs on steep rocky slopes and ridge crests, mostly in the northern part of the project site within Rock outcrop/Jorge complex soils. The overwhelmingly dominant plant is curl-leaf mountain mahogany (*Cercocarpus ledifolius* var. *intermontanus*), with tree sizes sometimes exceeding 20 inches dbh. Numerous plants of all age classes, including recently established small seedlings through saplings, are found in and near this vegetation, so it appears to be a community that is stable over time and replaces itself in kind after severe fire. In places on rocky slopes and ravines, extensive patches of choke cherry (*Prunus virginiana* var. *demissa*) are present, and two patches within mapped mountain mahogany habitat are actually dominated by tobacco brush (*Ceanothus velutinus*). These were sufficiently small; therefore, a separate community map type was not warranted.

Mountain Mahogany Woodland occurs on the more rocky areas than any other vegetation type found on the project site; thus, it intergrades with Rock/Talus and presumably differs primarily in that fissures in the rock have weathered to soil textures, and/or that sufficient soil particles have illuviated into rock fissures to hold enough moisture to support large plants. Mapping of the boundaries between these two map units was based upon what the predominant character of the color signature is in the aerial photograph. The project site supports 36.9 acres of Curl-leaf Mountain Mahogany Woodland.

Jeffrey Pine-Mountain Mahogany Woodland

This is an intermediate or mosaic habitat type, with a canopy dominated by emergent Jeffrey and ponderosa pine trees and a sub-canopy of mountain mahogany, but with relatively little bitterbrush, rabbitbrush, and sagebrush in the shrub understory. This association is sufficiently distinct from other vegetation types on site to merit separate recognition. The on-site mining expansion area supports 11.6 acres of this habitat type.

Rock/Talus

This habitat type was mapped where the vascular plant cover was absent or very low. Rocky and bouldery areas are often labeled as Barren (as in the NCNRR), but they are hardly devoid of habitat values for both large and small wildlife (primarily in providing cover, den, and even hibernation sites). Post-mining landscapes would likely include more or less extensive areas of exposed rock, talus, and rubble, so it is appropriate to recognize that this type of land surface coverage already occurs commonly and is even prevalent in some portions of the site under pre-disturbance conditions. The on-site mining expansion area supports approximately 8.6 acres of the Rock/Talus habitat type.

Quaking Aspen Woodland

One small patch of Quaking Aspen Woodland occurs within the roadway improvement area. This patch consists of an understory of eastside scrub vegetation with several quaking aspen (*Populus tremuloides*) and lodgepole pine (*Pinus contorta* ssp. *murrayana*) trees. The Quaking Aspen Woodland vegetation does not meet the hydrophytic vegetation criterion. The roadway improvement area supports approximately 0.1 acre of Quaking Aspen Woodland.

Aquatic/Riparian Habitats

Perennial Channel

A perennial channel occurs in the southern portion of the project site. It appears to be supported by natural hydrology (i.e., it is not pumped or actively diverted, requiring annual or other regular human action, such as opening a gate valve). This feature flows southwestward and conveys spring water to a perennial pond. The feature may have been entirely constructed many years ago or may be a natural channel that has been improved. The channel is primarily unvegetated but does support some non-persistent floating and emergent vegetation within the wetted portion of the channel. The perennial channel accounts for 0.2 acre of habitat in the project site.

Perennial Pond

The perennial channel discharges into a perennial pond whose water level fluctuates from season to season. When the water level is high enough (most of the year), the pond drains out through a culvert under Hinton Road near the southern portion of the project site, to a wetland area east of the road (see the discussion of Montane Riparian, below). The infiltration rate of the bed of this pond is obviously very high, because the outflow through the culvert is visibly much less than the spring flow at the upper end of the channel. The highest pond water levels occur if and when the outflow culvert is blocked by ice. In the early growing season of 2012, for example, remains of algal mats were visible some 0.5 to 1.0 feet above the observed water level of the pond, but still much lower than the elevation of the adjacent uplands. Around most of the circumference of the pond, there is no adjacent wetland that occurs higher than the highest (ice-dammed) OHWM, but portions of the banks of the pond support Montane Riparian and Freshwater Emergent Wetland habitats which were mapped separately and is described below. The pond accounts for 0.7 acre of habitat in the project site.

Montane Riparian

This wetland type occurs in two patches adjacent the pond, and in a depression on the east side of Hinton Road that is supported hydrologically by the discharge from the pond's outflow culvert. Vegetation of this latter riparian area is dominated by Pacific willow. The two riparian thickets adjacent to the pond are dominated by Lemmon's willow and by quaking aspen, respectively. Although aspen is a non-hydrophytic (FACU) species, distinct hydrophytic adaptation (spongy roots) was observed within the aspen grove, along with hydrophytic species and unequivocal field indicators of wetland hydrology and soils. Accordingly, this area seemed to merit mapping as riparian wetland. The project site supports 0.1 acre of Montane Riparian habitat.

Lemmon's Willow Thicket

There are small patches of riparian habitat scattered outside and extending into the off-site roadway improvement area. These patches consist of Lemmon's willow (*Salix lemmonii*), which, in portions is associated with upland species, and in other places is associated with hydrophytic species such as Nebraska sedge (*Carex nebrascensis*). Montane Riparian habitat accounts for 0.1 acre of habitat in the off-site roadway improvement area.

Montane Riparian-Mesic Meadow

An isolated topographic depression on the project site, east of Hinton Road supports a mosaic of wet meadows with small patches of willow scrub. The herbaceous vegetation is patchy, with some areas dominated by Douglas's sedge; others by meadow barley; others by arctic (Baltic) rush (*Juncus arcticus/balticus*). All of these species are hydrophytic, as are most of the non-dominant species present.

This feature appears possibly to have been excavated in the very distant past, for what reason we have no information. There is neither an inflow nor outflow channel or culvert, although the fine soil particles that are mixed in the organic soil seem to be slightly stratified, which indicates that sheet flow bearing fine sediment enters the depression from time to time. Regardless of its origin, it is a permanent feature and meets all three mandatory wetland criteria. The project site supports 0.4 acre of montane meadow-montane riparian habitat.

Freshwater Emergent Wetland

The freshwater emergent wetland feature on-site includes seasonally or perennially saturated herbaceous FACW and OBL wetland communities adjacent to the two types of non-wetland waters described above, abutting the OHWM. Emergent marsh vegetation adjacent to the pond is comprised almost exclusively of arctic (Baltic) rush (*Juncus arcticus/balticus*), whereas the marsh adjacent to the channel is mostly Nebraska sedge (*Carex nebrascensis*). The on-site mining expansion area supports 0.1 acre of freshwater emergent wetland habitat. This area also includes a spring water collection facility which was previously permitted through a Use Permit approved by Nevada County.

Truckee River

The Truckee River is a perennial waterway that crosses under the off-site roadway improvement area. There are no areas of hydrophytic vegetation along the river's banks within the project area. Approximately 0.3 acre of perennial waterway associated with the Truckee River occurs in the off-site roadway improvement area. Refer to the discussion of the river Under Aquatic/Riparian Habitats in Section 4.3.1 for more detail.

Wet Meadow

The Wet Meadow habitat occurs in different situations in the off-site roadway improvement area. Wet meadow vegetation occurs in a narrow strip along several hundred feet of roadside ditch along Stampede Meadows Road, which does not display indicators of wetland hydrology. This strip of vegetation is dominated by Baltic rush (*Juncus arcticus/balticus*) with patches of Nebraska or field sedge (*Carex nebrascensis* or *C. praegracilis*).

Wet meadow is also associated with Lemmon's willow (*Salix lemmonii*). In this situation, it is dominated by Nebraska sedge (*Carex nebrascensis*) and also mixed with field sedge or Baltic rush (*Juncus balticus*). There are a few small patches of field sedge scattered within the sagebrush-bitterbrush vegetative cover. Wet Meadow accounts for 0.2 acre of the habitat within the off-site roadway improvement area.

Disturbed Areas

Existing Mining Area (East Pit)

Disturbed areas within the East Pit accounts for 26.5 acres of the project site.

Disturbed and Ruderal Vegetation

This cover type consists of buildings, paved areas, gravel-surfaced areas, unsurfaced dirt roads, other surface disturbance with minimal vegetative cover, and areas that were previously disturbed but are now partially revegetated. Some of the revegetation is a result of seeding erosion control species. These revegetated areas appear to be dominated by the Luna variety of pubescent wheatgrass (*Elymus hispidus*). Other areas within the Disturbed and Ruderal habitat type support non-native species such as cheatgrass (*Bromus tectorum*) and tumble mustard (*Sisymbrium altissimum*). There are also portions of the disturbed areas that support native species, mostly rubber rabbitbrush. The Disturbed and Ruderal vegetation does not fit within the NCNRR “urban” land cover type, nor does it have a MCV2 equivalent. The off-site roadway improvement area supports 10.4 acres of Disturbed and Ruderal vegetation (including 3.9 acres of paved roadway).

Sensitive Biological Resources

The Final Biological Inventory (ESRS 2009) that was prepared for the project contained a comprehensive biological review of the project site, including habitat mapping, biological surveys, and review of potentially occurring special status species. A formal delineation of potentially jurisdictional waters was prepared for the project site in 2012 (ESRS 2012). The project area was subsequently expanded to include the off-site roadway improvement area. The Biological Inventory Addendum was prepared in 2014, and includes habitat mapping, biological surveys, and review of potentially occurring special status species (ESRS 2014). No formal delineation of potentially jurisdictional waters has been prepared for the off-site roadway improvement area. Due to the time that has passed since the original biological studies were prepared, the project area was reviewed in 2017 by ESRS and included an updated desktop analysis, and a review of the project area to identify any changes to the original findings (ESRS 2018).

Sensitivity Categories

The Federal Endangered Species Act (FESA) is administered by the U.S. Fish and Wildlife Service (USFWS). Under FESA, species are listed as either “endangered” or “threatened.” An “endangered” species is one that is at risk of extinction throughout all or a significant portion of its range. A “threatened” species is one that is likely to become endangered in the foreseeable future. Subspecies and “distinct population units” of species may be listed if they represent distinct evolutionary lineages that are threatened or endangered despite being taxonomically grouped with more secure populations. A species can also be listed in part, but not all, of its range if there are significant threats to its existence in a particular locality.

The California Endangered Species Act (CESA) is administered by the CDFW. Species are designated as “endangered,” “threatened,” or “rare,” either under the Native Plant Protection Act or by decision of the Fish and Game Commission. In addition to recognizing a third level of sensitivity, CESA differs from FESA in that it affords full protection to species that are designated “candidate” species while they are being reviewed for listing, and in that the statutory basis for CESA explicitly precludes the listing of invertebrate animal species but does provide full protection to plant species.

The California Fish and Game Code includes lists of animals that are “fully protected” from any take. These lists generally predate CESA and reflect an earlier effort to protect species at risk, usually from illegal collecting.

The CDFW maintains a list of “Species of Special Concern (SSC)” for which a substantial decline in population has been documented. Although SSC species have no legal status under CESA, the CDFW recommends their consideration in order to protect declining populations and avoid the need to list them as threatened or endangered in the future. The CDFW also maintains a watch list of species that may qualify as SSC in the future.

The CDFW assigns natural communities in California a State sensitivity ranking according to the NatureServe Heritage method (Faber-Langendoen *et al.* 2012). This method assigns a numerical score to each of eight core status rank factors in the categories of rarity, threats, and trends. Rarity describes the range and abundance of a community; threats describe the overall threat impact to a community, and its vulnerability to threats; trends describe the long-term (200 years) and short-term (50 years) changes in extent or number of occurrences of a community. Sensitivity rankings are calculated from individual core status rank factors, after weighting and adjustments, and are as follows: S1 – critically imperiled; S2 – imperiled; S3 – vulnerable; S4 – apparently secure, and; S5 – secure. The CDFW considers natural communities with sensitivity rankings of S1, S2, or S3 to be special-status natural communities.

The CDFW, in consultation with CNPS and the scientific community, assigns a California Rare Plant Rank (CRPR) to non-listed plant species considered rare, threatened, or endangered, or of limited distribution. The CRPR hierarchy includes six categories and three threat levels. Categories are assigned based on the species’ status in California and elsewhere:

- 1A – extirpated in California and rare or extinct elsewhere;
- 1B – rare, threatened, or endangered in California and elsewhere;
- 2A – extirpated in California but common elsewhere;
- 2B – rare, threatened, or endangered in California but more common elsewhere;
- 3 – insufficient information to assign a rank or to reject;
- 4 – species of limited distribution.

Threat levels are assigned based on the percentage of occurrences that are threatened:

- 0.1 – seriously threatened (80 or more percent of occurrences threatened);
- 0.2 – moderately threatened (20 to 80 percent of occurrences threatened);
- 0.3 – not very threatened (less than 20 percent of occurrences threatened).

Under the provisions of Section 15380(d) of the State CEQA Guidelines, the Lead Agency, in making a determination of significance, must treat rare non-listed plant and animal species as equivalent to listed species if such species satisfy the minimum biological criteria for listing. Plant species assigned a CRPR of 1A, 1B, 2A, 2B, or 3 meet the CEQA definition of rare and must be analyzed by the Lead Agency.

The USFWS is required by FESA to designate “critical” habitat for each listed species concurrently with listing. Critical habitat designation is intended to identify areas that are essential to the preservation and recovery of the species. Critical habitat is not specifically regulated or protected; however, federal agencies are required to consult with USFWS on actions that may result in the destruction or adverse modification of designated critical habitat.

The CDFW and other state and local agencies manage preserves and other open space areas under a variety of statutes and plans. Such preserves are set aside to protect biological resources and are therefore considered sensitive areas. The value of preserves is increased when individual preserves and other open space areas are connected in a network by movement corridors and linkages. Wildlife movement corridors and linkages are important to the conservation of species, as they provide essential areas for seasonal migration, access to diverse habitats for various life stages, gene flow among local populations, escape from local disturbances or the effects of climate change, and recovery from local extinction events. The California Essential Habitat Connectivity Project (CEHC) is a joint effort by the CDFW and Caltrans to identify key existing and potential (missing) linkages throughout California. Key habitat blocks and linkages identified by CEHC are mapped in CNDDDB.

The U.S. Army Corps of Engineers (USACE), Lahontan RWQCB, and CDFW take regulatory jurisdiction over certain wetlands, streams, and other aquatic resources, the protection of which is considered to be in the public interest (considered to be waters of the U.S. and/or State). Wetlands, waterbodies, and riparian areas are disproportionately important to maintaining natural biodiversity as well as providing essential ecosystem services to human society. The resource agencies named above regulate actions that have potential to fill or otherwise adversely affect jurisdictional wetlands and waters, or to adversely affect water quality.

Preliminary Desktop Analysis

The project area lies on the boundary of the Boca and Martis Peak quadrangles. The California Natural Diversity Database (CNDDDB) was queried for special-status species occurrences throughout the Boca and Martis Peak quadrangles as well as the two quadrangles to the west, Truckee and Hobart Mills. Several species that have been recorded from the Truckee and Hobart Mills quadrangles, from sites further than five miles from the quarry, and from habitat types that do not occur on the present project site were not included in this analysis because the records are not applicable to the project site conditions. For instance, the list for Hobart Mills includes many records from Sagehen Creek, fens, springs, and other very wet natural habitats in the vicinity of the University of California Sagehen Creek field station. Additionally, the majority of special-status species known from the region have adapted to one or another highly specific soil environments. Due to the fact that the habitats from which these occurrences are recorded do not occur within the project site and occur at a substantially lower elevation, these records are not relevant to the proposed project and are not included in this analysis.

ESRS also considered the potential for impacts to 34 Tahoe National Forest “sensitive” species and determined that, in nearly all cases, there was no potential occurrence of the species within the proposed project impact area. In a few cases, foraging habitat is present, but neither breeding nor winter roosting habitat is present; therefore, no Tahoe National Forest sensitive species are discussed further in the biological studies (ESRS 2009).

The relevant CNDDDB special-status wildlife and plant species recorded throughout the four above-mentioned quadrangles are listed in Table 4.3-3. The CNDDDB records search was updated in November 2017 and expires May 3, 2018 (see attachment to Biological Review; ESRS 2018b included in Appendix H of this EIR).

Field Surveys

Field surveys were conducted over multiple site visits of varying times of the year. The surveys were conducted concurrently with the botanical surveys described below.

Biological Reconnaissance Surveys

Field surveys were carried out on foot throughout the ultimate disturbed area in the project site and roadway improvement impact areas and at a lesser level of scrutiny throughout the remainder of the overall project site. Due to the fact that a majority of the rockiest areas were nearly devoid of large vegetation, and because travel through some areas was extremely difficult, no attempt was made to follow linear transects. Instead, every reasonable effort was made to examine all settings where target special-status plant species could possibly occur, and all spots that appeared from a distance to differ from the uniform surrounding scrub. Survey work was carried out by ESRS biologists Adrian Juncosa and Elizabeth Doherty.

As described in the Final Biological Inventory (ESRS 2009), all plant species observed throughout the project area were identified by sight or by reference and were noted on a checklist of the local flora. Birds were identified by sight and/or vocalizations. Mammals were identified by direct observation or by sign (scat, tracks, or characteristic burrows). Habitats were characterized and mapped during the course of the surveys.

Botanical Surveys

The botanical surveys were conducted on August 13, 14, 25, 26 and September 17, 2006 (this was the original complete comprehensive floristic survey); June 22 and July 1, 2007; June 21 and 28, 2009. Additional dates of biological study within the mining expansion area occurred on November 5, 2006, June 1, 2009, and May 2, 2010. The first surveys conducted in August 2006 coincided with the blooming time for the special-status plant species that are recorded from the project region and grow in habitats similar to any that occur on the site. Additional surveys of the roadway improvement area were conducted in support of the Biological Inventory Addendum (ESRS 2014). These survey dates include May 25, July 11, and July 21, 2013. ESRS biologists visited the site again in autumn 2017 to update conditions (ESRS 2018b).

Surveys were conducted in accordance with the California Native Plant Society guidelines, which state that surveys should be timed to coincide with the seasons when target species are evident and identifiable, and that the determination of the exact timing should be based upon strong local knowledge, both in general and specifically regarding the year when the surveys are being contemplated (CNPS 2001).

Loyalton-Truckee Mule Deer Surveys

The project area is situated near the summer range and fawning habitat for the Loyalton-Truckee mule deer herd. ESRS carried out an extension of the only empirical field study of actual current deer usage that has been carried out anywhere in the region in the last 15 years at least. Using a Global Positioning System (GPS) device for orientation and to record points of deer sign, over 40,000 feet of parallel transects were surveyed in and around the project site during late spring of 2009, after the annual migration to higher elevations, where fawns are born in late June. Although the data points were necessarily points, and not dynamic representations of animal movement, a graphical representation of likely deer activity was developed by creating a color halo around each data point, with the additive color density thus being indicative of the intensity of deer usage based upon the field data.

Delineation of Jurisdictional Waters

A delineation of waters of the U.S. and State in the project site was conducted by ESRS in July 2012 (ESRS 2012; Appendix H). The delineation included the Perennial Channel, Perennial Pond, Montane Riparian, Montane Riparian-Mesic Meadow and Freshwater Emergent Wetland. All surface water and associated habitats on the project site occur outside of the ultimate disturbed area.

A determination of wetland areas on the project site was conducted out according to the 1987 Corps of Engineers Wetland Delineation Manual and 2010 Regional Supplement for Western Mountains, Valley, and Coast. Areas of concave topography were evaluated according to the language provided in 33 CFR 328. Interpretation of jurisdictional status considered the extent of jurisdiction under the Clean Water Act (CWA) as determined by decisions of the U.S. Supreme Court and as implemented by the USACE through the process of “approved jurisdictional determinations.”

No formal delineation of potential waters of the U.S. and State was conducted for the off-site roadway improvement area. During biological reconnaissance of the off-site roadway improvement area, patches of facultative hydrophytic vegetation were identified along Stampede Meadows Road, including species characteristic of Montane Riparian and Wet Meadow habitats. The Truckee River is a navigable water and is a water of the U.S.

Results

Appendix A in the Final Biological Inventory (ESRS 2009; Appendix H of this EIR) includes a list of vertebrates and plants that were observed within the project area. The Biological Review (ESRS 2018) did not identify any new species observed within the project area during the 2017 site visit. Several species observed in the project site merit individual comment. Most notable to visitors to the site and staff who work on it is the resident mountain lion (*Felis concolor*), which has been observed repeatedly. Sign (fresh deer kill remnants, scat, and tracks) were seen in widely spaced locations, including in the east pit, throughout the summer and as late as early November. The tracks seen late in the season were of two sizes, indicating presence of a mother and young. Whether the availability of surface water, the presence of excellent cover and den sites in the rock outcrops and dense vegetation, or the easy availability of prime prey items (mule deer) is the most important habitat element for this species cannot be stated, however, the animals are clearly well acclimated to human presence and equipment operation.

An adult and juvenile golden eagle (*Aquila chrysaetos*) were observed flying over the mining expansion area from west to east. These birds were seen only once. Although the golden eagle is not a special-status species, it is protected under the Eagle Protection Act (directed primarily at bald eagles). This species nests on cliffs or rarely in large snags or trees with wide open branches (if no cliff is available), directly in view of large rivers or lakes. Eagle stick nest platforms often exceed six feet in diameter, thus are highly visible. There is no suitable golden eagle nest site at the project site, and no large stick nests were observed. Accordingly, it is concluded that the eagles observed were not associated with a nest, nor were they foraging on the site, but instead were in transit.

Two plant taxa that were observed are characteristic of desert and/or Great Basin habitats and, in the Truckee area, are not found very far west of the project site (although they are quite common further east): Antelope Bitterbrush (*Purshia tridentata* var. *glandulosa*) and Desert figwort (*Scrophularia desertorum*). The former is one of the dominant elements of the vegetation over most of the site, and the presence of these species is indicative that the ecological conditions of the site are very much those

of arid eastside and even Great Basin conditions rather than the mixed coniferous Sierra vegetation that is the dominant type at higher elevations and further west. This is relevant to evaluating the potential for occurrence of special-status species that are characteristic of mixed coniferous landscapes.

It is clear that the entire site burned at some time in the relatively distant past (probably more than 40 or 50 years ago) based on existing fire scars and charred stumps. The size of trees in areas where large standing dead (burned) individuals are present is indicative of the duration since that fire.

Soils of the project area are predominantly Kyburz-Rock outcrop-Trojan complex in the pine and bitterbrush habitats, and Rock outcrop-Jorge complex in the mountain mahogany woodland. All soils on the site are very stony (skeletal or loamy-skeletal), with the Kyburz and Trojan soils having a slightly finer texture (sometimes even to the point of being sandy clay loam, or even pure clay in the C horizon), and the Jorge soils being skeletal (rocky) sandy loam. All are slightly to moderately acid in the upper strata, becoming strongly acid lower in the profile. Topsoil is almost non-existent in many areas (absent in Rock outcrop), and moderately thick in the less steep Kyburz soils. These would be the primary target areas for salvage of reclamation soils. Many of the plants that are native to the site, especially those that provide the most useful browse for migrating or resident deer, are adapted to relatively low nitrogen soils (albeit sometimes with ample availability of other mineral nutrients), therefore application of fertilizers and/or compost in reclamation should be moderated to avoid favoring invasive non-native species.

Special-status Species

The biological studies for the project evaluated the potential for regionally occurring special status species to occur in the project site and off-site improvement area. Potentially suitable habitat was identified in the project site for four species of wildlife including: southern long-toed salamander (species of special concern); yellow warbler (species of special concern); willow flycatcher (federally listed as endangered); and Sierra Nevada yellow legged frog (federally listed as endangered, and State listed as threatened). Yellow warbler was observed in the project site in shrubs near a wetland north of the access road, but outside of the area of disturbance. All potentially suitable habitat for the special status wildlife species in the project site is outside of the ultimate area of disturbance and would not be impacted by the proposed project. The project site contains potentially suitable habitat for numerous species of special status plants; however, a number of those occur in habitats outside of the ultimate disturbed area and wouldn't be affected by the proposed project. Four species of plants with potentially suitable habitat in the ultimate disturbed area on the project site include: three-tip sagebrush (CNPS List 1B.2); Donner Pass buckwheat (CNPS List 1B); Alkali hymenoxys (CNPS List 2B.2); and Alder buckthorn (2B.2).

No suitable habitat for sensitive species of plants was identified in the roadway improvement area. The only special status species of wildlife with the potential to occur is yellow warbler, which may use willow thickets along Stampede Meadows Road for nesting.

Table 4.3-3 summarizes special status species that were reviewed for the potential to occur, their status, a general description of habitat for the species, a determination of whether or not suitable habitat is present in the project site or off-site roadway improvement area and supporting notes.

Wildlife Corridors

Wildlife corridors connect otherwise isolated pieces of habitat and allow movement or dispersal of plants and animals. Local wildlife corridors allow animals' access to resources such as food, water, and shelter within the framework of their daily routine. For example, animals can use these corridors to travel between their riparian breeding habitats and their upland burrowing habitats. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations.

Loyalton-Truckee Mule Deer Habitat

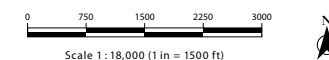
The Loyalton-Truckee mule deer herd occupies summer range and fawning habitats in montane coniferous forest to the south and west of the project site and migrates to winter range at lower elevations to the north and east via several corridors east and north of Truckee (Kahle and Fowler 1982; report and management plan prepared for CDFW).

No critical summer range is mapped within at least 13 miles of the project area (which is as far as the map available from CDFW extends). The nearest critical fawning habitat is mapped near the misnamed Dry Lake, across the Truckee River and about three miles south of the site; additional fawning areas are shown in the Sagehen Hills and in the vicinity of Northstar, both eight or more miles away from the site. The low vegetation cover found in the project area is poorly suited or completely unsuitable for fawning and does not provide a desirable food source for young fawns. Thus, although there is some summertime mule deer use of the project area (as is the case for nearly the entire montane zone of the northern Sierra Nevada), and sign of such use was observed throughout the vegetated parts of the site, there is no critical summer habitat resource for this species on or near the site. In any case, the abundance of deer sign and presence of resident mountain lion (for which deer are the primary food source) indicate that the previous mining operation caused little or no deterrence to use of the site by deer either during the summer or for migration.

One of the two major migration corridors mapped by Kahle and Fowler (1982) passes by the on-site mining expansion area on the east. A significant amount of deer movement also appears to pass some distance to the west as well. As noted above, the East Pit area does not deter deer use of the quarry site. Additionally, I-80, the railroad, the steep craggy slopes of the Truckee Canyon, and the Truckee River do not impede migration through this general area. The results are shown in Figure 4.3-2, which clearly shows that deer usage of the vast majority of the proposed impact area is nearly zero, which is likely due to the fact that the area is steep and very rocky, with relatively sparse vegetation cover compared with that found on all sides of the proposed impact area. Heavier deer use is concentrated just to the east, and far to the west, of the mining area. Some moderate use occurs just at the southwestern edge of the project site. These patterns of deer use also are affected by the fact that, in the project area, they are only able to cross I-80 through two small underpasses and one 2,000-foot highway segment that is raised on piers above the river and railroad. Nevertheless, once across the river and highway, the deer would follow the most suitable foraging and migratory routes, which do not include the proposed impact area (a majority of which is not considered suitable habitat used by the mule deer).

Teichert Aggregates Boca Quarry

Figure 3. Regional Mule Deer Use



Legend

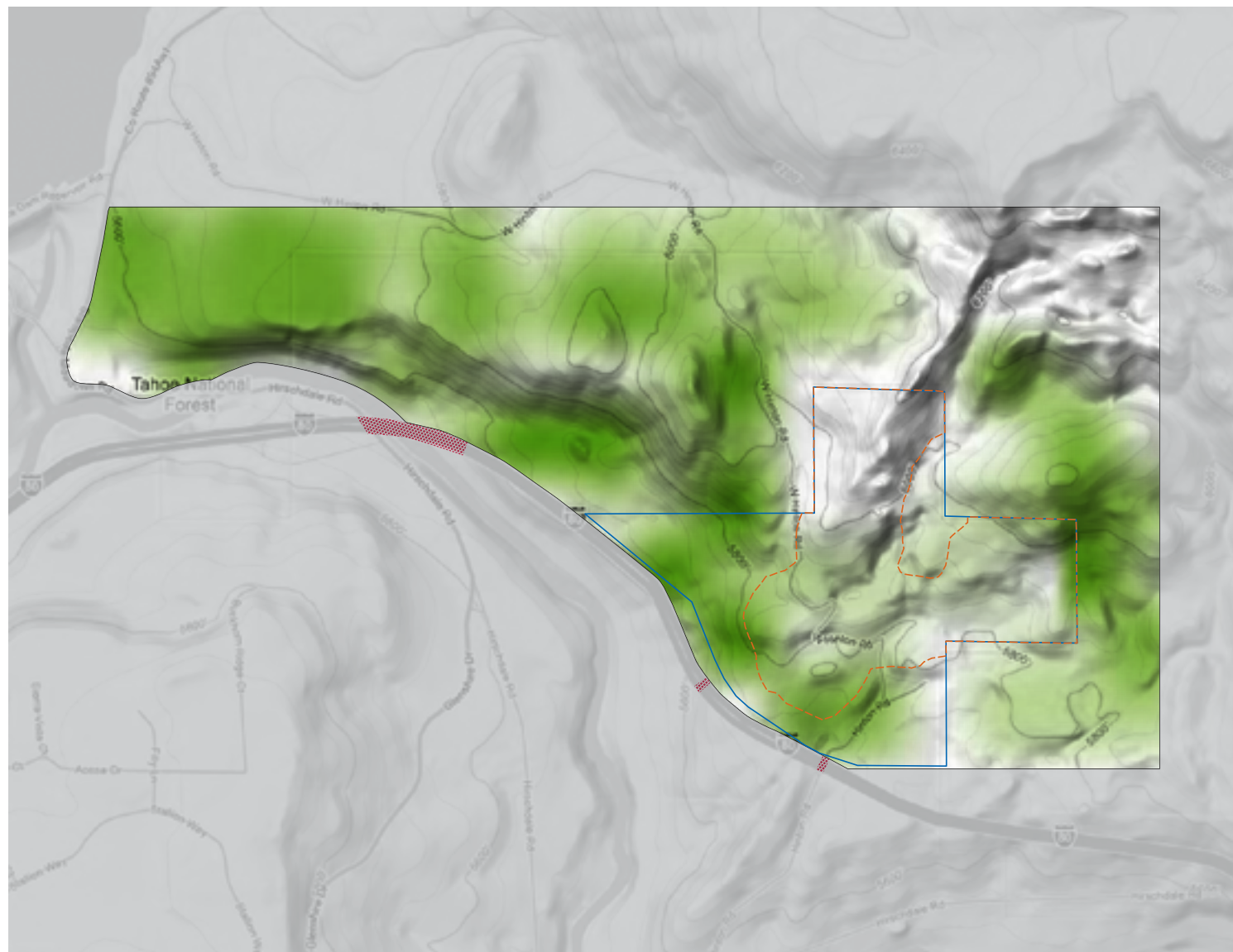
- Project Site Boundary
- Project Impact Area
- Deer sign observed
- Mule deer passages under I-80

Notes

Color indicates field observations of deer use (tracks and/or scat) in June 2009; greater intensity of color indicates greater density of deer sign.

See text for description of field and graphic methods.

Passages under I-80 are not exactly to scale; the two smaller ones near the Project Site are underpasses 20 feet wide or less. The central underpass (near 5,600 contour label) was constructed specifically to facilitate deer passage and is well used by migratory deer. The Hinton Road underpass is much less used.



Source: EcoSynthesis

Table 4.3-3
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR WITHIN THE REGION OF THE PROJECT AREA

Species/CNDDDB Element	Status Federal/State/ CDFW or CNPS	Habitat Used in N. Sierra Nevada	Suitable Habitat On Site?	Notes
Fish				
Lahontan cutthroat trout <i>Onchorhynchus clarkii henshawi</i>	T/-/-	Medium to fast flowing creeks and rivers in Great Basin and a few Sierra localities.	No	No creek on site; short isolated artificial or modified channel is not sufficient for trout.
Amphibians and Reptiles				
Southern long-toed salamander <i>Ambystoma macrodactylum sigillatum</i>	-/-/SSC	Aquatic breeding and larvae; adults remain mostly in moist places such as rotten logs or other animal burrows.	Yes, but not within UDA	
Sierra Nevada yellow-legged frog <i>Rana sierrae</i>	E/T/WL	Ponds, streams, and adjacent wetlands at high elevation in the northern Sierra.	Marginal habitat in project site; but not within UDA.	Possible habitat in the spring-fed pond on the project site. However, the site is outside of the geographic range of the species. Record is a museum specimen from 1935; occurrence believed now to be extinct according to www.californiaherps.com .
Birds				
Northern goshawk <i>Accipiter gentilis</i>	-/-/SSC	High-canopy cover conifer forests, typically north-facing and near water. Nests in dense stands with large trees and multi-layered tree canopy (Johnsgard, 1990, Squires et al., 1997; Keane, 1999).	No	No suitable nesting habitat, and the nearest known nesting territories in Nevada County are too far away for the project site to provide foraging habitat.

Table 4.3-3
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR WITHIN THE REGION OF THE PROJECT AREA (cont.)

Species/CNDDDB Element	Status Federal/State/CD FW or CNPS	Habitat Used in N. Sierra Nevada	Suitable Habitat On Site?	Notes
Birds (cont.)				
Yellow warbler <i>Dendroica petechia brewsteri</i>	--/-/SSC	Broadleaved thickets and forest, usually riparian but always near water.	Yes	Potentially suitable habitat in willow thickets in off-site roadway improvement area; potentially suitable habitat in wetlands on project site outside of UDA. Birds observed in shrubs near wetland north of access road.
Willow flycatcher <i>Empidonax traillii</i>	E/-/-	Wet meadow habitat; requires shrubs (e.g., willow) for nesting with extensive open water or perennially saturated wetland for foraging.	Marginal habitat in project site; but not within UDA	Aspen area by pond is marginally suitable but wetland/riparian area is much too small to support this species.
Greater sandhill crane <i>Grus canadensis tabida</i>	-/T/FP	Open herbaceous vegetation such as wetlands, mesic meadows, and farmland.	No	Not found in dense shrublands or rocky areas
Bald eagle <i>Haliaeetus leucocephalus</i>	Delisted/E/FP	Large trees, especially snags, adjacent to large water bodies. Requires open large branches for nest site and water body with fish and/or abundant waterfowl for food.	No	Known nesting site at Stampede Reservoir.
Mammals				
Sierra Nevada mountain beaver <i>Aplodontia rufa californica</i>	-/-/SSC	Riparian habitat with dense low cover by perennial water and deep soft soils for burrowing and obligate wetland forbs for foraging.	No	The aquatic habitats in the project area are not suitable for the species.

Table 4.3-3
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR WITHIN THE REGION OF THE PROJECT AREA (cont.)

Species/CNDDDB Element	Status Federal/State/CD FW or CNPS	Habitat Used in N. Sierra Nevada	Suitable Habitat On Site?	Notes
Mammals (cont.)				
California wolverine <i>Gulo gulo</i>	PT/T/-	Alpine vegetation, high elevation coniferous, riparian, and meadow vegetation; mesic mixed coniferous forest. Consistent, deep late spring snow cover required for reproduction in western mountains.	No	Records from automatic camera stations at UC Sagehen Creek station are believed to be a single individual traveling occasionally from Oregon population to northern Sierra in winter.
Sierra Nevada snowshoe hare <i>Lepus americanus tahoensis</i>	-/-/SSC	Dense thickets of streamside deciduous shrubs, young conifers, or montane chaparral.	No	Site is too arid and lacks necessary density of broadleaved shrub cover.
Pacific fisher <i>Pekania pennanti</i> DPS	-/CT/SSC	Current range of species is northwestern California and southern Sierra Nevada.	No	Site is no longer within geographic range of the species (see Zielinski et al. 1995)
Sierra Nevada red fox <i>Vulpes necator</i>	C/T/--	Fir, mixed conifer, and lodgepole forest, high elevation shrub communities, meadows; talus above tree line.	No	Absent from structurally similar habitat at lower elevation (e.g. sagebrush; Perrine et al. 2010)
Plants				
Galena Creek rockcress <i>Arabis rigidissima</i> var. <i>demota</i>	-/-/1B.2	Taxon no longer exists.	na	Var. <i>demota</i> is no longer recognized as a valid taxon (Baldwin et al. 2012; FNA 2010); merged into the common widespread species <i>A. rigidissima</i> , which was not found within the site.
Three-tip sagebrush <i>Artemisia tripartita</i> ssp. <i>tripartita</i>	-/-/1B.2	Rocky montane ridges	Yes	Theoretically suitable habitat within project site, but the species is not present.

Table 4.3-3
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR WITHIN THE REGION OF THE PROJECT AREA (cont.)

Species/CNDDDB Element	Status Federal/State/CD FW or CNPS	Habitat Used in N. Sierra Nevada	Suitable Habitat On Site?	Notes
Plants (cont.)				
Upswept moonwort <i>Botrychium ascendens</i>	-/-/2B.3	Grassy areas (dry to mesic meadows) near springs and creeks.	No	
Scalloped moonwort <i>Botrychium crenulatum</i>	-/-/2B.2	Bogs, fens, wet meadows, seeps, marshes, swamps.	No	Possibly within project site but not within impact footprint.
Common moonwort <i>Botrychium lunaria</i>	-/-/2B.3	Wet meadows and seeps.	No	Possibly within project site but not within impact footprint.
Mingan moonwort <i>Botrychium minganense</i>	-/-/2B.2	Wet meadows	Not within UDA	Botanical survey was performed; species was not found.
Davy's sedge <i>Carex davyi</i>	-/-/1B.3	Moist meadows and wet rocky slopes in subalpine and upper montane coniferous forest.	No	Botanical survey was performed; species was not found.
Mud sedge <i>Carex limosa</i>	-/-/2B.2	Perennial fens and sphagnum bogs, with acidic water.	No	Botanical survey was performed; species was not found.
English Sundew <i>Drosera anglica</i>	-/-/2B.3	Fens with long seasonal saturation by water having low nutrient content.	No	Botanical survey was performed; species was not found.
Donner Pass buckwheat <i>Eriogonum umbellatum</i> var. <i>torreyanum</i>	-/-/1B.2	Rocky volcanic soils	Yes	Botanical survey was performed; species was not found.
Alkali hymenoxys <i>Hymenoxys lemmonii</i>	-/-/2B.2	Roadsides, open areas, meadows, slopes, drainage areas, stream banks	Possibly	Site descriptions on herbarium labels do not match project site. No species of <i>Hymenoxys</i> found in project site.
Plumas ivesia <i>Ivesia sericoleuca</i>	-/-/1B.2	Mesic meadows outside three-parameter wetlands but usually accompanied by <i>Artemisia arbuscula</i> .	No	Botanical survey was performed; species was not found.

Table 4.3-3
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR WITHIN THE REGION OF THE PROJECT AREA (cont.)

Species/CNDDDB Element	Status Federal/State/CD FW or CNPS	Habitat Used in N. Sierra Nevada	Suitable Habitat On Site?	Notes
Plants (cont.)				
Santa Lucia dwarf rush <i>Juncus luciensis</i>	-/-/1B.2	Wet sandy soils (seeps, meadows, vernal pools, streams, and roadside ditches) with minimal competing vegetative cover.	Not within UDA	Botanical survey was performed; species was not found.
Three-ranked hump moss <i>Meesia triquetra</i>	-/-/4	Perennially saturated fens and meadows in coniferous to subalpine forest, with low competing vegetative cover.	No	Botanical survey was performed; species was not found.
Broad-nerved hump moss <i>Meesia uliginosa</i>	-/-/2B	Wet meadows and fens in conifer forest with low competing vegetative cover.	No	Botanical survey was performed; species was not found.
Robbins' pondweed <i>Potamogeton robbinsii</i>	-/-/2B	Ponds (submerged aquatic species)	Not within UDA	Botanical survey was performed; species was not found.
Alder buckthorn <i>Rhamnus alnifolia</i>	-/-/2B	Wet meadow edges, seeps, streambanks; obligate wetland species in California.	No	Botanical survey was performed; species was not found.
Tahoe yellow cress <i>Rorippa subumbellata</i>	-/-/1B	Coarse sandy beaches on shores of Lake Tahoe.	No	Record in Truckee quadrangle is probably a herbarium specimen labeling error.
Marsh skullcap <i>Scutellaria galericulata</i>	-/-/2B	Wet meadows and streambanks, mesic conifer forest.	No	Botanical survey was performed; species was not found.
CNDDDB Communities				
Fen		Small patches of wetland within or adjacent to pond could be considered fen because the primary hydrologic support is from a spring. However, they lack the ecological characteristics associated with uncommon fen-dependent species (perennial saturation at a consistent level, usually low nutrient or acidic water).		
Great Basin Cutthroat Trout/Paiute Sculpin Stream		No streams on site (only an artificial or modified small channel not tributary to Truckee River).		

Table 4.3-3
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR WITHIN THE REGION OF THE PROJECT AREA (cont.)

Species/CNDDB Element	Status Federal/State/CD FW or CNPS	Habitat Used in N. Sierra Nevada	Suitable Habitat On Site?	Notes
CNDDB Communities				
Great Basin Sucker/Dace/Redside Stream with Cutthroat Trout		No streams on site (only an artificial or modified small channel not tributary to Truckee River).		

Source: ESRS 2009, 2014, 2018

Note: The species listed in this table are derived from Table 1 contained in the Biological Review (ESRS 2018; Appendix H) which includes additional species not meeting the criteria of “sensitive species” under CEQA, so are not addressed in the body of this EIR. Refer to the Biological Review in Appendix H of this EIR for the full list of species reviewed in the technical report.

CDFW = California Department of Fish and Wildlife

CNDDB = California Natural Diversity Database

CNPS = California Native Plant Society

Status definitions:

C = candidate for listing as endangered or threatened under state or federal Endangered Species Act; Delisted = species that has been removed from the list due to recovery, original data in error, or extinction; E or T = listed as endangered or threatened under state or federal Endangered Species Act; PT = species proposed for official listing as threatened; SSC = species of special concern (California Department of Fish and Wildlife [CDFW] status); WL = watch list species.

CNPS List 1B, considered rare, threatened or endangered by California Native Plant Society (CNPS) and normally regarded by CDFW as meriting consideration under CEQA Guideline 15380; List 2, rare, threatened, or endangered in California but more common elsewhere; List 3, plants about which insufficient information is known; List 4, plants of limited distribution (watch list). CNPS considers List 1 and 2 species always to merit consideration in CEQA review, List 3 or 4 on a case-by-case basis.

Jurisdictional Waters

A delineation of waters of the U.S. and State in the project site was conducted by ESRS in July 2012 (ESRS 2012; Appendix H). A total of 1.31 acres of aquatic habitat were delineated in the project site, which included the Perennial Channel, Perennial Pond, Montane Riparian, Montane Riparian-Mesic Meadow and Freshwater Emergent Wetland. However, as identified in the wetland delineation report for the project, the wetlands and other surface waters found on the project site are isolated and, therefore, do not fall under Clean Water Act permitting jurisdiction and are not considered to be waters of the U.S. Wetlands or other waters located more than 100 feet from jurisdictional waters, and not connected to the latter during periods of high flow, are generally treated as isolated. Isolated wetlands or other waters are excluded from Clean Water Act jurisdiction (ESRS 2012) but may be subject to jurisdiction by the Lahontan RWQCB under the Porter-Cologne Act. CDFW protects waterbodies and their associated riparian habitat. Aquatic features in the project site may be found to be under Lahontan RWQCB jurisdiction and CDFW jurisdiction pursuant to Section 1600 et. al. of the California Fish and Game Code.

No formal delineation of potential waters of the U.S. and State was conducted for the off-site roadway improvement area. During biological reconnaissance of the off-site roadway improvement area, patches of facultative hydrophytic vegetation were identified along Stampede Meadows Road, including species characteristic of Montane Riparian and Wet Meadow habitats. Aquatic habitats in the off-site roadway improvement area which could be under jurisdiction of the USACE, RWQCB and/or CDFW total 0.6 acre (Montane Riparian – Lemmon’s Willow Thicket totals 0.1 acre; Truckee River totals 0.3 acre and Wet Meadow totals 0.2 acre). The Truckee River is a perennial, navigable water and is a water of the U.S.

4.3.2 Regulatory Framework

Federal Regulations

Federal Endangered Species Act

Administered by the USFWS, the FESA provides the legal framework for the listing and protection of species that are identified as being endangered or threatened with extinction. Actions that jeopardize such species and their habitats are considered a “take” under the federal ESA.

Sections 7 and 10(a) of the federal ESA regulate actions that could harm or harass endangered or threatened species. Section 10(a) allows issuance of permits for “incidental” take of endangered or threatened species. The term “incidental” applies if the taking of the listed species is secondary to, and not the purpose of, an otherwise lawful activity. A conservation plan demonstrating how the take would be minimized and what steps taken would ensure the listed species’ survival must be submitted for the issuance of Section 10(a) permits. Section 7 describes a process of federal interagency consultation for use when federal actions may adversely affect listed species. A biological assessment is required for any major activity if it may affect listed species.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (16 USC, Sec. 703, Supp. I, 1989) regulates and prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 CFR §10.13. This international treaty for the conservation and management of bird species that migrate through more than one country is enforced in the United States by the USFWS. Additionally, as discussed below, §3513 of the

California Fish and Game Code states that it is unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act. This provides CDFW with enforcement authority for project-related impacts that would result in the “take” of bird species protected under the Migratory Bird Treaty Act. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50 CFR 20. The Migratory Bird Treaty Act was amended in 1972 to include protection for migratory birds of prey (raptors).

The Bald and Golden Eagle Protection Act

The bald eagle and golden eagle are federally protected under the Bald and Golden Eagle Protection Act (16 USC 668–668c). It is illegal to take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export, or import at any time or in any manner a bald or golden eagle, alive or dead; or any part, nest, or egg of these eagles unless authorized by the Secretary of the Interior. Violations are subject to fines and/or imprisonment for up to one year. Active nest sites are also protected from disturbance during the breeding season.

Clean Water Act (33 USC 1252-1376)

Any person, firm, or agency planning to alter or work in “waters of the U.S.” including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act of 1899 prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403). The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters.

Section 401 of the CWA requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. must obtain a state certification that the discharge complies with other provisions of CWA. The RWQCB administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 of the CWA establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 of the CWA establishes a permit program administered by USACE regulating the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found at 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there is no practicable alternative that would have less adverse impacts.

U.S. Army Corps of Engineers

Impacts to Waters of the U.S. (including wetlands) are regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA (33 USC 1344) and would require a Corps permit. Waters of the U.S. are defined as: all waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams, mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters;

tributaries of these waters; or wetlands adjacent to these waters (33 CFR Part 328). With non-tidal waters, in the absence of adjacent wetlands, the extent of USACE jurisdiction extends to the ordinary high-water mark – the line on the shore established by fluctuations of water and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris. Wetlands are defined in 33 CFR Part 328 as:

...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Federal jurisdiction is dependent upon a demonstrated nexus between the subject water feature and navigable waters or interstate commerce.

State Regulations

California Endangered Species Act

The CESA), established under California Fish and Game Code §2050 et. seq., identifies measures to ensure that endangered species and their habitats are conserved, protected, restored, and enhanced. The CESA restricts the “take” of plant and wildlife species listed by the state as endangered or threatened, as well as candidates for listing. Section 86 of the Fish and Game Code defines “take” as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Under §2081(b) of the Fish and Game Code, CDFW has the authority to issue permits for incidental take for otherwise lawful activities. Under this section, CDFW may authorize incidental take, but the take must be minimal, and permittees must fully mitigate project impacts. CDFW cannot issue permits for projects that would jeopardize the continued existence of state listed species.

CDFW maintains lists of Candidate-Endangered Species and Candidate-Threatened Species. Candidate species and listed species are given equal protection under the law. CDFW also lists Species of Special Concern based on limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. Designation of Species of Special Concern is intended by the CDFW to be used as a management tool for consideration in future land use decisions; these species do not receive protection under the CESA or any section of the California Fish and Game Code, and do not necessarily meet State CEQA Guidelines §15380 criteria as rare, threatened, endangered, or of other public concern. The determination of significance for California species of special concern must be made on a case-by-case basis. CDFW typically requests that CEQA lead agencies give consideration to minimization of impacts to CSC species when approving projects.

California Code of Regulations Title 14 and California Fish and Game Code

The official listing of endangered and threatened animals and plants is contained in CCR Title 14 Section 670.5. A state candidate species is one that the California Fish and Game Code has formally noticed as being under review by CDFW to include in the state list pursuant to Sections 2074.2 and 2075.5 of the California Fish and Game Code.

Legal protection is also provided for wildlife species in California that are identified as “fully protected animals.” These species are protected under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These statutes prohibit take or

possession of fully protected species at any time. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by these species. CDFW has informed non-federal agencies and private parties that they must avoid take of any fully protected species in carrying out projects. However, Senate Bill 618 (2011) allows the CDFW to issue permits authorizing the incidental take of fully protected species under the CESA, so long as any such take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan that covers the fully protected species (California Fish and Game Code Section 2835).

California Environmental Quality Act

Under the CEQA of 1970 (PRC Section 21000 et seq.), lead agencies analyze whether projects would have a substantial adverse effect on a candidate, sensitive, or special status species (PRC Section 21001(c)). These “special-status” species generally include those listed under FESA and CESA, and species that are not currently protected by statute or regulation, but would be considered rare, threatened, or endangered under the criteria included State CEQA Guidelines Section 15380. Therefore, species that are considered rare are addressed in this study regardless of whether they are afforded protection through any other statute or regulation. The CNPS inventories the native flora of California and ranks species according to rarity; plants ranked as 1A, 1B, and 2 are generally considered special-status species under CEQA.¹

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

California Fish and Game Code Section 1600

Under Section 1600 of the Fish and Game Code of California, project proponents are required to notify CDFW prior to any project that would divert, obstruct or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occurs during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement. Impacts to riparian vegetation are regulated by CDFW through the Lake and Streambed Alteration program.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 et seq.) is California’s statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water

¹ The CNPS rare plant ranking system can be found online at <<http://www.cnps.org/cnps/rareplants/ranking.php>>

quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals.

Nesting Birds (California Fish and Game Code Sections 3503, 3511, and 3800)

California Fish and Game Code Sections 3503 and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Subsection 3503.5 protects all birds in the orders of Falconiformes and Strigiformes (birds of prey). California Fish and Game Code Section 3511 lists birds that are “fully protected,” those that may not be taken or possessed except under specific permit.

California Native Plant Protection Act (California Fish and Game Code Sections 1900-1913)

The California Native Plant Protection Act of 1977 (California Fish and Game Code Sections 1900-1913) requires all state agencies to use their authority to carry out programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use other than changing from one agricultural use to another, which allows CDFW to salvage listed plants that would otherwise be destroyed.

Noxious Weeds

California Department of Food and Agriculture (CDFA) Code Section 403 directs the CDFA to prevent the introduction and spread of injurious pests including noxious weeds.

CDFA Code Section 7271 designates the CDFA as the lead department in noxious weed management responsible for implementing state laws concerning noxious weeds. Representing a statewide program, noxious weed management laws and regulations are enforced locally in cooperation with the County Agricultural Commissioner.

Under state law, noxious weeds include any species of plant that is, or is liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate, which the director, by regulation, designates to be a noxious weed (CDFA Code Section 5004).

Local Regulations

Nevada County General Plan

The goals and policies described in the Wildlife and Vegetation Element of the Nevada County General Plan encourage the protection of natural habitat (Chapter 13, Nevada County 1995).

Nevada County Land Use and Development Code

The Nevada County Land Use and Development Code policies discussed below are applicable to the biological resources found within the project area.

Section L-II 4.3.7 - Deer Habitat, Major

Section L-II 4.3.7 of the Nevada County Land Use and Development Code includes regulations intended to mitigate the impact of development on major deer migration corridors, critical winter and summer ranges, and critical fawning areas, to retain critical deer habitat as non-disturbance open space and ensure clustering of larger parcels in the western Rural Region to minimize impacts on deer habitat.

Section L-II 4.3.12 – Rare, Threatened and Endangered Species and Their Habitat

Section L-II 4.3.12 of the Nevada County Land Use and Development Code includes regulations intended to avoid the impact of development on rare, threatened, endangered, and special-status species and their habitat, or where avoidance is not possible, to minimize or compensate for such impacts and to retain their habitat as non-disturbance open space. The regulations indicate that a project may only be approved when it is determined by the County Planning Agency that it would not adversely affect rare, threatened, or endangered species or their habitat and that it would result in no net loss of habitat function or value for the defined species. When it is determined that a project would adversely affect a defined species or their habitat, the regulations require that a site-specific habitat management plan be prepared.

Section L-II 4.3.15 – Trees

Section L-II 4.3.15 of the Nevada County Land Use and Development Code includes regulations intended, among other things, to preserve and minimize the disturbance of landmark and heritage trees and groves from development projects through on-site vegetation inventories, mandatory clustering, and other measures necessary to protect such habitat. The regulations indicate that a project may only be approved when they do not remove or disturb defined trees or groves, unless a management plan is prepared consistent with the regulations.

Section L-II 4.3.17 – Watercourses, Wetlands and Riparian Areas

Section L-II 4.3.17 of the Nevada County Land Use and Development Code includes regulations intended to preserve the integrity and minimize the disruption of watersheds and watercourses; to preserve stream corridors and riparian habitat, ensure adequate protection of stream values, and protect stream corridors for wildlife movement and foraging; and to avoid the impact of development on wetlands, or where avoidance is not possible, to minimize or compensate for such impacts, to provide for minimum setbacks to protect resources values, and to retain wetlands as non-disturbance open space. The regulations identify non-disturbance buffers, generally 100 feet, around water, wetland, and riparian resources unless a management plan is prepared.

4.3.3 Significance Thresholds

The threshold for determining the significance of the effects that a proposed action would have is based on the biological resources present or potentially present within the proposed project area in consideration of the proposed project description.

The thresholds for determining significance under CEQA are based on Appendix G of the State CEQA Guidelines and goals and policies contained in the Nevada County General Plan. In this analysis, the proposed project would have significant impacts on biological resources if it would:

1. Result in a substantial adverse effect, either directly or through habitat modifications, on any plant or animal species identified as a candidate, sensitive or special-status species by the USFWS or CDFW or in regional or local plans, policies, or regulations;
2. Result in a substantial adverse effect on any federally protected wetlands as defined by Section 404 of the Clean Water Act or riparian habitat or any other sensitive habitat identified in state, local or regional plans, policies, or regulations, or protected by the USFWS, USACE, CDFW or SWRCB;
3. Result in a reduction in the extent, diversity, or quality of native vegetation including brush removal for fire prevention and flood control improvements;
4. Interfere with the nesting, foraging or movement of any native resident or migratory wildlife species, including any reduction in the effectiveness of a functioning or designated wildlife corridor;
5. Conflict with any local or regional policies or plans for the preservation or protection of biological resources, including but not limited to the Nevada County General Plan or an adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Program (NCCP), or other approved regional, state, or local HCP; or
6. Result in substantial adverse indirect or “edge” effects upon remaining sensitive habitats, plants or animals due to the introduction of pets and invasive exotic plant species, and the noise, lighting, hydrology, water quality or air quality impacts of the proposed project.

4.3.4 Impact Analysis

Significance Threshold 1 – Impacts to Special Status Species

Special Status Plants

No special-status plants were identified in the project site or off-site roadway improvement area during numerous biological surveys conducted for the proposed project including comprehensive floristic surveys for special-status plants conducted by ESRS in the project site in 2006, 2009, and 2010, and in the off-site roadway improvement area in 2013. The portion of the project site identified as potentially suitable for threetip sagebrush was resurveyed in 2017 with negative findings. During that survey, the soil was found to be unsuitable (pers. comm. with Adrian Juncosa on June 26, 2018).

No potentially suitable habitat for special status plants was identified in the off-site roadway improvement area (ESRS 2014). The project site contains potentially suitable habitat for special status plants in areas both within and outside of the ultimate disturbed area. The Final Biological Inventory (ESRS 2009) concluded that no special status species were present in the ultimate disturbed area of the project site, and the project would not result in impacts to special status species. The Biological Review (ESRS 2018) concluded no changes to the conclusions of the previous studies based on the currently proposed project and the project would have no impact on special status species.

Special Status Wildlife

Potentially suitable habitat was identified in the project site for four wildlife species of special concern including: southern long-toed salamander (species of special concern); yellow warbler (species of special concern); willow flycatcher (federally listed as endangered); and Sierra Nevada yellow legged frog (federally listed as endangered, and State listed as threatened).

No southern long-toed salamander or Sierra Nevada yellow-legged frog were observed in the project site; however, these species are only associated with aquatic habitats. All wetland and other aquatic habitats in the project site are outside of the ultimate disturbed area and would not be affected by the proposed project. Moderately suitable habitat for willow flycatcher may occur in wetland habitats surrounding the pond; however, as described in the Final Biological Inventory, the mesic habitat is much too small and not wet enough to support a nesting pair (ESRS 2009). No potentially suitable habitat for willow flycatcher is located in the ultimate disturbed area. Yellow warbler is a species of special concern that was observed in wetland habitat on the project site but outside of the ultimate disturbed area. The proposed project would not affect yellow warbler or its nesting habitat in the project site; nor would other special status wildlife species with potentially suitable habitat in the project site be affected should they occupy the site. The Final Biological Inventory (ESRS 2009) concluded that no special status species were present in the ultimate disturbed area of the project site, and the project would not result in impacts to special status species. The Biological Review (ESRS 2018) concluded no changes to the conclusions of the previous studies based on the currently proposed project.

No special-status species are located in the off-site roadway improvement area. However, as previously discussed, it is possible that yellow warbler may use the willow trees along Stampede Meadows Road for nesting habitat. Construction of road improvements during the nesting season for yellow warbler could result in disturbance or removal of an active nest of this species, which is a CDFW species of special concern. This would be a potentially significant impact. Mitigation Measure BIO-1 requires preconstruction nesting bird surveys for activities occurring within the nesting bird season, and measures to avoid nesting birds, if present.

The proposed project would result in less than significant impacts to special status species with the potential to occur in the project site, and no mitigation would be necessary for quarry operations in the project site. Construction of the roadway improvements in the off-site roadway improvement area have the potential to affect yellow warbler, a species of special concern. Associated impacts would be potentially significant, and mitigation is required.

Significance Threshold 2 – Impacts to Jurisdictional Waters

A total of 1.31 acres of aquatic habitat were delineated in the project site; however, as identified in the wetland delineation report for the project, the wetlands and other surface waters found on the project site are isolated and, therefore, do not fall under Clean Water Act permitting jurisdiction and are not considered to be waters of the U.S. Wetlands or other waters located more than 100 feet from jurisdictional waters, and not connected to the latter during periods of high flow, are generally treated as isolated. Isolated wetlands or other waters are excluded from Clean Water Act jurisdiction (ESRS 2012) but may be subject to Lahontan RWQCB jurisdiction under Porter-Cologne and waste discharge requirements may need to be obtained for any impacts to these features. CDFW protects waterbodies and their associated riparian habitat. Aquatic features in the project site may be found to also be under CDFW jurisdiction pursuant to Section 1600 et. al. of the California Fish and Game Code.

All aquatic habitats in the project site occur outside of the ultimate disturbed area and would not be affected by the proposed project. The proposed project would not affect aquatic habitats under jurisdiction of USACE, RWQCB, or CDFW.

No formal delineation of jurisdictional waters was conducted for the off-site roadway improvement area. A jurisdictional water of the U.S., specifically the Truckee River, exists within the off-site roadway improvement area. The limit of jurisdiction for the segment of the Truckee River that falls within this area is the ordinary high-water mark. In addition, vegetation mapping for the project included identifying wetlands and other aquatic habitats based on the presence of facultative hydrophytic species. The Lemmon's willow thicket and wet meadow vegetation types that occur in patches along Stampede Meadows Road are dominated by facultative hydrophytic species, and thus could possibly meet one of the three mandatory wetland criteria as defined by the Clean Water Act. If any portion of these areas meet the other two wetland criteria, they would be considered jurisdictional waters of the State and possibly jurisdictional Waters of the U.S. As currently proposed, the project would be designed to avoid all aquatic habitats in the off-site improvement area. However, wetlands, including small acreages of riparian vegetation and/or wet meadow, might be altered within the roadway improvement area to improve visibility or removed (excavated and/or filled) entirely to facilitate construction of pullouts, wider motor vehicle lanes, or bike lanes. Impacts to jurisdictional waters of the U.S. and State or habitats under jurisdiction of CDFW without first obtaining the appropriate permits and authorizations would be a potentially significant impact. Mitigation Measure BIO-2 includes a measure requiring that the project design avoid the Truckee River and wetland habitats mapped in the biological studies by a minimum of 30 feet. If unable to be avoided, a formal delineation would need to be prepared, and the appropriate approvals, permits obtained, and mitigation provided.

Significance Threshold 3 – Impacts to Native Vegetation

Project Site

Implementation of the mining expansion project would impact approximately 131.5 acres of upland vegetation communities including 65.1 acres of Jeffrey pine-antelope bitterbrush association, 12.7 acres of bitterbrush scrub, 34.8 acres of curl-leaf mountain mahogany woodland, 11.6 acres of Jeffrey pine-mountain mahogany woodland, and 7.3 acres of rock/talus. The project would result in no impacts to existing wetland and riparian areas (refer to Table 4.3-4). Jeffrey pine-antelope bitterbrush, bitterbrush scrub, curl-leaf mountain mahogany woodland, Jeffrey pine-mountain mahogany woodland, and rock/talus are not protected by the Nevada County Land Use and Development Code and are not habitat to special-status species. Additionally, implementation of the 2011 Reclamation Plan, which includes restoring the proposed mine area with native vegetation, would ensure that impacts to these habitat types are less than significant.

Off-site Roadway Improvement Area

Implementation of the roadway improvements would impact up to approximately 13.2 acres of upland and disturbed vegetation communities including 0.1 acre of Jeffrey Pine/ Antelope Bitterbrush, 5.3 acres of Mountain Sagebrush-Bitterbrush shrubland, 7.5 acres of Disturbed/Ruderal (including the road). The project has a potential to impact 0.2 acre of the Truckee River and 0.1 acre of Wet Meadow vegetation (refer to Table 4.3-5). Jeffrey Pine-Antelope Bitterbrush, and Mountain Sagebrush/Bitterbrush Scrub are not protected by the Nevada County Land Use and Development Code and are not habitat for species of special concern. Potential impacts to the aquatic habitats on the site are discussed under Significance

Threshold 2, above. Implementation of the 2011 Reclamation Plan, which includes restoring the proposed mine area with native vegetation, would ensure that impacts to these habitat types are less than significant.

Table 4.3-4
IMPACTS TO VEGETATION COMMUNITIES IN MINING EXPANSION AREA*

Vegetation Community	Existing	Impacts
Jeffrey pine-antelope bitterbrush	116.2	65.1
Bitterbrush scrub	29.2	12.7
Curl-leaf mountain mahogany woodland	36.9	34.8
Jeffrey pine-mountain mahogany woodland	11.6	11.6
Rock/talus	8.6	7.3
Perennial Channel	0.2	0.0
Perennial Pond	0.7	0.0
Montane riparian	0.1	0.0
Montane riparian-montane meadow	0.4	0.0
Freshwater emergent wetland	0.1	0.0
East Pit	26.5	0.0
TOTAL	230.5	131.5

Source: ESRS 2009 & HELIX 2012b

*All areas are presented in acre(s) rounded to the nearest 0.1

Table 4.3-5
IMPACTS TO VEGETATION COMMUNITIES IN OFF-SITE ROADWAY IMPROVEMENT AREA*

Vegetation Community	Existing	Impacts
Disturbed/Ruderal Areas (road)	3.9	3.8
Disturbed/Ruderal Areas	6.5	3.7
Jeffrey Pine /Antelope Bitterbrush	0.3	0.1
Montane Riparian - Lemmon's Willow Thicket	0.1	0.0
Mountain Sagebrush/Bitterbrush Scrub	10.7	5.3
Quaking Aspen	0.1	0.0
Truckee River	0.3	0.2
Wet Meadow	0.2	0.1
TOTAL	22.1	13.2

Source: ESRS 2014 & HELIX 2014

*All areas are presented in acre(s) rounded to the nearest 0.1

Significance Threshold 4 – Impacts to Wildlife

Loyalton Truckee Mule Deer

As discussed previously, the project area is situated near the summer range and fawning habitat for the Loyalton-Truckee mule deer herd. While no critical summer range is mapped within 13 miles of the proposed project area, there are signs of deer movement through portions of the project site in the summer, which is not too unusual for any montane zone in the northern Sierra Nevada. There are signs that the Loyalton-Truckee mule deer herd pass through the local area and do not appear to be deterred by the permitted mining operations on the project site (ESRS 2009). Furthermore, the mule deer do not seem to be impacted by I-80, the UPRR, or the Truckee River. The surrounding parcel sizes are large and

open and the local deer and wildlife appear to move around or bypass the project site during the operational phases. The results of an inventory of the mule deer sign in the project site indicated that there is nearly zero deer use of the majority of the ultimate disturbed area in the project site (ESRS 2009). ESRS concludes that the steep slopes and sparse vegetation on the project site provides relatively unsuitable habitat for the deer when compared with nearby adjacent areas. In addition, the movement through the area may be somewhat directed by the underpasses at 1-80. Nonetheless, the deer would be expected to follow the most suitable foraging and migratory routes which the ultimate disturbed area is lacking.

In the 2013 survey conducted by ESRS (2014), deer pellets were found near the off-site roadway improvement area and the proposed road improvements would result in removal of a small amount of habitat that the mule deer migrate through and forage upon. However, these improvements would also improve visibility and would be expected to reduce potential incidences of road kill along Stampede Meadows Road. The off-site roadway improvements' potential impact to mule deer habitat is considered less than significant.

The proposed project would not impede deer migration nor remove a highly valued habitat and potential impacts at the project level would be less than significant.²

Raptors, Migratory Birds, and Other Nesting Birds

One adult and one juvenile golden eagle were observed flying over the site from west to east during a field survey. There is no suitable golden eagle nest site at the project site, therefore it was concluded that the eagles observed were not associated with a nest, nor were they foraging on the site, but instead were in transit. Additionally, although bald eagles pass close by the project site from time to time, they do not utilize coniferous forest or dry scrub habitats for any purpose; therefore, there is no habitat on the quarry site that is suitable for use by this species.

Nesting birds are protected under California Fish and Game Code Sections 3503 and 3800 and the MBTA. A variety of bird species have the potential to nest in trees and shrubs in and adjacent to the ultimate disturbed area, and the off-site roadway improvement area. If birds were nesting in or adjacent to the ultimate disturbed area or the off-site roadway improvement area at the commencement of clearing and grubbing or other ground disturbing activities, such activities could result in disturbance of nesting birds such as destruction of nests, forced fledging, or nest abandonment of eggs or young. Disturbance of nesting birds would be considered a significant impact. The proposed mitigation (MM BIO-1) would involve nesting surveys prior to the removal of trees and shrubs in the ultimate disturbed area or off-site roadway improvement area if removal would occur during the active nesting season.

Significance Threshold 5 – Local Policies

Landmark Oak Trees or Groves

There would be no impact to landmark oak trees or groves that are protected by Section L-II 4.3.15 of the Nevada County Land Use and Development Code as there are no oak trees of any kind on the on-site mining expansion area or the off-site mitigation area.

² Refer to Section 5.2.3 for a discussion of the project's contribution to cumulative impacts on the mule deer migration corridor.

Significance Threshold 6 – Indirect Impacts

Indirect impacts that may be caused by implementation of the proposed project are associated with edge effects. Edge effects occur when disturbance, development or grading traverse an undeveloped area with substantial native lands surrounding the impact area. Edge effects include human activity, invasive plant species, nuisance animal species, animal behavioral changes, night lighting, decreased water quality and road kill. Additionally, the proposed project has potential to cause temporary indirect impacts due to noise and fugitive dust.

Human Activity

Increases in human activity in an area often result in degradation of sensitive vegetation by further fragmenting habitat through creation of trails, removal of existing vegetation and illegal dumping (landscape debris, trash and other refuse). Human activity in the present native habitat area is expected to increase with the proposed project; however, the human activity is expected to be temporary during the mining phases of the project and subsequently during the reclamation stages, after which human activity will be reduced. The indirect impact caused by human activity is expected to be less than significant.

Invasive Plants

Invasive plants have potential to spread from developed or disturbed areas to adjacent native habitats. Such invasive species can displace native vegetation reducing the diversity of native habitats and potentially increasing flammability, changing ground and surface water levels and adversely affecting native wildlife. The 2011 Reclamation Plan includes revegetating the site with native plants and annual surveys to monitor and appropriately manage native plant species density, cover, and richness which reduces the opportunity for invasive plants to colonize an area. In addition, the monitoring and management of the site as identified in the 2011 Reclamation Plan includes a criteria to maintain noxious weed cover below 5 percent. With implementation of the requirements of the 2011 Reclamation Plan, impacts associated with invasive plants are expected to be less than significant.

Nuisance Animal Species

Domesticated animals are not expected to occupy the habitat areas immediately adjacent to the project area as there are no residences or domestic areas nearby. Additionally, the proposed project would not result in the introduction of nuisance animal species as no development is proposed; therefore, no associated impacts are expected.

Night Lighting

Existing outdoor lighting is associated with the processing and ancillary facilities for currently permitted operations in the East Pit, and no new lighting or facilities would be installed as part of the proposed project. Nighttime operations would be limited to occasional night load-out of material, during which time very limited lighting would be required. Existing outdoor lighting is associated with the existing office building and processing and ancillary equipment in the East Pit. While no new lighting is proposed for operation of the West Pit, due to the duration that the site has been inactive, wildlife may inhabit suitable habitats around the project site. Night lighting exposes wildlife to an unnatural light regime and may alter their behavior patterns, causing them to have lower reproductive success, and thus reducing species diversity. Should night-lighting affect the behavior or reproductive success of wildlife in the area,

impacts would be potentially significant. Mitigation Measure BIO-3 includes measures to reduce the effect of night lighting on undisturbed, adjacent habitat.

Water Quality

The use of petroleum products (i.e., fuels, oils, lubricants) and erosion of land cleared during reclamation could potentially contaminate surface water, adversely affecting vegetation, aquatic animals, and terrestrial wildlife. Potential impacts to water quality from the proposed project are evaluated in detail in Section 4.2. The project includes construction of temporary detention basins during operation, and a final detention basin that would be constructed as part of site reclamation. As described in Section 4.2, while the detention basin and design and operational requirements from the project SWMP and 2011 Reclamation Plan have been incorporated into the project design which would avoid impacts to water quality outside of the ultimate disturbed area, there is the potential for potentially significant impacts to water quality should the project design change and no longer adequately retain storm water in the West Pit. In addition, there is the potential for operational contaminants to enter the detention basin and result in reduced water quality in the detention basin. Impacts to water quality would be potentially significant and mitigation would be required.

Indirect impacts, specifically soil disturbance that results in the generation of sediment-laden runoff water which can flow to wetlands that are not directly affected by construction, could result during and after construction of the proposed off-site road improvements. Any degradation of water quality in downstream waters (specifically, the Truckee River or Boca Reservoir, which impounds the Little Truckee River and is tributary to the Truckee River) would be a potentially significant impact and mitigation would be required.

Road Kill

Road kill impacts would be significant if they resulted in adverse effects to federal- or state-listed species. While the project is a mine reclamation plan and would have a significant number of vehicles hauling to/from the site, the mining expansion area is not probable habitat for special-status species.

Additionally, the roadway improvements along Stampede Meadows Road would improve visibility and reduce the possibility of road kill on Stampede Meadows Road. Therefore, any potential impacts associated with road kill would be less than significant.

Noise

Noise from grading, grubbing and vehicular traffic would be a temporary impact to local wildlife. Noise impacts would be significant if sensitive species were displaced and failed to breed. Breeding mammals and birds may temporarily leave the project vicinity during mining activities; however, they would be expected to return afterward. As there are no sensitive species on-site or in the vicinity of the project area, noise impacts are expected to be less than significant.

Fugitive Dust

Dust released during mine reclamation activities could cover vegetation in adjacent habitat areas. The resulting dust-induced shading could reduce native plant productivity, in turn displacing native vegetation, reducing diversity, encouraging weed invasion, adversely affecting wildlife and increasing fire susceptibility. Unless appropriate preventative measures are taken, the effects of dust on

surrounding vegetation could constitute a potentially significant impact. Mitigation Measure BIO-4 identifies dust control measures to be implemented to reduce potential impacts of fugitive dust.

4.3.5 Level of Significance Before Mitigation

Based on the analysis provided above, implementation of the proposed project would result in potentially significant project-specific impacts related to: (1) nesting birds; (2) jurisdictional waters (e.g., waters of the U.S. and State and/or aquatic habitats under jurisdiction of CDFW); (3) indirect impacts associated with water quality, night lighting, and fugitive dust.

4.3.6 Mitigation Measures

BIO – 1 The removal of trees, vegetation, and soil salvage from the Boca Quarry project site or off-site roadway improvement area shall be limited to only those necessary to conduct the approved activity. Tree and shrub removal or trimming and soil salvage shall occur outside of the nesting season (between August 16 and January 14). Due to challenges with conducting surveys of tall trees, it is particularly important to time removal of trees with diameter at breast height exceeding 24 inches to be removed outside of the nesting season.

- If removal of trees or shrubs in the project site will occur during the nesting season (typically January 15 to August 15, or as determined appropriate on a case-by-case basis by a qualified biologist based on the habitat being removed), or if construction of the off-site roadway improvement area is expected to be initiated during the nesting season, surveys for nesting birds shall be conducted by a qualified biologist prior to removal of potentially suitable nesting habitat. The surveys shall cover the proposed work area (off-site roadway improvement area), or area of tree removal within the ultimate disturbed area and areas within 300 feet. The nesting surveys shall take place at the time birds are most active, typically between dawn and 11 a.m. The surveys may not occur more than 7 days prior to the activities. If no nesting activity is observed during the surveys or within 300 feet of the tree or vegetation to be removed or trimmed or soil to be salvaged, then no further mitigation is necessary.
- If nesting raptors or other nesting migratory birds are identified during the surveys, then a 100-foot buffer shall be established for nesting passerines, and a 300 to 1,000-foot buffer shall be established for nesting raptors at the discretion of the qualified biologist. Temporary exclusionary fencing with signs describing the sensitivity of the area shall be installed to establish the no-disturbance buffer around the nest.
 - No trees or vegetation shall be removed or trimmed and no other earth-moving activity shall occur within the established buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient mobility to avoid project construction/mining zones.
 - The size of the non-disturbance buffer may be altered if a qualified biologist conducts behavioral observations and determines the nesting raptors or other migratory birds are well acclimated to the disturbance. If this occurs, the biologist shall prescribe a modified buffer that allows

sufficient room to prevent undue disturbance/harassment to nesting birds. If the buffer is reduced, the qualified biologist shall remain on site to monitor the birds' behavior during heavy construction. The biologist shall have the authority to stop work if it is determined the project is adversely affecting nesting activities.

- BIO – 2** Ground disturbing activities and placement of fill in the Boca Quarry project site have been designed to avoid all identified aquatic habitats in the project site. No impacts to aquatic habitats shall occur without first obtaining the appropriate permits and approvals from the appropriate agency (USACE, RWQCB, and/or CDFW).

The roadway improvements in the off-site roadway improvement area should be designed to avoid all aquatic habitats identified in Figure 4.3-1b of the EIR for the project by a minimum of 30 feet (Truckee River, Lemmon's Willow Thicket, Wet Meadow, in the off-site roadway improvement area). The mapping of these habitats shall be included in the roadway design plans with the distances from the edge of habitat to the cut/fill line shown. If the project design is unable to avoid those habitats, then the applicant shall prepare a formal wetland delineation including, at a minimum, the areas where improvements would be constructed within 30 feet of the mapped aquatic habitats. In the event that wetlands that fall under the jurisdiction of the USACE or the Lahontan RWQCB are found where excavation, fill, or vegetation removal would be required for the improvements, the applicant shall modify the improvement designs so as to minimize or eliminate direct impact. If the design of the improvements cannot be revised so as to avoid all direct impact on wetlands, the applicant shall obtain applicable authorizations and water quality certification and implement compensatory or other mitigation actions that are required by the approvals. At a minimum, the mitigation actions shall ensure that there is no net loss of wetland acreage or values. Prior to issuance of the grading permit for the roadway improvements, the applicant shall demonstrate to the County that: (1) all aquatic habitats are being sufficiently avoided, as described above; or (2) the appropriate permits and approvals have been obtained to impact waters of the U.S. and State and CDFW jurisdictional areas, if present, and any necessary compensatory mitigation has been secured.

- BIO – 3** Mitigation Measures HYD-1 and HYD-3 shall be implemented to reduce potentially significant impacts on biological resources from reduced water quality to a level of less than significant.
- BIO – 4** During and following all mining and reclamation activities, all exterior lighting adjacent to undisturbed habitat shall be of the lowest illumination allowed for human safety, selectively placed, shielded, and directed away from undisturbed habitat to the maximum extent practicable. All exterior lighting shall be manual on/off and shall be turned on only for the duration of allowable, occasional night time operations. No exterior lighting shall be allowed while the site is not in use.
- BIO – 5** Mitigation measures presented in Section 4.7, Air Quality, shall be implemented to reduce the effects of dust on surrounding vegetation to less than significant levels.

4.3.7 Significant Unavoidable Adverse Impacts

With proper implementation of the mitigation measures listed above, all potentially significant impacts would be reduced to below a level of significance, and no significant, unavoidable adverse impacts to biological resources would result from the proposed project.

4.4 AESTHETICS

Technical studies used for the following analysis include the following: (1) Boca Quarry 2011 Reclamation Plan (ESRS 2011); and (2) Teichert Aggregates Boca Quarry Expansion Aesthetics – Visual Analysis and Supplemental Visual Impact Assessment (HELIX 2012a). These studies are summarized in this section along with other applicable data, with the complete technical reports included in Appendices B and G, respectively, of this EIR.

The site and surrounding area was reviewed by HELIX in October 2017 to determine if there were any significant changes to the site or the viewshed that would warrant an update to the prior visual analysis and impact assessment. The area was substantially unchanged, and there were no changes to the setting or land uses that would render the prior analysis unsuitable.

Comments were received during and following the public review period of the 2012 Draft EIR regarding this topic from Taylor & Wiley Attorneys of Counsel on behalf of the project applicant (11/6/2012) and from the Hirschdale Community (2/21/2013). Refer to Appendix A for the comments received and responses to those comments.

4.4.1 Existing Conditions

Overview/Regional Setting

The project area is located in the Sierra Nevada north of Lake Tahoe and east of Truckee, California. As described in Section 2.2, the area is characterized by ranges of rugged hillsides and mountain peaks with valleys containing rivers, their tributaries, and reservoirs. The project site is located east of Boca Quarry Reservoir, and north of the Truckee River. The reservoir is one of several in the area that provides irrigation water, flood control, wildlife habitat, and recreation opportunities, including fishing, boating, and camping. The general setting in the vicinity of the project site is undeveloped, with variable amounts of limited, localized disturbance.

Nearby peaks include Boca Hill, approximately 2.2 miles west of the project site, with an elevation of 6,669 feet amsl. Residential communities in eastern Truckee are approximately one to 1.5 miles southwest and are topographically higher than the project site, with elevations reaching approximately 5,970 feet amsl. Higher peaks with more rugged topography occur further from the site. The site is bounded by Tahoe National Forest lands to the north and east, undeveloped, privately owned parcels to the west, and I-80 and privately owned undeveloped parcels to the south. A UPRR corridor follows the south side of I-80, south of the project site. Residential properties nearest to the project site are approximately 0.6 mile and 0.7 mile southwest of the project site, along Glenshire Drive and eastern Truckee, respectively. The McGinity property is a privately-owned property approximately 0.6 mile east of the project site, which has no existing permanent residence or public access roads. The property is topographically higher than the project site, with elevations reaching approximately 6,760 feet amsl.

The regional landscape establishes the general visual environment of the project, but the specific visual environment upon which this supplemental visual impact assessment is focused is determined by defining landscape units and the project viewshed. A landscape unit is a portion of the regional landscape and can be thought of as an outdoor room that exhibits a distinct visual character. The project site is located within a single landscape unit, which can be defined as the Union Mills Watershed of the Truckee River Canyon.

There are no officially designated scenic highways in the project area – I-80 is an eligible State Scenic Highway in the California Scenic Highway Mapping System (Caltrans 2018). I-80 is considered a primary source of public views, and the Nevada County General Plan identifies I-80 as a roadway in the County that is important for its scenic resources (Nevada County 1995).

Recreational uses in the area include use of the Boca Quarry Reservoir and hiking along various trails accessing the reservoir. The Boca Townsite Trail is a 0.5-mile long USFS trail in the Tahoe National Forest. It is at approximately 5,600 feet amsl, and is located north of the UPRR corridor, east of Stampede Meadows Road. The trail meanders up a hill where the small town of Boca once stood. While there is no formally established trail system along Stampede Meadows Road, it is a popular route for bicyclists and motorists accessing recreational facilities in the area.

Project Site

The project site is located in the west and southwest facing slopes of a hillside in the Truckee River Valley. Elevations range from approximately 5,700 feet asml at the southern edge of the site to approximately 6,250 feet asml at the northernmost site boundary. The site is located in a topographically rugged area characterized by hills and peaks of Jeffrey pine/antelope bitterbrush, bitterbrush scrub, and curl-leaf mountain mahogany woodland, as well as large areas of barren rock outcrops and talus fields.

The project applicant is currently authorized to mine, process and transport rock from the East Pit in Boca Quarry to off-site markets. The existing operations encompass an approximately 40-acre area which is nearly entirely disturbed ground consisting of excavated slopes and quarry floor with an aggregate processing area, surrounded by relatively steep topography. Lighting on the project site is associated with the processing and ancillary facilities. Existing outdoor lighting is associated with the processing and ancillary facilities in the East Pit. In general, operations take place between 6 a.m. and 6 p.m., Monday through Friday, and between 7 a.m. and 4 p.m. on Saturday so existing on-site lighting associated with vehicle headlights accessing the site is relatively minimal. Nighttime operations are limited to occasional night load-out of material, during which time very limited lighting is required. Nighttime lighting is only required during these occasional, currently permitted operations.

The approximately 118-acre West Pit is undeveloped and it generally slopes to the southwest. The proposed West Pit features relatively undisturbed native habitat consisting of the previously described habitat types. West Hinton Road enters the West Pit area and curves eastward to the East Pit. The West Pit features undulating topography with a northwest to southwest trending ridgeline through the northern portion of the pit. The maximum elevation of the ridge is approximately 6,250 feet asml near the northern project site boundary. South of West Hinton Road in the project site, the topography slopes south/southwest towards the Truckee River.

Rugged, tree-covered terrain screens views toward the project site from many locations in the vicinity, including from Stampede Meadows Road, Boca Reservoir, and the nearby trails. However, despite the largely blocked views, the proposed project would be visible from limited areas where open view to the site are available (generally from topographically elevated areas southwest, south, and east of the site). Areas identified as having views of the project site are described under the discussion of Viewshed and Site Visibility, below.

Off-site Roadway Improvement Area

The segment of Stampede Meadows Road in the off-site roadway improvement area is a relatively flat, paved two-lane roadway ranging from approximately 20- to 24-feet wide. The road lacks paved shoulders, but the roadway segment does intermittently feature some areas with gravel shoulders of varying length and width. Existing gravel pullouts are located between I-80 and the UPRR. From the south, the road crosses under I-80, and passes over the Truckee River as a bridge with a separate pedestrian path along north side of the bridge. Stampede Meadows Road crosses the UPRR as an at-grade crossing. Between the UPRR and West Hinton Road, various driveways, pullouts, and parking areas provide access to Boca Reservoir and surrounding trails. This segment of Stampede Meadows Road generally follows the eastern side of Boca Reservoir. At its nearest point, the road is approximately 160 feet east of the reservoir. The topography between the road and the reservoir is gentle, with the roadway reaching only approximately 75 feet higher than the water at its highest point. A private residence is west of Stampede Meadows Road, immediately adjacent to the road.

The topography surrounding the road generally slopes from the east to the west, towards Boca Reservoir. Areas adjacent to the road are largely disturbed and lack vegetation. Where natural habitat persists, the vegetation is low and scrubby, and characterized primarily of bitterbrush scrub. The lack of tall vegetation and low topography makes the off-site improvement area visible from adjacent off-site areas.

Viewer Sensitivity

Accepted visual assessment methods, including those adopted by federal agencies, establish sensitivity levels as a measure of public concern for changes to scenic quality (Federal Highway Administration 1988). Viewer sensitivity, typically divided into high, moderate, and low categories, is among the criteria employed for evaluating visual impacts and their degree of significance. The factors considered in assigning a sensitivity level include viewer activity, view duration, viewing distance, adjacent land use, and special management or planning designation.

Certain activities tend to heighten viewer awareness of visual and scenic resources, while others tend to distract from viewer awareness. For example, recreational activities tend to favor attention to scenery while working at a construction site does not. In general, the degree of visual impact associated with visual change tends to be more substantial where the sensitivity of affected viewers is highest. Potentially affected viewers in the project area include roadway motorists, recreation users/visitors to the area, and residents.

Motorists include various roadway travelers—both local and regional—who are familiar with the visual setting, as well as travelers using the roadway on a less regular basis. In many instances, intervening topography and heavy vegetation screen the motorists' views, resulting in low viewer exposure. The drivers are assumed to generally have fleeting views as they tend to focus on the traffic and not the surrounding scenery, but passengers have increased opportunities to observe their surroundings, and likely include local residents (who would be sensitive to any changes from existing conditions) and recreationalists visiting the area specifically for recreational purposes and scenic beauty. Where visible, at roadway speeds, views to the site occur at a single location for brief moment. Viewer sensitivity is conservatively considered to be moderate to moderately high.

Recreational users comprise a second viewer group and are a group that is important in terms of the region's economy. These viewers may be at Boca Reservoir or on public trails in the area. Although the total duration of many recreational views can be short as recreationalists move through the landscape, these viewers have opportunities for long views toward the project, as they move slowly along the reservoir or sit along a trail. The expectation of a naturalistic landscape setting raises the viewer sensitivity of recreationalists to moderate to high.

The third viewer group includes a limited number of residents in the area. Individual residents may be emotionally invested in views from their property, which generally translates to a preference for retention of existing conditions. Residential views tend to be long in duration, and the sensitivity of this viewer group is considered moderate to high.

Viewshed and Representative Views

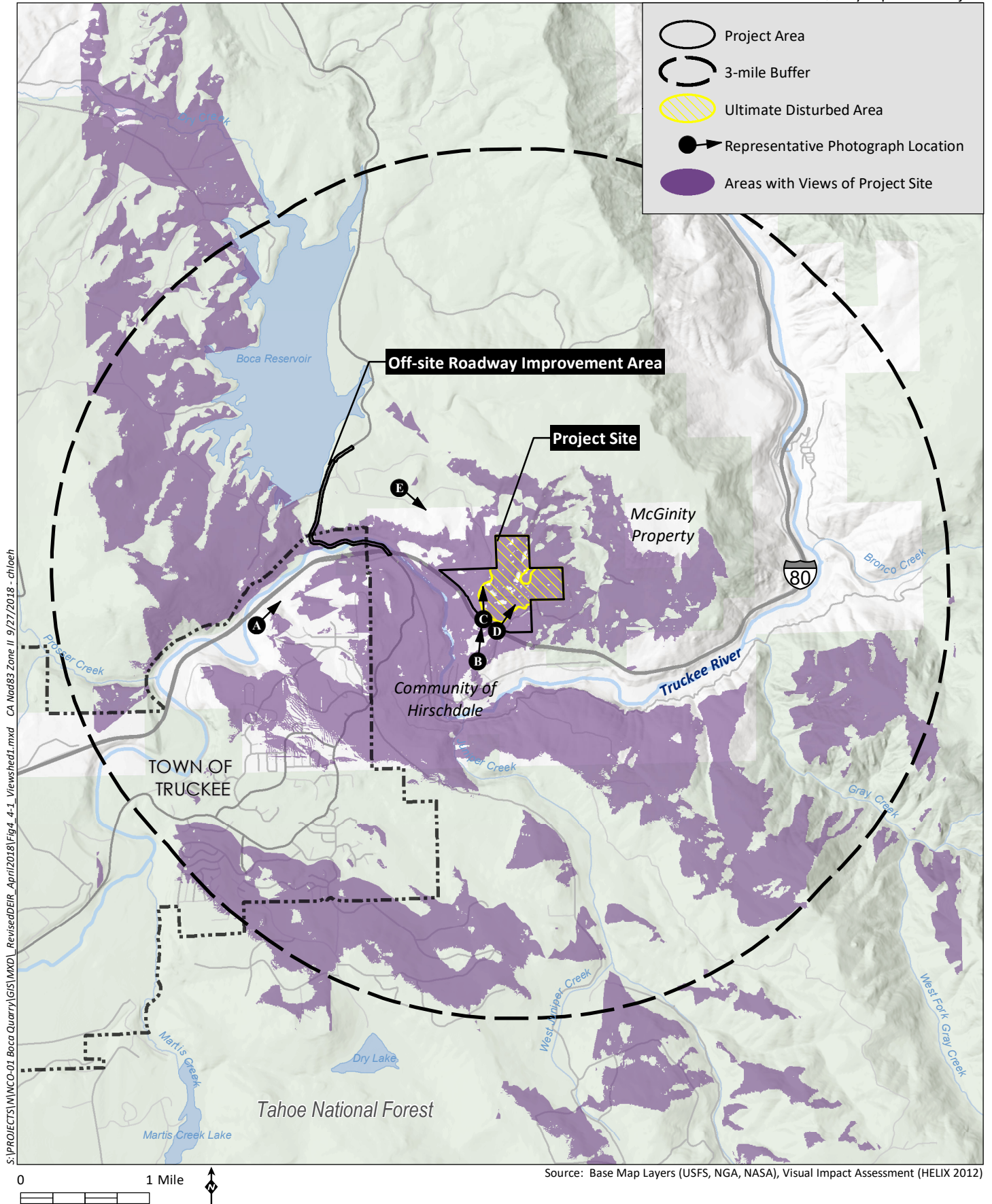
To determine visibility of the project site from surrounding areas, a viewshed analysis was conducted. A viewshed is defined as the general area from which a site is visible or can be seen. The viewshed for the project area was determined through computer-aided modeling and field-verified analysis of the topography of the area. The viewshed is typically defined as the visual limits of the view located within 3 miles of the project site (3 miles are generally considered the maximum distance from which the human eye can detect specific visual features). Refer to Figure 4.4-1 for the project viewshed and the locations of representative views within the viewshed. Figures 4.4-2a and 4.4-2b present five photographs from the representative views which depict the visual landscape character found in the vicinity.

The viewshed analysis indicates that views of the project site are potentially available from higher elevations to the south and west of the project site, including public roadways and private properties. Intervening topography prohibits most, but not all views of quarry operations the project site from I-80. There are no public views of the project site from Stampede Meadows Road or Boca Reservoir - intervening topography and existing vegetation restrict views of the quarry operations areas. The nearest public trails are the Boca Townsite Trail approximately 1 mile northwest of the project site, near Stampede Meadows Road, and trails accessing the reservoir. Due to the intervening topography and existing vegetation, no public views of the project site from trails are identified.

Site Visibility and Key Views

The visibility of the project site was evaluated based on the number of points of the project site determined to be visible from within the surrounding viewshed. Areas with the greatest numbers of views of points on the project site are considered to have the highest visibility. Select key viewpoints (Key Views) were identified to represent the primary viewer groups that would potentially be affected by the project based on visibility of the project site (refer to Figure 4.4-3 for the site visibility mapping and the locations of the Key Views). While private views are generally not considered significant from a CEQA standpoint, they are included in this evaluation for informational purposes.

Key View locations for public views are eastbound I-80 and Glenshire Drive. Key View locations that are considered private include views from residential properties in eastern Truckee, southwest of the project site. Figure 4.4-4 presents three photographs from the three Key View locations within the viewshed. The McGinity property east of the project site is not identified as a Key View, but views from





Photograph A. View facing northwest from eastbound I-80 at a point approximately 1.2 miles west of the Hirschdale Road interchange (approximately 1.5 miles west of the project site). The project site is not visible; however, this view presents the typical views of travelers on I-80.



Photograph B. View facing north from Hinton Road at a point approximately 90 feet southwest of the Hirschdale Road intersection (south of the project site).

Source: Environmental Vision



Photograph C. View facing north from Hinton Road at the southern project site boundary.



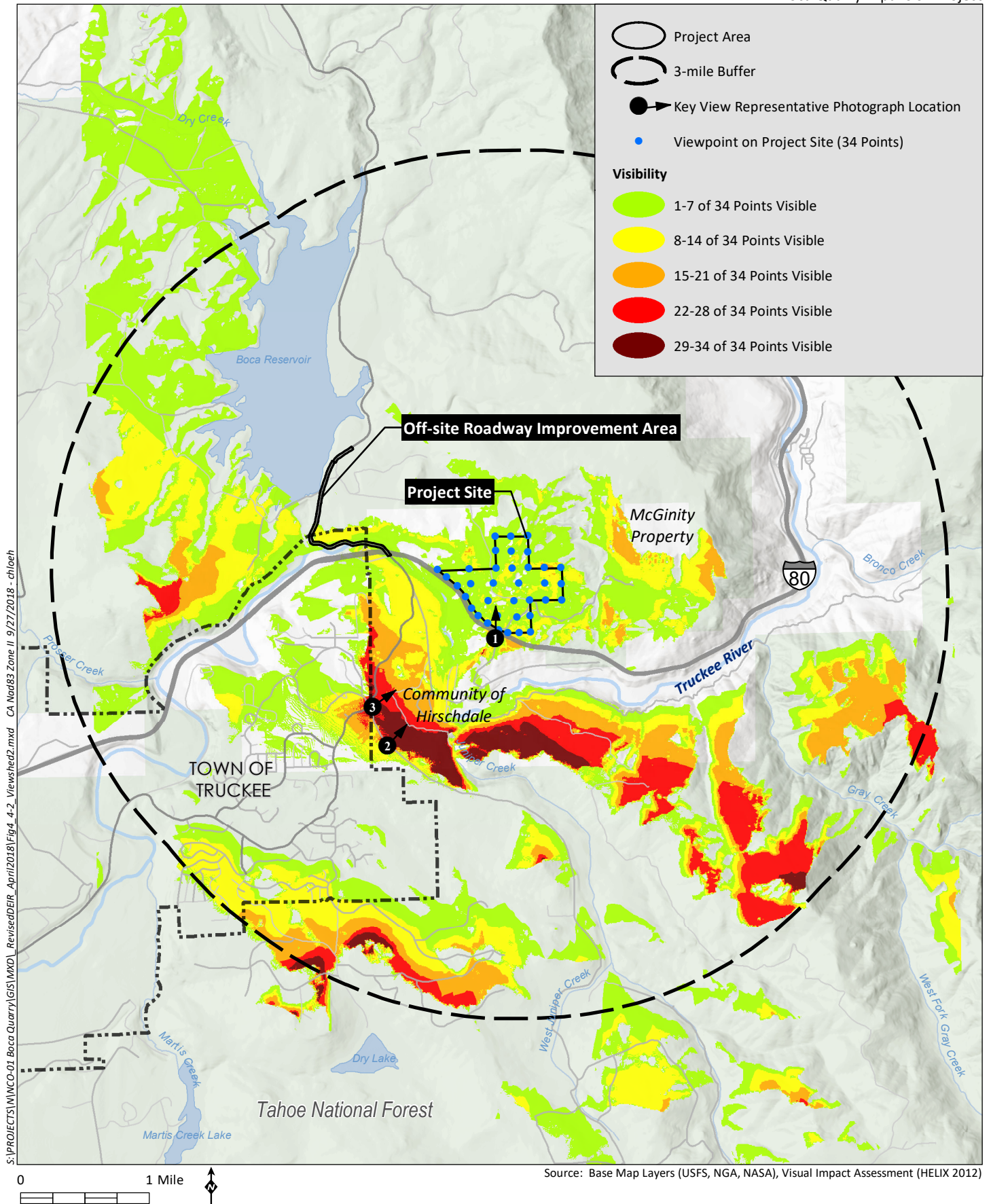
Photograph D. View facing northeast along Hinton Road into the project site from southern project site boundary.



Photograph E. View facing southeast from West Hinton Road at quarry haul road gate. The photograph is from a point east of Stampede Meadows Road and northwest of the project site.

Source: Environmental Vision

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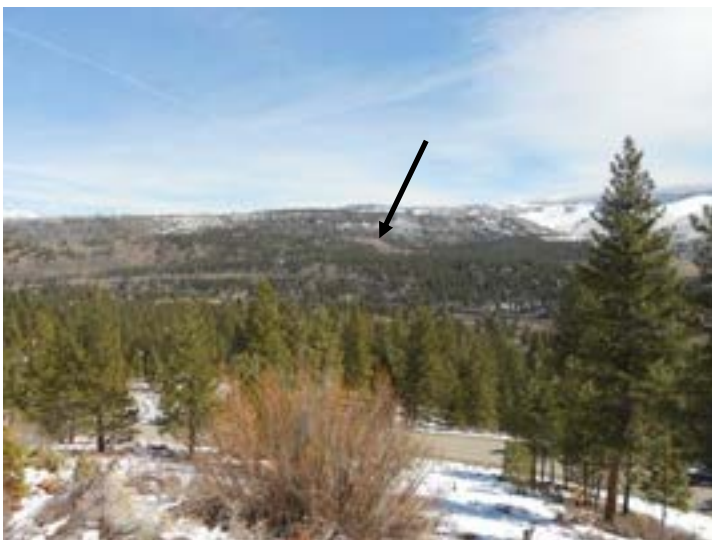




Key View 1. Interstate 80. View of project site from I-80 where the freeway crosses Hinton Road. The existing quarry is briefly visible (see arrow).



Key View 2. Glenshire Drive, Nevada County. View of project site from Glenshire Drive. The existing quarry is visible (see arrow).



Key View 3. Private Residences on Whitehorse Road and Stallion Way, Eastern Truckee. The existing quarry is visible (see arrow).

Source: Ecosynthesis

undeveloped private properties in the vicinity are discussed under Other Views of the Project Site, below. Views of the off-site roadway improvement area are also discussed separately, below.

Key View 1: Interstate 80

The highest number of potential viewers in this viewshed are motorists on I-80. This section of I-80 is a four-lane divided highway with limited truck climbing lanes, and with a posted speed limit of 65 miles per hour. Potential viewers would include trucks, commuters, recreational and non-recreational travelers who would tend to focus on the traffic and not the surrounding scenery. However, the area features dramatic topography and natural views which is why the highway is considered eligible as a State Scenic Highway. As a result, the viewer sensitivity from I-80 is considered moderately high to high.

Key View 1 on Figure 4.4-4 is a photograph of a brief view of the existing quarry at the East Pit from I-80 where I-80 crosses Hinton Road, south of the project site. The photograph was taken from the south side of the highway, facing northward. At the posted highway speed, the view duration is fleeting – approximately 1 to 2 seconds. Existing vegetation, consisting mainly of evergreen trees, blocks views to the proposed West Pit, resulting in a reduced visual exposure for viewers on I-80.

Key View 2: Glenshire Drive, Nevada County

Glenshire Drive is a publicly accessible road located southwest of the project site. Hirschdale Road, I-80, the Truckee River, and the UPRR are between Glenshire Drive and the project site but are topographically lower than Glenshire Drive and the project site. Viewers on local roads are a combination of residents as well as recreational and non-recreational travelers. The number of viewers on Glenshire Drive is far less than I-80, with an average daily traffic (ADT) of approximately 2,600 vehicles. Views to the quarry are fleeting and temporary due to intervening topography and vegetation, resulting in low to moderate viewer sensitivity.

Key View 2 on Figure 4.4-4 is the view from Glenshire Drive towards the proposed West Pit. The views are limited due to existing vegetation which partially screens this view.

Key View 3: Private Residences on Whitehorse and Stallion Way, Eastern Truckee

Private residences are located near the eastern limits of the Town of Truckee and southwest of I-80 and the project site. Views from residences typically have extended viewing periods and it can be assumed that these viewers are concerned about changes from the views in their homes. Therefore, the viewer sensitivity for residential use is considered high.

Key View 3 on Figure 4.4-4 is the view from homes on Whitehorse Road and Stallion Way. These residences are situated topographically higher than the project site and have direct views into the project site. Currently, the view of the quarry is approximately 5 degrees of the 180-degree private view. The proposed West Pit would approximately triple this to approximately 15 degrees of the 180-degree view for the residences during the 30-year life of the quarry.

Other Views of the Project Site

Intervening topography and existing vegetation restricts views of the project site from Stampede Meadows Road, which would remain unchanged with the expansion of the West Pit. Refer to

Photograph E on Figure 4.4-2b which provides the view towards the project site from West Hinton Road at Stampede Meadows Road.

Views from adjacent private parcels, including the McGinity property, currently have nearly unobstructed views into the project site. However, it should be noted that there are no permanent residences on these parcels or public access roads and designated trails. Therefore, the parcels immediately surrounding the quarry site are not considered to be sensitive viewers.

Views of the Off-site Roadway Improvement Area

Views along the off-site improvement area primarily public (motorists and bicyclists traveling along Stampede Meadows Road, and recreationists using recreational facilities associated with nearby trails and Boca Reservoir) and there is one private residence along the road. Views of the off-site improvement area would be generally unobstructed from the adjacent areas.

4.4.2 Regulatory Framework

State Regulations

California Scenic Highway Program

In 1963, the State Legislature established the California Scenic Highway Program through Senate Bill 1467. It is managed by the Caltrans Landscape Architecture Division. The intent of the program is to establish the State's responsibility for the protection and enhancement of California's natural scenic beauty by identifying those portions of the State highway system which, together with adjacent scenic corridors, require special conservation treatment. Scenic corridors consist of land that is visible from, adjacent to, and outside of the highway right-of-way, and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries. Under the significance criteria established by CEQA, projects are evaluated for visibility from state scenic highways.

Nevada County General Plan

The Aesthetics Element of the Nevada County General Plan (1995) contains goals, objectives, and policies that address such topics as preservation of scenic resources and viewsheds, conservation of scenic roads and highways, aesthetic design, and minimization of nighttime light pollution. Goal 18.2 is to protect and preserve scenic resources, and the following policies implement the goal: Policy 18.6 (preserve natural landmarks and avoid ridge-line placement of structures); Policy 18.7 (protection of scenic corridors); and Policy 18.10 (lighting). Furthermore, the Open Space Element of the Nevada County General Plan (1995) encourages land use patterns and site development that reflect open space values as among the County's primary goals.

4.4.3 Significance Thresholds

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact associated with aesthetics if the project would:

1. Have a substantial adverse effect on a scenic vista.

2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
3. Substantially degrade the existing visual character or quality of the site and its surroundings.
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.4.4 Impact Analysis

Significance Threshold 1 - Scenic Vistas

The project site and off-site improvement area are not designated as a scenic vista, nor are they located within any scenic vistas designated in the Nevada County General Plan. In general, a scenic vista is defined as a valued public view of landscape scenery. Within the project area, Boca Reservoir and the surrounding trails, including Boca Townsite Trail, are used by recreationalists, and may be considered scenic vistas. As previously mentioned, the project site would not be visible from Boca Reservoir, Boca Townsite Trail, or other trails accessing the reservoir. Intervening topography and vegetation generally screen views of the site from these areas. No impact would occur.

Construction and improvements in the off-site roadway improvement area would be visible from the reservoir and trails; however, because the improvements along Stampede Meadow Road are relatively minor (which consist of adding shoulder segments along portions of the road), and construction would be temporary, the potential impacts at the scenic vistas would be less than significant.

Significance Threshold 2 - Scenic Highway/Visual Resources

As previously described, there are no officially designated State Scenic Highways in the project area. I-80 is the only highway with a view of the project site, and while it is eligible as a State Scenic Highway in the California Scenic Highway Mapping System, it has not been officially designated. Official designation would require the local governing body to adopt a Corridor Protection program and receive notification that the highway has been designated as a scenic highway. Therefore, the proposed project would not impact scenic resources within a State Scenic Highway.

While there are no officially designated State Scenic Highways in the project area, I-80 is considered a primary source of public views by the County of Nevada and public views are typically considered important under CEQA. In addition, the Nevada County General Plan identifies I-80 as a roadway in the County that is important for its scenic resources. While there would be no impact to scenic resources within a State Scenic Highway, potential impacts to viewers from I-80 are evaluated as part of the discussion of visual character, below.

Significance Threshold 3 - Visual Character and Quality

Method of Analysis

Visual character is based on defined attributes that objectively are neither good nor bad in themselves. This objective character includes pattern elements such as form, line, color, and texture; as well as pattern character, including the dominance, scale, diversity or continuity between these elements.

Visual quality is evaluated by identifying the vividness, intactness and unity present in the viewshed. The three criteria for evaluating visual quality can be defined as follows:

- Vividness is the visual power or memorability of landscape components as they combine in distinctive visual patterns.
- Intactness is the visual integrity of the natural and man-made landscape and its freedom from encroaching elements. It can be present in well-kept urban and rural landscapes, as well as in natural settings.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual components in the landscape.

Project Site

The character of the project area is comprised of the undulating, flowing lines of the mountains, the expanse of the mesa area, and the contrast existing between them. The proposed West Pit is located on the edge between each, in the area where the lowest hills provide a transition between the flat mesa and the high mountains. The visual quality of the area surrounding the project is highly vivid, and fairly intact with a high degree of visual unity. The uniformity in the natural rock color of chocolate brown and reddish tones interspersed with Jeffery Pines and native vegetation creates a unified visual pattern and compositional harmony. The foreground views have man-made elements including I-80 and the UPRR, but these elements do not overly detract from the visual coherence of the landscape.

The West Pit would be located in a topographically rugged area which is largely vegetated with Jeffrey pine/antelope bitterbrush, bitterbrush scrub, and curl-leaf mountain mahogany woodland, as well as large areas of barren rock outcrops and talus fields. The proposed West Pit would be continuous with the currently permitted East Pit which contains disturbed areas associated with the existing mining operations. Because the visual baseline assumes completion of the currently permitted East Pit, this evaluation describes visual change in terms of the addition of the West Pit to the currently permitted East Pit.

The proposed West Pit would be visible to the public from a limited number of places, and at a limited number of private properties in the vicinity. As previously mentioned, the greatest number of potential viewers would be from I-80. Additional viewers would be from Glenshire Drive, and private residences at the eastern limits of the Town of Truckee. Views from I-80 and Glenshire Drive are largely blocked by intervening topography and vegetation, and the overall visual change would be only briefly noticeable from limited areas along those roadways; however, due to the potential number of viewers and the relative intactness of the surrounding landscape, viewer sensitivity is considered to be moderately high to high from I-80 and low to moderate from Glenshire Drive. Due to the extended viewing periods from the private residences, the sensitivity of viewers from the residences with direct views of the project site is considered to be high.

The proposed project would expand existing visual elements to an adjacent location in the mine, including equipment during project operations and new slopes in the proposed West Pit. The final configuration of slopes and benches post-reclamation would cause changes to the visual patterns of the area, as discussed below. In general, the potential viewers would view the operations from a distance, and noticeable effects would be largely temporary as reclamation of the site would occur concurrently

with project operations. The analysis of impacts presents a general overview of potential visual impacts, followed by an analysis of the significance of those impacts at the Key Views.

The proposed project would ultimately impact the entire proposed West Pit, which when combined with the East Pit, would result in approximately 158 acres of disturbance which would include the removal of vegetation and excavation of soils. The proposed West Pit currently features disturbed and undisturbed native vegetation which is similar to the vegetation surrounding the ultimate disturbed area and contributes to the visual continuity of the West Pit with the surrounding areas. None of the vegetation in the proposed West Pit is visually unique or vivid, and while the proposed project would ultimately result in the removal of this vegetation, the operations would not occur upon the entire project impact footprint at any one time. As described in Section 3.3.1, the mining activities would occur in three phases, the first of which (the Phase I East Pit) is largely complete. Phases II and III involve mining of the West Pit. During Phase II, the lower (southern) portion of the West Pit would be mined to its maximum width and depth and overburden would be used in reclamation of portions of the East Pit no longer in use. The upper ridge of the West Pit would then be mined (Phase III), and the overburden from the ridge would be moved down to the lower area to be used as backfill in the lower pit, facilitating partially concurrent reclamation of the lowest (Phase II) bench. Therefore, areas not yet disturbed by project operations would still support the existing vegetation, and mining and reclamation (which includes revegetation of exposed soils as described below) would be concurrent activities throughout the life of the quarry.

During operation of the proposed project, trucks bringing fill, grading equipment, and the newly exposed soil and rock on the excavated slopes would introduce new elements of diversity to the project site. The equipment and the exposed soil, which would be lighter in color than the surrounding existing vegetation, would be both incompatible (i.e., in contrast) with the undisturbed areas immediately surrounding the proposed West Pit, and compatible (i.e., indistinguishable) with the adjacent, existing East Pit. While the existing landforms, vegetation, and conditions of the East Pit create visual diversity, the proposed project would partially reduce the visual continuity of the areas surrounding the site for most views. The inconsistency would be less noticeable from viewpoints further away, however, because details are less distinguishable from a distance, and visual inconsistencies tend to blend with other visual inconsistencies in the landscape, such as developed areas along I-80.

The excavation and grading operations would result in construction of slopes that would be taller, steeper, and more uniform and geometric than the existing hillsides; they also would include evenly spaced benches extending horizontally across the length of the new slopes. This configuration would degrade the continuity of the visual environment of area, but because the existing steep slopes are not distinguishable or highly visible, the project's grading would not substantially degrade the quality of that particular visual resource. Additionally, while the proposed project would alter all the slopes within the ultimate disturbed area, overall long-range views of the foothills and mountains comprised of larger expanses of steep slopes would not be substantially altered.

The 2011 Reclamation Plan includes revegetating the site with native plants. Approximately 114 acres (72 percent of the 158-acre ultimate disturbed area) would be revegetated with an anticipated post-mining native shrub density and cover. The plant palettes have been drawn from existing and surrounding vegetation. The manufactured slopes and pads resulting from the proposed project activities would be planted with these palettes, which include native grasses, forbs, and shrubs consistent with existing and adjacent plant communities (see Appendix B). The combined reclamation plantings and exposed rocky slopes would result in visual continuity between the proposed landform

configuration and the existing surrounding vegetated hillsides with extensive fields of talus and exposed bedrock and would reduce the visual impact of the removal of native vegetation due to the proposed project to levels of weak or no contrast. Even after reclamation, the manufactured slopes and benches would have sharper angles when compared with the natural contours of the surrounding hills. However, the proposed pad areas that are at similar elevations to the existing mesa in the southern portion of the ultimate disturbed area (quarry impact footprint) would comprise a continuation of the mesa further eastward. Post reclamation, the equipment would be removed, negating their visual effect.

To determine the potential visual effects of the proposed project during operation and following reclamation, a simulation was conducted for views from Key View 2. Simulation 1 in Figure 4.4-5, presents a ‘worst-case’ scenario of views from Glenshire Drive in which the project site is mined to completion with no concurrent reclamation. Despite the intervening vegetation and varying topography, the exposed soils and steep, constructed slopes are highly vivid and result in a remarkable detracting from the visual integrity and unity of the local landscape. Simulation 2 presents the site post reclamation, with all proposed areas revegetated. While the revegetation softens the effects of the slopes, the exposed soils are visible and the exposed rock face appears to contrast with the native rock and talus. The significance of the potential impact is evaluated for each of the Key Views, below.

Key View 1: Interstate 80

Intervening topography and vegetation block views of the mining operations from I-80 (Key View 1), and due to the highway speeds, viewers from the highway would experience fleeting, one- to two second-long views of the site. During operation, the exposed rock face and removed vegetation would be highly vivid and while short in duration, would affect the visual integrity and unity of the local landscape. Because the greatest number of potential viewers would occur along I-80, and because viewers along I-80 are considered to have moderate to high viewer sensitivity, the project would result in a potentially moderate to high visual impact to motorists travelling along I-80. While reclamation activities would reduce the visual effect over time, without mitigation, the effects would remain significant. As a result, the proposed project would result in a potentially significant impact to visual character and quality and mitigation would be required.

Key View 2: Glenshire Drive, Nevada County

While views of the project site from Glenshire Drive (Key View 2) are fleeting and temporary, the visual simulation (Figure 4.4-5) demonstrates that where visible, the proposed project would be highly vivid and would significantly affect the visual character of the area during both operation and following reclamation. There are no silhouette views or ridgeline disruption from the Key View 2; therefore, the fleeting views would remain prominent. While viewers from Glenshire Drive are considered to have low to moderate viewer sensitivity, the proposed project would result in potentially significant impacts and mitigation would be required.

Key View 3: Private Residences on Whitehorse and Stallion Way, Eastern Truckee

Private residences in eastern Truckee (Key View 3) have a nearly unobstructed view of the walls of the quarry. While intervening topography and vegetation block some views of the quarry floor, the majority of the slope faces would be visible. During operation, the exposed rock face would be highly vivid and due to the long view duration from the residences, the visual impact would be moderately high to high. As previously mentioned, reclamation activities would soften the effect of the exposed slopes and would reduce the impacts over time; however, during operation, the visual impact would be significant. The



Key View 2. View of project site prior to mining activities (existing conditions).



Simulation 1. Post-project. Visual simulation of the project site following all mining, assuming no concurrent reclamation activities. This is a "worst case" scenario for project-related aesthetic impacts. Simulation provided by Ecosynthesis.



Simulation 2. Post-reclamation. Visual simulation of the project site following reclamation with no additional mitigation incorporated. Simulation provided by Ecosynthesis.

Source: Ecosynthesis

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proposed project would result in a potentially significant impact to visual character and quality and mitigation would be required.

Off-site Roadway Improvement Area

Construction and improvements in the off-site roadway improvement area would be visible from the private residence west of Stampede Meadows Road, recreationists at Boca Reservoir and the surrounding trails (including Boca Townsite Trail), and motorists traveling through the area along Stampede Meadows Road. Residences in the Hirschdale Community near the northern edge of the vista south of the Truckee River and I-80 (Sierra Vista Court and Boca View Court) are situated above the roadway and may have limited views of the off-site improvement area. The proposed roadway improvements may result in impacts totaling approximately 13.2 acres (7.5 acres are currently paved or disturbed/ruderal). Construction of the proposed off-site roadway improvements would change the visual character of the area by widening the existing 20- to 24-foot wide roadway to 32 feet wide with a 1-foot-wide shoulder on either side, constructing pullouts, and removing existing trees and vegetation within the impact footprint.

While there would be visual impacts on the character and quality of the project site during construction, those impacts would be temporary. Because the majority of the roadway improvement footprint is disturbed, the removal of vegetation would be minimized. While the project would result in ground disturbance and the removal of trees and other vegetation, temporarily disturbed areas of the off-site roadway improvement area would be revegetated according to the Planting and Erosion Control Plans prepared for the project, and temporarily disturbed areas would return to a natural habitat. Implementation of the off-site roadway improvements would not significantly affect the visual character or quality of the area because the proposed improvements are to an existing roadway and would be consistent with the existing visual character of the area. Potential impacts to visual character and quality at the off-site roadway improvement area would be less than significant.

Significance Threshold 4 - Light and Glare

Project Site

As previously described, existing outdoor lighting is associated with the processing and ancillary facilities in the East Pit and no new lighting or facilities would be installed as part of the proposed project. The lighting from existing facilities in the East Pit would be used for the quarry operations under the proposed project. In general, currently permitted and proposed operations take place between 6 a.m. and 6 p.m., Monday through Friday, and between 7 a.m. and 4 p.m. on Saturday so during operation of the quarry, on-site lighting associated with vehicle headlights accessing the site is relatively minimal. Currently permitted nighttime operations are limited to occasional night load-out of material (which would remain unchanged under the proposed project), during which time very limited lighting is required when the site is in operation.

Because the proposed project would not include the addition of facilities or lighting that would result in a significant new source of light or glare, the impacts would be less than significant.¹ In addition, the

¹ Note that the analysis of impacts from night lighting under Significance Threshold 6 in Section 4.3, Biological Resources, comes to a finding of potentially significant with mitigation proposed. The potentially significant finding is due to the potential for a change in conditions on the project site from when the East Pit was last in operation. The proposed mitigation (Mitigation Measure BIO-4) would also further reduce the less than significant impacts on light and glare at the off-site sensitive viewers.

proposed reclamation would include demolition of the existing structures that have permanent outdoor lighting fixtures, which would further reduce light and glare impacts following operation.

Off-site Roadway Improvement Area

There is no existing roadway lighting in the off-site roadway improvement area. Existing sources of light and glare in the off-site improvement area would be limited to vehicles traveling along the road. The proposed roadway improvements do not include the installation of light sources, nor would they increase capacity that would allow an increase in traffic along the road. In addition, the materials used would not include reflective materials that may introduce additional glare to the environment. The proposed off-site roadway improvements would not create a new source of substantial light or glare. Accordingly, no impact associated with light or glare would occur.

4.4.5 Level of Significance Before Mitigation

Based on the analysis provided above, implementation of the proposed mining operations would result in potentially significant project-specific impacts related to visual character and quality for Key View 1 (I-80), Key View 2 (Glenshire Drive, Nevada County) and Key View 3 (Residences along Whitehorse Drive and Stallion Way, Eastern Truckee).

Potential project-specific impacts associated with the proposed mining operations related to scenic vistas, scenic highways, and light and glare would be less than significant, and potential project-specific aesthetic impacts associated with implementation of the off-site roadway improvements would be less than significant.

4.4.6 Mitigation Measures

The following mitigation measure shall be required to offset potential impacts to the proposed project's potential aesthetics impacts:

- AES – 1** Potential impacts to visual resources shall be offset by spraying “Rock Varnish” (aka desert varnish) such as Nantina or PERMEON or other functional equivalent on exposed upper cut face slopes immediately following the completion of each phase of mining, to blend visually with undisturbed rock face and talus following mining operations. The PERMEON (desert varnish) or approved equal, shall be mixed with water in a 5:1 solution (i.e., 20 gallons of PERMEON to 100 gallons of water). A compressor shall be used to pressurize the spray to approximately 200 psi for application with an agricultural-type hand-held nozzle sprayer. The desert varnish color can range from almost black to a light tan, depending on the concentration of PERMEON and the number of coats to be made. The solution shall be sprayed on until saturation. When first applied, the PERMEON mixture would not have a tint, and the exposed rock initially returns to its original color as it dries. The desired coloration process is activated by exposure to ultraviolet light from sunshine.

4.4.7 Significant Unavoidable Adverse Impacts

Implementation of the 2011 Reclamation Plan and mitigation measure AES-1 would lessen the adverse aesthetic impacts for all Key Views but would not reduce the potentially significant impact to visual character/quality to below a level of significance. The associated visual impact at the Key Views would be considered significant and unavoidable.

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4.5 TRAFFIC AND CIRCULATION

This section describes existing transportation/traffic conditions within the proposed project vicinity. The following analysis also evaluates potential impacts (including cumulative impacts) and mitigation measures related to implementation of the proposed project. The information presented in this section is summarized in large part from the TIA prepared by LSC Transportation Consultants, Inc. (LSC) dated October 20, 2017 (LSC 2017), the technical memorandum describing traffic impacts from construction of the off-site roadway improvement area dated February 26, 2018 (LSC 2018a), and the technical memorandum describing traffic impacts from timber harvesting activities at the project site dated September 10, 2018 (LSC 2018b). All documents are included in Appendix J of this EIR.

Comments were received during and following the public review period of the 2012 Draft EIR regarding this topic from the following agencies and individuals: California Department of Transportation (10/4/2012), Duane Brunson (11/6/2012), Taylor & Wiley Attorneys of Counsel on behalf of the project applicant (11/6/2012), the Hirschdale Community (10/29/2012 and 2/21/2013), Law Office of Donald B. Mooney on behalf of the Buckhorn Ridge Homeowners Association (2/21/2013 and 3/8/2018), Larry Andresen and Jamie Cole during the Public Hearing (10/11/2018). Refer to Appendix A for the comments received and responses to those comments.

4.5.1 Existing Conditions

Existing Roadway Network

The project site is located north of I-80, east of Hirschdale Road and Stampede Meadows Road, and southeast of West Hinton Road. The Town of Truckee limits are approximately 0.6-mile west of the project site, and the California/Nevada Border is five miles east of the project site. The access route between the project site and I-80 is via the Hirschdale Road interchange. Hirschdale Road transitions to Stampede Meadows Road north of the interchange. West Hinton Road provides access to the project site from the north. It intersects Stampede Meadows Road approximately 1.1 miles north of the I-80 interchange with Hirschdale Road.

The following is a discussion of the existing roadways surrounding the project area.

Interstate 80 (I-80) provides interregional highway connections east to Reno, Nevada and beyond, and west to Sacramento, California and the San Francisco Bay Area. The Town of Truckee lies along both sides of I-80 to the west of the project site. This section of I-80 is currently a four-lane divided highway with limited truck climbing lanes, and with a posted speed limit of 65 miles per hour. There are eight interchanges serving the Town of Truckee on I-80, including the Donner Lake Road and Hirschdale Road interchanges.

Stampede Meadows Road is a two-lane minor collector roadway that runs generally north-south from I-80 on the south to Henness Pass Road just north of Stampede Reservoir. This roadway has a pavement width of about 24 feet, and the posted speed limit is 35 miles per hour. The current sight distance at Stampede Meadows Road and West Hinton is inadequate.

West Hinton Road is an unpaved privately-maintained road running generally east-west from Stampede Meadows Road to the project site. This roadway is about two and a half miles in length.

Hirschdale Road is a two-lane collector roadway that connects the eastern Town of Truckee to I-80. It also serves businesses and residences to the east of the town limits. Hirschdale Road has a pavement width of about 22 feet, and the speed limit is not posted within the study area.

Existing Traffic Volumes

The following three intersections were analyzed for the traffic impact analysis (LSC 2017): I-80/Hirschdale Road eastbound ramps; I-80/Hirschdale Road westbound ramps; and West Hinton Road/Stampede Meadows Road. Existing traffic volume data were collected on Friday August 11, 2017 from 7:30 am to 9:30 pm, Friday August 18, 2017 from 4:00 pm to 6:00 pm, and on Saturday August 12, 2017 from 1:45 pm to 4:45 pm. Based on a review of Caltrans hourly traffic volumes on the I-80/Hirschdale Road interchange, the highest hourly traffic volumes on summer Saturdays typically occurs in the afternoon. Therefore, it was not necessary to conduct am counts on Saturday.

During the count periods, Boca Dam Reservoir Road was closed. This road provides the primary access to a campground on the west side of Boca Reservoir. In order to remain conservative in the traffic analysis, the 2017 traffic volumes were increased to reflect traffic conditions with Boca Dam Reservoir Road open. Figure 4.5-1 presents the existing daily traffic volumes at each of the intersections near the project site.

Existing Bicyclist Conditions

Stampede Meadows Road is a paved roadway in the County that may be used by bicyclists. There are no existing or planned bicycle facilities along Stampede Meadows Road (Nevada County 2018b), and the roadway generally lacks shoulders through the off-site roadway improvement area. Bicycle volume counts were conducted at all study intersections at the same time as the vehicular traffic counts (LSC 2017). A total of three bicyclists were counted during the weekday a.m. peak hour and the Saturday peak hour. No bicyclists were observed during the weekday p.m. peak hour.

4.5.2 Regulatory Framework

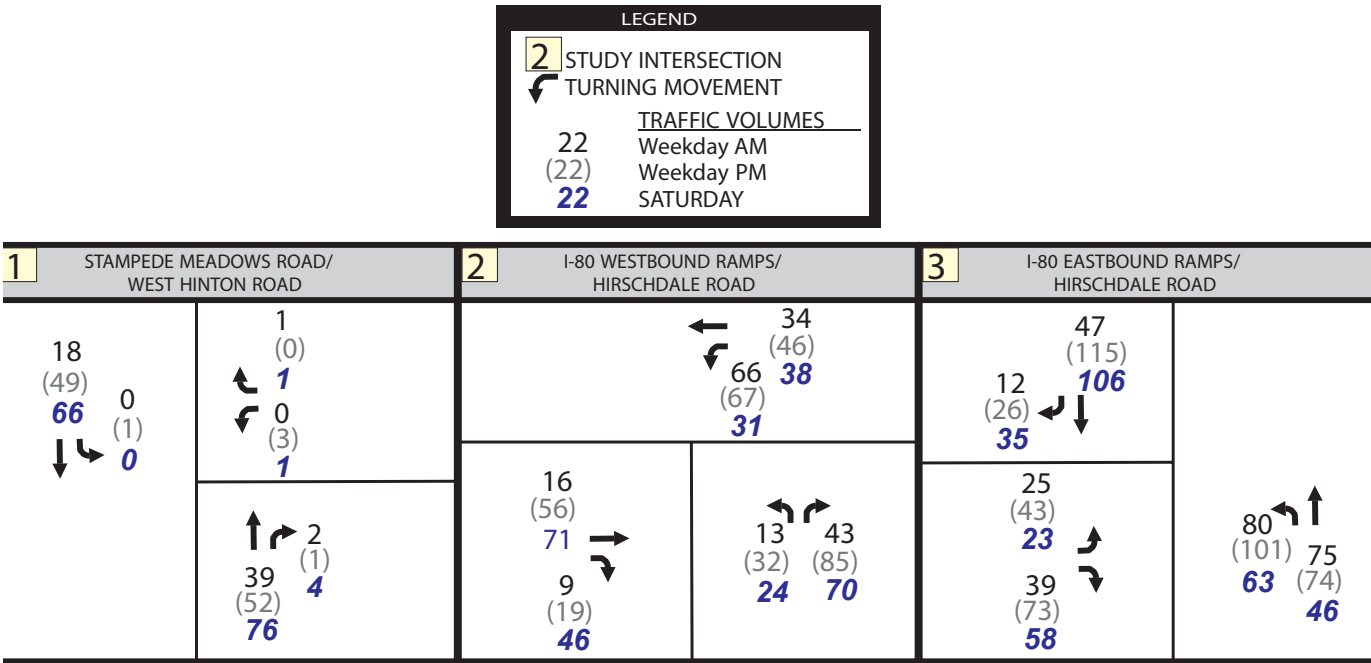
Local Regulations

Nevada County General Plan

The Circulation Element of the Nevada County General Plan (Chapter 4; Nevada County 2010) contains goals and policies that pertain to circulation. Goal LU-4.7 relates to providing local and regional road and street systems that are consistent and compatible with local land use patterns and street networks. Policy LU 4.1.1 requires that rural intersections and roadways maintain a minimum level of service (LOS) C, except where the existing LOS is less than C. In those situations, the LOS shall not be allowed to drop below the existing LOS. In other words, LOS on an intersection or roadway already below LOS C should not be allowed to degrade below its existing condition.

Nevada County Traffic Control Plan

Section L-XVII 2.2 of the Nevada County Land Use and Development Code states that all work performed within Nevada County public right-of-way shall be subject to the requirements of latest adopted Nevada County Encroachment Permit Procedures, which includes a traffic control plan approved by the Nevada County Engineer.



Source: LSC Transportation Consultant, Inc.

4.5.3 Traffic Analysis Methodology

Traffic operations at the study intersections were assessed in terms of LOS and delay. LOS is a concept that was developed by transportation engineers to quantify the level of operation of intersections and roadways (*Highway Capacity Manual [HCM]*, Transportation Research Board 2016). LOS measures are classified in grades “A” through “F,” indicating the range of operation. LOS “A” signifies the best level of operation, while “F” represents the worst. The following four scenarios were analyzed at the study area intersections:

- Existing (2017) without project
- Existing (2017) with project
- Future (2037) without project
- Future (2037) with project

The HCM 2016 methodologies were applied to all intersections, using the Highway Capacity Software (McTrans Center, University of Florida).

In addition, the following traffic-related issues were evaluated:

- The need for new turn lanes at the West Hinton Road/Stampede Meadows Road intersection.
- Driver sight distance at the West Hinton Road/Stampede Meadows Road intersection.
- The project impact on VMT.
- A limited assessment of the projects impact on bicyclists using Stampede Meadows Road.

4.5.4 Significance Thresholds

The proposed project would result in a significant traffic and circulation impact if the project would:

1. Conflict with an applicable plan, ordinance, or policy that establish standards for overall traffic and transportation needs within the County.
2. 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 Nevada County.
3. Result in a need for private or public road maintenance or new roads.
4. Substantially increase hazards due to a design or natural feature (e.g., sharp curves, dangerous intersections, lack of adequate site distance, or lack of shoulders/bike lanes for bicyclists).

4.5.5 Impact Analysis

Significance Thresholds 1 and 2 – Level of Service and County Standards

Trip Generation

The first step in the analysis of traffic impacts is to prepare an estimate of the number of trips generated by the proposed project. Trip generation is the evaluation of the number of vehicle-trips that would either have an origin or destination at the project site or off-site roadway improvement area. The

analysis included an evaluation of trips generated from operation of the proposed project and from construction of the off-site roadway improvement area. Section 3.3.11 presents a summary of the trips generated by quarry operation and off-site roadway improvements, and the trip generation is presented in detail in the following sections.

Quarry Operation

Due to the fact that the existing East Pit is not currently in operation, it generates a minimal amount of traffic. As standard Institute of Transportation Engineers (ITE) trip generation rates are not provided for a quarry, a detailed trip generation estimate was developed based upon an analysis of truck trip patterns and “person-trip” patterns, factored by travel mode and vehicle occupancy characteristics appropriate for the local area.

There are five types of trips that are generated by operation of the quarry. These are employees, site preparation (timber harvest), aggregate exporting trucks, backfill importing trucks, employees, and maintenance trucks.

Employees. A maximum of 15 employees would be on site over the course of a peak day. Based on data from the 2011-2015 American Community Survey (U.S. Census data) for the Truckee area, the average vehicle occupancy for work trips is approximately 1.2 employees per vehicle. Dividing the total number of employees (15) by the average vehicle occupancy (1.2) yields about 13 vehicles associated with employees. Assuming each employee makes one round-trip commuting to/from work, and two employees also make a round-trip off the site during the work day (for lunch, errands, etc.), a total of about 30 one-way vehicle-trips would be made by employees.

Timber Harvest. During site preparation, approximately 750 commercially viable trees would be harvested and transported to a lumber mill located in Quincy (approximately 75 miles from the project site). Harvested trees would be transported via heavy duty diesel trucks and would generate a total of 188 one-way trips over the 30-year life of the project. Up to 20 one-way trips per day could occur during the timber harvest. If the timber harvest occurs during operation of the site, then these trips would replace aggregate exporting truck trips and would not affect the overall worst case hourly and daily vehicle trips. Also, if the loads are spread out over a single operating season, then the timber harvest would result in less than one load per day.

Aggregate Exporting Trucks. A total of 10,080 tons of aggregate material are proposed to be hauled out of the project site on a peak day in a peak year. Various sizes of trucks would be used in aggregate hauling, with the average truck estimated to haul 18 tons of material. Dividing the total tons of material (10,080 tons) by the average tonnage per truck (18 tons) yields a total of 560 truckloads per day. As each truck load involves an empty truck entering the site and a full truck exiting the site, the total number of one-way trips per day generated by aggregate exporting trucks would be 1,120.

Backfill Importing Trucks. Backfill trucks consist of trucks full of backfill material entering the site, dumping the material, and exiting empty. These backfill trucks are estimated to haul at most one-quarter of the amount hauled by aggregate exporting trucks, or a total of 2,520 tons per day. With an average of 18 tons per truck, this would generate approximately 140 round trips, or 280 one-way trips.

Maintenance Truck. One maintenance vehicle is expected to visit the site over the course of a peak day for fueling and maintenance of on-site equipment, creating 2 one-way trips. An additional vehicle may

visit the site up to two times per week to transport blasting materials to the site, which would result in less than one trip per day.

Weekday Peak Hour Trips

As shown in Table 4.5-1, a total of up to 1,432 one-way trips (716 inbound and 716 outbound) are expected on a peak weekday. To estimate the number of trips generated by the quarry during the peak hours, it is necessary to develop an estimate of the hourly trip generation throughout the day. On weekdays, the quarry is normally open from 6:00 a.m. to 6:00 p.m. Table 4.5-1 presents the number of one-way vehicle trips associated with each project component over the course of each hour. As shown, trucks arrive on site during the hour before the quarry opens. From then on, one aggregate exporting truck per minute can be filled, processed, and exit the site, for a maximum of 60 trucks per hour exiting the site. This high rate of production is expected to last until early afternoon and then drop off to only 20 trucks per hour. The backfill trucks are assumed to enter the site, dump their contents, and exit at the rate of one truck every four minutes (or 15 trucks per hour) in the peak times and drop down to five trucks an hour in the early afternoon. Employees are assumed to arrive on site in the hour before the daily operational activities commence (before 6:00 a.m.) and to depart in the hour after the daily operational activities cease (after 6:00 p.m.), with two employees making one round-trip offsite in the middle of the day. The maintenance truck is assumed to enter and exit after the site is closed for the day. As indicated in Table 4.5-1, approximately 150 one-way trips (75 inbound and 75 outbound) are estimated to occur in the weekday AM peak hour and 50 trips (25 inbound and 25 outbound) during the weekday PM peak hour.

Table 4.5-1
HOURLY TRIP GENERATION – WEEKDAY

Hour Start Time	Aggregate Exporting Trucks		Backfill Importing Trucks		Employee Vehicles		Maintenance Truck		Total Vehicle Trips		
	In	Out	In	Out	In	Out	In	Out	In	Out	Total
5:00 AM	60	0	15	0	13	0	0	0	88	0	88
6:00 AM	60	60	15	15	0	0	0	0	75	75	150
7:00 AM	60	60	15	15	0	0	0	0	75	75	150
8:00 AM	60	60	15	15	0	0	0	0	75	75	150
9:00 AM	60	60	15	15	0	0	0	0	75	75	150
10:00 AM	60	60	15	15	0	0	0	0	75	75	150
11:00 AM	60	60	15	15	0	1	0	0	75	76	151
12:00 PM	60	60	15	15	1	0	0	0	76	75	151
1:00 PM	20	60	5	15	0	1	0	0	25	76	101
2:00 PM	20	20	5	5	1	0	0	0	26	25	51
3:00 PM	20	20	5	5	0	0	0	0	25	25	50
4:00 PM	20	20	5	5	0	0	0	0	25	25	50
5:00 PM	0	20	0	5	0	0	0	0	0	25	25
6:00 PM	0	0	0	0	0	13	1	0	1	13	14
7:00 PM	0	0	0	0	0	0	0	1	0	1	1
TOTAL	560	560	140	140	15	15	1	1	716	716	1,432

Source: LSC 2017, 2018b

Notes: Shading indicates peak hour.

Should the timber harvest occur concurrently with operation of the project site, the timber harvest trucks would replace aggregate exporting truck trips and would not affect the overall worst case hourly vehicle trips; therefore, the hourly trip generation from timber harvest activities are not specifically identified.

Saturday Trips

The quarry is also permitted to operate on Saturdays from 7:00 a.m. to 4:00 p.m. Table 4.5-2 shows the hourly trips over the course of a peak Saturday. A total of up to 1,282 daily one-way trips are expected on a peak Saturday, with 150 trips (75 inbound and 75 outbound) occurring during the peak hour. The 2:00 p.m. hour is identified as the PM peak hour, considering that it is the highest hour of quarry traffic that overlaps with the highest hour of the traffic count data.

Table 4.5-2
HOURLY TRIP GENERATION – SATURDAY

Hour Start Time	Aggregate Exporting Trucks		Backfill Importing Trucks		Employee Vehicles		Maintenance Truck		Total Vehicle Trips		
	In	Out	In	Out	In	Out	In	Out	In	Out	Total
7:00 AM	60	0	15	0	13	0	0	0	88	0	88
8:00 AM	60	60	15	15	0	0	0	0	75	75	150
9:00 AM	60	60	15	15	0	0	0	0	75	75	150
10:00 AM	60	60	15	15	0	1	0	0	75	76	151
11:00 AM	60	60	15	15	1	0	0	0	76	75	151
12:00 PM	60	60	15	15	0	1	0	0	75	76	151
1:00 PM	60	60	15	15	1	0	0	0	76	75	151
2:00 PM	60	60	15	15	0	0	0	0	75	75	150
3:00 PM	20	60	5	15	0	0	0	0	25	75	100
4:00 PM	0	20	0	5	0	13	1	0	1	38	39
5:00 PM	0	0	0	0	0	0	0	1	0	1	1
TOTAL	500	500	125	125	15	15	1	1	641	641	1,282

Source: LSC 2017, 2018b

Notes: Shading indicates peak hour.

Should the timber harvest occur concurrently with operation of the project site, the timber harvest trucks would replace aggregate exporting truck trips and would not affect the overall worst case hourly vehicle trips; therefore, the hourly trip generation from timber harvest activities are not specifically identified.

Existing Plus Project Level of Service

Study intersections were evaluated to determine existing operational conditions. Table 4.5-3 summarizes the results for existing 2017 conditions with and without the project. As indicated, all study intersections currently operate at a relatively good level (LOS B or better) without the project. Project generated traffic was then added to current conditions to determine whether the project would impact the intersections in the vicinity. An impact was determined to be significant if the LOS for any intersection decreased to a level lower than a C (a LOS of D or F).

**Table 4.5-3
YEAR 2017 INTERSECTION LEVEL OF SERVICE**

	Without Project				With Project			
	Worst Movement		Total Intersection		Worst Movement		Total Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
AM Peak Hour								
Stampede Meadows Road/ West Hinton	8.6	A	0.1	A	11.2	B	5.4	A
I-80 Westbound Ramps/ Hirschdale Road	9.2	A	7.2	A	9.7	A	3.5	A
I-80 Eastbound Ramps/ Hirschdale Road	7.4	A	4.6	A	12.0	B	7.5	A
PM Peak Hour								
Stampede Meadows Road/ West Hinton	9.2	A	0.3	A	10.6	B	2.3	A
I-80 Westbound Ramps/ Hirschdale Road	10.0	A	6.5	A	10.2	B	4.8	A
I-80 Eastbound Ramps/ Hirschdale Road	7.7	A	4.1	A	9.2	A	4.1	A
Saturday Peak Hour								
Stampede Meadows Road/ West Hinton	9.2	A	0.1	A	12.5	B	4.2	A
I-80 Westbound Ramps/ Hirschdale Road	9.7	A	4.8	A	10.3	B	3.3	A
I-80 Eastbound Ramps/ Hirschdale Road	8.1	A	4.0	A	10.9	B	6.0	A

Source: LSC 2017, 2018b

As seen in Table 4.5-3, some intersections would degrade from a LOS A under existing 2017 conditions to a LOS B with implementation of this project; however, all intersections would continue to operate at a LOS B or better. The additional traffic associated with the proposed project would not cause significant impacts to LOS at the studied intersections and project-related impacts to LOS would be less than significant.

Cumulative Plus Project Level of Service

Future 2037 traffic volumes were estimated by applying an average annual growth rate to the existing 2017 traffic volumes, adding traffic generated by the potential Canyon Springs Project and the Tahoe Forest Church Project. The future 2037 traffic volumes with the proposed project were then determined by adding the traffic volumes determined to be generated by the proposed project.

The Nevada County Regional Transportation Plan (April 14, 2017) estimated the countywide population average annual growth rate would be 0.7 percent from 2015 to 2025 and 0.6 percent from 2025 to 2035. This equates to an average annual growth rate of approximately 0.65 percent for the 20-year period from 2015 to 2035.

The Canyon Springs Project is assumed to construct residential units in eastern Truckee. The project would generate approximately 151 peak-hour trips (97 unbound and 54 outbound) through the

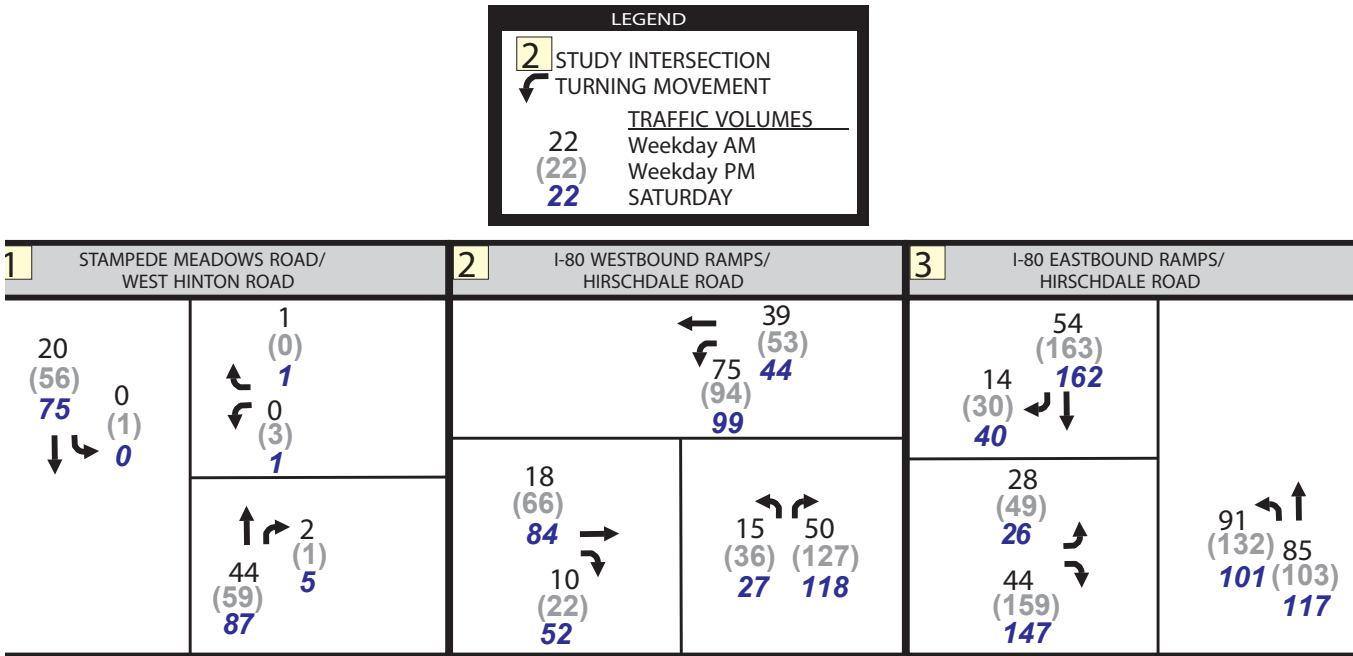
I-80/Hirschdale Road interchange under future cumulative 2037 conditions. The Canyon Springs Project would generate a minimal level of traffic on Stampede Meadows Road (one northbound and two southbound trips during the PM peak hour). Comparing the turning-movement volumes at the I-80/Hirschdale Road interchange with only the Nevada County growth rate with those generated by Canyon Springs reveals that the growth rate alone does not reflect all of the Canyon Springs traffic. Therefore, it was necessary to add the Canyon Springs Project-generated volumes.

Because the Tahoe Forest Church was recently relocated to 10315 Hirschdale Road, east of the Town of Truckee limits, while the church was an existing condition at the time of the TIA (LSC 2017, Appendix J), it was anticipated that the traffic volumes in 2017 did not reflect the full traffic volumes that would be generated by the church once it is fully operational. Therefore, the traffic volumes estimated to be generated by the Tahoe Forest Church Project were added to the future 2037 traffic volumes.

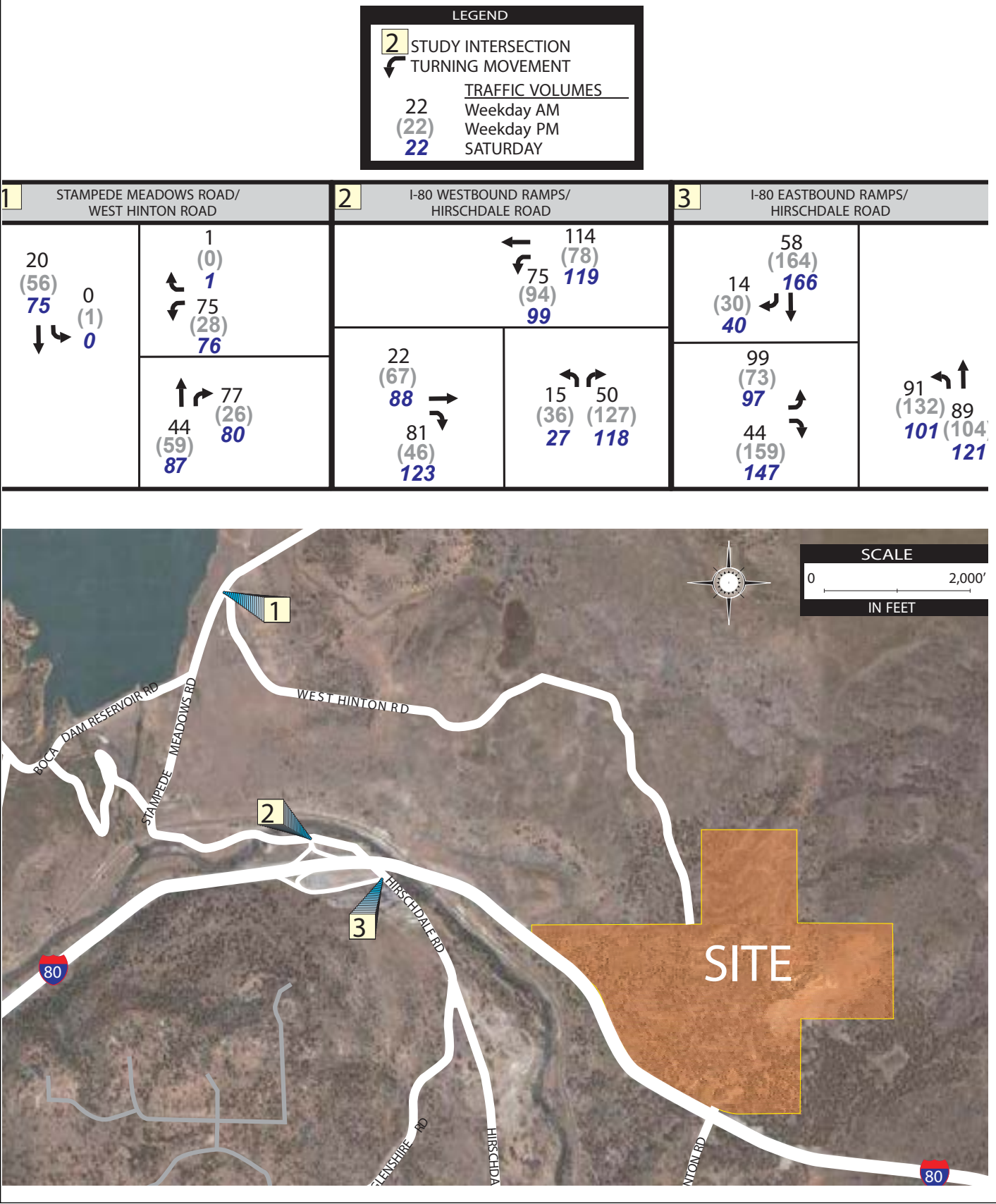
Evaluation of future 2037 intersection LOS with or without the proposed project is based on the lane configurations and intersection peak hour traffic volumes shown in Figure 4.5-2 and Figure 4.5-3. The future 2037 LOS calculations with and without the proposed project are summarized in Table 4.5-4. The worst movement on the I-80 Westbound/Hirschdale Road intersection is expected to degrade from LOS A to LOS B due to the growth in background traffic from 2017 to 2037 for the PM peak hour and Saturday peak hour. However, as indicated in Table 4.5-4, all study intersections are expected to operate at a relatively good level (LOS B or better) in 2037 without the proposed project. With implementation of the proposed project, although some movements would degrade from LOS A to LOS B, all intersection movements would operate at an acceptable LOS B or better. The proposed project would not result in significant impacts to LOS under the cumulative condition.

Table 4.5-4
YEAR 2037 INTERSECTION LEVEL OF SERVICE

	Without Project				With Project			
	Worst Movement		Total Intersection		Worst Movement		Total Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
AM Peak Hour								
Stampede Meadows Road/ West Hinton Road	8.6	A	0.1	A	11.3	B	5.3	A
I-80 Westbound Ramps/ Hirschdale Road	9.3	A	7.2	A	9.9	A	4.4	A
I-80 Eastbound Ramps/ Hirschdale Road	7.7	A	4.7	A	13.7	B	8.1	A
PM Peak Hour								
Stampede Meadows Road/ West Hinton	9.3	A	0.4	A	10.7	B	2.1	A
I-80 Westbound Ramps/ Hirschdale Road	10.6	B	7.3	A	10.9	B	6.6	A
I-80 Eastbound Ramps/ Hirschdale Road	9	A	4.8	A	8.8	A	4.9	A



Source: LSC Transportation Consultant, Inc.



Source: LSC Transportation Consultant, Inc.

Table 4.5-4
YEAR 2037 INTERSECTION LEVEL OF SERVICE (cont.)

	Without Project				With Project			
	Worst Movement		Total Intersection		Worst Movement		Total Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Saturday Peak Hour								
Stampede Meadows Road/ West Hinton	9.3	A	0.1	A	12.9	B	4.1	A
I-80 Westbound Ramps/ Hirschdale Road	10.6	B	6.4	A	11.4	B	5.0	A
I-80 Eastbound Ramps/ Hirschdale Road	9.6	A	4.8	A	13.9	B	7.2	A

Source: LSC 2017, 2018b

Vehicle Miles Traveled

The effect of the proposed project on VMT in the region is dependent on the total trip generation and the length of these vehicle trips. The quarry would serve the entire area between Sierra Valley on the north and Tahoe's West Shore on the south. Hauling trips made along I-80 to the east (between Hirschdale and the California/Nevada State Line) are expected to be minimal. Considering the geographic region and uses served by the quarry, the average trip length for truck trips made to/from the project site is estimated to be about 20 miles. The average trip length for employees is assumed to be approximately 10.5 miles, based on data from the *2011 - 2015 American Community Survey* (U.S. Census data) for the Town of Truckee area.

As shown in Table 4.5-5, up to approximately 28,336 daily VMT are associated with the proposed project over the course of a peak weekday, with up to 3,000 VMT occurring during the busiest hour of site-generated traffic (the AM peak hour). These figures reflect "worst-case" conditions, as they assume the quarry is operating at the maximum potential production. Note that the project would generate less VMT on a Saturday. In addition, the VMT generated by the proposed project are not all necessarily "new" because there are some VMT associated with the currently permitted East Pit.

The timber harvest would result in 14,000 VMT over the 30-year life of the mine (188 trips traveling approximately 75 miles; LSC 2018b). Should the timber harvest occur concurrently with site operations, then 20 of the total number of aggregate exporting truck trips would be replaced with the timber harvest trucks for up to two weeks. The timber harvest trucks would typically travel approximately 75 miles, which would result in an increase of daily VMT by 1,100 for the two-week duration during the life of the mine. Due to the short duration and minimal increase in the average trip length, the overall VMT would not be affected.

Furthermore, the VMT associated with operation of the quarry are not necessarily "generated" by the proposed project but are actually necessitated by the construction projects that need the materials from the quarry. Without the proposed project, these construction projects would still occur. That is, a similar number of aggregate truck trips would be generated in the study region regardless of which quarry supplies the materials.

Aggregate quarries in the project area include the Truckee, Martis Valley, and Boca Quarries (LSC 2018b). Other than those quarries, the nearest quarry large enough to supply the typical project in the study region is located at least an additional 40 miles away via I-80 (toward Reno or Sacramento). Figure 4.5-4 shows the aggregate sources in the region. Without the Truckee, Martis Valley, and Boca Quarries, the additional trip length associated with aggregate exporting truck trips potentially made from the nearest quarry in Sparks, Nevada is estimated to be approximately 36 additional miles in one direction. This additional distance is based on a total of about 40 miles from the I-80/Hirschdale Road interchange to the Sparks Quarry, minus the roughly four miles of travel that Boca Quarry trucks travel in order to access the I-80/Hirschdale Road interchange.

Multiplying 36 additional miles by up to 1,120 daily one-way trips associated with the aggregate exporting trucks yields a total of up to 40,320 additional VMT generated over the course of a peak weekday. Assuming the same methodology applies to the backfill importing trucks, about 10,080 additional daily VMT (36 additional miles multiplied by 280 one-way trips) would be made by the backfill importing trucks going to/from Sparks instead of to/from the project site. Therefore, with respect to the region including the area served by the Boca Quarry as well as the I-80 corridor between the Hirschdale interchange and Sparks, Nevada, a total of up to 50,400 additional daily VMT (40,320 plus 10,080) would be generated if the proposed project is not implemented.

In summary, up to 28,336 daily VMT are associated with the proposed project. These miles are generated by delivery of aggregate to construction projects and would occur with or without the project. However, without project implementation, an additional 50,400 daily VMT could conceivably be generated in the region (or more, depending on which quarry would serve the local construction projects), for a total of 78,736 daily VMT. Without the proposed project, it can be concluded that the VMT associated with quarry trips in the region would be about 2.8 times greater than that with the project (LSC 2017 and 2018b). Because the proposed project would result in a reduction in VMT in the region, impacts would be less than significant and no mitigation would be required.

**Table 4.5-5
PROJECT-GENERATED VEHICLES MILES OF TRAVEL**

Description	Number of Trips ¹		Average Trip Length (miles)	Vehicle Miles Traveled	
	Daily	Peak Hour		Daily	Peak Hour
Employee Vehicles	30	0	10.5	315	0
Aggregate Exporting Trucks	1,120	120	20.0	22,400	2,400
Backfill Importing Trucks	280	30	20.0	5,600	600
Maintenance Truck	2	0	10.5	21	0
TOTAL	1,432	150		28,336	3,000

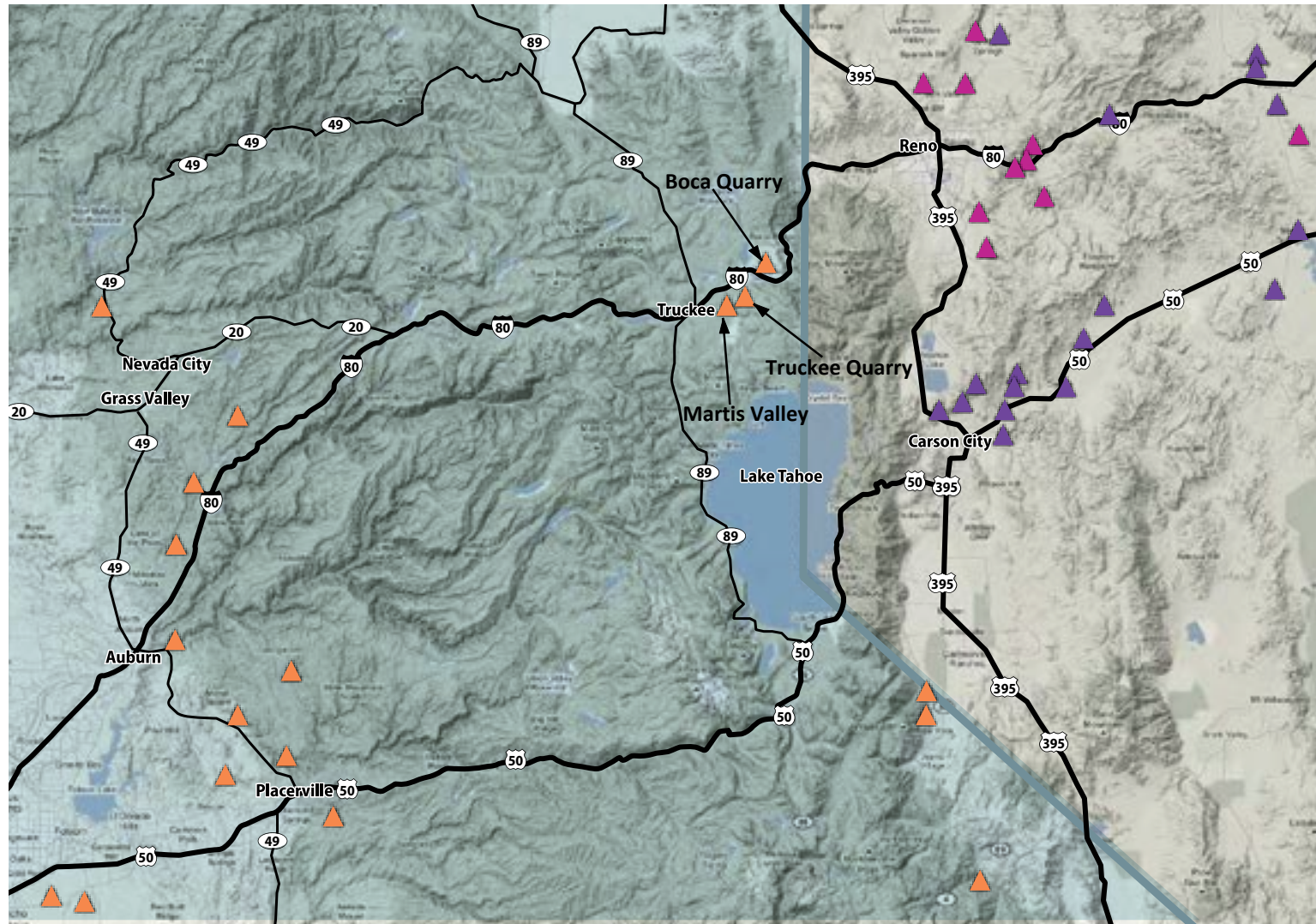
Source: LSC 2017; 2018b

Notes:

Reflects weekday conditions. Vehicle miles traveled (VMT) on a Saturday would be less.

Timber harvest activities would generate less than one truck trip per day over the life of the mine; therefore, the vehicle miles traveled from timber harvest activities are not included. Under a worst case scenario condition, with timber harvest occurring at one time and concurrently with site operations, 20 of the total number of aggregate exporting truck trips would be replaced with the timber harvest trucks for up to two weeks. The timber harvest trucks would travel 75 miles, which would result in an increase of 1,100 VMT in truck trips for the two-week duration during the life of the mine. During that time, the total number of aggregate exporting truck trips combined with timber harvest truck trips (1,120 total daily trips) would result in 23,500 VMT. The total daily VMT for all vehicles during the would be 29,436. The short term, minimal increase in the VMT is negligible and would not result in a significant impact.

Note 1: Reference Table 4.5-1.



Source: LSC Transportation Consultants, Inc.

Construction-Related Traffic Impacts

Construction of the off-site roadway improvement area would result in a total of 118 daily trips under the worst-case scenario (LSC 2018a). The trips would consist of: 68 one-way trips per day (34 round trips) for import/export trucks; 38 one-way trips per day (19 round trips) for worker commutes; and 12 one-way daily trips (6 round trips) for managers/inspectors.

The proposed off-site roadway improvement area is designed to improve safety conditions and roadway structural integrity and would be expected to improve traffic circulation along the affected segment of Stampede Meadows Road. However, construction of the roadway improvements in the off-site roadway improvement area would result in temporary impacts to traffic through the area. Construction activities would maintain traffic through the project site and while no detours would be necessary, traffic controls would be needed during construction to maintain through-traffic. While the traffic-related impacts associated with construction would be temporary, potentially significant impacts could occur to traffic circulation during construction and mitigation would be necessary. The proposed mitigation (mitigation measure TRANS-1) requires that traffic controls be implemented during construction of the off-site roadway improvement area and that they remain consistent with County requirements.

Significance Threshold 3 – Roadway Integrity

As mentioned in Section 3.3.3, the haul route between I-80 and the project site is along West Hinton Road and Stampede Meadows Road to the Hirschdale Road/I-80 interchange. The haul route falls in areas under jurisdiction of the USFS, County, and the Town of Truckee. Refer to Figure 2-2.

The proposed project would result in the continued use of these roads by large trucks traveling between I-80 and the project site to hauling aggregate from the site, and to occasionally haul backfill material to the site. This use results in excessive wear and tear on the road system which could result in a potentially significant impact to the roadways included in the haul route.

The applicant has a Road Use Permit from the USFS for the use of West Hinton Road through USFS lands. The permit is renewed annually and includes requirements and specifications to maintain the road segment and drainage features for use of the permit (Road Use Permit #17-57-01-2013). The applicant is currently responsible for maintaining the privately-owned portions of West Hinton Road along the access route. Should the applicant fail to annually renew the Road Use Permit and/or fail to maintain the road as specified in the permit, impacts to the public road could be potentially significant. Mitigation measure TRANS-2 requires that the applicant maintain the Road Use Permit with the USFS for the duration of operation of the quarry and to demonstrate to the County that the permit is valid in annual reporting to the County.

As mentioned in Section 2.2, the segment of Stampede Meadows Road in the off-site roadway improvement area north of the UPRR corridor is located entirely within USFS lands but has been granted to the County maintenance record pursuant to Board of Supervisors Resolution 74-24. To the south, Stampede Meadows Road crosses the UPRR at an at-grade crossing, and over the Truckee River via a two-lane bridge with a pedestrian walkway. An approximately 0.5-mile long segment of Stampede Meadows Road (from the UPRR corridor to the I-80 interchange) passes through the Town of Truckee (see Figure 2-2).

The costs for maintenance of the County's roads does not come from the County's General Fund but rather from a combination of fuel taxes (from both the Federal and State), Vehicle License Fees, a (very) small portion of sales tax dollars, and various other sources (such as local voter approved propositions).

The County historically offsets this potential impact to local roadways by the use of a tonnage fee based on the tons of material hauled from the site. The tonnage fees collected by the County for mining projects are used in accordance with the road improvement fees collected for all new development within the unincorporated territory of the County. The monies collected annually from the tonnage fees are then applied to capital improvements to the local roads within the project area. As described in Section 3.3.13, the applicant would enter into a Development Agreement with the County and property owner which would establish a framework for costs and timing for the payment of the cost per ton fee to the County and the Town of Truckee for roadway maintenance. The Development Agreement would allow the project applicant to continue operations in the currently permitted East Pit, but would require that the owed fees associated with the proposed expansion are implemented at the appropriate time based on the phased operations. As described in Section 3.3.13, the applicant would be responsible for annual payments of fees to the County along with a record of the tons of aggregate hauled from the site. The County would be responsible for the appropriate distribution of the applicable funds to the Town of Truckee and the agencies would be responsible for implementing roadway maintenance for impacts from the proposed use. Implementation of the Development Agreement, and payment of the fees based on the tonnage hauled from the site as identified in the Development Agreement, would avoid potentially significant impacts to the County and Town of Truckee-maintained roadways along the proposed haul route.

While the haul route has been identified for the proposed project, the project site is accessible from the south via Hirschdale Road through the Community of Hirschdale. This site access would not be authorized for use as a haul route for the proposed project; however, there is the potential for haul trucks traveling between the site and the I-80/Hirschdale Road interchange to attempt to enter the project site from the southern entrance. Haul trucks traveling along an unauthorized route, and entering residential communities south of I-80, including the Community of Hirschdale, could result in impacts to the roadway integrity which would be potentially significant. Mitigation measure TRANS-3 requires that the proposed haul route remain unaltered for the duration of operation of the quarry, and that signs be installed to direct haul trucks to the authorized haul route (away from the Community of Hirschdale).

Significance Threshold 4 – Roadway Hazards

Turn Lane Warrants at West Hinton Road/Stampede Meadows Road

A turn lane warrant analysis was performed at the intersection of Stampede Meadows Road with West Hinton Road using the "National Cooperative Highway Research Program (NCHRP) Report 457 – Evaluating Intersection Improvements: An Engineering Study Guide" (Transportation Research Board, 2001). The reason for the analysis was to determine if the additional traffic along the project access route resulting from the proposed project would warrant the construction of turn lanes to reduce hazardous conditions associated with an inadequate intersection. Based on the results of the analysis, the peak-hour volumes would not reach the volumes that would warrant either a southbound left-turn lane or a northbound right- turn lane along Stampede Meadows Road at West Hinton Road under existing or future scenarios, with or without the proposed project. Therefore, no new turn lanes are necessary at the site access intersection. The roadway improvements at the intersection would be designed in accordance with County standards. The proposed project would not result in traffic impacts

resulting in dangerous intersection conditions warranting turn lanes and potential impacts would be less than significant.

Driver Sight Distance

An evaluation of traffic safety at the site access intersection (Stampede Meadows Road and West Hinton Road intersection) was performed as a part of this analysis (LSC 2017, Appendix J). Driver sight distance is an important criterion to consider at this location, as drivers preparing to enter a roadway from a driveway or intersection must be able to see and react to oncoming traffic in both directions in a safe manner. There are two types of sight distance criteria to consider at the site access location: stopping sight distance and corner sight distance. Driver sight distance is a function of speed, and on Stampede Meadows Road the posted speed limit is 35 miles per hour; however, a speed survey was conducted on Stampede Meadows Road at its intersection with West Hinton Road to determine the average speeds of vehicles.

The results of the speed survey indicated that the average speeds are approximately 42 miles per hour southbound and 40 miles per hour northbound. The calculated 85th percentile speed in the southbound direction is approximately 48 miles per hour, based on the 1,080 vehicles surveyed in the southbound direction from Wednesday through Saturday. Similarly, the 85th-percentile speed in the northbound direction is approximately 46 miles per hour, based on 1,744 data points. The 85th-percentile of the distribution of observed speeds is the most frequently used measure of the operating speed associated with a particular roadway location. The 85th-percentile speed is usually within the “pace” or the 10-mph speed range used by most drivers. The pace in the southbound direction is calculated to be approximately 38 to 48 miles per hour, and the northbound pace is approximately 36 to 46 miles per hour. The “prevailing speed” is commonly considered to be the average of the 85th-percentile speed and the upper end of the pace. The resulting prevailing speeds on Stampede Meadows Road immediately north of its intersection with West Hinton Road point are 48 miles per hour southbound and 46 miles per hour northbound. The County sight distance standards define the “prevailing speed” as the “posted speed limit, design speed, measured prevailing speed or as determined by the Department of Transportation.” Because measured prevailing speeds were determined, they were used in the driver sight distance analysis for the project.

Stopping Sight Distance. The proposed project would result in an increase in truck traffic at the intersection of Stampede Meadows Road with West Hinton Road. Stopping sight distance requirements are meant to ensure that a driver on the approaching uncontrolled roadway has adequate time to perceive and react to the presence of an obstruction in the roadway and come to a stop in a safe manner. This is the minimum distance needed for a driver approaching West Hinton Road on Stampede Meadows Road to see an object in their travel path (such as a vehicle exiting West Hinton Road) and safely come to a stop. The Caltrans Highway Design Manual specifies minimum stopping sight distance requirements as a function of roadway design speed. Corner sight distance requirements are meant to ensure that adequate time is provided for the waiting vehicle at an unsignalized intersection to either cross all lanes of through traffic, cross the near lanes and turn left, or turn right without requiring through traffic to radically alter their speed. Corner sight distance is the minimum distance that a driver waiting at a cross street (such as the trucks on West Hinton Road) should be able to see in either direction along the main roadway in order to accurately identify an acceptable gap in through traffic. A clear line of sight should be maintained between the driver pulling out of the minor street and any approaching vehicle on the major street. Desired and minimum corner sight distance requirements are provided in the Nevada County Road Standards. The existing stopping site distance for drivers travelling

northbound on Stampede Meadows Road is 505 feet which exceeds the County's desired distance of 375 feet. The stopping site distance for drivers travelling southbound on Stampede Meadows Road is 280 feet which does not meet the desired site distance requirement of 405 feet. The stopping site distance in this direction is limited by the existing vegetation and embankment along the east side of Stampede Meadows Road. The stopping site distance requirements are summarized in Table 4.5-6.

Corner Sight Distance. The corner sight distance requirements are meant to provide 7.5 seconds for the driver on the crossroad to complete the necessary maneuver, while the approaching vehicle travels at the assumed design speed of the major roadway. These requirements are based primarily on consideration of the passenger car as the design vehicle. However, most of the traffic associated with the quarry consists of truck traffic. The required sight distance for trucks turning left onto a crossroad is substantially longer than that for passenger cars. The corner sight distance requirements for single-unit and combination trucks can be estimated using tabulated values provided by the American Association of State Highway and Transportation Officials (AASHTO) in *A Policy on Geometric Design of Highways and Streets*. Assuming a prevailing speed of 48 miles per hour on Stampede Meadows Road, the required corner sight distance for a combination truck is calculated to be about 595 feet.

Looking to the south from West Hinton Road, 440 feet of corner sight distance visibility is provided for passenger car drivers, assuming a driver's eye height of about 3.5 feet. Over 550 feet of corner sight distance is provided for truck drivers looking to the south, assuming a truck driver's eye height of about 7.6 feet. These values do not meet the desired corner sight distance requirements and the driver sight distance to the south is currently considered to be inadequate and considered a potentially significant safety impact. Looking to the north from West Hinton Road, only about 210 feet of corner sight distance is provided for passenger cars. This is about 320 feet short of the desired corner sight distance and is considered a potentially significant impact. Additionally, 485 feet of corner sight distance is provided for truck drivers looking to the north, which falls short of the desired distance of 815 feet. The corner sight distance for passenger car drivers looking to the north is limited by the existing embankment, trees, boulders, and vegetation, as well as by the horizontal curvature along the east side of Stampede Meadows Road. The corner site distance requirements are summarized in Table 4.5-6.

Table 4.5-6
EXISTING DRIVER SITE DISTANCE AT STAMPEDE MEADOWS ROAD/WEST HINTON ROAD INTERSECTION

Description	Prevailing Speed (mph)	Desired Sight Distance (ft)	Existing Site Distance (ft)	Is Requirement Met?
Stopping Site Distance				
For Northbound Drivers on Stampede Meadows Road	46	375	505	Yes
For Southbound Drivers on Stampede Meadows Road	48	405	280	No
Corner Site Distance				
For Trucks on West Hinton Road Looking North	48	815	485	No
For Passenger Cars on West Hinton Road Looking North	48	530	210	No
For Trucks on West Hinton Road Looking South	46	780	550	No

Table 4.5-6
EXISTING DRIVER SITE DISTANCE AT STAMPEDE MEADOWS ROAD/WEST HINTON ROAD INTERSECTION (cont.)

Description	Prevailing Speed (mph)	Desired Sight Distance (ft)	Existing Site Distance (ft)	Is Requirement Met?
Corner Site Distance (cont.)				
For Passenger Cars on West Hinton Road Looking South	46	505	440	No

Source: LSC 2017

Note 1: Prevailing speed is the estimated 85th percentile based on speed survey conducted at a point on Stampede Meadows Road about 500 feet north of West Hinton Road.

Note 2: Desired stopping sight distance is based on the minimum distance requirement set forth in the Caltrans Highway Design Manual.

Note 3: Desired distance for passenger cars is based on an interpolation between the required distances at 45 and 50 mph, rounded up to the nearest 5 feet.

Note 4: Desired corner site distance for passenger cars is interpolated using Nevada County site distance requirements.

Note 5: Desired corner site distance for trucks is based on American Association of State Highway Transportation Officials' (AASHTO) standards pertaining to combination trucks.

Under existing conditions, the stopping sight distance and corner sight distance at the Stampede Meadows Road intersection with West Hinton Road do not meet Nevada County Road Standards. Implementation of the proposed project would result in additional traffic at the intersection, which could aggravate an already hazardous condition.

As described in Section 3.3.10, the sight distance improvements at the Stampede Meadows Road and West Hinton Road intersection include an approximately 14,100 square foot area directly north of West Hinton Road and east of Stampede Meadows Road and an approximately 15,100 square foot area directly south of West Hinton Road and east of Stampede Meadows Road. These areas would be cleared of vegetation and large trees and graded to remove site obstructions.

The TIA (LSC 2017) includes an analysis of the proposed improvements at the intersection in regard to County sight distance standards. Table 4.5-7 presents the determined sight distance as a result of the proposed intersection improvements compared with the County desired site distance standards.

Table 4.5-7
PROPOSED DRIVER SITE DISTANCE AT STAMPEDE MEADOWS ROAD/WEST HINTON ROAD INTERSECTION

Description	Prevailing Speed (mph)	Desired Sight Distance (ft)	Proposed Site Distance (ft)	Is Requirement Met?
Stopping Site Distance				
For Northbound Drivers on Stampede Meadows Road	46	375	530	Yes
For Southbound Drivers on Stampede Meadows Road	48	405	505	No
Corner Site Distance				
For Trucks on West Hinton Road Looking North	48	815	815	Yes
For Passenger Cars on West Hinton Road Looking North	48	530	530	Yes

Table 4.5-7
PROPOSED DRIVER SITE DISTANCE AT STAMPEDE MEADOWS ROAD/WEST HINTON ROAD INTERSECTION
(cont.)

Description	Prevailing Speed (mph)	Desired Sight Distance (ft)	Proposed Site Distance (ft)	Is Requirement Met?
Corner Site Distance (cont.)				
For Trucks on West Hinton Road Looking South	46	780	700	No
For Passenger Cars on West Hinton Road Looking South	46	505	505	Yes

Source: LSC 2017

Note 1: Prevailing speed is the estimated 85th percentile based on speed survey conducted at a point on Stampede Meadows Road about 500 feet north of West Hinton Road.

Note 2: Desired stopping sight distance is based on the minimum distance requirement set forth in the Caltrans Highway Design Manual.

Note 3: Desired distance for passenger cars is based on an interpolation between the required distances at 45 and 50 mph, rounded up to the nearest 5 feet.

Note 4: Desired corner site distance for passenger cars is interpolated using Nevada County site distance requirements.

Note 5: Desired corner site distance for trucks is based on American Association of State Highway Transportation Officials' (AASHTO) standards pertaining to combination trucks.

Based on the results of the analysis, the proposed vegetation removal and grading at the intersection would meet the desired sight distance standards in all directions for trucks and passenger cars except for truck drivers looking south on Stampede Meadows road from West Hinton Road. The proposed improvements would provide approximately 700 feet of truck driver sight distance, which is approximately 80 feet shorter than the desired distance (refer to Table 4.5-7). Even with the proposed improvements, the sight distance would be limited by the vertical curvature of Stampede Meadows Road. While the desired distance would not be achieved, the County standards also provide minimum site distance standards which are equivalent to the stopping distance sight values. The minimum sight distance for trucks on West Hinton Road facing south on Stampede Meadows Road would be 375 feet (based on a travel speed on Stampede Meadows Road of 46 miles per hour). The 700 feet of sight distance provided by the proposed intersection improvements are considered adequate based on County standards. In addition, northbound traffic on Stampede Meadows Road traveling 46 miles per hour would have adequate stopping distance. Although the proposed off-site roadway improvements at the intersection would result in adequate driver sight distance conditions, the proposed project also includes the installation of warning signs along Stampede Meadows Road approximately 500 feet in advance of the West Hinton Road intersection which would inform drivers of the distance to the location where haul trucks enter the roadway, and they would supplement the existing "Truck Crossing" signs, which are currently provided along Stampede Meadows Road roughly 1,000 feet in advance of the intersection.

Based on the proposed schedule, the off-site roadway improvements would be completed prior to implementation of the proposed expansion at the quarry and would improve currently inadequate sight distance conditions at the intersection. While the proposed improvements would not result in conditions that would result in hazardous driver sight distance conditions, should the roadway intersection improvements not be implemented prior to the addition of vehicles from operation of the West Pit, the project would result in a potentially significant impact related to driver sight distance hazards. Mitigation measure TRANS-4 requires that the proposed off-site roadway improvements be

completed prior to the addition of vehicles along the haul route associated with the proposed mine expansion.

Bicyclist Safety

As previously mentioned, Stampede Meadows Road is a narrow, paved road which lacks designated bicycle lanes and shoulders. This roadway segment was identified through public feedback on the as an area used by bicyclists (refer to Section 3.3.11). Due to the existing conditions of the roadway through the off-site roadway improvement area, bicyclists traveling through the area are expected to ride in the vehicle travel lanes with minimal opportunity to pull over to allow vehicles to pass, which may result in a hazardous condition.

Existing collision data was reviewed to identify bicycle collision locations and the nature and type of collisions that have occurred along Stampede Meadows Road/Hirschdale Road in the study area (LSC 2017, Appendix J). Historical crash data along the segment of roadway within the off-site roadway improvement area was obtained from the CHP-Statewide Integrated Traffic Records System (SWITRS) for most recent 10-year period (from September 2007 through September 2017). A review of this data indicates only four collisions reported on Hirschdale Road and none reported on Stampede Meadows Road. Of the four reported crashes, only one resulted in an injury while the others caused property damage only. None of the crashes involved a bicyclist or a pedestrian, nor were any fatalities reported.

At maximum production, the proposed project is expected to generate a total of approximately 1,432 one-way vehicle trips over the course of a busy weekday, and 1,282 one-way trips on a busy Saturday. Up to approximately 150 one-way vehicle trips per hour (75 trips in each direction, or more than one vehicle per minute in each direction) could occur along Stampede Meadows Road in the off-site roadway improvement area. The increase in vehicles (most of which would be haul trucks) and the existing lack of shoulders for bicyclists to use would be expected to result in an increase in the potential for vehicular conflicts as vehicles may try to pass bicyclists in the travel lane by traveling in the lane for on-coming traffic. The increase in vehicles may also result in an increase in vehicle-bicycle conflicts associated with vehicles not allowing adequate space to safely pass bicyclists or bicyclists colliding with vehicles.

In addition, uneven pavement or materials tracked onto the roadway can result in a potentially hazardous condition for bicyclists as the uneven pavement or materials may cause bicyclists to fall, potentially resulting in personal injury, injury to other bicyclists, and/or conflicts with vehicles. West Hinton Road is an unpaved roadway with the pavement transition occurring at its intersection with Stampede Meadows Road. Under existing conditions, the transition results in uneven pavement which may affect bicyclists and the addition of vehicles under the proposed project may aggravate the potentially hazardous condition. Haul trucks and vehicles leaving the quarry would not be expected to track out materials to Stampede Meadows Road due to the distance between the quarry and the paved roadway surveys.

As described in Section 3.3.10, the proposed project includes improvements along Stampede Meadows Road and at the intersection with West Hinton Road to address potential bicycle safety hazards. The conceptual design for the roadway widening improvements is intended to widen the existing roadway from 20 to 24 feet to achieve a 32-foot-wide paved roadway with 1-foot-wide unpaved shoulders where feasible. Paved vehicle pull-out areas would be constructed at three locations, and “Share the Road” signs would be installed along the roadway segment.

As discussed in the TIA for the project (LSC 2017, Appendix J), the standard width for paved shoulders designed to accommodate bicycle travel is 4 feet, although the addition of a narrower shoulder can significantly improve riding conditions because it provides better separation between traffic and bicyclists. The proposed project does not include designated bicycle lanes, but the widened paved roadway surface and shoulders where feasible, and the addition of paved pull-outs would provide opportunities for greater maneuverability along the roadway segment and which would reduce the potential for conflicts between vehicles and bicyclists. As noted in the TIA for the project, the standard roadway and shoulder width to accommodate bicyclists would not be achieved along the entire length of the roadway segment, indicating that while conditions would be improved there would still be segments that would be unable to be improved. The proposed signage would alert drivers of the presence of bicyclists.

Based on the proposed schedule, the off-site roadway improvements would be completed prior to implementation of the proposed expansion at the quarry. Implementation of the off-site roadway improvements would improve the conditions for bicyclists over existing conditions; however, should the improvements not be implemented prior to the addition of vehicles from operation of the West Pit, the project would result in a potentially significant impact related to bicyclist safety. Mitigation measure TRANS-4 requires that the proposed off-site roadway improvements be completed prior to the addition of vehicles along the haul route associated with the proposed mine expansion.

The existing roadway improvements do not include elements to address the issue of the uneven roadway surface where West Hinton Road meets Stampede Meadows Road to enhance the safety for bicyclists using Stampede Meadows Road. The addition of vehicles at this intersection would aggravate the existing hazardous condition, and the project would result in potentially significant impacts. Mitigation measure TRANS-5 requires that a smooth pavement transition be provided where West Hinton Road meets Stampede Meadows Road.

4.5.6 Level of Significance Before Mitigation

Based on the above analysis, implementation of the proposed project would result in potentially significant project-specific impacts related to: (1) traffic impacts during construction of the off-site roadway improvements; (2) roadway integrity; and (3) roadway hazards associated with sight distance and bicyclist safety. Potential project-specific impacts related to level of service and County standards would be less than significant.

4.5.7 Mitigation Measures

TRANS - 1 Prior to the County issuing an encroachment permit for the off-site roadway improvements, the Contractor shall prepare and submit to the County for approval a traffic control plan consistent with County requirements regarding traffic control during construction of the off-site roadway improvements. In all instances, traffic flow through the off-site roadway improvement area shall be maintained for the duration of construction.

TRANS – 2 The applicant shall maintain the Road Use Permit with the USFS for use of West Hinton Road through USFS lands for the duration of operation of the quarry. The applicant shall submit documentation to the County prior to operation of the West Pit and annually thereafter (or for another duration, based on the duration of the issued Road Use Permit) which demonstrates the permit is valid.

- TRANS - 3** The authorized haul route for operation of the quarry is along Stampede Meadows Road and West Hinton Road between the I-80/Hirschdale Road interchange and the quarry. The applicant shall not alter the haul route without prior authorization from the County. No haul trucks shall be permitted to enter or leave the quarry from the southern entrance of the project site, through the Community of Hirschdale. To prevent haul truck traffic from inadvertently attempting to use the southern entrance or otherwise traveling into residential communities south of I-80, temporary signs shall be installed at the I-80/Hirschdale Road interchange off-ramp which shall depict the authorized haul route to the quarry. The applicant shall maintain the signs for the duration of operation of the mine.
- TRANS – 4** Prior to issuance of an encroachment permit for the off-site roadway improvements, the proposed signage, roadway widening, and sight distance improvements shall be reviewed and approved by the Nevada County Department of Public Works. As a condition of approval, the applicant shall be required to construct the proposed off-site roadway improvements along Stampede Meadows Road between the I-80/Hirschdale Road interchange and West Hinton Road prior to implementation of operations in the West Pit. The off-site roadway improvements including the intersection improvements at Stampede Meadows Road and West Hinton Road, and the proposed roadway widening shall be complete and operational prior to the addition of traffic associated with operations in the West Pit. The applicant shall not implement operations in the West Pit prior to receiving County approval that the off-site roadway improvements are complete.
- TRANS – 5** The final design for the roadway widening along Stampede Meadows Road shall include a smooth pavement transition where West Hinton Road meets Stampede Meadows Road. The transition shall be achieved by paving the approach to the paved road (Stampede Meadows Road) from the unpaved Road (West Hinton Road). The distance of the paved approach and the transition at the intersection shall be designed in accordance with County standards. The design shall be incorporated into the roadway widening plans and shall be reviewed and approved by the Nevada County Department of Public Works prior to issuance of an encroachment permit.

4.5.8 Significant Unavoidable Adverse Impacts

Implementation of mitigation measure TRANS-1 would reduce the potentially significant impacts on traffic during construction of the off-site roadway improvement area to below a level of significance. Mitigation measures TRANS-2 and TRANS-3 would reduce the potentially significant impacts related to roadway integrity to below a level of significance. Implementation of mitigation measure TRANS-4 would reduce the potentially significant impacts related to sight distance to below a level of significance; however, while implementation of TRANS-4 and TRANS-5 would also reduce the severity of the project-related impacts related to bicyclist safety, the widened roadway and shoulder improvements would be limited to where those improvements may be feasibly installed based on final project design. Due to existing constraints along the roadway, the roadway segment would not be able to be widened to achieve the full width considered the standard for accommodating bicyclists along its entire length. Impacts to bicycle safety would remain potentially significant and unavoidable.

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4.6 NOISE

This section analyzes potential noise and vibration impacts associated with the proposed project. The project area for this analysis consists of the project site, off-site improvement area, and the haul route. A noise technical report dated April 6, 2018 was prepared for the proposed project by Bollard Acoustical Consultants, Inc. (BAC 2018). The results of the study are summarized in this section, and the report is contained in Appendix K of this EIR.

Comments were received during and following the public review period of the 2012 Draft EIR regarding this topic from the following agencies and individuals: Taylor & Wiley Attorneys of Counsel on behalf of the project applicant (11/6/2012), the Hirschdale Community (10/29/2012 and 2/21/2013), The Hirschdale Community (2/21/2013), Law Office of Donald B. Mooney on behalf of Mr. McGinity (2/20/2013) and on behalf of the Buckhorn Ridge Homeowners Association (3/8/2013). Refer to Appendix A for the comments received and responses to those comments.

4.6.1 Existing Conditions

Project Area Noise Sources

The existing ambient noise environment in the project vicinity is defined by several different sources, including I-80 traffic, local traffic on Stampede Meadows Road, UPRR operations, recreational activities at the Boca Reservoir (boating and off-highway vehicle usage), small aircraft overflights associated with the Truckee airport, military and commercial aircraft overflights, and natural sounds (wind in trees). As shown in Figure 4.6-1 the proposed processing plant would be at a higher elevation than the surrounding area, with some topographic variation between the project site and Hirschdale Road. In addition, the East Pit in the project site is a currently permitted mining operation.

Noise Receptors

Potentially affected noise-sensitive land uses identified in the general project vicinity include recreational users of the Boca Reservoir (i.e., boaters, fishermen, campers, cyclists, etc.), the Boca Reservoir's caretaker residence located on Stampede Meadows Road just south of the dam, an RV park on the south side of the I-80/Hirschdale Road interchange, existing residences on the south side of I-80 in the Town of Truckee, undeveloped privately owned properties near the project site and haul route (identified as potential future noise-sensitive receptors).

Representative receptors at 14 locations were selected for analysis. The locations of the receptors were selected to best represent noise sensitive land uses in the area. Multiple noise-sensitive land uses (i.e., residences) were represented by a shared receptor when they would have a similar exposure to noise generated at the project site, off-site roadway improvement area, and the haul route based on distance, topography, and/or adjacent ambient noise sources.

The locations of the individual receptors are described below, and are depicted on Figure 4.6-2:

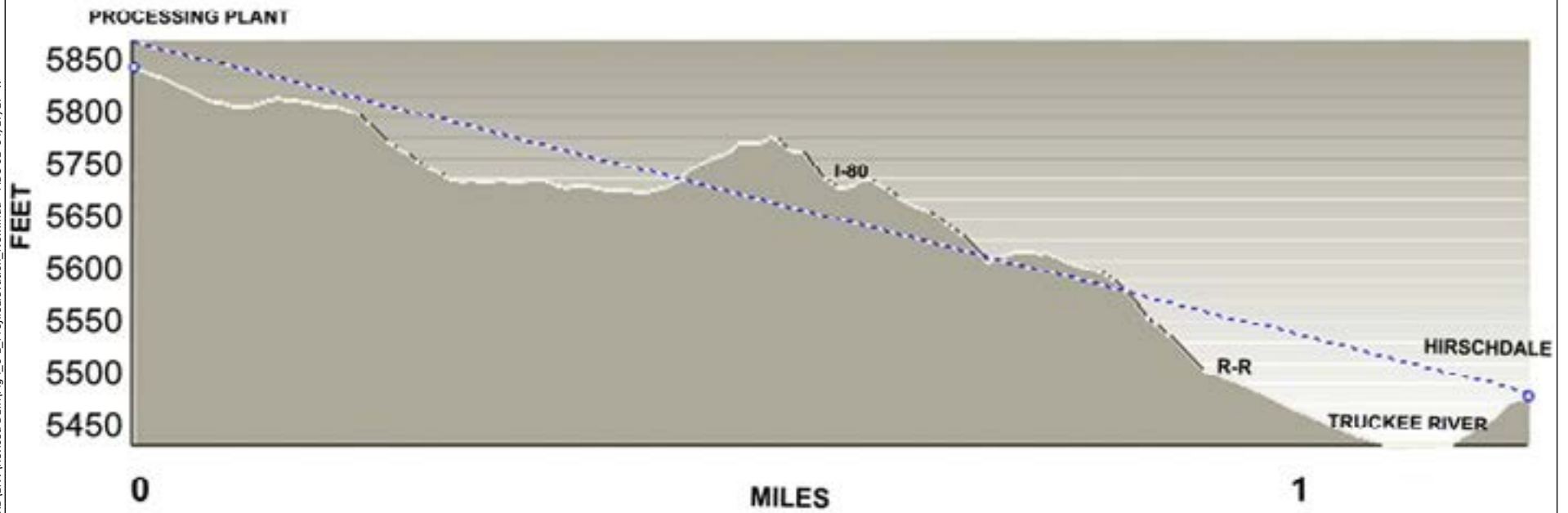
- Receptor 1 – Recreational receptor representing campgrounds near Boca Reservoir, along Stampede Meadows Road

- Receptor 2 – Recreational receptor representing recreationists near boat launch at Boca Reservoir
- Receptor 3 – Recreational receptor representing recreational users (boaters) at Boca Reservoir
- Receptor 4 – Residential receptor representing Boca Reservoir caretaker dwelling west of Stampede Meadows Road
- Receptor 5 – Recreational receptor representing the Truckee River RV Park south of the I-80/Hirschdale Road interchange
- Receptors 6 and 8 – Residential receptors representing residences in the Buckhorn Ridge Subdivision in eastern Truckee
- Receptor 7 – Receptor representing residences and the Tahoe Forest Church along Hirschdale Road, south of I-80
- Receptor 9 – Residential receptor representing the Community of Hirschdale
- Receptor 10 – Residential receptor representing residences in the Glenshire Drive and Dorchester Way area in eastern Truckee
- Receptor 11 – Receptor representing the McGinity Property (this site is currently undeveloped but has been analyzed in response to a letter received by D.B. Mooney on February 21, 2013 on behalf of Mr. McGinity)
- Receptors 12 through 14 – Receptors representing currently undeveloped properties near the project site and/or haul route

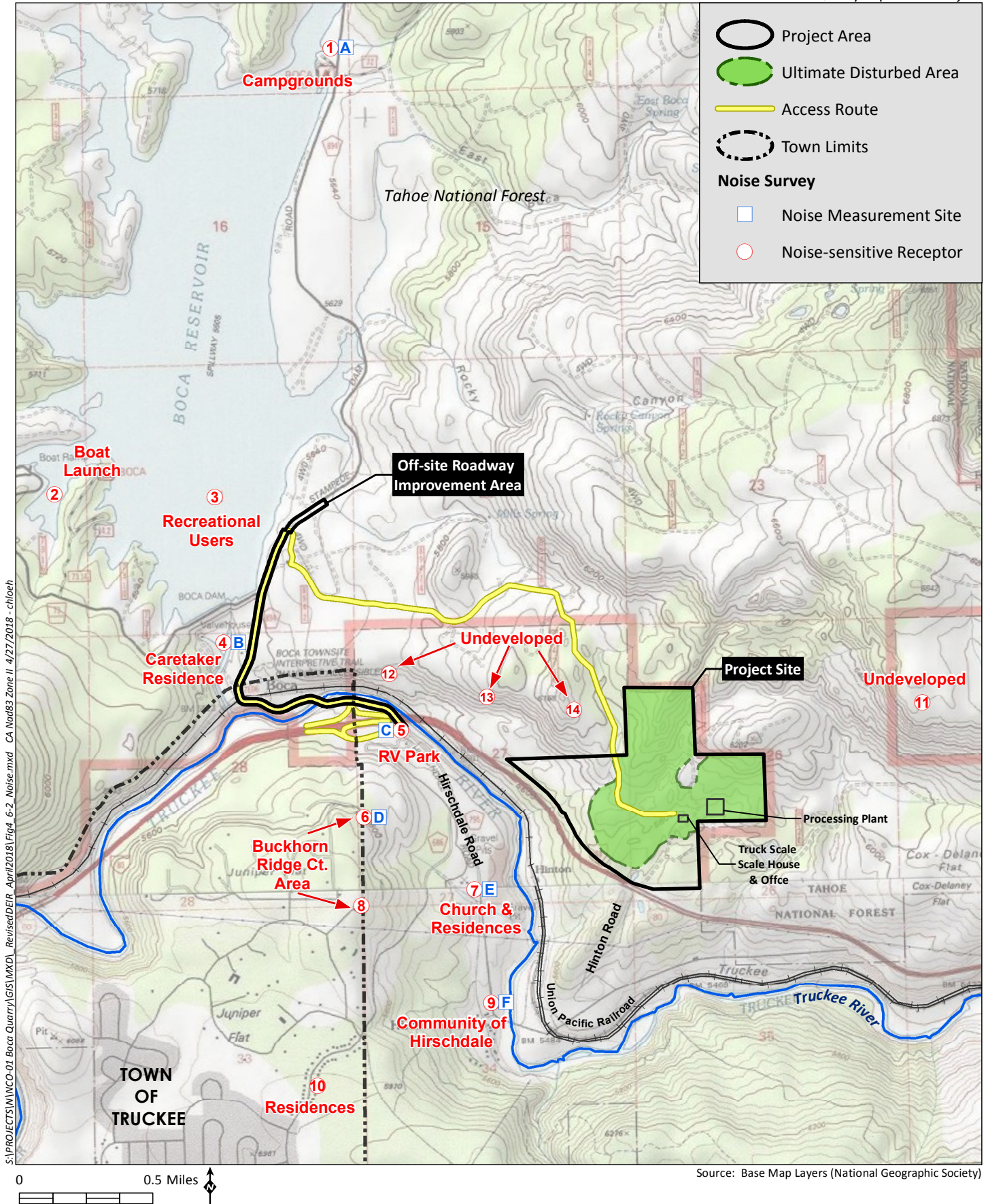
While Receptors 11 through 14 are currently undeveloped, there is the potential for them to be developed with noise sensitive land uses during the life of the project. Receptors 11 through 13 are zoned FR with a 160-acre minimum lot size (FR-160) under the Nevada County Zoning Code. Although the FR zoning designation is not intended for residential uses, the Code allows for one residential dwelling per unit parcel. Receptors 12 and 13 are located on parcels that are substantially smaller than the 160-acre minimum lot size, but the Code allows a dwelling unit to be constructed if other site development standards can be met (Land Use and Development Code Chapter II, Section L-11 4.1.4.C). Similarly, the property represented by Receptor 14 is zoned Timber Production Zone with a 160-acre minimum lot size (TPZ-160) which also allows dwelling units. This property is owned by a subsidiary of the project applicant and is not anticipated to be developed with a residential use during the life of the project but this property has been analyzed consistent with County requirements.¹

¹ Note that the noise technical report prepared for the project (BAC 2018) does not include an analysis of Receptor 14, but the analysis has been incorporated directly into this EIR based on a requirement in the Environmental Assessment form for the Mining Use Permit Application that requires that noise levels be determined at the property line for each phase.

S:\PROJECTS\INCO-01 Boca Quarry\GIS\MXD\ENV\Revised DEIR\Fig4_6-1_ProfileElevation_New.indd ABC-01 04/17/17 -11



Source: Bollard Acoustical Consultants



Existing Ambient Noise Monitoring

To determine the existing ambient noise environment at the receptors, continuous noise level measurements were conducted at six locations which were representative of ambient noise conditions at 10 of the 14 receptors. In addition, short-term noise monitoring was conducted at a site adjacent to the Boca Reservoir to determine heavy truck pass-by single-event noise levels. Refer to Figure 4.6-2 for the locations of the noise monitoring sites.

Monitoring Site A, which was located at the Boca Reservoir campground area (Receptor 1), was considered to be representative of ambient conditions at the Boca Reservoir boat launch area (Receptor 2) as well as boaters on the Reservoir (Receptor 3), as all three areas are fairly remote relative to both I-80 and UPRR noise sources, and all three sites are related to the recreational usage of the lake.

Monitoring Site B corresponds to Receptors 3 and 4 due to their close proximity to the proposed haul route.

Monitoring Sites C, and D, correspond only to Receptors 5, and 6, respectively. Those monitoring sites represent only one receptor each.

Monitoring Site E is representative of Receptors 7 and 8, and Monitoring Site F is representative of Receptors 9 and 10. These assumptions were based on field observations of exposure to both distant and local noise sources, and general proximity of the receptors to each other.

No monitoring was conducted in the general vicinity of Receptors 11 through 14. Ambient noise levels collected at other locations were generally used to estimate ambient conditions at these locations. Refer to Appendix K for additional details on monitoring sites and methodology.

The ambient measurements were conducted during a continuous 48-hour period from May 14 to May 15, 2013 and then updated in September 20 to 22, 2017.² Because nighttime operations would occur at the project site when local or regional construction projects require the delivery of aggregate materials during nighttime hours, the monitoring program included two complete daytime and nighttime periods. The currently permitted operations in the East Pit have been idle since 2008; therefore, the mine was not in operation at the time of the noise monitoring in 2013 or in 2017.

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ} , with a specified duration. The Day Night sound level (L_{DN}) is a 24-hour average with an added 10 dBA weighting on the same nighttime hours but no added weighting on the evening hours. L_{MAX} is the maximum level of a noise source, and L_{MIN} is the minimum level of a noise source. These metrics are used to express noise levels for both measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

The results of the ambient noise survey are shown in Table 4.6-1.

² Note that the noise technical report prepared for the project (BAC 2018) presents monitoring data previously conducted in 2013 but that was updated in 2017. The findings and analysis are based on the 2017 conditions, so the 2013 monitoring results are not included here.

**Table 4.6-1
AMBIENT NOISE MEASUREMENT RESULTS SUMMARY**

Site	Date	Daytime (7 am – 7 pm)		Evening (7 pm – 10 pm)		Nighttime (10 pm – 7 am)		CNEL
		Average (<i>L</i> _{EQ})	Maximum (<i>L</i> _{MAX})	Average (<i>L</i> _{EQ})	Maximum (<i>L</i> _{MAX})	Average (<i>L</i> _{EQ})	Maximum (<i>L</i> _{MAX})	
A	2013	53	76	49	74	47	61	55
	2017	58	81	46	68	42	60	57
B	2013	58	79	57	73	57	74	64
	2017	60	72	57	68	56	67	63
C	2013	58	71	57	69	55	68	62
	2017	61	77	59	74	58	75	65
D	2013	54	62	54	62	51	63	58
	2017	63	73	61	72	59	69	67
E	2013	49	65	48	62	48	59	54
	2017	51	66	50	63	48	62	55
F	2013	51	73	45	65	52	66	58
	2017	50	70	52	70	47	61	56

Source: BAC 2018

Notes:

1. Measurements were 48-hour continuous readings taken in 2013 on May 14 and 16, and in 2017 from September 20 to September 22.
2. The Average and Maximum measurements presented for each year are the mean of the measurements taken at the monitoring site for that year.
3. The lowest mean value of the measurements taken for the two years is indicated in bold font.

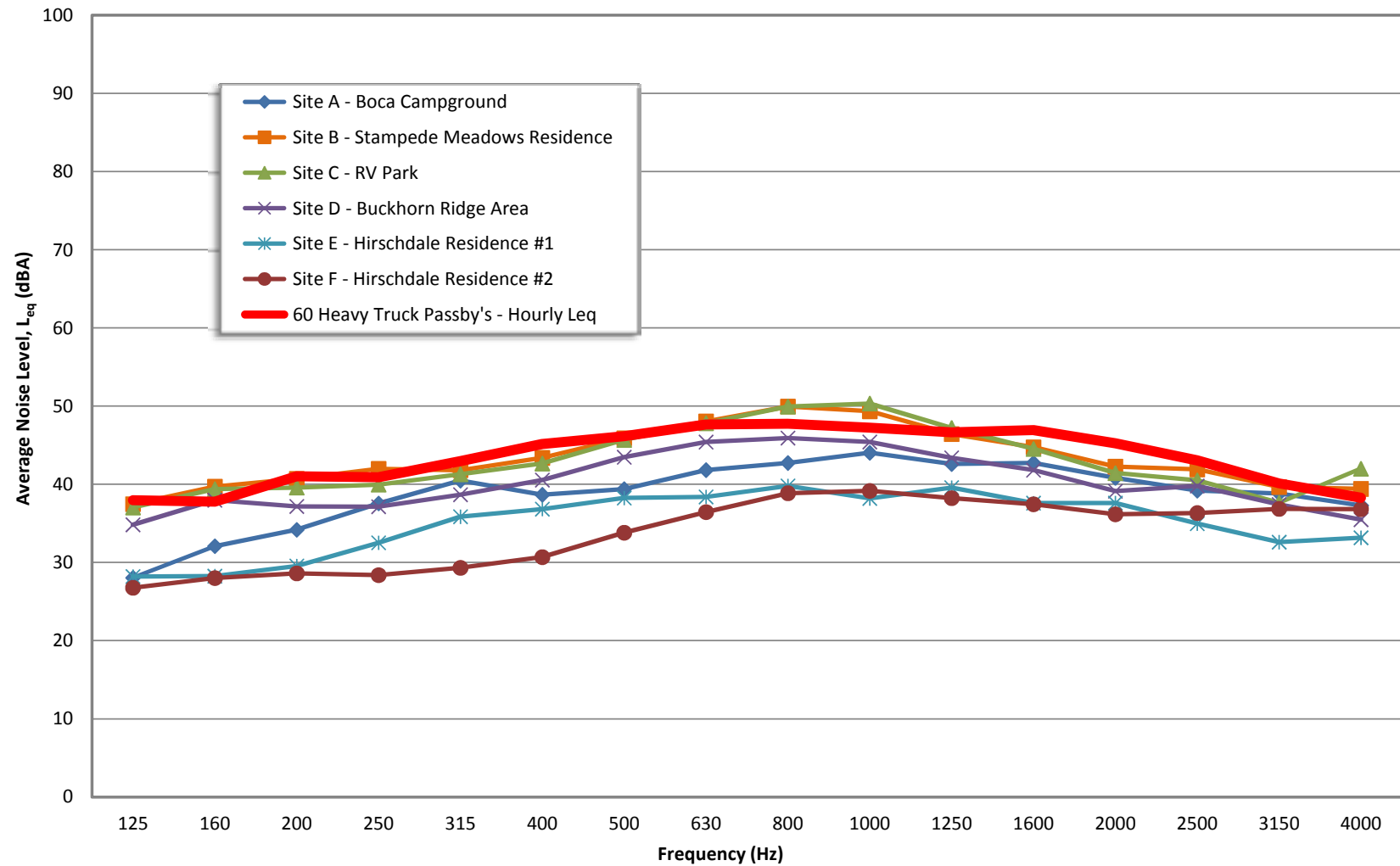
In addition to the continuous ambient noise monitoring program described above, short-term frequency spectra noise monitoring lasting approximately 20 minutes was conducted near each of the ambient noise measurement locations. The measurements were conducted during mid-day periods of May 14 and May 16, 2013 and were not updated in 2017.

The results of the short-term pass-by surveys were normalized with the average daytime noise levels for the long-term noise monitoring sites and plotted on Figure 4.6-3. This figure illustrates that the shape of the ambient curves mirrors the spectral shape of the measured heavy truck passbys. This result is expected as the published heavy truck percentage for I-80 is 13.9 percent (Caltrans 2015 Count Data). With 27,000 annual average daily vehicles, 13.9 percent heavy trucks equates to 3,753 daily heavy trucks passing the area at highway speeds.

Existing Traffic Noise Environment

The existing general ambient noise environment in the project vicinity is substantially affected by existing traffic on I-80, and to a lesser extent by local traffic on Hirschdale Road, Glenshire Road, and Stampede Meadows Road. According to published Caltrans traffic counts, the segment of I-80 located adjacent to the project area currently carries approximately 27,000 annual average daily trips (AADT). Of those trips, 13.9 percent are reported as being heavy (three axles or more) trucks, and 4.7 percent are medium-duty trucks (two axles).

The traffic noise environment along the roadways between the project site and I-80 which would be utilized by project heavy truck traffic (Stampede Meadows and a portion of Hirschdale Road) is more



Source: Bollard Acoustical Consultants

significantly affected by I-80 traffic noise than local traffic. In addition, at many locations in the immediate project vicinity, local topography significantly affects the propagation of traffic noise from both local roadways and I-80, potentially rendering the results of traffic modeling exercises unreliable. As a result, the previously described ambient noise measurement data collected at the nearest potentially affected sensitive receptors, which includes traffic noise, is considered to be a more reliable indicator of overall ambient noise conditions than the results of traffic modeling efforts.

Existing Vibration Environment

No appreciable off-site sources of vibration were identified during field surveys of the area and existing ambient vibration levels were subjectively evaluated as being below the threshold of perception. Nonetheless, to quantify baseline vibration levels at the nearest representative sensitive receptors to the project site and project haul route, vibration measurements were conducted during September 2017.

The vibration measurements were conducted using a Larson-Davis Laboratories Model HVM-100 Vibration Analyzer with a PCB Electronics Model 353B51 ICP Vibration Transducer. The test system is a Type I instrument designed for use in assessing vibration as perceived by humans and meets the full requirements of ISO 8041:1990(E). Atmospheric conditions present during the tests were within the operating parameters of the instrument. The measured ambient vibration levels are presented in Table 4.6-2.

Table 4.6-2
MEASURED AMBIENT VIBRATION LEVELS

Site	Vdb, rms
A	46
B	48
C	48
D	44
E	47
F	48

Source: BAC 2018

Note: Measurements occurred in September 2017.

4.6.2 Regulatory Setting

The project site is located in an unincorporated area of Nevada County. Noise standards for Nevada County as well as the Town of Truckee, along with the State CEQA Guidelines, were considered in the noise assessment.

Nevada County General Plan

The Noise Element of the Nevada County General Plan (Chapter 9; 1995) contains goals, objectives and policies pertaining to noise.

Acceptable noise exposure limits are subdivided by type of land use and in terms of day (7 a.m. to 7 p.m.), evening (7 p.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) averages and maximum noise

levels. The exterior noise limits for various land use categories in the Nevada County Noise Element are listed in Table 4.6-3. A more detailed consideration of General Plan policies applicable to noise and vibration is described in the Environmental Noise & Vibration Analysis attached as Appendix K.

**Table 4.6-3
EXTERIOR NOISE LIMITS – NEVADA COUNTY NOISE ELEMENT**

Land Use Category	Zoning Districts	Time Period	Noise Level Limits (dBA)	
			LEQ	L _{MAX}
Rural	A1, TPZ, AE, OS, FR, IDR	7:00 a.m. to 7:00 p.m.	55	75
		7:00 p.m. to 10:00 p.m.	50	65
		10:00 p.m. to 7:00 a.m.	40	55
Residential and Public	RA, R2, R1, R3, P	7:00 a.m. to 7:00 p.m.	55	75
		7:00 p.m. to 10:00 p.m.	50	65
		10:00 p.m. to 7:00 a.m.	45	60
Commercial and Recreation	C1, CH, CS, C2, C3, OP, REC	7:00 a.m. to 7:00 p.m.	70	90
		7:00 p.m. to 7:00 a.m.	65	75
Business Park	BP	7:00 a.m. to 7:00 p.m.	65	85
		7:00 p.m. to 7:00 a.m.	60	70
Industrial	M1, M2	Anytime	80	90

Source: Nevada County 1995

Policy 9.1.2, item c, of the Noise Element states that the above standards shall be measured only on a property containing a noise sensitive land use as defined in Policy 9.8 and may be measured anywhere on the property containing said land use. However, this measurement standard may be amended to provide for measurement at the boundary of a recorded noise easement or as determined in a recorded letter of agreement between all property owners and approved by the County.

The Environmental Assessment form for the County's Mining Use Permit Application requires that noise levels be determined at the property line. Noise levels are required to be analyzed for mobile on-site equipment and haul trucks along the major haul route. The ultimate disturbed area of the project site extends to the property line. Development on the adjacent undeveloped parcel (Receptor 14) would not be feasible due to the existing topography; therefore, Receptor 14 represents the location of the parcel that may be feasibly developed.

Nevada County General Plan Volume 2, Section 3 - Noise Analysis Appendix A

Appendix A of the Nevada County General Plan Volume 2, Section 3, contains noise prediction methodologies which are approved for use in acoustical analyses submitted to Nevada County. Other methodologies may be used if approved by the Nevada County Planning Department after review of supporting technical justification. The requirements for an acoustical analysis have all been met by the noise and vibration assessment attached as Appendix K.

Nevada County Land Use and Development Code

Section L-II 4.1.7 of the Nevada County Land Use and Development Code (Noise Ordinance) pertains to noise. The standards contained in the Noise Ordinance are sufficiently similar to those in the Noise Element in the Nevada County General Plan so that compliance with the standards in Table 4.6-3 would also ensure compliance with the Noise Ordinance.

Adjustments to Nevada County Noise Standards

Various adjustments to the County's noise standards contained in Policy 9.1.2 are applicable in the case that certain conditions are satisfied. The adjustments are described in Footnotes A, D, and E to Table 5 in the policy and are described below. Refer to Appendix K for more detail on how the Nevada County exterior noise limits are adjusted to ambient conditions.

Footnote A provides the methodology by which ambient conditions are established. Specifically, compliance with the Table 5 standards shall be determined by measuring the noise level based on the **mean average** (emphasis added) of not less than three (3) 20-minute measurements for any given time period. Additional noise measurements may be necessary to ensure that the ambient noise level is adequately determined.

Footnote D of Table 5 states that if the measured ambient level exceeds that permitted in Table 5, then the allowable noise exposure standard shall be set at 5 dBA above the ambient. A discussion of the applicability of the Footnote D provisions follows the Footnote E discussion.

Footnote E states that the County reserves the right to provide for a more restrictive standard under certain conditions. However, the standard cannot be set below current ambient noise levels. Imposition of a noise level adjustment is only considered if one or more of the following conditions are found to exist:

- *The noise source contains a very high or low frequency, is of a pure tone (a steady, audible tone such as a whine, screech, or hum), or contains a wide divergence in frequency spectra between the noise source and ambient level.*

With the exception of warning devices on mobile equipment (back-up beepers), the project does not propose any sources of noise which contain pure tones. Additional support for this assertion in the form of frequency spectra for both heavy truck traffic and on-site crushing/screening operations is provided later in this report. As a result, the noise standard applicable to emergency warning devices would be set equal to the measured ambient noise level.

- *The noise is impulsive in nature (such as hammering, riveting, or explosions), or contains music or speech.*

With the exception of periodic blasting activities, the project does not propose any sources of noise which would be considered impulsive. In addition, no sources of noise containing speech or music are proposed. As a result, the appropriate noise standard for blasting would be the measured ambient condition.

- *The noise source is of a long duration.*

On busy days, the noise generation of proposed excavation and materials processing operations would be fairly constant. As a result, those project noise sources are assumed to be of long duration and subject to the provision stating the noise standard applied to these sources shall be set to current ambient noise levels. Because material load-out is intermittent (i.e., not of continuous or long duration), load-out operations and heavy truck traffic noise generated by the project would not be subject to this provision.

- *Unique characteristics of the noise receptor when the ambient noise level is determined to be 5 dBA or more below the Policy 9.1 standard for those projects requiring a General Plan amendment, rezoning, and/or conditional use permit. In such instances, the new standard shall not exceed 10 dBA above the ambient or the Policy 9.1 standard, whichever is more restrictive.*

The relationship of measured ambient noise levels to the Table 5 standards is described in greater detail below. However, with the exception of Receptor 5 (RV Park), which is subject to the higher noise level standards applicable to the Commercial and Recreation noise standards, in no case were measured ambient noise levels more than 10 dB below the Table 5 noise standards. As a result, with the exception of Receptor 5, no *downward* offset to the Table 5 standards was warranted based on measured ambient conditions. As noted previously, to define ambient conditions for this study continuous noise monitoring was performed for 48-hour periods at six (6) locations with the results presented in Table 4.6-1. The duration of the noise monitoring program considerably exceeds the requirement of Footnote A (minimum of three 20-minute samples). The results in Table 4.6-1 data indicate that existing ambient noise levels exceeded the Table 5 noise standards in most categories at most locations. Pursuant to Footnote D of Table 5, County noise standards are to be adjusted upward to 5 dB *above* ambient conditions to account for the elevated ambient noise environment in the project vicinity. As described previously, some of the noise sources associated with the project would be subject to more restrictive noise standards due to the source being impulsive in nature (blasting), tonal (back-up beepers), of long duration (excavation and processing operations), or ambient conditions being 10 dB or more below the applicable noise standard (RV Park). Conversely, the measured ambient noise conditions exceeded the applicable noise standards at monitoring sites representing 9 of the 14 sensitive receptors evaluated in this study. Therefore, County policy dictates that the County's noise standards be adjusted upward to a point 5 dB above the measured ambient conditions at those locations.

At Receptor 11, where ambient noise monitoring could not be conducted, the County noise standards are applied as provided in Table 5 with no upward adjustment for elevated ambient noise levels as allowed under Footnote D of that table. To reconcile these adjustments at all receptors except 11, this assessment of project noise impacts conservatively establishes the lower of the measured 2013 and 2017 ambient noise conditions as the project threshold of significance for on-site processing, excavation (including blasting), and material load-out. For the heavy truck traffic noise impact evaluation, which is not subject to the Footnote E provisions, the project threshold of significance is set at the ambient plus 5 dB level required under Footnote D.

Town of Truckee Municipal Code Noise Ordinance

Although the project is not located within the Town of Truckee, potential receptors of noise attributed to construction and operation of the quarry are within the town limits. The Town of Truckee Municipal Code establishes exterior noise standards for when measured at any receiving church, hospital, public library, school, commercial, or residential property. These standards are listed in Table 4.6-4.

**Table 4.6-4
TOWN OF TRUCKEE EXTERIOR NOISE STANDARDS**

Noise Level Standards (dBA)		
Cumulative Number of Minutes in Any Hour	Day – 7:00 a.m. to 10:00 p.m.	Night – 10:00 p.m. to 7:00 a.m.
Hospital, Library, Religious Institution, Residential, or School Uses		
30 ¹	55	50
15	60	55
5	65	60
1	70	65
0	75	70
Commercial Uses		
30	65	60
15	70	65
5	75	70
1	80	75
0	85	80

¹ For example, this means the measured noise level may not exceed 55 dBA for more than 30 minutes out of any one-hour time period.

Construction noise is restricted to the hours between 7 a.m. and 9 p.m. Monday through Saturday, and between 9 a.m. and 6 p.m. on Sunday.

Other Jurisdictions

The Nevada County Noise Element contains reasonable numeric standards for the assessment of noise impacts, and the Noise Ordinance standards are consistent with the Nevada County Noise Element. Because the County's noise standards have been developed specifically for the County, and because those standards provide thresholds in terms of hourly average, and single-event maximum noise levels, they are also comprehensive. As a result, the use of standards developed for other jurisdictions in lieu of the adopted Nevada County noise standards is unnecessary.

The noise technical report (BAC 2018; Appendix K) provides the detail concerning various areas where consideration of noise standards beyond those adopted by the County is warranted. The areas covered in the noise technical report include project-related noise level increases, sleep disturbance, vibration impact assessment, effects of distance on sound propagation, effects of distance on sound propagation, atmospheric (molecular) absorption and anomalous excess attenuation, effects of barriers and ground cover, effects of wind gradients on sound propagation, and effects of temperature inversions on sound propagation.

4.6.3 Significance Thresholds

According to the State CEQA Guidelines, a project may have significant effect on the environment if it will satisfy the following conditions:

1. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

2. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

In accordance with regulations set forth by the County, a significant noise impact would occur if the proposed project's excavation, crushing and screening, traffic, and blasting noise levels would:

- Exceed 55/50/40 dBA L_{EQ} at nearby rural, residential, and public land uses during the day/evening/night hours;
- Exceed 75/65/55 dBA L_{MAX} at nearby rural, residential, and public land uses during the day/evening/night hours;
- Exceed 70/65 dBA L_{EQ} at nearby commercial and recreational land uses during the day/night hours;
- Exceed 90/75 dBA L_{MAX} at nearby commercial and recreational uses during the day/night hours;
- Exceed 65/60 dBA L_{EQ} at nearby business parks during the day/night hours;
- Exceed 85/70 dBA L_{MAX} at nearby business parks during the day/night hours;
- Exceed 80 dBA L_{EQ} at nearby industrial land uses during the day/night hours; and
- Exceed 90 dBA L_{MAX} at nearby industrial land uses during the day/night hours.

Adjustments to the County standards are to be applied in certain conditions. The Environmental Noise and Vibration Assessment (BAC 2018) calculated standards applicable for various nearby noise-sensitive land uses based on these adjustments. The adjusted standards applicable to nearby Receptors are shown in Table 4.6-5. Refer to Appendix K for full criteria and analysis for these adjustments.

**Table 4.6-5
NEVADA COUNTY EXTERIOR NOISE LIMITS ADJUSTED TO AMBIENT CONDITIONS**

Receptor	Category	Adjusted Standards	
		dBA L _{EQ} (Day/Evening/Night)	dBA L _{MAX} (Day/Evening/Night)
1	Rural	53/46/42	76/68/60
2	Rural	53/46/42	76/68/60
3	Rural	58/57/56	72/68/67
4	Rural	58/57/56	72/68/67
5	Recreation	58/57/55	71/69/68
6	Rural	54/54/51	62/62/63
7	Rural	49/48/48	65/62/59
8	Rural	49/48/48	65/62/59
9	Rural	50/45/47	70/65/61
10	Rural	50/45/47	70/65/61
11	Rural	50/45/35	70/60/50
12	Rural	55/50/50	75/65/60
13	Rural	55/50/50	75/65/60
14 ¹	Rural	55/50/50	75/65/60

Source: BAC 2018

Note: The noise technical report prepared for the project (BAC 2018) does not include the adjusted standard for Receptor 14 but it has been included here in based on a requirement in the Environmental Assessment form for the Mining Use Permit Application that requires that noise levels be determined at the property line for each phase.

Additionally, the Town of Truckee places restrictions for noise received at nearby hospital, library, religious institution, residential, or school uses. These standards are superseded by the County of Nevada due to the project's location outside the Town of Truckee, and because the County limits would be similarly stringent. The following standards are included for informational purposes:

- Exceed 55/50 dBA for 30 minutes out of a given hour during the day/night hours;
- Exceed 60/55 dBA for 15 minutes out of a given hour during the day/night hours;
- Exceed 65/60 dBA for five minutes out of a given hour during the day/night hours;
- Exceed 70/65 dBA for one minute out of a given hour during the day/night hours;
- Exceed 75/70 dBA at any time during the day/night hours.

4.6.4 Impact Analysis

Significance Thresholds 1, 2, and 3 – Exposure to Excessive Noise and Vibration, Increase in Ambient Noise

The proposed project could affect the ambient noise environment by the expansion of mining operations on the project site to an area west of the currently permitted East Pit, a longer mining timeframe, processing and material load-out/backfill import hours, and materials hauling. The proposed roadway improvements would potentially create temporary noise impacts during construction.

Although noise technical report prepared for the project (BAC 2018) did not include an analysis of Receptor 14, the noise levels for each of the noise sources were calculated using the methods presented in the notes for Table 4.6-6, Table 4.6-7, and Table 4.6-8. All potentially affected properties, including adjacent, currently undeveloped properties were evaluated for potential noise impacts consistent with County requirements.

Crushing and Screening Facility Noise Generation

Based on data from a similar assortment of processing equipment³, the noise assessment determined that the proposed project would likely generate average noise levels of 90 dBA at a distance of 50 feet, and maximum noise levels of 100 dBA at a distance of 50 feet. Table 4.6-6 presents the predicted noise generation of the crushing and screening plant equipment at the nearest receptors. As previously mentioned, Receptors 11 through 14 do not contain residences or other noise sensitive land uses but are included due to concerns regarding the potential for the properties to develop noise-sensitive land uses during operation of the quarry.

Table 4.6-6
CRUSHING AND SCREENING FACILITY NOISE LEVELS AT THE RECEPTORS

Receptor	Distance (ft)	County Standard dBA L _{EQ} (Day/Evening/Night)	Predicted L _{EQ} , dBA	County Standard dBA L _{MAX} (Day/Evening/Night)	Predicted L _{MAX} , dBA
1	16,000	53/46/42	16	76/68/60	26
2	15,000	53/46/42	18	76/68/60	28
3	10,500	58/57/56	28	72/68/67	38
4	10,000	58/57/56	29	72/68/67	39
5	6,800	58/57/55	37	71/69/68	47
6	7,000	54/54/51	37	63/62/55	47
7	3,800	49/48/48	47	65/62/59	57
8	7,500	49/48/48	35	65/62/59	45
9	5,000	50/45/47	43	70/65/61	53
10	10,000	50/45/47	29	70/65/61	39
11	4,000	50/45/35	46 evening and nighttime	70/60/50	56 nighttime
12	6,000	55/50/50	39	75/65/60	54
13	4,600	55/50/50	44	75/65/60	49
14	2,500	55/50/50	52 evening and nighttime	75/65/60	62 nighttime

³ The equipment of a similar processing plant includes crushers, screen decks, conveyors and material load-out. The facility utilized steel screens and was processing dry material.

Table 4.6-6
CRUSHING AND SCREENING FACILITY NOISE LEVELS AT THE RECEPTORS (cont.)

Receptor	Distance (ft)	County Standard dBA L _{EQ} (Day/Evening/Night)	Predicted L _{EQ} , dBA	County Standard dBA L _{MAX} (Day/Evening/Night)	Predicted L _{MAX} , dBA
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Source: BAC 2018

Notes:

- Figure 4.6-2 shows locations of the nearest potentially affected receptors.
- Distances shown are measured in feet from the nearest receptors to the processing area (refer to Figure 4.6-2).
- Noise level predictions are based on the reported reference levels (90 dBA L_{EQ}) and 100 dBA L_{MAX} at 50 feet) with a 6 dBA attenuation rate per each doubling of distance and a 1.5 dBA offset per 1,000 feet for atmospheric and excess ground attenuation. The predicted noise levels do not include shielding of processing area equipment by intervening topography, which provides further attenuation at some receptor locations.
- The noise technical report prepared for the project (BAC 2018) does not include the adjusted standard for Receptor 14 but it has been included here in based on a requirement in the Environmental Assessment form for the Mining Use Permit Application that requires that noise levels be determined at the property line for each phase.
- Bold** font indicates a dBA that exceeds County thresholds.

The noise levels presented in Table 4.6-6 indicate that project processing equipment average and maximum noise levels are predicted to be below the applicable noise standards except at Receptors 11 and 14. This conclusion is reached without accounting for the additional shielding which would occur at some receptor locations due to intervening topography, which would serve to further reduce processing area noise levels at those shielded receptors. After considering such shielding, noise levels at potential future Receptors 11 and 14 are expected to be below the applicable noise standards. As a result, no adverse noise impacts are identified for either average project-generated processing noise or maximum processing noise levels caused by single loud events. Noise impacts from crushing and screening facilities would be less than significant.

Excavation Noise Generation

Based on similar operations at other quarries, the noise assessment concluded that the proposed excavation operations would likely generate average and maximum noise levels of 80 and 90 dBA at a reference distance of 50 feet, respectively. Table 4.6-7 presents the predicted noise generation of the mining operations at the representative receptor locations.

**Table 4.6-7
EXCAVATION NOISE LEVELS AT THE RECEPTORS**

Receptor	Distance (ft)	County Standard dBA L _{EQ} (Day/Evening/Night)	Predicted L _{EQ} , dBA	County Standard dBA L _{MAX} (Day/Evening/Night)	Predicted L _{MAX} , dBA
1	13,000	53/46/42	12	76/68/60	22
2	12,500	53/46/42	13	76/68/60	23
3	8,400	58/57/56	23	72/68/67	33
4	7,500	58/57/56	25	72/68/67	35
5	4,000	58/57/55	36	71/69/68	46
6	4,700	54/54/51	33	63/62/55	43
7	2,300	49/48/48	43	65/62/59	53
8	5,300	49/48/48	32	65/62/59	42
9	3,500	50/45/47	38	70/65/61	48
10	8,000	50/45/47	24	70/65/61	34
11	13,000	50/45/35	36 nighttime	70/60/50	46
12	3,700	55/50/50	37	75/65/60	47
13	2,300	55/50/50	43	75/65/60	53
14	2,500	55/50/50	74 daytime/evening/ nighttime	75/65/60	84 daytime/evening/ nighttime

Source: BAC 2018

Notes:

- Figure 4.6-2 shows locations of the nearest potentially affected receptors.
- Distances shown are measured in feet from the nearest receptors to the excavation area/ultimate disturbed area (refer to Figure 4.6-2).
- Noise level predictions are based on the reported reference levels (80 dBA L_{EQ} and 90 dBA L_{MAX} at 50 feet) with a 6 dBA attenuation rate per each doubling of distance and a 1.5 dBA offset per 1,000 feet for atmospheric and excess ground attenuation. The predicted noise levels do not include shielding of processing area equipment by intervening topography, which provides further attenuation at some receptor locations.
- The noise technical report prepared for the project (BAC 2018) does not include the adjusted standard for Receptor 14 but it has been included here in based on a requirement in the Environmental Assessment form for the Mining Use Permit Application that requires that noise levels be determined at the property line for each phase.
- Bold** font indicates a dBA that exceeds County thresholds.

The data shown above related to excavation noise indicates that project excavation-generated average and maximum noise levels are predicted to be well below the project noise standards at all receptors except Receptors 11 and 14. This conclusion is reached without accounting for the additional shielding which would occur at some receptor locations due to intervening topography, which would serve to further reduce excavation noise levels at those shielded receptors. After considering such shielding, noise levels at potential future Receptor 11 are expected to be below the applicable noise standards. Noise levels at potential future Receptor 14, however, may remain above the applicable noise standards, if a residence is constructed within 1,250 feet of excavation areas (the ultimate disturbed area). Noise generated by excavation would result in potentially significant impacts at Receptor 14 and mitigation would be required. Mitigation Measure NOI-1 requires additional analysis at the time of the proposed development on those parcels and appropriate measures to abate any impacts identified during the noise analysis.

Backfill Import and Material Load-Out Noise Generation

The only activity associated with the project which is proposed to occur during some nighttime hours is material load-out and backfill import. These activities could start during the 5 a.m. hour. In addition, when emergencies or nighttime paving projects require aggregate materials to be delivered to the job site at night, material loadout could occur during any nighttime hour.

As shown in Table 4.6-8 project load-out and backfill delivery operations average and maximum noise levels are predicted to be well below the applicable noise standards. Note that additional shielding would occur at some receptor locations due to intervening topography, which would serve to further reduce backfill and load-out noise levels at those shielded receptors. As a result, no adverse noise impacts are identified for either average or maximum noise levels caused by single loud events, and no consideration of additional noise mitigation measures for project load-out or backfill activities is warranted.

Table 4.6-8
LOADOUT AND BACKFILL IMPORT NOISE LEVELS AT THE RECEPTORS

Receptor	Distance (ft)	County Standard dBA L _{EQ} (Day/Evening/Night)	Predicted L _{EQ} , dBA	County Standard dBA L _{MAX} (Day/Evening/Night)	Predicted L _{MAX} , dBA
1	16,000	53/46/42	1	76/68/60	16
2	15,000	53/46/42	3	76/68/60	18
3	10,500	58/57/56	13	72/68/67	28
4	10,000	58/57/56	14	72/68/67	29
5	6,800	58/57/55	22	71/69/68	37
6	7,000	54/54/51	22	63/62/55	37
7	3,800	49/48/48	32	65/62/59	47
8	7,500	49/48/48	20	65/62/59	35
9	5,000	50/45/47	28	70/65/61	43
10	10,000	50/45/47	14	70/65/61	29
11	4,000	50/45/35	31	70/60/50	46
12	6,000	55/50/50	24	75/65/60	39
13	4,600	55/50/50	29	75/65/60	44
14	2,500	55/50/50	37	75/65/60	52

Source: BAC 2018

Notes:

- Figure 4.6-2 shows locations of the nearest potentially affected receptors.
- Distances shown are measured in feet from the nearest receptors to the load out area (refer to Figure 4.6-2).
- Noise standards applied to the aggregate load-out and backfill activities are set at ambient noise levels.
- Noise level predictions are based on the reported reference levels (75 dBA L_{EQ} and 90 dBA L_{MAX} at 50 feet) with a 6 dBA attenuation rate per each doubling of distance and a 1.5 dBA offset per 1,000 feet for atmospheric and excess ground attenuation. The predicted noise levels do not include shielding of processing area equipment by intervening topography, which provides further attenuation at some receptor locations.
- The noise technical report prepared for the project (BAC 2018) does not include the adjusted standard for Receptor 14 but it has been included here in based on a requirement in the Environmental Assessment form for the Mining Use Permit Application that requires that noise levels be determined at the property line for each phase.

Heavy Truck Traffic Noise Generation

The noise analysis prepared for the project (BAC 2018) assumed a worst-case, daily maximum project heavy truck trip generation of approximately 1,402 one-way truck trips. On an hourly basis, the

theoretical maximum capacity project heavy truck trip generation would be 150 heavy truck trips per hour. This number of daily and hourly heavy truck trips is considered to be conservative. Nonetheless, for a conservative assessment of potential noise impacts associated with heavy truck traffic, these projections were used. Additionally, the analysis considered single versus double-trailer truck noise generation as well as single-event and sleep disturbance evaluation (L_{MAX} & SEL).

Sensitive receptors which would be potentially affected by heavy truck traffic include the single Boca Reservoir caretaker residence located south of the dam, potential future residences along the haul route, and recreational uses of the Boca Reservoir. Because project traffic would not pass other sensitive receptor locations during normal operations, the analysis of heavy truck traffic noise impacts focuses on these receptors.

To quantify the noise generation of individual passages of heavy trucks on the Hinton and Stampede Meadows Roads portion of the project haul route, single-event noise monitoring was conducted at the most potentially affected sensitive receptor location (Receptor 4) on the morning of May 14, 2013 (the single-event noise monitoring was not updated in 2017). The measurements, which were conducted between 8:30 a.m. and 10:00 a.m., were intended to specifically quantify noise levels generated by individual truck passages on the project access route. The existing noise environment in the immediate project vicinity is heavily influenced by heavy truck noise, and project truck passbys would not introduce frequency content which is not already present in the project environment.

A 1990 Kenworth T800 with a Cummins 88NT350 Diesel engine with an 18-speed gear box was used for the heavy truck passby tests. The truck was fully loaded with aggregate materials at the beginning of the passby testing program. After multiple uphill and downhill passbys of the fully loaded aggregate truck, the truck's load was dumped and the testing program was repeated with the empty trailer. The driver was instructed to operate the truck normally during the passby tests. According to the driver, 8th gear was used on the uphill sections at 1700 revolutions per minute. On the downhill passbys, gears 7-8 were used at 1800-1900 revolutions per minute.

The test route extended from the I-80/Hirschdale Road interchange located approximately 2,500 feet southeast of the measurement site to the project site located approximately 9,000 feet east of the noise measurement sites. Traffic on Stampede Meadows Road was light during the passby testing, so clean noise readings of the aggregate truck passbys were obtained. Each passby was monitored for the duration of time the truck was audible, including approach, passby, and departure. During the truck passby tests, speed surveys were conducted using a Bushnell radar Velocity Speed gun (Model # CBV00). The speed surveys indicated that downhill speeds slowed from 30 mph on approach to 20 mph on the downhill (southbound) slope in front of the noise monitoring site for both loaded and empty truck passbys. Uphill speeds ranged from 15-20 mph in the uphill (northbound) direction.

A total of 10 uphill and 10 downhill passbys were monitored. Half of the passbys occurred with the trailer loaded and the other half empty. In addition, the driver was instructed to utilize engine brakes (Jake Brakes) on the downhill slopes of West Hinton Road and for the first three downhill passbys on Stampede Meadows Road. During each hour of the single-event passby noise monitoring test, minimum (L_{MIN}) noise levels at the test location (Receptor 4) were recorded to be 42 dBA, and background (L_{90}) values were recorded to be 45 to 46 dBA. The measured dBA at Receptor 4 ranged from 60 to 65 Leq and 65 to 70 Lmax. Because the test results indicate that maximum noise levels generated during the aggregate truck passbys were in excess of 20 dBA above background noise levels, there was no

contamination of the heavy truck passby test results by other noise sources. Refer to Table 12 of the noise study in Appendix K for the detailed test noise measurement results.

The single-event passby noise monitoring study did not include double trailer (18-wheel) trucks which would be louder than a single trailer trucks. Based on prior studies for other projects, BAC assumed that the noise levels of a double trailer truck passby could be 3 dB higher than that of a single trailer at a distance of 85 feet. Similarly, loaded single trailer trucks would generate a maximum sound level of 67 dB Lmax at the 85-foot reference distance, with maximum sound levels of 70 dB for loaded double trailer trucks at the 85-foot reference distance (BAC 2018).

The worst case hourly average heavy truck traffic noise levels were calculated for the receptors assuming the worst-case projection of 150 heavy trucks consisting of both single and double-trailer trucks. The results were based off of a determined hourly average noise level of 62 dB at the referenced measurement distance of 85 feet from the centerline of Stampede Meadows Road. The predicted noise levels for each of the receptors is presented in Table 4.6-9.

Table 4.6-9 indicates that with the exception of potential future receptors Receptor 12, Receptor 13, and Receptor 14, project heavy truck traffic on both the private segment (West Hinton Road) and public segment (Stampede Meadows Road) of the haul route would generate average noise levels below the project daytime, evening, and nighttime noise level standards. Note that additional shielding would occur at some receptor locations due to intervening topography, which would serve to further reduce heavy truck traffic noise levels at those shielded receptors. As a result, no adverse noise impacts are identified at the currently developed noise sensitive land uses for worst-case average and maximum noise levels generated by project heavy truck traffic, regardless of whether the trucks are on the private haul route or public roadways. This conclusion applies to single and double-trailer trucks travelling uphill or downhill, empty or loaded, with or without Jake brake usage, during both daytime and nighttime hours.

At potential future residences constructed on the parcels represented by Receptors 12 through 14 (evaluated at 100 feet from the centerline of the haul route), the appropriate average and maximum noise level standards would be exceeded. If residences were constructed on these parcels within 300 feet of the proposed haul route, noise related impacts from truck trips would be potentially significant. Mitigation Measure NOI-2 requires additional analysis at the time of the proposed development on those parcels and appropriate measures to abate any impacts identified during the noise analysis.

**Table 4.6-9
HEAVY TRUCK TRAFFIC NOISE LEVELS AT THE RECEPTORS**

Receptor	Distance (ft)	County Standard dBA L _{EQ} (Day/Evening/Night)	Predicted L _{EQ} , dBA	County Standard dBA L _{MAX} (Day/Evening/Night)	Predicted L _{MAX} , dBA
1	9,000	58/51/47	31	81/73/65	29
2	5,000	58/51/47	35	81/73/65	34
3	500	63/62/61	50	77/73/72	54
4	120	63/62/61	59	77/73/72	66
5	650	63/62/60	48	76/74/73	51
6	2,000	59/59/56	41	68/67/60	42
7	3,800	54/53/53	36	70/67/64	36
8	4,800	54/53/53	35	70/67/64	34
9	3,700	55/50/52	37	75/70/66	36
10	8,000	55/50/52	32	75/70/66	30
11	4,500	55/50/40	35	75/65/55	35
12	100	55/50/50	58 daytime/evening/ nighttime	75/65/60	68 evening/nighttime
13	100	55/50/50	58 daytime/evening/ nighttime	75/65/60	68 evening/nighttime
14	100	55/50/50	58 daytime/evening/ nighttime	75/65/60	68 evening/nighttime

Source: BAC 2018

Notes:

- Figure 4.6-2 shows locations of the nearest potentially affected receptors.
- These distances shown are measured in feet from the receptor to the nearest point of the project haul route.
- Noise standards applied to the off-site traffic processing activities are set at ambient noise levels + 5 dBA.
- Noise level predictions are based on the reported reference levels (61 dBA L_{EQ} and 69 dBA L_{MAX} at 85 feet) with 4.5 dBA and 6 dBA attenuation rates per each doubling of distance for L_{EQ} and L_{MAX} projections, respectively, and a 1.5 dBA offset per 1000 feet for atmospheric and excess attenuation. The predicted noise levels do not include shielding of heavy truck noise by intervening topography, which would provide further attenuation at some receptor locations.
- The noise technical report prepared for the project (BAC 2018) does not include the adjusted standard for Receptor 14 but it has been included here in based on a requirement in the Environmental Assessment form for the Mining Use Permit Application that requires that noise levels be determined at the property line for each phase.
- Bold** font indicates a dBA that exceeds County thresholds.

Single-Event and Sleep Disturbance Evaluation

As previously mentioned, Receptor 4 was evaluated for single-event noise and sleep disturbance due to its sensitivity and proximity to the project haul route along Stampede Meadows Road. In addition, the predicted heavy truck passby sound exposure level at the exterior of that residence (135 feet from the centerline of Stampede Meadows Road) is 72 dB SEL. Even with windows in the open position, interior noise levels would be 10 dB below exterior noise levels, thereby resulting in an interior SEL of 62 dB. With windows closed, the exterior to interior noise reduction of the building façade would reduce single-event heavy truck passby noise levels to approximately 47 dB SEL. Nevada County assesses interior noise impacts at residential uses with windows in the closed position. Nonetheless, with windows in either the open or closed position, single-events associated with nighttime heavy truck

passbys on Stampede Meadows Road would be below both the County's L_{max} threshold as well as below the additional 65 dB SEL threshold at this residence.

Based on the results presented in Table 4.6-9, maximum noise levels generated by project truck traffic would be well below the applicable Nevada County noise standards at the other existing sensitive receptors (Receptors 1 through 11), including recreational users of Boca Reservoir (Receptors 1, 2, and 3). The proposed project would result in less than significant impacts in regard to single event and sleep disturbance.

Truck Passby Noise Impact on Cyclists

An evaluation of heavy truck passby noise on bicyclists was also conducted. The results of the evaluation show that the total time of exposure of a bicyclist on Stampede Meadows Road to project heavy truck traffic during absolute worst-case conditions would be approximately six minutes. Due to the relatively brief level of heavy truck traffic noise bicyclists would be exposed to, this impact is considered to be less than significant.

Blasting Noise and Vibration Generation

Blasting would be necessary to free aggregate resources for excavation and would occur no more than twice per week. There are two noise sources associated with blasting activities: drilling holes for the explosives, and the "shot" of the blasting itself. The noise levels from the blasting drilling activities are predicted to be similar to excavation equipment noise levels; blasting drilling noise is included in the excavation equipment noise analysis earlier in this section.

The noise generated by aggregate shots is more variable and is dependent on the number and depth of the blasting holes, timing delays, the amount of charge material used, and other factors. BAC conducted noise and vibration monitoring during a typical aggregate shot (blast) at a northern California Quarry on May 20, 2009. The results of the monitoring are presented in Table 14 in Appendix K of this EIR, and were used to calculate the maximum noise and vibration levels at the Receptors.

Maximum noise levels at the Receptors due to blasting would be approximately 48 to 63 dBA L_{MAX}. As noted previously, project blasting is limited to daytime hours, Monday through Saturday and would occur up to two times per week during operation of the mine. The County standard daytime noise thresholds adjusted for the project range from 63 to 76 dBA L_{MAX}. As such the maximum daytime noise levels as a result of blasting would be well within the project standards of significance. Noise-related impacts as a result of the blasting would be less than significant.

With respect to blast-induced vibration, the analysis indicates that the measured peak particle velocity of the reference shot was 0.13 inches per second at a distance of 1,500 feet from the shot. Because vibration decreases with distance, blast induced vibration levels would be even lower at the nearest potentially affected sensitive receptors, likely at or below 0.1 inches per second. This level is well below the 0.5 inch per second threshold for annoyance and well below thresholds for damage to structures. As a result, no adverse vibration impacts are identified for project blasting activities. Vibration-related impacts as a result of blasting would be less than significant.

Heavy Earthmoving Equipment Vibration Levels

With the exception of blasting activities, the project does not propose the introduction of appreciable sources of vibration into areas where such vibration is not being generated currently. Nonetheless, vibration generated by heavy earthmoving equipment has been evaluated. The vibration measurement results indicate that heavy equipment-generated vibration levels were below the thresholds for annoyance and damage to structures even at the very close measurement locations of 35 to 100 feet from the operating equipment. As a result, at receptors located thousands of feet from the proposed operations, project vibration levels generated by heavy earthmoving equipment are expected to be well below the threshold of perception, and no adverse vibration impacts are identified. Vibration-related impacts as a result of heavy earthmoving equipment would be less than significant.

Combined Noise from All Project Sources

Table 4.6-10 presents the combined average noise levels from all of the project noise sources. The average noise exposure of each source is shown and compared to the project's standards of significance. Blasting noise is not included in Table 4.6-10 as onsite traffic and excavation operations cease during blasting activities so the brief maximum noise level generated during blasting would not combine appreciably with other quarry noise sources. The data is limited to hourly average noise levels as the County's hourly noise level standards are more restrictive for this project than the County's maximum noise standards. As a result, compliance with the average noise level standards would indicate compliance with the County's maximum noise level standards as well. In addition, unless maximum noise levels generated by one component of the project occur at precisely the same instant as maximum noise levels generated by another project component, their maximum noise levels would not be additive.

These predictions present a conservative analysis, as topographic shielding and vegetation noise attenuation are not taken into consideration. As discussed in Section 4.6.2, the Nevada County Noise Element identifies the evening timeframe as occurring from 7 p.m. to 10 p.m. and the nighttime timeframe occurring from 10 p.m. to 7 a.m. As mentioned in Section 3.3.4 while the typical weekday operating schedule would occur between 6 a.m. and 6 p.m., and between 7 a.m. and 4 p.m. on Saturday, customer demand and/or operational considerations may require operations occurring as early as 5 a.m. and ending as late as 9 p.m. The only operation allowed after 9 p.m. and before 6 a.m. is material loadout. Loadout could occur 24 hours per day and up to seven days per week for limited periods in order to service these projects.

With the exception of Receptors 7 and 11 through 14, the Table 4.6-10 data indicate that combined noise exposure from all project noise sources would satisfy the applicable average noise level standards of Nevada County during daytime, evening, and nighttime periods. As a result, no adverse noise impacts are identified for combined project noise exposure at Receptors 1 through 6 and 8 through 10, and no additional consideration of noise mitigation measures is warranted at those receptors.

Table 4.6-10
COMBINED AVERAGE NOISE LEVELS FROM ALL PROJECT NOISE SOURCES (L_{EQ})

Receptor	Processing	Excavation	Load-out/Backfill	Truck Traffic	Total (combined)	Daytime Standard (Non-trucks/Trucks)	Evening Standard (Non-trucks/Trucks)	Nighttime Standard (Non-trucks/Trucks)	Impact?
1	16	13	1	31	31	53/58	49/54	47/52	N
2	18	13	3	35	35	53/58	49/54	47/52	N
3	28	23	13	50	50	53/58	49/54	47/52	N
4	29	25	14	59	59	58/63	57/62	57/52	N
5	37	36	22	48	49	58/63	57/62	55/60	N
6	37	33	22	41	43	54/59	54/59	51/56	N
7	47	43	32	36	49	49/54	48/53	48/53	Y
8	35	32	20	35	39	49/54	48/53	48/53	N
9	43	38	28	37	45	51/56	45/50	52/57	N
10	29	24	14	32	34	51/56	45/50	52/57	N
11	46	36	31	35	47	50/55	45/50	35/40	Y
12	39	37	24	58	58	55/55	50/50	50/50	Y
13	44	43	29	58	58	55/55	50/50	50/50	Y
14	52	74	37	58	77	55/55	50/50	50/50	Y

Notes:

- Figure 4.6-2 shows locations of the potentially affected receptors.
- Noise from processing, excavation, load-out/backfill and truck traffic were obtained from Table 4.6-6 through Table 4.6-10.
- The noise standards applicable to project truck traffic are different (5 dBA higher) than those applicable to on-site activities so the range of applicable noise standards is presented.
- Because the 59 dB Leq predicated at Receptor 4 is due to truck traffic noise, it is compared against the 63 dB threshold rather than the 58 dB threshold and no impact is identified.
- The noise technical report prepared for the project (BAC 2018) does not include the adjusted standard for Receptor 14 but it has been included here in based on a requirement in the Environmental Assessment form for the Mining Use Permit Application that requires that noise levels be determined at the property line for each phase.
- Bold** font indicates a dBA that exceeds County thresholds

At Receptor 7, combined noise from processing and excavation could result in exceedance of the 48 dBA L_{EQ} exterior noise level standard during the evening and nighttime periods. As a result, a potentially significant noise impact is identified for this receptor. As previously mentioned, operation of the quarry would typically occur between 6 a.m. and 6 p.m. but could occasionally occur between 5 a.m. and 9 p.m. Operation activities occurring prior to 7 a.m. and after 7 p.m. would be subject to the adjusted evening and night time noise level standards. Under the typical operating schedule, processing and excavation occurring earlier than 7 a.m. (between 6 a.m. and 7 a.m.) could result in a noise impact. Under the occasional extended schedule, processing and excavation occurring between 6 a.m. and 7 a.m. and after 7 p.m. (7 p.m. to 9 p.m.) could result in a noise impact. Mitigation Measures NOI-3 and NOI-4 would require that no operation of the mine (other than material load out) shall occur prior to 7 a.m. or after 7 p.m. unless the applicant is able to demonstrate to the County through subsequent analysis once the mine is in operation that the processing and excavation activities would not result in an exceedance of County noise standards.

At Receptor 11, noise from processing activities could result in exceedance of the County's evening and nighttime noise level standards should a residence be constructed at this location in the future. As a result, a potentially significant noise impact is identified for this receptor. At Receptor 14, noise excavation activities could result in exceedance of the County's noise level standards should a residence be constructed at this location. Excavation activities would be adjacent to the project boundary, and therefore be located within close proximity to a potential residence. As a result, a potentially significant noise impact is identified for this receptor.

At Receptors 12 through 14, noise from project truck traffic could result in exceedance of the County's daytime, evening, and nighttime noise level standards should residences be constructed on these parcels in close proximity to the proposed haul route. As a result, a potentially significant noise impact is identified for these receptors. Mitigation Measures NOI-1 and NOI-2 require additional analysis at the time of the proposed development on those parcels and appropriate measures to abate any impacts identified during the noise analysis.

Off-site Roadway Improvements

Off-site roadway improvements are proposed along an approximately 1.3-mile long segment of Stampede Meadows Road. Construction activities have the potential to result in noise impacts at nearby sensitive receptors. Provisions in County and Town of Truckee noise ordinances do not limit construction noise levels; however, construction activity is limited to daytime hours. The construction of these improvements would be temporary and relatively short-term, lasting approximately one month. Failure to comply with the timeframes for construction activities would result in a potentially significant impact. Mitigation Measure NOI-5 requires compliance with County restrictions regarding the daily timeframes for construction activities.

4.6.5 Level of Significance Before Mitigation

Crushing and Screening Facility Noise Generation

Noise from crushing and screening facilities would comply with Nevada County noise level standards. As a result, impacts from crushing and screening facility noise would be less than significant and no consideration of additional noise mitigation for project processing activities is warranted.

Excavation Noise Generation

Noise from excavation equipment would comply with the Nevada County noise level standards all times of the day for all receptors except Receptor 14. Should the property at Receptor 14 be developed with a residence within 1,250 feet of the ultimate disturbed area during operation of the quarry, excavation activities could result in a potentially significant impact.

Backfill Import and Material Load-Out Noise Generation

Noise related to backfill import and material load-out excavation equipment would comply with the Nevada County noise level standards during all times of the day and night. As a result, no adverse noise impacts are identified for either average or maximum noise levels caused by single loud events. Impacts related to backfill import and material load-out noise would be less than significant and no consideration of additional noise mitigation for project load-out or backfill activities is warranted.

Heavy Truck Traffic Noise Generation

Heavy truck traffic on both the private (West Hinton Road) and public (Stampede Meadows Road) segments of the haul route would generate average noise levels below the project daytime, evening, and nighttime noise level standards related to all receptors except Receptors 12, 13, and 14. Should these properties be developed with noise-sensitive land uses within 300 feet of the centerline of the haul route during operation of the quarry, heavy truck traffic could result in a potentially significant impact.

Truck Passby Noise Impact on Cyclists

Due to the relatively brief period of heavy truck traffic noise cyclists would be exposed to, this impact is considered less than significant.

Blasting Noise and Vibration Generation

The nearest representative sensitive receptors to the project site range from 2,300 to over 13,000 feet from the ultimate disturbed area of the project site. At those distances, maximum noise levels due to blasting would be approximately 48 to 63 dBA L_{MAX} . As noted previously, project blasting is proposed to occur only during daytime hours. Daytime noise levels in this range would be well within compliance with the applicable Nevada County standards of significance during the day, therefore noise impacts for project blasting activities would be less than significant.

With respect to blast-induced vibration, the analysis indicates that the measured peak particle velocity of the reference shot was 0.13 inches per second at a distance of 1,500 feet from the shot. Blast induced vibration levels would be even lower at the nearest potentially affected sensitive receptors, likely at or below 0.1 inches per second, based on the fact that vibration decreases with distance. This level is well below the 0.5 inch per second threshold for annoyance and well below thresholds for damage to structures. As a result, vibration impacts for project blasting activities would be less than significant.

Heavy Earthmoving Equipment Vibration Levels

With the exception of blasting activities, the project does not propose the introduction of appreciable sources of vibration into areas where such vibration is not being generated currently. Nonetheless, vibration generated by heavy earthmoving equipment has been evaluated. The vibration measurement results indicate that heavy equipment-generated vibration levels were below the thresholds for annoyance and damage to structures even at the very close measurement locations of 35-100 feet from the operating equipment. As a result, at receptors located thousands of feet from the proposed operations, project vibration levels generated by heavy earthmoving equipment are expected to be well below the threshold of perception, and no adverse vibration impacts are identified.

Combined Noise from All Project Sources

As shown in Table 4.6-10, the total operational noise generated by the proposed project would exceed the County's noise standards at Receptors 7 and 11 through 14. At Receptor 7, combined noise from processing and excavation could result in exceedance of the 48 dBA L_{EQ} exterior noise level standard during evening and nighttime periods (7 p.m. to 7 a.m.). At Receptor 11, noise from processing activities could result in exceedance of the County's evening and nighttime noise level standards should a

residence be constructed at this location in the future. At Receptor 14, noise from excavation activities could result in exceedance of the County's noise level standards. At Receptors 12 through 14, noise from project truck traffic could result in exceedance of the County's daytime, evening, and nighttime noise level standards. As a result, a potentially significant noise impact is identified for these receptors.

Noise Impact Related to Construction of the Proposed Roadway Improvements

Noise related to the construction of the proposed road improvements would be short-term. Construction activities occurring outside of daytime hours would result in a potentially significant impact.

4.6.6 Mitigation Measures

NOI-1 Future residential development proposed at any nearby parcels shall not be exposed to operational noise levels exceeding 55 dBA L_{EQ} (or 65 dBA L_{MAX}) during daytime hours, or 50 dBA L_{EQ} (or 65 dBA L_{MAX}) during evening hours, or 50 dBA L_{EQ} (or 60 L_{MAX}) during nighttime hours.

Residential development within 1,250 feet of the ultimate disturbed area may be exposed to elevated noise levels. If a residence is proposed within this setback, an acoustical analysis shall be provided paid for by the applicant or the current operator of the facility. The noise analysis shall be conducted by a qualified acoustical engineer to demonstrate that any future residences satisfies the exterior and interior noise standards established by Nevada County. The analysis shall include an ambient noise survey to quantify baseline conditions at a future residence which shall then be used to develop offsets to the Nevada County noise standards, as appropriate. Updated setback distances shall be established accounting for topography and equipment used at that time. The acoustical analysis shall identify additional noise control measures to be incorporated into the project operations at that time. Such measures could include the use of equipment noise shielding, sound berms or barriers, or other feasible measures.

If excavation activity is not shown to be reduced to appropriate levels following mitigation, excavation activity within the determined setback distances shall not occur.

NOI-2 Future residential development proposed at any nearby parcels shall not be exposed to heavy traffic noise levels exceeding 55 dBA L_{EQ} during daytime hours, or 50 dBA L_{EQ} during evening or nighttime hours. Future residences shall not be exposed to noise levels exceeding 65 dBA L_{MAX} during daytime hours, 65 dBA L_{MAX} during evening hours, or 60 dBA L_{MAX} during nighttime hours.

Future residential development proposed within 300 feet of the haul route may be exposed to elevated noise levels. If a residence is proposed within these setbacks, an acoustical analysis shall be provided and paid for by the applicant or the current operator of the project. The noise analysis shall be conducted by a qualified acoustical engineer to demonstrate that any future residences satisfies the exterior and interior noise standards established by Nevada County. The analysis shall include an ambient noise survey to quantify baseline conditions at a future residence which shall then be used to develop offsets to the Nevada County noise standards, as appropriate. In

addition, heavy truck passby noise level measurements shall be conducted from the locations of the proposed residences to determine if haul truck noise levels would exceed the adjusted noise level standards. The acoustical analysis shall identify additional noise control measures to be incorporated into the project operations at that time. Such measures could include the use of sound berms or barriers, relocation of the haul road to create additional setbacks from the proposed residences, or other feasible measures.

- NOI-3** Noise levels from operation of the mine shall not exceed the adjusted evening and nighttime County noise standard of 48 dBA Leq at Receptor 7. Mining activities other than the occasional haul out shall be prohibited between the hours of 9 p.m. and 6 a.m. Operational activities (e.g., excavation and processing) associated with the West Pit shall be limited to between the hours of 7 a.m. and 7 p.m. unless operational noise monitoring demonstrates that nighttime quarry operation does not exceed the adjusted evening and nighttime County noise standard at Receptor 7 (see Mitigation Measure NOI-2).
- NOI-4** Once the West Pit is operational, additional noise monitoring may be performed at Receptor 7 at the operator's expense. If this monitoring can confirm, to the satisfaction of the Nevada County Planning Department, that operational noise levels do not exceed the evening and nighttime noise standard of 48 dBA Leq at Receptor 7, then the County may extend the operating timeframe (including excavation and processing) to between 6 a.m. and 9 p.m. m. the intervening topography and vegetation effectively reduces the operational noise limits to at or below the nighttime 40 dBA Leq standard, then this measure shall replace Mitigation Measure NOI-1. If applicable, any operations that extend between 10 p.m. and 7 a.m. shall be limited to truck loading and unloading only. Adherence to this mitigation measure will reduce the project's nighttime noise impacts to less than significant.
- NOI-5** The hours of operation for off-site roadway improvement construction activities, including grading, roadway construction and vegetation clearance, shall be limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday. Grading and improvement plans shall reflect the limited hours of operation.

4.6.7 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse noise impacts would result from implementation of the proposed project.

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4.7 AIR QUALITY

An air quality analysis dated April 2019 is contained in the Boca Quarry Expansion Air Quality and Greenhouse Gas Technical Report prepared by HELIX (HELIX 2019). The results of the analysis are summarized in this section and the report is included in Appendix L of this EIR.

The evaluation addresses the potential for air pollutant emissions during operation of the project and construction of the off-site roadway improvements. Project operation includes an assessment of the potential for criteria pollutants due to site preparation (including timber harvest), the aggregate mining process (including blasting), processing plant operations, and off- and on-site traffic (including haul truck and vehicle travel). The assessment of construction of the off-site roadway improvements includes land grubbing and clearing, grading and excavation, drainage and utility installation and paving. The analysis of impacts is based on state and federal ambient air quality standards and impacts are assessed in accordance with the guidelines, policies, and standards established by the Northern Sierra Air Quality Management District (NSAQMD).

Comments were received during and following the public review period of the 2012 Draft EIR regarding this topic from the following agencies and individuals: Taylor & Wiley Attorneys of Counsel on behalf of the project applicant (11/6/2012), the Hirschdale Community (10/29/2012 and 2/21/2013), and Jamie Cole during the Public Hearing (10/11/2018). Refer to Appendix A for the comments received and responses to those comments.

4.7.1 Existing Conditions

Climate and Meteorology

The project site is within the central portion of the Mountain Counties Air Basin (MCAB). This basin also includes Plumas, Sierra, Nevada, Calaveras, Tuolumne, and Mariposa Counties, as well as a portion of Placer and El Dorado Counties. The climate of MCAB is influenced by the foothill and mountainous terrain unique to the counties included in MCAB. Nevada County exhibits large variations in terrain and consequently exhibits large variations in climate, both of which affect air quality. Nevada County is bordered by the Sacramento Valley to the west, and the Washoe Valley to the east. Nevada County ranges from gently rolling slopes in the west to rugged Sierra Nevada mountain terrain in the east; elevations range from 200 to 9,000 feet. East of the divide, the slope of the Sierra Nevada is steeper to the Washoe valley floor.

The climate of Nevada County is characterized by hot, dry summers and cool, moist winters. The warmest areas in Nevada County are found at the lower elevations along the county's west side, while the coldest average temperatures are found at the highest elevations (Nevada County 1995). Air quality in the project area is influenced mostly by pollutant transport from upwind areas, such as the Sacramento Valley, but also by local emission sources, such as wood burning stoves and fireplaces during the winter months and vehicles using area roadways such as I-80.

The prevailing wind direction over the county is westerly; however, the terrain of the area has a great influence on local winds and wide variability in wind direction can be expected. Afternoon winds are generally channeled up-canyon, while nighttime winds generally flow down-canyon. Winds are, in general, stronger in spring and summer and weaker in fall and winter. Periods of calm winds and clear skies in fall and winter often result in strong, ground based inversions forming in mountain valleys.

These layers of very stable air restrict the dispersal of pollutants, trapping them near the ground, representing the worst conditions for local air pollution occurring in the county (NSAQMD 2016).

Regional airflow patterns have an effect on air quality patterns by directing pollutants downwind of sources. Localized meteorological conditions, such as light winds and shallow vertical mixing, and topographical features, such as surrounding mountain ranges, create areas of high pollutant concentrations by hindering dispersal. An inversion layer is produced when a layer of warm air traps cooler air close to the ground. Such temperature inversions hamper dispersion by stratifying contaminated air near the ground.

Ambient Air Quality Attainment Status

As detailed in the Regulatory Framework discussion below, both the California Air Resource Board (CARB) and the USEPA have established air pollution standards in an effort to protect human health and welfare. Geographic areas are designated attainment if these standards are met and nonattainment if they are not met. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 4.7-1 lists the federal attainment status of Nevada County for the criteria pollutants. The USEPA classifies Nevada County as in attainment or unclassified for CO, PM₁₀, PM_{2.5}, NO₂, SO₂, and lead; and in nonattainment for ozone (8-hour) with respect to federal air quality standards. Under State designation, Nevada County is in attainment for NO₂, SO₂, and lead; and in nonattainment for Ozone (1-hour and 8-hour); and unclassified for CO and PM_{2.5}.

**Table 4.7-1
NEVADA COUNTY ATTAINMENT STATUS**

Pollutant	Federal	State
1-hour Ozone (O ₃)	No Standard	Nonattainment
8-hour Ozone (O ₃)	Nonattainment (western part of County)	Nonattainment
Coarse Particulate Matter (PM ₁₀)	Unclassified	Nonattainment
Fine Particulate Matter (PM _{2.5})	Unclassified/Attainment	Unclassified
Carbon Monoxide (CO)	Unclassified/Attainment	Unclassified
Nitrogen Dioxide (NO ₂)	Unclassified/Attainment	Attainment
Sulfur Dioxide (SO ₂)	Unclassified	Attainment
Lead (Pb)	Unclassified/Attainment	Attainment

Source: CARB 2017a

The air quality monitoring site nearest to the proposed project is the Truckee Fire Station Monitoring Station, which monitors ambient concentrations of PM_{2.5}. Data was obtained from the White Cloud Mountain Monitoring Station for O₃. Table 4.7-2 summarizes three years of the most-recently published ambient air quality data obtained from these monitoring stations.

Table 4.7-2
AIR QUALITY MONITORING DATA

Pollutant	2014	2015	2016
Ozone (O₃) White Cloud Mountain Monitoring Station			
Maximum 1-hour concentration (ppm)	0.093	0.082	*
Days above 1-hour state standard (>0.09 ppm)	0	0	*
Maximum 8-hour concentration (ppm)	0.080	0.078	*
Days above 8-hour state standard (>0.07 ppm)	18	6	*
Days above 8-hour federal standard (>0.075 ppm)	5	2	*
Fine Particulate Matter (PM_{2.5}) Truckee Fire Station Monitoring Station			
Maximum 24-hour concentration (µg/m ³)	13.2	12.8	22.1
Days above federal standard (>35 µg/m ³)	*	*	0

Source: CARB 2017a

Notes: Underlined values in excess of applicable standard / ppm = parts per million / µg/m³ = micrograms per cubic meter

*Insufficient data to determine the value

Air Pollutants of Concern

Air quality laws and regulations generally divide air pollutants into two broad categories: “criteria air pollutants” and “toxic air contaminants.” Criteria air pollutants are a group of common air pollutants regulated by the federal and state governments by means of ambient standards based on criteria regarding health and/or environmental effects of pollution. Toxic air contaminants (TACs) are often referred to as “non-criteria” air pollutants because ambient air quality standards have not been established for them. Under certain conditions, TACs may cause adverse health effects, including cancer and/or acute and chronic noncancerous effects. The following sections provide a description of relevant criteria air pollutants and toxic air contaminants.

Criteria Air Pollutants

Criteria pollutants are defined by state and federal law as a risk to the health and welfare of the general public. In general, air pollutants include the following compounds: Ozone (O₃); Reactive Organic Gases (ROGs) or Volatile Organic Compounds (VOCs); Carbon Monoxide (CO); Nitrogen Dioxide (NO₂); Respirable Particulate Matter and Fine Particulate Matter (PM₁₀ and PM_{2.5}); Sulfur dioxide (SO₂); and Lead (Pb). The following specific descriptions of health effects for each air pollutant associated with project construction and operation are based on USEPA (2017a) and California Air Resources Board (CARB 2009) definitions.

Ozone. Ozone (O₃) is considered a photochemical oxidant, which is a chemical that is formed when VOCs and nitrogen oxides (NO_x), both byproducts of fuel combustion, react in the presence of ultraviolet light. In Nevada County, the majority of ozone is being transported from the Sacramento area. In Eastern Nevada County, high seasonal and peak traffic volumes can have a significant impact on ozone nonattainment (Nevada County 1995). Ozone is considered a respiratory irritant, and prolonged exposure can reduce lung function, aggravate asthma, and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to ozone.

Reactive Organic Gases. (ROGs; also known as VOCs) are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of

ROGs. Other sources of ROGs include evaporative emissions from paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary pollutants such as ozone.

Carbon Monoxide. Carbon Monoxide (CO) is a product of fuel combustion and the main source of CO is from motor vehicle exhaust. CO is an odorless, colorless gas that affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects to those with cardiovascular disease and can also affect mental alertness and vision.

Nitrogen Dioxide. Nitrogen dioxide (NO₂) is also a by-product of fuel combustion and is formed both directly as a product of combustion and in the atmosphere through the reaction of nitrogen oxide (NO) with oxygen. NO₂ is a respiratory irritant, and may affect those with existing respiratory illness, including asthma. NO₂ can also increase the risk of respiratory illness.

Respirable Particulate Matter and Fine Particulate Matter. Respirable particulate matter (PM₁₀) refers to particulate matter (PM) with an aerodynamic diameter of 10 microns or less. Fine PM (PM_{2.5}) refers to PM with an aerodynamic diameter of 2.5 microns or less. PM in these size ranges has been determined to have the potential to lodge in the lungs and contribute to respiratory problems. PM₁₀ and PM_{2.5} arise from a variety of sources, including road dust, diesel exhaust, fuel combustion, tire and brake wear, construction operations, and windblown dust. In the MCAB, most particulate matter is caused by woodstoves and fireplaces, residential open burning, dust emissions from construction and earth-moving equipment, forestry management burns, transport from agricultural burns, vehicle traffic and windblown dust (NSAQMD 2016). PM₁₀ and PM_{2.5} can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases such as asthma and chronic bronchitis. PM_{2.5} is considered to have the potential to lodge deeper in the lungs than PM₁₀.

Sulfur dioxide. Sulfur dioxide (SO₂) is a colorless, reactive gas that is produced from the burning of sulfur-containing fuels such as coal and oil, and by other industrial processes. Generally, the highest concentrations of SO₂ are found near large industrial sources. SO₂ is a respiratory irritant that can cause narrowing of the airways leading to wheezing and shortness of breath. Long-term exposure to SO₂ can cause respiratory illness and aggravate existing cardiovascular disease.

Lead. Lead (Pb) in the atmosphere occurs as PM. Pb has historically been emitted from vehicles combusting leaded gasoline, as well as from industrial sources. With the phase-out of leaded gasoline, large manufacturing facilities are the primary sources of Pb emissions. Pb has the potential to cause gastrointestinal, central nervous system, kidney, and blood diseases upon prolonged exposure. Pb is also classified as a probable human carcinogen.

Toxic Air Contaminants

TACs are a category of air pollutants that have been shown to have an impact on human health but are not classified as criteria pollutants. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. Adverse health effects of toxic air contaminants can be carcinogenic (cancer-causing), short-term (acute) noncarcinogenic, and long-term (chronic) noncarcinogenic. Public exposure to TACs is a significant

environmental health issue in California. TACs are different than the criteria pollutants previously discussed because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. TACs discussed in this report include diesel particulate matter (DPM), naturally occurring asbestos, and crystalline silica.

Diesel Particulate Matter

Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The solid emissions in diesel exhaust are known as DPM. DPM is emitted from both mobile and stationary sources. Several major sources of DPM include ships, trains, and trucks in heavy industrial settings (CARB 2016a). Exposure to diesel exhaust can have immediate and long-term health effects. Diesel exhaust and many individual substances contained in it (including arsenic, benzene, formaldehyde, and nickel) have the potential to contribute to mutations in cells that can lead to cancer. In 1998, California identified DPM as a TAC based on its potential to cause cancer, premature death, and other health problems (e.g., asthma attacks and other respiratory symptoms). Those most vulnerable are children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's known cancer risk from outdoor air pollutants, with an estimated 70% of total known cancer risk attributable to DPM (CARB 2016a). Diesel engines also contribute to California's PM_{2.5} air quality problems and cause visibility reduction (CARB 2011).

Naturally Occurring Asbestos

Chrysotile and amphibole asbestos (such as tremolite) occur naturally in certain geologic settings in California, most commonly in association with ultramafic rocks and along associated faults. Asbestos is a known carcinogen, and inhalation of asbestos may result in the development of lung cancer or mesothelioma. Exposing or disturbing rock and soil that contains naturally occurring asbestos can result in the release of fibers to the air and, consequently, public exposure. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos.

Crystalline Silica

Crystalline silica is a component of soil, sand, granite, and many other minerals. Crystalline silica may become respirable-sized particles when workers chip, cut, drill, or grind materials that contain it. If respirable crystalline silica dust enters the lungs, it causes the formation of scar tissue (silicosis) which can be disabling or even fatal, reducing the lungs' ability to take in oxygen and increasing the susceptibility to lung infections like tuberculosis. The non-crystalline form of silica (amorphous silica) is not nearly as toxic, since it usually does not cause the formation of scar tissue in the lungs. High occupational exposure to crystalline silica has been linked to respiratory problems and in some cases to cancer. Crystalline silica related illnesses historically have been associated with industrial processes such as mining. However, due to stringent health and safety regulations that have been imposed over the years, mining related respiratory illnesses have steadily declined.

4.7.2 Regulatory Framework

Ambient air quality standards (AAQS) have been adopted at state and federal levels for criteria air pollutants. In addition, both the state and federal governments regulate the release of TACs. Nevada County is in the MCAB and is subject to the rules and regulations imposed by the NSAQMD, as well as the California AAQS adopted by the CARB and National AAQS adopted by the USEPA. Federal, state, regional, and local laws, regulations, plans, and guidelines that are applicable to the project are summarized below.

Federal Regulations

Federal Clean Air Act

The USEPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required the USEPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for several criteria pollutants.

State Regulations

California Clean Air Act

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The CARB established the more stringent California Ambient Air Quality Standards (CAAQS) for the six criteria pollutants through the California Clean Air Act of 1988 (CCAA), and also established CAAQS for additional pollutants, including sulfates, H₂S, vinyl chloride, and visibility-reducing particles. Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be “nonattainment areas” for that pollutant.

The CARB is the State regulatory agency with authority to enforce regulations to both achieve and maintain the NAAQS and CAAQS. The CARB is responsible for the development, adoption, and enforcement of the state’s motor vehicle emissions program, as well as the adoption of the CAAQS. The CARB also reviews local air districts’ operations and programs and requires each air district with jurisdiction over a nonattainment area to develop its own strategy for achieving the NAAQS and CAAQS. The local air district has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. The NSAQMD is the local agency responsible for the administration and enforcement of air quality regulations for Nevada County.

Table 4.7-3 presents the federal and State ambient air quality standards.

**Table 4.7-3
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary ¹	Secondary ²
O ₃	1 Hour	0.09 ppm (180 µg/m³)	–	–
	8 Hour	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)	Same as Primary
PM ₁₀	24 Hour	50 µg/m³	150 µg/m³	Same as Primary
	AAM	20 µg/m³	–	Same as Primary
PM _{2.5}	24 Hour	–	35 µg/m³	Same as Primary
	AAM	12 µg/m³	12.0 µg/m³	15.0 µg/m³
CO	1 Hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	–
	8 Hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)	–	–
NO ₂	1 Hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	–
	AAM	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
SO ₂	1 Hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m³)
	24 Hour	0.04 ppm (105 µg/m³)	–	–
Lead	30-day Avg.	1.5 µg/m³	–	–
	Calendar Quarter	–	1.5 µg/m³	Same as Primary
	Rolling 3-month Avg.	–	0.15 µg/m³	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	No Federal Standards	
Sulfates	24 Hour	25 µg/m³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m³)		

Source: CARB 2016b

¹ National Primary Standards: The levels of air quality necessary, within an adequate margin of safety, to protect the public health.

² National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

O₃: ozone; ppm: parts per million; µg/m³: micrograms per cubic meter; PM₁₀: particulate matter with an aerodynamic diameter of 10 microns or less; AAM: Annual Arithmetic Mean; PM_{2.5}: fine particulate matter; CO: carbon monoxide; mg/m³: milligrams per cubic meter; NO₂ nitrogen dioxide; SO₂: sulfur dioxide; km: kilometer; –: No Standard.

State Implementation Plans

The CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The SIP is periodically modified to reflect the latest emissions inventories, plans, and rules and

regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA has the responsibility to review all SIPs to determine whether they conform to the requirements of the CAA.

Western Nevada County AQAP

As depicted in Table 4.7-1, Western Nevada County is in nonattainment for ozone with respect to both federal and state air quality standards and therefore must prepare an AQAP that demonstrates how ozone levels would be lowered to meet the standards as expeditiously as practical. The NSAQMD adopted all applicable “reasonably available control technologies” and must submit a “Rate of Progress” document to the CARB that demonstrates progress toward reaching attainment. Major air pollution sources are subject to an emission offset program, and federally funded projects such as highway improvements must be shown to not make the problem worse. As required by the CAA, Western Nevada County must reduce its emissions of ozone precursors by at least 3 percent per year. Most necessary reductions are expected from Statewide measures and from mobile sources becoming cleaner.

Air pollution sources associated with stationary sources are regulated through the permitting authority of the NSAQMD under the NSAQMD Rules and Regulations. Owners of any new or modified equipment that emits, reduces, or controls air contaminants, except those specifically exempted by the NSAQMD, are required to apply for an Authority to Construct and Permit to Operate (NSAQMD Regulations IV and V). Additionally, best available control technology is required on specific types of stationary equipment. Through this mechanism, the NSAQMD ensures that all stationary sources within the project area would be subject to the standards of the SJVAPCD and that new developments do not result in net increases in stationary sources of criteria air pollutants. The AQAP prepared for the Western Nevada County by the NSAQMD complies with this requirement. The CARB reviews, approves, or amends the document and forwards the plan to the USEPA for final review and approval within the SIP

Toxic Air Contaminant Identification and Control Act (AB 1807, Tanner 1983)

The public’s exposure to TACs is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. California Health and Safety Code Section 39655(a) defines a TAC as “an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health.” A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the Federal Clean Air Act (42 USC Sec. 7412[b]) is a TAC. Under State law, the California Environmental Protection Agency (CalEPA), acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health.

CARB Air Quality and Land Use Handbook

CARB published the Air Quality and Land Use Handbook on April 28, 2005 (CARB 2005), to serve as a general guide for considering health effects associated with siting sensitive receptors proximate to sources of TACs. The CARB Handbook explicitly states that it is advisory in nature and that local land use decisions do not have to be consistent with its recommendations. Some examples of CARB’s recommendations include avoiding siting sensitive receptors within:

- (a) 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day;
- (b) 1,000 feet of a transport distribution centers;
- (c) 300 feet of any dry cleaning operation using perchloroethylene; or,
- (d) within 500 feet of any dry cleaning operation with two or more machines.

Naturally Occurring Asbestos

In 2002, CARB adopted a new Asbestos Airborne Toxic Control Measure for construction, grading, quarrying and surface mining operations. New emission control measures, such as dust suppressants, would apply to activities such as road construction and road maintenance, construction, grading, and quarrying and surface mining operations in areas with naturally-occurring asbestos/serpentine rock (CARB 2002a). The air district may provide an exemption if a Registered Geologist has conducted a geologic evaluation of the property and determined that no serpentine or ultramafic rock is likely to be found in the area to be disturbed. Before an exemption can be granted, the owner/operator must provide a copy of a report detailing the geologic evaluation to the air district's Air Pollution Control Officer for consideration (CARB 2002a).

Proposition 65

Crystalline silica is subject to Proposition 65, which requires businesses emitting crystalline silica or other listed emissions at levels that exceed the significance risk threshold in Proposition 65, to notify the public of emissions and potential hazards. Crystalline silica has not been identified as a TAC under the California Toxic Air Contaminant Identification and Control Act, and there are no similar Federal laws or regulations that list crystalline silica as a hazardous air pollutant or TAC.

Local Regulations

Nevada County General Plan

The Air Quality Element of the Nevada County General Plan (Chapter 14; 1995) identifies the primary goal (Goal 14.1) to "Attain, maintain and ensure high air quality" with the following related objectives: (1) Objective 14.1, establish land use patterns that minimize impacts on air quality; (2) Objective 14.2, implement standards that minimize impacts on and/or restore air quality; and (3) Objective 14.3, identify regional impacts and coordinate with other agencies to achieve attainment. Applicable goals, objectives and policies are summarized below:

- *Goal 14.1*; attain, maintain, and ensure high air quality.
- *Objective 14.2*; implement standards that minimize impacts on and/or restore air quality.
- *Objective 14.3*; identify regional impacts and coordinate with other agencies to achieve attainment.
- *Policy 14.4*; encourage and cooperate with the NSAQMD.

- *Policy 14.5*; the County shall work with the [Air] District to identify areas for monitoring and to develop an implementation program to begin on-site monitoring upon project applicant where a proposal will result in an increase of more than 25 tons per year of non-attainment pollutants (or precursors).
- *Policy 14.7A*; the County shall, as part of its development review process, ensure that proposed discretionary developments address the requirements of NSAQMD Rule 226.

Northern Sierra Air Quality Management District

Local air districts are primarily responsible for controlling emissions from stationary and area-wide sources (with the exception of consumer products) through rules and permitting programs. For the project site, the NSAQMD is the agency primarily responsible for ensuring that federal and state ambient air quality standards are not exceeded and that air quality conditions are maintained. Responsibilities of NSAQMD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the federal CAA and the CCAA. In May 2016, the NSAQMD revised their Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects to provide guidance in evaluating air quality and GHG impacts from land use projects in the MCAB and in identifying appropriate mitigations within the NSAQMD (NSAQMD 2016). NSAQMD rules and regulations applicable to the proposed project include, but are not necessarily limited to, the following:

Rule 205, Nuisance. This rule prohibits the discharge of air contaminants or other material from any source which cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or which endangers the comfort, repose, health, or safety of any such persons, or the public or which cause to have a natural tendency to cause injury or damage to business or property.

Rule 226, Dust Control. This rule requires the submittal of a Dust Control Plan to the NSAQMD for approval prior to any surface disturbance, including clearing of vegetation.

Rule 302, Prohibited Open Burning. In accordance with this rule, no person (except as otherwise authorized in Sections 41801–41805.6, 41807–41809, and 41811–41815 of the Health and Safety Code) shall use open outdoor fires for the purpose of disposal, processing, or burning of any flammable or combustible material as defined in Section 39020 of the Health and Safety Code; or unless issued a permit by NSAQMD and in accordance with other applicable NSAQMD rules and regulations, including, but not limited to, Rule 308, Land Development Clearing, and Rule 312, Burning Permits.

Rule 308, Land Development Clearing. The NSAQMD finds it more economically desirable to dispose of wood waste from trees, vines, and bushes on property being developed for commercial or residential purposes by burning instead of burial at a sanitary landfill. In such instances, disposal by burning shall comply with NSAQMD rules, including, but not limited to, Rule 312, Burning Permit Requirements; Rule 313, Burn Days; Rule 314, Minimum Drying Times; Rule 315, Burning Management; and Rule 316, Burn Plan Preparation.

Rule 501, Permit Required. Before any source may be operated, a Permit to Operate shall be obtained from the Air Pollution Control Officer. No Permit to Operate shall be granted either by the Air Pollution Control Officer or the Hearing Board for any source constructed or modified without authorization or

not in compliance with other NSAQMD rules and regulations, including those specified in NSAQMD Regulation IV.

Rule 904, Asbestos Airborne Toxic Control Measure Asbestos-Containing-Serpentine, By reference, Title 17, section 93106, of the California Code of Regulations shall apply in its entirety.

The NSAQMD contains a Primary Screening Process which requires any project located near sensitive receptors such as a school, day care facility, hospital or senior center, be reviewed for initial and recurring potential air emissions of criteria pollutants. Under the Primary Screening Process, both short term and long-term emission sources must be considered. In addition, any project with potential to emit odors which may impact a considerable number of persons, leading to a public nuisance, requires in-depth review. Lead agencies are encouraged to address potential land use conflicts or exposure of sensitive receptors to odors as early as possible in the development review process (NSAQMD 2016).

4.7.3 Methods of Analysis

Off-Site Roadway Improvement Emissions

Emissions for the off-site roadway improvement construction were modeled using the SMAQMD Road Construction Emissions Model, Version 8.1.0. This model utilizes 2014 EMFAC factors and OFFROAD factors to calculate vehicle exhaust and fugitive dust emissions. Fugitive dust emissions are calculated estimating the maximum area (acres) of land disturbed daily.

Off-site roadway improvement construction could occur as early as 2020 and would disturb a total of 22 acres over one month (22 working days), therefore disturbing approximately six acres of land per day. During grading and earthwork, as a worst-case assumption, excess material would be sent via I-80 and SR 267 to Teichert's Martis Valley Quarry. Emission estimates assume the use of water trucks, yielding a 50 percent control of fugitive dust from watering and associated dust control measures. Details and assumptions regarding construction phases, hours of operation, truck hauling and construction worker estimates, and model output are provided in Appendix L of this report.

Mining Operations

The analysis utilizes emission factors from CARB's OFFROAD and EMFAC models for off-road equipment and on-road vehicles, respectively. In addition, emission factors for aggregate processing, blasting and mining, and additional sources of fugitive dust were determined based on methodology found in the USEPA's Compilation of Air Pollutant Emission Factors (AP-42) (USEPA 2001), the South Coast Air Quality Management District's handbook (SCAQMD 1993), and the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Aggregate & Rock Crushing Operations Policy Manual (SMAQMD 2008).

Air quality impacts associated with the project would be generated by employee vehicles, project site preparation, and quarry operation-related activities, which include aggregate mining, blasting, processing, on-site equipment use, and on-site and off-site truck hauling. Emission rates for employee vehicles and heavy trucks were developed from the CARB 2014 EMFAC model, which calculates emission rates for vehicles based on vehicle classes (e.g., light-duty autos, medium-heavy trucks, heavy duty trucks). The daily number of trips and daily vehicle miles traveled were obtained from the TIA prepared for the project (LSC 2017; Appendix J) and the site preparation (including timber harvest) estimated daily

VMT were obtained from the technical memorandum describing traffic impacts from timber harvesting activities at the project site dated September 10, 2018 (LSC 2018b; Appendix J). Refer to the discussion of Quarry Operation in Section 4.5.5 for a description of the daily trips generated from operation of the project. Those daily trips and the associated VMT are summarized in Table 4.5-5 in Section 4.5.5.

Employee Vehicles

As a worst-case scenario, a total of 30 one-way trips and 315 VMT per day would be generated by employee vehicle trips.

Site Preparation

Site preparation, for a conservative analysis, assumes vehicles would operate for a maximum of 16 hours per day for a maximum duration of 93 days. Site preparation may occur all at once prior to the initiation of mining in the West Pit or in phases which would be determined based on the mining pit phasing and areas being accessed based on market demand. Equipment used in site preparation would include: a dozer, loader, portable pump, excavator, and water truck. As described in the discussion of Quarry Operation in Section 4.5.5, site preparation would include timber harvest activities. Which would generate a total of 188 one-way trips and 14,000 VMT over the 30-year life of the project. Up to 20 one-way trips per day could occur during the timber harvest. If the timber harvest occurs during operation of the site, these trips would replace aggregate exporting truck trips and would not affect the overall worst case hourly and daily vehicle trips. Even if the loads are spread out over a single operating season, the timber harvest would result in less than one load per day.

Quarry Operation

Due to the variability of aggregate production, three production scenarios were assessed: Peak Daily, Worst-Case, and Average Daily.

The three production scenarios analyzed for mining operations include:

- Scenario 1** *Peak Daily Production*, analyzes peak production based on a typical workday (12 hours per day for approximately 180 working days) production of 4,100 tons per day, yielding approximately 738,000 tons per year. Scenario 1 would generate 571 trips per day and 11,410 VMT. If timber operations occur concurrently with operation, the timber harvest truck trips would replace haul truck trips, and the VMT would increase by 1,100 VMT to 12,510. This worst-case scenario was analyzed.

- Scenario 2** *Worst-Case Daily Production*, analyzes the worst-case daily production of 10,080 tons per day based on the maximum number of trucks able to be managed on-site. This scenario assumes equipment is operating continuously for 16 hours with load-out occurring up to 24-hours per day, six days a week, yielding a maximum 10,080 tons per day. The maximum annual production of 1,000,000 tons would yield approximately 93 working days under this scenario. Scenario 2 would generate 1,402 trips per day and 28,021 VMT. If timber operations occur concurrently with operation, the timber harvest truck trips would replace haul truck trips, and the VMT would increase by 1,100 VMT to 29,121. This worst-case scenario was analyzed.

Scenario 3 *Average Daily Production*, assumes an average production of approximately 3,170 tons per day yielding 570,000 tons per year based on a normal 8 hours per day work shift for approximately 180 working days. Scenario 3 would generate 442 trips per day and 8,827 VMT. If timber operations occur concurrently with operation, the timber harvest truck trips would replace haul truck trips and the VMT could increase by 1,100 VMT to 9,927. This worse-case scenario was analyzed.

Methodology is detailed in full in the Boca Quarry Expansion Air Quality and Greenhouse Gas Technical Report (HELIX 2019; Appendix L). Detailed information concerning equipment specifications, days and hours of operation, production quantities, emission factors and other pertinent assumptions are contained in Appendix L to this EIR.

4.7.4 Significance Thresholds

The impact analysis provided below is based on the application of the following State CEQA Guidelines Appendix G thresholds of significance, which indicate that a project would have a significant impact if it would:

1. Conflict with or obstruct implementation of any applicable air quality plan;
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
4. Expose sensitive receptors to substantial pollutant concentrations; and
5. Create objectionable odors affecting a substantial number of people.

NSAQMD thresholds have been used to determine air quality impacts in this analysis. To assist local jurisdictions in the evaluation of air quality impacts, the NSAQMD has published a guidance document for the preparation of the air quality portions of environmental documents that includes thresholds of significance to be used in evaluating land use proposals. Thresholds of significance are based on a source's projected impacts and are a basis from which to apply mitigation measures (NSAQMD 2016). The NSAQMD has developed a tiered approach to significance levels:

- A project with emissions meeting Level A thresholds would require the most basic mitigations;
- Projects with projected emissions in the Level B range would require more extensive mitigations; and
- Those projects which exceed Level C thresholds would require the most extensive mitigations.

The NSAQMD-recommended thresholds are identified in Table 4.7-4.

Table 4.7-4
NSAQMD-RECOMMENDED SIGNIFICANCE THRESHOLDS

Significance Level	Project-Generated Emissions (lbs/day)		
	NO _x	ROG	PM ₁₀
Level A	<24	<24	<79
Level B	24-136	24-136	79-136
Level C	>136	>136	>136

Source: NSAQMD 2016

According to the NSAQMD, these thresholds are recommended for use by lead agencies when preparing initial studies (NSAQMD 2016). If, during the preparation of the initial study, the Lead Agency finds that any of the following thresholds may be exceeded and cannot be mitigated to Level B, then a determination of significant air quality impact must be made and an EIR is required.

For evaluation of project-related air quality impacts, implementation of the proposed project would be considered significant if the project would:

- Exceed NSAQMD-recommended significance thresholds, as identified in Table 4.7-4. In accordance with NSAQMD-recommended thresholds of significance, project-generated short- or long-term increases in emissions in excess of Level C thresholds for NO_x, ROG, or PM₁₀ would be considered significant. The NSAQMD has not adopted thresholds of significance for PM_{2.5}. However, because PM_{2.5} is a subset of PM₁₀, significant increases in PM₁₀ would be considered to also result in significant increases in PM_{2.5}.

It is important to note that in cases when predicted emissions are projected to be below the Level C thresholds but exceeding the Level A thresholds (thereby placing project-related air quality impacts at Level B), the project would be considered potentially significant, subject to the recommended measures of NSAQMD's *Mitigation for Use During Design and Construction Phases for Classifications as Level B Threshold*. Implementation of the appropriate NSAQMD mitigation from this collection of measures would reduce Level B air quality impacts to a less than significant level.

- Exceed the NSAQMD health risk public notification thresholds set at 10 excess cancer cases in a million for cancer risk, or a HI of greater than one (1.0) for noncancer risk.
- Contribute to localized concentrations of air pollutants at nearby receptors that would exceed applicable ambient air quality standards.
- Result in the frequent exposure of sensitive land uses to odorous emissions.

In addition, *Policy 14.5* of the Nevada County General Plan Air Quality Element states that “the County shall work with the [Air] District to identify areas for monitoring and to develop an implementation program to begin on-site monitoring upon project application where a proposal would result in an increase of more than 25 tons per year of non-attainment pollutants (or precursors).”

Open burning of vegetation for land development clearing is subject to the permitting process of the NSAQMD Rule 308. Burn quantities and days when burning is allowed is determined in the permit process to ensure that NAAQS and CAAQS for the air basin are not exceeded. The NSAQMD air pollutant

thresholds do not apply to permitted open burning of vegetation. This report provides an estimate of open vegetation burning emissions for informational purposes.

TAC Impacts to Sensitive Receptors

Impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as TACs or Hazardous Air Pollutants (HAPs).

When evaluating whether a project would have a significant impact on sensitive receptors, air quality regulators typically define sensitive receptors as schools (preschool through 12th grade), hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, because the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public. Any project that has the potential to directly impact a sensitive receptor located within one-quarter mile and results in a health risk greater than 10 in 1 million would have a potentially significant impact.

The NSAQMD encourages lead agencies to identify and address air quality issues as early as possible during the development process, which includes exposure of sensitive receptors to toxics and criteria pollutants. Further, NSAQMD has a Primary Screening Process which requires any project located near sensitive receptors such as a school, day care facility, hospital, or senior center, be reviewed for initial and recurring potential air emissions of criteria pollutants. Under the Primary Screening Process, both short term and long-term emission sources must be considered.

Odors

The NSAQMD has an established screening process which requires in-depth review of any project with potential to emit odors which may impact considerable number of persons, leading to a public nuisance. Additionally, NSAQMD encourages lead agencies to address potential land use conflicts (such as odors), or exposure of sensitive receptors to odors as early as possible in the development review process (NSAQMD 2016). Common land uses that have the potential to generate substantial odor complaints, include wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants.

4.7.5 Impact Analysis

Significance Threshold 1 – Conformance to the Applicable Air Quality Plans

State CEQA Guidelines and the CAA (Sections 176 and 316) contain specific references on the need to evaluate consistencies between the proposed project and the applicable SIP for the project site. To accomplish this, the CARB has developed a three-step approach to determine project conformity with the applicable SIP.

1. Determination that an AQAP is being implemented in the area where the project is being proposed. The NSAQMD has implemented the current AQAP as approved by the CARB.
2. *The proposed project must be consistent with the growth assumptions of the applicable AQAP.* The proposed project is included within the population and residential property increases projected in the Nevada County General Plan. The growth represented by the proposed project was anticipated by the General Plan, therefore the expansion of the quarry, which is zoned as Forest with a Mineral Extraction combining district (FR-ME), is consistent with the AQAP. Proposed project truck travel is a small percentage of total county vehicle travel. Additionally, the growth assumptions in the AQAP include emissions associated with activities necessary to meet the growth demand for aggregate, concrete, and other building materials; and the proposed project emissions can easily be accommodated within those growth assumptions.
3. *The project must contain in its design all reasonably available and feasible air quality control measures.* The proposed project would be required to implement all applicable basic requirements for compliance with district/state rules and regulations, including, but not limited to: Rule 226 Dust Control; Rule 205 Nuisance; Rule 302 Prohibited Opening Burning; Rule 308 Land Development Clearing; Rule 501 Permit Required; and Rule 904 *Asbestos Airborne Toxic Control Measure Asbestos-Containing-Serpentine*. Additionally, the AQAP includes emission budgets from stationary and mobile emission sources and fugitive dust. The CCAA and AQAP identify transportation control measures to further reduce emissions from mobile sources. Strategies identified to reduce vehicular emissions, such as reductions in vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, and traffic congestion in order to reduce vehicular emissions, would be implemented as control measures under the CCAA. Therefore, the proposed project would be in compliance with all of the applicable NSAQMD permitting and operation requirements.

As demonstrated above, the project would be consistent with Steps 1 through 3 and would therefore be in compliance with the AQAP and would not conflict with or obstruct implementation of the air quality plan.

Nevada County General Plan

The Nevada County General Plan serves as the overall guiding policy document for the unincorporated areas of Nevada County. The Nevada County General Plan Air Quality Element contains Policy 14.5 which states that “the County shall work with the [Air] District to identify areas for monitoring and to develop an implementation program to begin on-site monitoring where a proposal will result in an increase of more than 25 tons per year of non-attainment pollutants (or precursors).” The average annual operations would occur during a typical 8-hour work day for 180 days per year. Table 4.7-5 presents the average annual criteria pollutant emissions based on Scenario 3, Average Daily Production, multiplied by 180 days per year. Annual average operational emissions do not include site preparation or construction of the off-site roadway improvement area. Refer to the discussion of Operational Air Quality Emissions under Significance Threshold 2 for descriptions of the emissions sources.

As presented in Table 4.7-5, annual average operational emissions would remain below the Nevada County General Plan criterion of 25 tons per year for each criteria pollutant and therefore the air quality impacts associated with the annual operational emissions would be considered less than significant.

**Table 4.7-5
ANNUAL AVERAGE QUARRY OPERATIONAL EMISSIONS**

Emissions Source	Criteria Pollutant Emissions (tons/year)					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Mining Activities	0.26	1.55	2.65	0.00	2.51	2.00
Materials Processing	0.39	2.27	3.61	0.01	11.70	6.26
On- and Off-site Traffic	0.25	1.23	7.78	0.03	0.23	0.11
TOTAL	0.89	5.05	14.04	0.04	14.44	8.37
Nevada County General Plan Significance Thresholds	25	n/a	25	n/a	25	n/a
Significant Impact?	<i>No</i>	<i>n/a</i>	<i>No</i>	<i>n/a</i>	<i>No</i>	<i>n/a</i>

Source: HELIX 2019

Notes: There are no criteria pollutant emission standards for CO, ROG, and PM_{2.5}; average annual production is assumed to be 570,000 tons per year. All annual average calculations are based on an average day multiplied by 180 (days per year).

Significance Threshold 2 - Conformance with Federal and State Ambient Air Quality Standards

Off-Site Roadway Improvement Air Quality Emissions

The project would emit temporary criteria air pollutants during approximately one month of off-site roadway improvement construction. The emissions generated from a maximum 22 acres of disturbed land due to site preparation and constructional activities include:

- Dust (including PM₁₀ and PM_{2.5}) primarily from fugitive sources such as soil disturbance, and vehicle travel over unpaved surfaces;
- Combustion emissions of air pollutants (including ROG, NO_x, PM₁₀, PM_{2.5}, CO, and SO_x) primarily from operation of heavy off-road equipment

Table 4.7-6 summarizes the emissions generated during construction of roadway improvements in the off-site roadway improvement area.

**Table 4.7-6
ESTIMATED OFF-SITE ROADWAY CONSTRUCTION AIR QUALITY EMISSIONS**

Construction Phases	Criteria Pollutant Emissions Levels (lbs/day)					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Grubbing and Land Clearing	2.24	20.42	24.64	0.06	56.21	12.42
Grading and Excavation	10.65	88.60	114.74	0.19	60.72	16.44
Placing Asphaltic Concrete	7.43	69.79	71.76	0.15	59.08	15.01
Paving (Asphaltic Concrete Overlay)	2.86	34.51	27.82	0.08	1.88	1.52
MAXIMUM	10.65	88.60	114.74	0.19	60.72	16.44
NSAQMD Significance Threshold	137	n/a	137	n/a	137	n/a
Significant Impact?	<i>No</i>	<i>n/a</i>	<i>No</i>	<i>n/a</i>	<i>No</i>	<i>n/a</i>

Source: HELIX 2019

Notes: There are no criteria pollutant emission standards for CO, ROG, and PM_{2.5}, however PM_{2.5} is a surrogate for PM₁₀, the daily threshold of 137 pounds per day was used for PM_{2.5} as well.

For roadway improvement construction, criteria pollutant emissions would not exceed the NSAQMD threshold and therefore would be considered a less than significant impact.

Boca Quarry Site Preparation Air Quality Emissions

Site preparation would occur prior to quarry operations over a 93-day period and would involve: removal of vegetation and overburden; grading; and removal of topsoil. For a conservative analysis, site preparation assumes vehicles would operate for a maximum 16 hours per day. Table 4.7-7 summarizes the emissions generated during site preparation.

Table 4.7-7
ESTIMATED SITE PREPARATION AIR QUALITY EMISSIONS

Site Preparation	Criteria Pollutant Emissions Levels (lbs/day)					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Blasting	0.55	4.16	7.04	0.02	14.20	14.19
Off-road Vehicle Combustion	5.16	30.26	51.77	0.07	2.38	2.22
On-road Vehicle Combustion	0.04	0.20	1.30	0.01	0.04	0.02
Fugitive Dust	-	-	-	-	26.88	11.78
TOTAL	5.76	34.61	60.12	0.10	43.50	28.21
NSAQMD Significance Threshold	137	n/a	137	n/a	137	n/a
Significant Impact?	<i>No</i>	<i>n/a</i>	<i>No</i>	<i>n/a</i>	<i>No</i>	<i>n/a</i>

Source: HELIX 2019

Notes: There are no criteria pollutant emission standards for CO, ROG, and PM_{2.5}, however PM_{2.5} is a surrogate for PM₁₀, the daily threshold of 137 pounds per day was used for PM_{2.5} as well.

Criteria pollutant emissions associated with site preparation activities would be below the NSAQMD thresholds and therefore would be considered a less than significant impact.

Vegetation Burning

Emissions from burning piles of vegetation stripped from project site were estimated using the USFS Fuel and Fire Tools version 2.0, Fuel Characteristic Classification System Module (2015), and the USFS Piled Fuels Biomass and Emissions Calculator web application (2014). The species, area coverage and density of the predominant vegetation to be stripped were obtained from the BOCA Quarry Use Permit and Reclamation Plan Modification report (Teichert Aggregates 2011). The Fuel and Fire Tools only provide criteria pollutant emissions estimates for CO, PM₁₀, and PM_{2.5}. Table 4.7-8 presents the estimated vegetation burning emissions for the project. The NSAQMD air pollutant thresholds do not apply to permitted open burning of vegetation—this estimate of open vegetation burning emissions is provided for informational purposes.

Table 4.7-8
ESTIMATED VEGETATION BURNING EMISSIONS

	Acres	Loading (tons/acre)	Biomass (tons)	Criteria Pollutant Emissions (tons)		
				CO	PM ₁₀	PM _{2.5}
Total Project	118	94.5	11,155.7	381.5	100.4	85.3
Maximum Annual	6.9	94.5	656.2	22.4	5.9	5.0

Source: HELIX 2019

¹ Maximum annual emissions based on the worst-case year of 1 million tons out of the total 17 million tons of aggregate mined (5.9 percent).

Burning of vegetation cleared from the project site could result in exceedance of the NAAQS and/or CAAQS for nonattainment criteria air pollutants in the air basin. This would be a potentially significant impact.

Operational Air Quality Emissions

As previously described in the Section 4.7.3, project NO_x, ROG, PM₁₀, PM_{2.5}, CO, and SO_x emissions were estimated for three different operating scenarios for the activities involved in the quarry area, processing plant area, and off-site roads. The emissions sources for each scenario are presented by the activity generating the emissions. Mining activities would produce emissions from: (1) off-road vehicle combustion, and (2) fugitive dust generated by drilling, blasting, excavation and grading, equipment and vehicle travel and operations over unpaved surfaces, and stockpiled materials. Materials processing would produce emissions from: (1) off-road vehicle combustion, and (2) fugitive dust generated by material loading and unloading, material transfer to the conveyor belt, material crushing and screening, equipment and vehicle travel and operations over unpaved surfaces, and stockpiled materials. On- and off-site traffic combustion emissions from on- and off-site haul trucks and employee vehicle trips.

Emission levels would vary depending on the number and type of equipment, duration of use, operating schedules, and the number of workers and haul trucks. Criteria pollutant emissions of ROG and NO_x from these emission sources would incrementally add to the regional atmospheric loading of ozone precursors during project site preparation and operations.

The emissions generated from operational activities include:

- Dust (including PM₁₀ and PM_{2.5}) primarily from fugitive sources such as soil disturbance, drilling and blasting, processing plant operations, and vehicle travel over unpaved surfaces;
- Combustion emissions of air pollutants (including ROG, NO_x, PM₁₀, PM_{2.5}, CO, and SO_x) primarily from operation of heavy off-road equipment, and employee vehicle and haul truck trips.

The results of the three operating scenarios are summarized below in Tables 4.7-9 through 4.7-11 for the proposed project.

Table 4.7-9
SCENARIO 1: PEAK DAILY PRODUCTION QUARRY OPERATIONAL EMISSIONS

Emission Source	Criteria Pollutant Emissions Levels (lbs/day)					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Mining Activities	4.29	25.81	44.11	0.07	31.80	23.50
Materials Processing	6.45	37.79	60.20	0.12	156.31	78.09
On- and Off-site Traffic	3.49	17.09	108.85	0.42	3.27	1.53
TOTAL	14.22	80.69	213.16	0.61	191.39	103.11
NSAQMD Significance Threshold	137	n/a	137	n/a	137	n/a
Significant Impact?	<i>No</i>	<i>n/a</i>	Yes	<i>n/a</i>	Yes	<i>n/a</i>

Source: HELIX 2019

Notes: There are no criteria pollutant emission standards for CO, ROG, and PM_{2.5}; "Peak production" would be about 4,100 tons per day (12-hour days in place of the 16-hour "double shift" for the "worst case" day scenario.

Table 4.7-10
SCENARIO 2: WORST-CASE DAILY PRODUCTION QUARRY OPERATIONAL EMISSIONS

Emission Source	Criteria Pollutant Emissions Levels (lbs/day)					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Mining Activities	5.72	34.42	58.81	0.09	43.46	28.19
Materials Processing	8.60	50.39	80.26	0.16	340.72	134.88
On- and Off-site Traffic	8.09	38.79	253.07	0.97	7.57	3.53
TOTAL	22.40	123.60	392.14	1.23	391.75	166.60
NSAQMD Significance Threshold	137	n/a	137	n/a	137	n/a
Significant Impact?	<i>No</i>	<i>n/a</i>	Yes	<i>n/a</i>	Yes	<i>n/a</i>

Source: HELIX 2019

Notes: There are no criteria pollutant emission standards for CO, ROG, and PM_{2.5}; “Worst-case” day production is 10,080 tons per day based on the maximum number of trucks able to be managed on-site. Divided by a maximum annual production of 1,000,000 tons, yields approximately 93 working days.

Table 4.7-11
SCENARIO 3: AVERAGE DAILY PRODUCTION QUARRY OPERATIONAL EMISSIONS

Emission Source	Criteria Pollutant Emissions Levels (lbs/day)					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Mining Activities	2.86	17.21	29.41	0.05	27.84	21.96
Materials Processing	4.30	25.19	40.13	0.08	130.04	69.58
On- and Off-site Traffic	2.78	13.71	86.42	0.33	2.60	1.21
TOTAL	9.93	56.12	155.96	0.46	160.48	92.75
NSAQMD Significance Threshold	137	n/a	137	n/a	137	n/a
Significant Impact?	<i>No</i>	<i>n/a</i>	Yes	<i>n/a</i>	Yes	<i>n/a</i>

Source: HELIX 2019

Notes: There are no criteria pollutant emission standards for CO, ROG, and PM_{2.5}; Average daily production is assumed to be 3,170 tons per day. All daily average calculations are based off of an “average day” multiplied by 8 hours per day.

According to Tables 4.7-9 through 4.7-11, NO_x and PM₁₀ emissions would exceed the NSAQMD thresholds for all three operating scenarios and would be considered a potentially significant impact (HELIX 2019).

Significance Threshold 3 - Cumulative Impacts

Expansion and operation of the proposed project would result in a cumulative increase of criteria pollutant emissions.

A cumulative impact occurs when two or more individual effects, considered together, are considerable or would compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant impacts, meaning that the project’s incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects. The NSAQMD is currently designated nonattainment for the federal and the State standards for 8-hour ozone. Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. As discussed above, the project would result in significant project-level NO_x and PM₁₀ emissions impacts and therefore, also would also result in cumulatively considerable contributions to NO_x and PM₁₀ emissions.

Significance Threshold 4 – Exposure of Sensitive Receptors to Pollutant Concentrations

An analysis of the project's potential to expose sensitive receptors to DPM, naturally occurring asbestos, crystalline silica, and CO and is described below.

Air quality sensitive receptors with the potential to be affected by the proposed project include those located within 0.25 mile of the project site and the haul route (which includes the off-site roadway improvement area). Potentially affected sensitive receptors identified within 0.25-mile of the project site include: Sensitive Receptor 1 - recreational users near the southern edge of Boca Reservoir (i.e., boaters, fishermen, campers, cyclists, etc.); Sensitive Receptor 2 - the Boca Reservoir's caretaker residence located on Stampede Meadows Road just south of the dam; and Sensitive Receptor 3 - the Truckee River RV Park on the south side of the I- 80 interchange with Hirschdale Road. Additional air quality sensitive receptors in the area include the Tahoe Forest Church and residential areas southwest of the project site; however, these sensitive receptors are located more than 0.25 mile from the project site and the haul route and would not be impacted. Refer to Figure 4.7-1 for the locations of the sensitive receptors within 0.25-mile of the project site.

Diesel Particulate Matter

DPM is not included as a criteria pollutant; however, is recognized by the State of California as containing carcinogenic compounds. The risks associated with exposure to substances with carcinogenic effects are typically evaluated based on a lifetime of cancer exposure, which is defined in the California Air Pollution Control Officers Association (CAPCOA) Air Toxics "Hot Spots" Program Risk Assessment Guidelines (CAPCOA 2015) as 24 hours per day, 7 days per week, 365 days per year, for 30 years for residences.

DPM would be emitted from heavy equipment used during operation of the proposed project and construction of the off-site roadway improvements. The proposed project would operate a maximum of 30 years for 180 days per year, and construction of the off-site roadway improvement area would occur for approximately one month. The off-site roadway improvement construction would be short-term and temporary in nature and therefore would not result in a significant impact. Mine operations in the project site would occur over a maximum of 180 working days per year which is well below the CAPCOA threshold of 365 days of exposure. Thus, quarry operations would not result in a significant health risk to surrounding receptors.

Additionally, the CARB Guidance document recommends that sources of hazardous emissions be separated from sensitive receptor land uses (which includes residential homes, schools, medical facilities, etc.), and requires assessment of sensitive receptors located within 0.25-mile (1,320 feet) of the project site. Currently, no residences are located within 0.25-mile of the portion of the haul route along West Hinton Road. Recreational users near the southern edge of Boca Reservoir and visitors staying at the Truckee River RV Park would be temporarily exposed to DPM from passing haul trucks utilizing Stampede Meadows Road and the I-80 interchange with Hirschdale Road. Visits from recreational and RV Park users are typically short term and exposure to DPM would be limited. Therefore, due to the short-term nature of recreational visits and the temporary exposure from passing haul trucks, impacts to recreational reservoir users and Truckee River RV Park users are less than significant.

The Boca Reservoir's caretaker residence would also be exposed to DPM from haul trucks driving on Stampede Meadows Road just south of the dam, however, haul trucks would only operate 180 days per year and would be well below the threshold of 365 days of exposure.

Therefore, because project activity would only occur fifty percent of the year and sensitive receptors would be only temporarily exposed to the DPM produced by passing haul trucks, the potential project impacts from DPM would be less than significant and no mitigation is required.

Asbestos

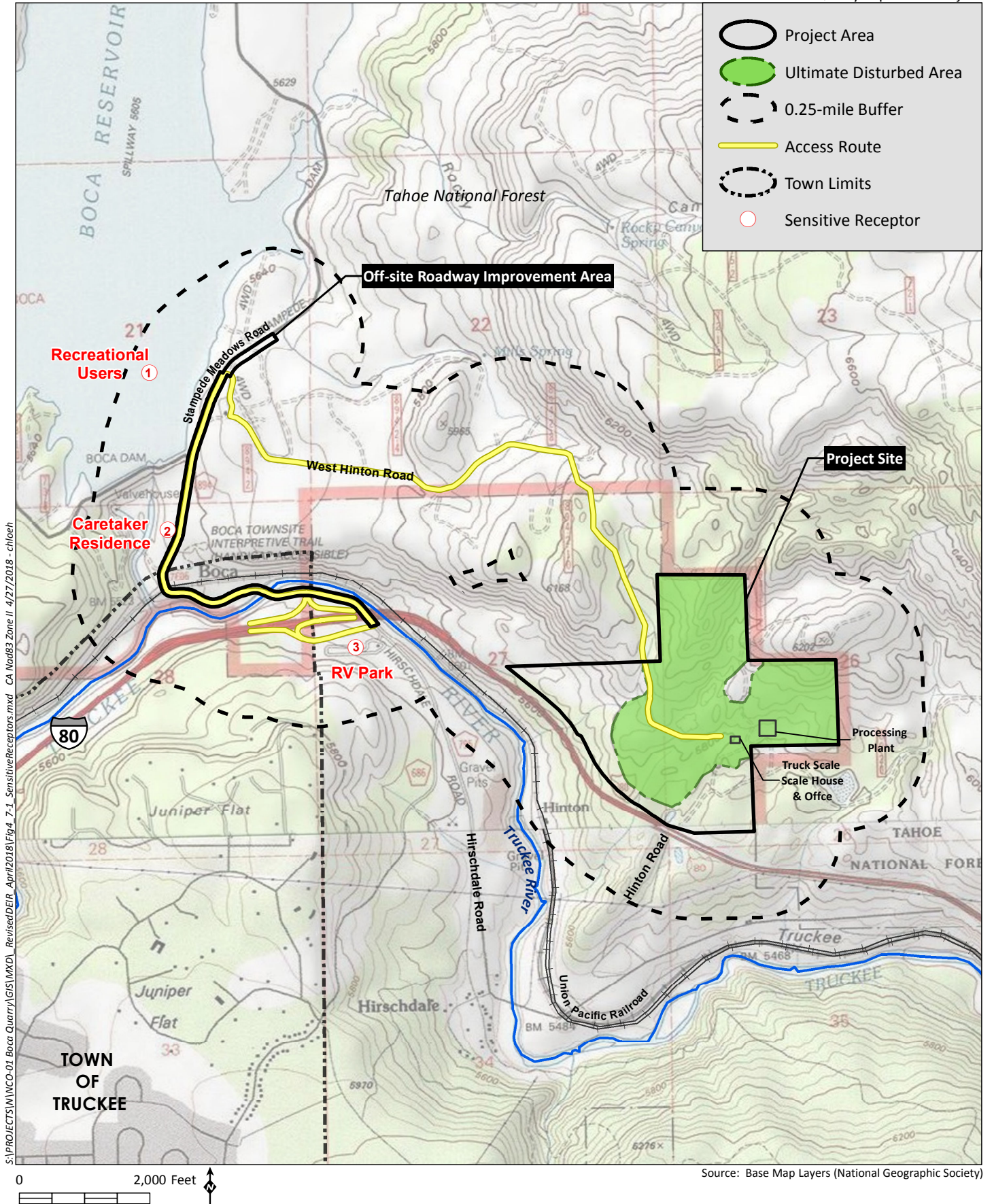
Chrysotile and amphibole asbestos (such as tremolite) occur naturally in certain geologic settings in California, most commonly in association with ultramafic rocks and along associated faults. Asbestos is a known carcinogen, and inhalation of asbestos may result in the development of lung cancer or mesothelioma. Exposing or disturbing rock and soil that contains naturally occurring asbestos can result in the release of fibers to the air and, consequently, public exposure.

A review of the California Division of Mines and Geology's *General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* (2000) was conducted. The guide shows that the project site and off-site roadway improvement area are not located in an area of potential naturally occurring asbestos (HELIX 2019; Appendix L). Although the mapping is negative, there is the potential for asbestos to be present naturally in the project site and off-site roadway improvement area, and asbestos containing rocks may have been used in the pavement in the off-site roadway improvement area. Ground disturbing activities associated with construction of the off-site roadway improvement area and mining operations in the project site have the potential to expose sensitive receptors to asbestos, if present, which would result in a potentially significant impact.

Crystalline Silica

Due to the presence of a large amount of quartz at the project site, any fugitive dust emissions as a result of quarry operations on the project site may contain crystalline silica. As a conservative analysis, it was assumed that four percent of all PM₁₀ fugitive dust would be respirable quartz dust. The estimated on-site emissions include all of the emission controls and other emission reduction strategies as specified by SCAQMD rules. The screens, crushers, and conveyors associated with the aggregate plant would be controlled with a combination of wet material, complete enclosure, or baghouse filters or similar devices. The overall emission control efficiency of this combination is at least 97.5 percent.

Potential cancer risks due to exposure to crystalline silica emissions were estimated using OEHHA's various safe harbor concentrations under California Proposition 65. The estimated cancer risk due to crystalline silica emissions during operation would be less than one in a million. Comparing this result to the NSAQMD threshold of 10 in one million, and based on a proposed safe exposure level published by the OEHHA, the project would not cause a significant health risk from crystalline silica (refer to HELIX 2019 in Appendix L). In addition, even if crystalline silica emissions were known to occur on the project site, Mitigation Measure AQ-2 requires implementation of a dust control program that would limit exposure to such emissions. Therefore, the health risk from crystalline silica on off-site sensitive receptors would be less than significant.



Localized CO Hot Spots Analysis

Vehicle exhaust is the primary source of CO. In a rural setting, the highest CO concentrations are generally associated with congested intersections. Under typical meteorological conditions, CO concentrations tend to decrease as distance from the emissions source (i.e., congested intersection) increase. Project-generated traffic has the potential of contributing to localized hotspots of CO off-site. Because CO is a byproduct of incomplete combustion, exhaust emissions are worse when fossil-fueled vehicles are operated inefficiently, such as in stop-and-go traffic or through heavily congested intersections, where the LOS is severely degraded.

CARB Guidance recommends evaluation of the potential for the formation of locally high concentrations of CO, known as CO “hot spots.” Caltrans’ 1998 *Transportation Project-Level Carbon Monoxide Protocol* was followed to determine whether a CO “hot spot” is likely to form due to project-generated traffic. In accordance with this protocol, CO “hot spots” are typically evaluated when (a) the LOS of an intersection or roadway decreases to a LOS E or worse; (b) signalization and/or channelization is added to an intersection; and (c) sensitive receptors such as residences, commercial developments, schools, hospitals, etc. are located in the vicinity of the affected intersection or roadway segment (HELIX 2019).

As described in Section 4.5, Traffic Circulation, the TIA prepared for the project (LSC 2017; Appendix J) includes an evaluation of LOS at three intersections in the project vicinity under the existing (2017) and future (2037) conditions with and without the project. The results of the analysis concluded that all intersection movements would operate at an acceptable LOS C or better under all scenarios. Since the LOS would not be degraded to E or worse at any intersections in the project vicinity, the project would not result in the formation of CO “hot spots” and there would be no impact.

Significance Threshold 5 - Creation of Objectionable Odors Affecting a Substantial Number of People

Odor impacts generally occur from either siting a new odor source (e.g., the project includes a proposed odor source near existing sensitive receptors), or siting a new sensitive receptor (e.g., the project includes proposed sensitive receptors near an existing odor source). Although offensive odors from stationary sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress, generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed and direction, and the sensitivity of receptors. Generally, increasing the distance between the receptor and the source would eliminate or mitigate odor impacts.

According to the NSAQMD primary screening process, potential land use conflicts, such as odors or exposure of sensitive receptors to odors, should be addressed as early as possible in the development review process (NSAQMD 2016). An in-depth review is required of any project with potential to emit odors which may impact a considerable number of persons, leading to a public nuisance. Common land uses that have the potential to generate substantial odor complaints include wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants. The proposed project does not include any of these land uses or similar land uses.

Diesel truck emissions may be an odor source; however, since the haul trucks would pass by the nearest receptors without stopping, and would not idle their engines nearby, the exhaust emissions and associated odors would disperse before affecting a substantial number of people (HELIX 2019). Diesel

equipment used for construction of the off-site roadway improvement area may result in objectionable odors; however, those impacts would be temporary and would only last for the duration of construction. Therefore, the project would not create objectionable odors that would affect a substantial number of people, and odor impacts would be less than significant.

4.7.6 Level of Significance Before Mitigation

Burning of vegetation cleared from the project site could result in exceedance of the NAAQS and/or CAAQS for nonattainment criteria air pollutants in the air basin. This would be a potentially significant project-specific impact related to: (1) conformance with federal and State Ambient Air Quality standards and (2) cumulatively considerable net increase of criteria pollutants.

Based on the analysis provided above, implementation of the proposed project would result in an exceedance of the NSAQMD thresholds for NO_x and PM₁₀ under all three potential operating scenarios and would result in potentially significant project-specific impacts related to: (1) conformance with federal and State Ambient Air Quality standards, (2) cumulatively considerable net increase of criteria pollutants, and (3) exposure of sensitive receptors to pollutant concentrations.

The project would result in less than significant impacts related to conformance with the applicable air quality plan and creation of objectionable odors.

4.7.7 Mitigation Measures

The following mitigation measures shall be required to offset project impacts related to exceedances in air quality standards and a cumulative increase in criteria pollutants.

AQ-1 Prior to any open burning of vegetation, the Project Applicant shall obtain a burn permit in accordance with the NSAQMD Regulation III, Open Burning. All applicable requirements established for obtainment of a burn permit, notification of the air district or other entities, and execution of burning authorized by the permit shall be followed in accordance with NSAQMD Rules:

- Rule 308 – Land Development Clearing
- Rule 312 – Burning Permits
- Rule 313 – Burn Day
- Rule 314 – Minimum Drying Times
- Rule 315 – Burning Management Requirements
- Rule 316 – Burn Plan Preparation

AQ-2 Diesel control measures including, but not limited to the following, shall be incorporated by the applicant into contract specifications for all on- and off-road equipment:

- To minimize potential diesel emission impacts on nearby receptors (pursuant to NSAQMD Regulation 2, Rule 205, Nuisance), heavy duty diesel equipment shall be properly tuned. A schedule of tune-ups shall be developed and performed for all equipment operating within the project area, particularly for haul and delivery trucks. A log of required tune-ups shall be maintained and a copy of the log shall be submitted to County for review every 2,000 service hours.

- To minimize diesel emission impacts, contracts shall require off-road compression ignition equipment operators to reduce unnecessary idling with a two minute time limit.
- On-road and off-road material hauling vehicles shall shut off engines while queuing for loading and unloading for time periods longer than two minutes.
- Off-road diesel equipment shall be fitted with verified diesel emission control systems (e.g., diesel oxidation catalysts) to the extent reasonably and economically feasible.
- Off-road diesel equipment shall utilize alternative fuel equipment (i.e., compressed or liquefied natural gas, biodiesel, electric) to the extent reasonably and economically feasible.

AQ-3 The applicant shall comply with NSAQMD Rule 226, which requires implementation of feasible dust control measures which may include, but are not limited to the following:

- Ensure no visible dust emissions occurs beyond the property line;
- Ensure no dust emissions exceeding 20 percent opacity occur anywhere on the property;
- Ensure no offsite increase in ambient PM10 concentrations greater than 50 µg/m3 occur;
- Ensure no track-out exceeding 25 feet from the property occurs;
- Employ a dust control supervisor who has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance;
- Water to maintain soil moisture at 12 percent on haul roads and other active unpaved surfaces that are not chemically stabilized;
- Water to prevent visible dust more than 100 feet from any earth moving or mining activity;
- Utilize watering, dust suppressants, larger aggregate cover, and revegetation in inactive, disturbed areas to prevent wind driven dust;
- Water unpaved roads daily, and limit the speed on unpaved roads to 15 mph;
- Utilize chemical stabilization, watering, covering, and enclosure of storage piles;
- Conduct sweeping of paved roads at the end of each workday shift, utilizing certified sweepers;
- Conduct prompt cleanup of any spilled material and stabilization of any spilled material storage piles at a minimum frequency of daily at the end of each work day;

- Utilize dust suppressants or other dust control methods on conveyors, loading, unloading, or transferring activities;
- Utilize baghouse emission controls on screening and crushing activities or other dust control measures to meet the visible emission limits;
- Conduct chemical stabilization of unpaved haul roads;
- Cover or otherwise stabilize aggregate loads (i.e., loads to remain 6 inches from the upper edge of the container area) to avoid dust emissions from product transport trucks in compliance with California Vehicle Code No. 23114; and
- Utilize wheel washers, rumble grate, and paving of internal roads or use of dust palliatives on roads to eliminate track out.
- All excavation and grading activity shall be suspended when sustained winds exceed 25 miles per hour.
- Limit the area subject to blasting, mining, and other operational activity at any one time, as feasible.

AQ-4 Prior to issuance of the encroachment permit for the off-site roadway improvements and prior to commencing operations in the West Pit, the work area shall be evaluated by a qualified individual to determine the presence/absence of asbestos containing materials. The results of the analyses shall be provided to the NCDEH and CUPA.

If naturally occurring asbestos is found at the project site, the Project Applicant shall prepare an Asbestos Health and Safety Program and an Asbestos Dust Control Plan for approval by CUPA. The Asbestos Health and Safety Program and Asbestos Dust Control Plan may include, but is not limited to, the following:

- Equipment operator safety requirements: protective clothing, breathing apparatuses to prevent inhalation of airborne asbestos fibers,
- Dust mitigation measures: continually water site to prevent airborne dust migration, cover all vehicle that haul materials from the site
- Identification of CUPA-approved disposal areas for all excavated materials.

4.7.8 Significant Unavoidable Adverse Impacts

Conformance with Federal and State Ambient Air Quality Standards

Incorporation of Mitigation Measure AQ-1 would reduce impacts resulting from vegetation burning to a less than significant impact. Incorporation of Mitigation Measure AQ-2 and AQ-3 would reduce project impacts related to operational air quality emissions. However, a significant and unavoidable impact associated with NO_x and PM₁₀ emissions from operation of the project would occur.

Cumulatively Considerable Net Increase of Any Criteria Pollutant

Incorporation of project-level Mitigation Measures AQ-1, AQ-2, and AQ-3 would reduce the project's incremental contribution to cumulative NO_x and PM₁₀ emissions. However, a cumulative, significant, and unavoidable impact associated with NO_x and PM₁₀ emissions would occur.

Exposure of Sensitive Receptors to Pollutant Concentrations

Incorporation of Mitigation Measure AQ-4 would reduce impacts associated with exposure to naturally occurring asbestos to a level of less than significant and no significant and unavoidable impact would occur.

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4.8 GREENHOUSE GAS EMISSIONS

A greenhouse gas (GHG) emission analysis dated April 2019 is contained in the Boca Quarry Expansion Air Quality and Greenhouse Gas Technical Report (HELIX 2019). The results of the analysis are summarized in this section and the report is included in Appendix L of this EIR. This section addresses the existing condition, regulatory settings, thresholds of significance, and assesses the impacts of GHG emissions as a result of the proposed project.

4.8.1 Existing Conditions

Climate Change Overview

Global climate change refers to changes in average climatic conditions on Earth including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by atmospheric gases. These gases are commonly referred to as GHGs because they function like a greenhouse by letting sunlight in but preventing heat from escaping, thus warming the Earth's atmosphere.

GHGs are emitted by natural processes and human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with: (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition.

The temperature record shows a decades-long trend of warming, with 2016 global surface temperatures ranking as the warmest year on record (National Aeronautics and Space Administration [NASA] 2016). The newest release in long-term warming trends announced 2017 ranked as the second warmest year with an increase of 1.62 degrees Fahrenheit compared to the 1951-1980 average (NASA 2018). GHG emissions from human activities are the most significant driver of observed climate change since the mid-20th century (Intergovernmental Panel on Climate Change [IPCC] 2013). The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The statistical models show a “high confidence” that temperature increase caused by anthropogenic GHG emissions could be kept to less than two degrees Celsius relative to pre-industrial levels if atmospheric concentrations are stabilized at about 450 parts per million (ppm) carbon dioxide equivalent (CO_{2e}) by the year 2100 (IPCC 2014).

Types of Greenhouse Gases

The GHGs, as defined under California's Assembly Bill (AB) 32, include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Although water vapor is the most abundant and variable GHG in the atmosphere, it is not considered a pollutant; it maintains a climate necessary for life. Following are descriptions of the primary GHGs attributed to global climate change, including a description of their physical properties, primary sources, and contribution to the greenhouse effect.

Carbon Dioxide. CO₂ is the most important and common anthropogenic GHG. CO₂ is an odorless, colorless GHG. Natural sources include the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungi; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of CO₂ include burning fuels, such as coal, oil, natural gas, and wood. Data from ice cores indicate that CO₂ concentrations remained steady prior to the current period for approximately

10,000 years. The atmospheric CO₂ concentration in 2010 was 390 ppm, 39 percent above the concentration at the start of the Industrial Revolution (about 280 ppm in 1750). As of December 2017, the CO₂ concentration exceeded 406 ppm, an approximately 2 ppm increase from December 2016 (National Oceanic and Atmospheric Administration [NOAA] 2017).

Methane. CH₄ is a gas and is the main component of natural gas used in homes. A natural source of methane is from the decay of organic matter. Geological deposits known as natural gas fields contain methane, which is extracted for fuel. Other sources are from decay of organic material in landfills, fermentation of manure, and cattle digestion.

Nitrous Oxide. N₂O is produced by both natural and human-related sources. N₂O is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. Primary human-related sources of N₂O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic (fatty) acid production, and nitric acid production.

Hydrofluorocarbons. Fluorocarbons are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. Chlorofluorocarbons are nontoxic, nonflammable, insoluble, and chemically nonreactive in the troposphere (the level of air at Earth's surface). Chlorofluorocarbons were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol. At present, there is a federal ban on chlorofluorocarbons (CFCs). Implementation of the project may emit a small amount of HFC emissions from leakage, service of, and from disposal at the end of the life of refrigeration and air-conditioning equipment. However, details regarding refrigerants to be used in future construction are unknown at this time. Therefore, it is assumed that the project would not generate emissions of these pollutants and they are not further discussed in this analysis.

Sulfur Hexafluoride. SF₆ is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF₆ is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semi-conductor manufacturing, and as a tracer gas for leak detection. No applications of this type would occur from the project. Therefore, it is not anticipated that the project would contribute significant emissions of SF₆ and it is not further discussed in this analysis.

Global Warming Potentials

GHGs have long atmospheric lifetimes that range from one year to several thousand years. Long atmospheric lifetimes allow for GHGs to disperse around the globe. Because GHG emissions vary widely in the power of their climatic effects, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO₂. For example, because methane and N₂O are approximately 25 and 298 times more powerful than CO₂, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO₂ has a GWP of 1). CO₂e is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO₂e. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 4.8-1. As shown in the table, the GWP for common GHG emissions ranges from 1 (CO₂) to 22,800 (SF₆).

Table 4.8-1
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO ₂)	50–200	1
Methane (CH ₄)	12	25
Nitrous Oxide (N ₂ O)	114	298
HFC ¹ -134a	14	1,430
PFC ² : Tetrafluoromethane (CF ₄)	50,000	7,390
PFC: Hexafluoroethane (C ₂ F ₆)	10,000	12,200
Sulfur Hexafluoride (SF ₆)	3,200	22,800

Source: IPCC 2007

¹ HFC: hydrofluorocarbons

² PFC: perfluorocarbons

Existing Greenhouse Gas Emission Levels

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. For 2012, total GHG emissions worldwide were estimated at 46,049 million metric tons (MMT) CO₂e (World Resources Institute 2017). The U.S. contributed the second largest portion of GHG emissions (behind China) at 12 percent of global emissions, with 5,823 MMT CO₂e in 2012. On a national level in 2013, approximately 27 percent of GHG emissions are associated with transportation and about 31 percent are associated with electricity generation (USEPA 2015). In 2015, California produced a total of 440 metric tons (MT) CO₂e (CARB 2017b). The transportation sector is the single largest category of California's GHG emissions, accounting for 39 percent of emissions statewide in 2015 (CARB 2017b). This category was followed by the industrial sector with 23 percent and the electricity generation sector with 19 percent (CARB 2017b).

Baseline Conditions

The proposed project is required to meet the demand for aggregate in the Tahoe-Truckee area which is the result of activities such as road construction, repaving I-80, and general public and private road construction and maintenance. Aggregate quarries capable of supplying the typical project in the regions include the Truckee, Martis Valley, and Boca Quarries (LSC 2018b). The project site would serve the entire area between Sierra Valley on the north and Tahoe's West Shore on the south. Hauling trips made along I-80 to the east (between Hirschdale and the California/Nevada State Line) are expected to be minimal. Considering the geographic region and uses served by the quarry, the average trip length for truck trips made to/from the project site is estimated to be about 20 miles. Other than those quarries, the nearest quarry large enough to supply the typical project in the study region is located at least an additional 40 miles away via I-80 (toward Reno or Sacramento). Figure 4.5-4 shows the aggregate sources in the region.

4.8.2 Regulatory Framework

State Regulations

Executive Order S-3-05

In 2005, Executive Order (EO) S-3-05 proclaimed that California is vulnerable to climate change impacts. It declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

The California Global Warming Solutions Act of 2006, widely known as AB 32, requires that the CARB develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

Executive Order B-30-15

In 2015, EO B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG emission reduction targets with those of leading international governments, including the 28 nation European Union. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in AB 32. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the goal established by EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050.

Climate Change Scoping Plan

In 2008, CARB adopted the Scoping Plan (CARB 2008) as directed by AB 32. The Scoping Plan proposes a set of actions designed to reduce overall GHG emissions in California to the levels required by AB 32. Measures applicable to development projects include those related to energy-efficiency building and appliance standards, the use of renewable sources for electricity generation, regional transportation targets, and green building strategy. Relative to transportation, the Scoping Plan includes nine measures or recommended actions related to reducing VMT and vehicle GHG emissions through fuel and efficiency measures. These measures would be implemented statewide rather than on a project by project basis. In response to EO B-30-15 and SB 32, 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.

The most recent 2017 Climate Change Scoping Plan Update, Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target, was adopted in December 2017. The Scoping Plan Update establishes a proposed framework for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. This is the most aggressive climate target in North America and aligns California with the rest of the world in fighting climate change. The Proposed Plan would continue to move California towards a sustainable future while shifting dependence away from fossil fuels. The Plan would build on the Cap-and-Trade Regulation, Low Carbon Fuel Standard program, and continue to increase the use of

renewable energy through cleaner cars, trucks and freight movement, and reduce agricultural and waste methane emissions by utilizing it for energy needs. The Proposed Plan also addresses for the first time the GHG emissions from agriculture and forestry sectors along with other natural and working lands of California (CARB 2017c).

Local Regulations

Nevada County General Plan

The Circulation Element (Chapter 4) of the Nevada County General Plan (1995) includes a brief statement about the GHG emissions under the Environmental Protection Goal EP-4.3. It is the goal of the General Plan to encourage the reduction of GHG emissions [to the extent feasible] during the design phase of the project.

Northern Sierra Air Quality Management District

The NSAQMD has not yet established significance thresholds for GHG emissions from project operations. However, the NSAQMD requires quantification of GHG emissions for decisions-makers and the public to consider.

4.8.3 Significance Thresholds

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

According to Appendix G of the State CEQA Guidelines, the following criteria may be considered in establishing the significance of GHG emissions:

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

As discussed in Section 15064.4 of the State CEQA Guidelines, the determination of the significance of GHG emissions calls for a careful judgment by the Lead Agency, consistent with the provisions in Section 15064. Section 15064.4 further provides that a Lead Agency should make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project.

As stated earlier, NSAQMD 2016 *Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects* requires GHG emissions to be quantified for decision-makers and the public to consider; however, it does not have thresholds for GHG emissions (NSAQMD 2016). This report provides an assessment of GHG emissions and impacts for informational purposes.

4.8.4 Impact Analysis

Significance Threshold 1 – Generation of Significant GHG Emissions

Greenhouse Gas Emissions Calculations

The analysis utilizes emission factors from CARB's OFFROAD and EMFAC models for off-road equipment and on-road vehicles, respectively. In addition, emission factors for aggregate processing, blasting and mining, and additional sources of fugitive dust were determined based on methodology found in the USEPA's *Compilation of Air Pollutant Emission Factors* (AP-42) (USEPA 2001), the South Coast Air Quality Management District's handbook (SCAQMD 1993), and the SMAQMD's *Aggregate & Rock Crushing Operations Policy Manual* (SMAQMD 2008).

GHG emissions associated with the project would primarily be generated by site preparation (construction equipment and trucks transporting harvested trees) and operation-related quarry activities (trucks transporting aggregate, on-site equipment, electricity use, employee travel and blasting). For the purpose of assessing total annual GHG emissions, GHG emissions were quantified for an Annual Average Production scenario. The Annual Average Production was estimated based on Scenario 3, Average Daily Production described in Section 4.7.3) multiplied by 180 working days per year. Annual Average Production assumes approximately 3,170 tons per day for 180 working days, yielding 570,000 tons per year. Working days assume a work shift of 8 hours per day. Employee vehicles and heavy haul truck trips and VMT were obtained from the TIA (LSC 2017; Appendix J). This model assumes finished aggregate would be transported to various projects in Nevada County and other nearby counties.

Specific equipment specifications, production quantities, and hours of operation for the *Annual Average Production* scenario were provided by the Teichert Aggregate, Inc. and are contained in Appendix L of this EIR report.

GHG emission impacts associated with the project would primarily be generated by site preparation (construction equipment) and operation-related quarry activities (trucks transporting aggregate, on-site equipment, electricity use, employee travel and blasting). The roadway improvement would generate GHG emissions on a maximum 22 acres for a duration of one month. Emissions were modeled using the SMAQMD Road Construction Emissions Model Version 8.1.0. Construction was assumed to begin as early as 2020 and would disturb approximately six acres of land per day. GHG emissions for construction were amortized over the maximum lifetime of the project (30 years) and added to annual operational emissions for this analysis.

Off-Site Roadway Improvement Construction Emissions

The roadway improvement construction analysis includes GHG emissions associated with: (1) grubbing and land clearing; (2) grading and excavation; (3) drainage, utilities and subgrade; and (4) paving. Construction includes widening the existing 20- to 24-foot wide pavement to 32 feet wide, constructing new shoulders as needed to provide 1-foot-wide dirt shoulders along the entire length of the segment (1.3 miles), constructing three vehicle pullout areas along the segment, and sight distance improvements on approximately 29,200 square feet (14,100 square foot area and a 15,100-square foot area) of land at the Stampede Meadows Road and West Hinton Road intersection. The analysis includes default model settings to estimate reasonably conservative conditions. Assumptions and model output are included in Appendix L.

The GHG emissions related to the off-site roadway improvement construction result from heavy equipment operation, fugitive dust and land clearing are summarized in Table 4.8-2, below. The majority of emissions are generated during grading and excavation and the installation of drainage and utilities. GHG emissions from construction would be temporary over a one-month period and would contribute approximately 5 tons of CO₂e per year over the maximum 30-year lifetime of the project.

Table 4.8-2
ESTIMATED OFF-SITE ROADWAY IMPROVEMENT
CONSTRUCTION-RELATED GHG EMISSIONS

Phase	Annual Emissions (metric tons/year)
	CO ₂ e
Grubbing & Land Clearing	5.76
Grading & Excavation	85.44
Drainage/Utilities & Subgrade	43.86
Paving	11.92
TOTAL	146.98
<i>Amortized¹ Emissions</i>	<i>4.90</i>

Source: HELIX 2019

¹ Amortized over the maximum 30-year lifetime of the quarry operations

Site Preparation

Preparation of the project site would occur prior to quarry operations. Preparation of the site would involve the removal of vegetation and overburden, grading, and removal of topsoil. All trees within the footprint of the area to be mined would be removed through the use of both heavy equipment and hand tools. Existing vegetation would not be removed until work is imminent. To be conservative, the analysis assumes vehicles would operate for a maximum 16 hours per day. As depicted in Table 4.8-3, GHG emissions related to site preparation result from blasting and use of off-road equipment. Site preparation would be temporary over a 93-day period and would contribute approximately 594 MT of CO₂e per year over the maximum 30-year lifetime of the project.

Table 4.8-3
ESTIMATED SITE PREPARATION-RELATED GHG EMISSIONS

Phase	Annual Emissions (metric tons/year)
	CO ₂ e
Blasting	77
Off-road Equipment	299
On-road Vehicles	22
Vegetation Burning	17,411
TOTAL	17,809
<i>Amortized¹ Emissions</i>	<i>594</i>

Source: HELIX 2019

¹ Amortized over the maximum 30-year lifetime of the quarry operations

Operational Greenhouse Gas Emissions

GHG emissions during on-site operation of the quarry are associated with stationary and mobile sources from the process of mining and producing the aggregate. More specifically, on-site GHG emissions are released during the following steps: (1) extraction of rock using blasting and excavation; (2) transport of rock to crushing and screening area; (3) crushing and screening to produce aggregate; (4) transport of aggregate via haul trucks; and (5) employee vehicle travel.

Quarry area emission sources would result from during blasting and off-road vehicle combustion during mining operations. During processing plant operations, off-road vehicle and equipment combustion are the main sources of all GHG emissions. The majority of the GHG emissions arise from haul truck transporting aggregate on off-site roads and are primarily due to haul truck fuel combustion, accounting for approximately 2,841 MT of CO₂ per year.

The project generated operational GHG emissions are summarized in Table 4.8-4, below. GHG emissions associated with quarry operation are estimated at 4,354 MT of CO₂e. As described above, site preparation and roadway improvement construction were amortized over the 30-year lifetime of the quarry. Therefore, the proposed project, would contribute a total 4,953 MT of CO₂e per year.

Table 4.8-4
ANNUAL AVERAGE QUARRY OPERATIONAL GHG EMISSIONS

Source	Annual Emissions (MT CO ₂ e)
Haul Trucks Transporting Aggregate	2,841
On-Site Equipment	981
Electricity Use	281
Removal of Vegetation	231
Employee Travel	19
Blasting	2
Quarry Operation Total	4,354
Amortized Roadway Construction ¹	5
Amortized Site Preparation ¹	594
TOTAL	4,953

Source: HELIX 2019

¹ Amortized over the maximum 30-year lifetime of the quarry operations

Note: totals may not sum due to rounding.

Evaluation of Impacts

As previously described, there are various construction projects in the Tahoe-Truckee area that need aggregate, such as repaving of I-80, and general public and private road construction and maintenance activities. This level of demand would not change if this proposed project is approved or denied. Without the proposed project, local demand for aggregate would likely be met from other regional sources.

To provide an estimate of the amount of GHG emissions that would be reduced from construction of the project, emissions from haul trucks were estimated based on trucks traveling to the Reno/Sparks area for aggregate. This location is approximately 40 miles from the project site. Therefore, a single 18-ton

truck load of aggregate delivered from the Reno/Sparks area would travel 60 miles instead of 20 miles to the project site.

Due to the lack of available data for the out-of-county aggregate truck trips, emissions were estimated based on the assumptions that the demand for aggregate supply would remain at the same level as Scenario 3, Average Daily Production. Therefore, to meet local demand, it is assumed 3,170 tons of aggregate would be hauled per day, yielding 570,000 tons per year. With a truck capacity of 18 tons, this would generate 352 trips per day and 63,360 trips per year (352 trips per day over 180 working days). The additional 40 miles per trip would result in an increase in VMT by 2,536,000 miles per year which would result in an additional 4,032 MT of CO₂e produced per year.

The total emissions for the proposed project are 4,953 MT of CO₂e per year. The project would provide a source of aggregate for regional demand which would be approximately 40 miles closer than what exists currently. Therefore, due to the shorter trip length of the proposed project, the project would only generate 921 MT of CO₂e per year when accounting for the offset of 4,953 MT of CO₂e per year. GHG emissions are cumulative in nature, and therefore, an increase of 921 MT of CO₂e per year is nominal compared to regional, state, and global GHG emissions

As a result, the project would result in a minimal increase of CO₂e emissions when compared to existing alternative locations. Therefore, impacts relating to GHG emissions would be less than significant.

Significance Threshold 2 – Conflicts with Applicable Plans, Policies, or Regulations

The NSAQMD does not have thresholds of significance for GHGs but encourages that the information be present for decision makers. The County has established a GHG goal of encouraging project applicants to reduce GHG emissions to the extent feasible. The proposed project would generate annual GHG emissions by approximately 921 MT of CO₂e per year when compared with GHG emissions resulting from hauling the same volume of materials from other sources. Therefore, the project would not conflict or obstruct an applicable plans, policy, or regulation, and impacts would be less than significant.

4.8.5 Level of Significance Before Mitigation

Based on the above analysis, all impacts related to GHG emissions from the proposed project would be less than significant and no mitigation would be required.

4.8.6 Mitigation Measures

No mitigation measures are required.

4.8.7 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse GHG impacts would result from implementation of the proposed project.

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4.9 ENERGY

This section provides an evaluation of existing energy production/consumption conditions, as well as potential energy use and related impacts from the proposed project. The following discussion is consistent with and fulfills the intent of Appendix F, Energy Conservation, from the State CEQA Guidelines and is based on information from the 2011 Reclamation Plan (ESRS 2011; Appendix B), and the TIA (LSC 2017; Appendix J).

4.9.1 Existing Conditions

Existing Energy Consumption and Generation

Units of Measure

The units of energy used in this section are the British thermal units (BTU), kilowatt¹ hours (kWh), therms and gallons. A BTU is the quantity of heat required to raise the temperature of one pound of water one-degree Fahrenheit (°F) at sea level. Because the other units of energy can all be converted into equivalent BTU, the BTU is used as the basis for comparing energy consumption associated with different resources. A kWh is a unit of electrical energy, and one kWh is equivalent to approximately 3,413 BTU, taking into account initial conversion losses (i.e., from one type of energy, such as chemical, to another type of energy, such as mechanical) and transmission losses. Natural gas consumption is described typically in terms of cubic feet or therms; one cubic foot of natural gas is equivalent to approximately 1,050 BTU, and one therm represents 100,000 BTU. One gallon of gasoline/diesel is equivalent to approximately 125,000/139,000 BTU, respectively, taking into account energy consumed in the refining process.

California Energy Overview

Electricity

California's electricity needs are satisfied by a variety of entities, including investor-owned utilities, publicly owned utilities, electric service providers and community choice aggregators.² In 2016, the California power mix totaled 290,567 gigawatt hours (GWh). In-state generation accounted for 198,227 GWh, or 71 percent, of the state's power mix. The remaining electricity came from out-of-state imports (CEC 2017a). Table 4.9-1 provides a summary of California's electricity sources as of 2016.

¹ Kilowatt hours is the most commonly used measure of electrical consumption; however, due to the scope of this analysis, gigawatt hours (GWh; equivalent to one million kWh) is also used.

² Community choice aggregation is authorized in California by AB 117 (Chapter 836, Statutes of 2002), which allows cities, counties, and groups of cities and counties to aggregate the electric load of the residents, businesses, and institutions within their jurisdictions to provide them electricity.

**Table 4.9-1
CALIFORNIA ELECTRICITY SOURCES 2016**

Fuel Type	Percent of California Power
Natural Gas	49.9
Nuclear	9.6
Large Hydro	12.3
Coal	0.2
Renewable	27.9

Source: CEC 2017a

Since deregulation in 1998, the CEC has licensed or given small power plant exemptions to 89 power plants, including:

- 64 projects totaling 22,965 megawatts (MW) currently operational
- 3 projects totaling 2,537 MW currently under construction or pre-construction
- 6 projects totaling 2,661 MW currently on hold but available for construction
- 11 projects totaling 4,441 MW approved but not built

In addition, as of December 2017, the CEC had three proposed projects, totaling 635 MW, under review, and two projects, totaling 591 MW, suspended in review (CEC 2017b).

On the demand side, Californians consumed 281,334 GWh of electricity in 2016, primarily in the commercial, residential, and industrial sectors. CEC forecasts of future electricity demand anticipate that consumption will increase by between 0.67 and 1.42 percent per year from 2015 to 2027, with peak demand changing by -0.33 to 1.03 percent per year over the same period (CEC 2017c).

Natural Gas

Natural gas provides the largest portion of the total in-state capacity and electricity generation in California, with nearly 50 percent of the natural gas burned in California used for electricity generation in 2016. Much of the remainder was consumed in the residential, industrial, and commercial sectors for uses such as cooking, space heating, and as an alternative transportation fuel. In 2012, total natural gas demand in California for industrial, residential, commercial, and electric power generation was 2,313 billion cubic feet per year (bcf/year), up from 2,196 bcf/year in 2010 (CEC 2017d).

Transportation Fuels

Transportation accounts for a major portion of California's energy budget. Automobiles and trucks consume gasoline and diesel fuel, which are nonrenewable energy products derived from crude oil. 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 (SUVs). In 2015, 15.1 billion gallons of gasoline were sold in California (CEC 2017e). Diesel fuel is the second most consumed fuel in California, used by heavy-duty trucks, delivery vehicles, buses, trains, ships, boats, and farm and construction equipment. In 2015, 4.2 billion gallons of diesel were sold in California (CEC 2017f).

Nevada County Energy Overview

Electricity

Nevada County, with a population of 99,107 (United States Census Bureau 2016), consumed 660 GWh of electricity in 2016, a 5.3 percent increase from the previous year. Table 4.9-2 shows the change in electricity consumption for the county from 2010 to 2016.

Table 4.9-2
NEVADA COUNTY ELECTRICITY CONSUMPTION 2010 – 2016
(GWh)

Year	2010	2011	2012	2013	2014	2015	2016
Usage	655	659	661	657	634	627	660
Percent Annual Change	--	0.6	0.3	-0.6	-3.5	-1.1	5.3

Source: CEC 2016a

Three electric utility companies service Nevada County, including Pacific Gas and Electric (PG&E), the Truckee Donner Public Utilities District, and Liberty Utilities. The Project site is located within the Liberty Utilities service area.

Liberty Utilities serves approximately 49,000 customers in and around the Lake Tahoe Basin. The service area includes the eastern portions of Placer, El Dorado, Nevada, Sierra, Plumas, Mono, and Alpine Counties, from Portola in the north to Markleeville and Topaz Lake in the south. Approximately 80 percent of Liberty Utilities' customers are located in the Lake Tahoe Basin.

The electric load within the Liberty Utilities service territory reflects the economic activities in the area, which are generally dominated by tourism, and associated hotels and ski resorts. Approximately half of the electricity Liberty Utilities delivers is to residential customers. Electric demand peaks in the winter period, particularly during Christmas week when tourism is highest.

Due to the geographic location of the Liberty Utilities' service area, and its prior operation under NV Energy, energy delivered into the service area is from supply sources in Nevada. In 2016, Liberty Utilities procured essentially all of its power through a "full requirements" power purchase agreement with NV Energy, which included approximately 25 percent from renewable geothermal (Liberty Utilities 2017). As of February 2017, 25 percent of Liberty Utilities' customers' energy needs will be supplied through the new 50 MW Luning Solar Energy Center, located in western/central Nevada. California operations currently include electric distribution facilities and the Kings Beach Generation Facility, located just north of Lake Tahoe. Kings Beach Generation Facility is a 12 MW diesel facility whose usage is restricted to local area emergency backup.

In 2016, approximately 22.2 GWh of Liberty Utilities' electricity supply was used by the mining and construction sector (CEC 2016b).

Natural Gas

In 2016, Nevada County consumed 18.8 million therms (MMTh) of natural gas, a 9.3 percent increase from the previous year. Table 4.9-3 shows the change in natural gas consumption in the county from 2010-2016.

**Table 4.9-3
NEVADA COUNTY NATURAL GAS CONSUMPTION 2010 – 2016
(MMTh)**

Year	2010	2011	2012	2013	2014	2015	2016
Usage	18.9	20.1	18.1	19.2	16.6	17.2	18.8
Percent Annual Change	--	6.3	-9.9	6.1	-13.5	3.6	9.3

Source: CEC 2016c

Natural gas in Nevada County is supplied by Southwest Gas and PG&E. The project site is within the service area of Southwest Gas. In 2016, approximately 0.61 MMTh of Southwest Gas' gas supply was used by the mining and construction sector (CEC 2016d).

4.9.2 Regulatory Framework

Federal Regulations

Energy Independence and Security Act of 2007

House of Representatives Bill 6 (HR 6), the federal Energy Independence and Security Act of 2007, established new standards for a few equipment types not already subjected to a standard, and updated some existing standards. Perhaps the most substantial new standard that HR 6 established is for general service lighting that is being deployed in two phases. First, phased in between 2012 through 2014, common light bulbs were required to use about 20 to 30 percent less energy than previous incandescent bulbs. Second, by 2020, light bulbs must consume 60 percent less energy than today's bulbs; this requirement will effectively phase out the incandescent light bulb.

Energy Improvement and Extension Act of 2007

The formerly entitled "Renewable Energy and Job Creation Act of 2008," or Division B of HR 1424, was signed into law by President Bush in October 2008. The signed bill contains \$18 billion in incentives for clean and renewable energy technologies, as well as for energy efficiency improvements.

Local Regulations

2016 Nevada County Regional Transportation Plan

The 2016 Nevada County Regional Transportation Plan was developed by the Nevada County Transportation Commission (NCTC) to document the transportation policy, actions, and funding recommendations that will meet the short- and long-term access and mobility needs of Nevada County residents over the next twenty years. The Plan is designed to guide the systematic development of a comprehensive multi-modal, efficient, and effective transportation system for Nevada County that will help to reduce unnecessary energy consumption.

4.9.3 Significance Thresholds

State CEQA Guidelines Appendix F, Energy Conservation, provides direction as to the type of information, analysis and mitigation that should be considered in evaluating a proposed project, but does not provide specific energy conservation targets.

In accordance with State CEQA Guidelines Appendix F and for the purposes of this EIR, the proposed project would result in a significant impact to energy conservation if it would:

- Substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other non-renewable energy types in a wasteful, inefficient, or unnecessary manner.

4.9.4 Impact Analysis

Per State CEQA Guidelines Appendix F, energy conservation impacts were analyzed by estimating project energy requirements by amount and type. These data were used to evaluate the project's effects on energy resources and the degree to which the project would comply with existing energy standards.

Significance Threshold - Substantially Increase Consumption of Non-Renewable Energy

Construction of Off-site Roadway Improvements

The proposed project's energy demand during construction would be associated with heavy equipment usage for the proposed roadway improvements, as well as haul truck, water truck, and worker vehicle travel. Diesel fuel would be the energy source for the heavy equipment, haul trucks, and water trucks, and gasoline would be the fuel source for the worker vehicles. Information on the type and number of heavy equipment pieces, as well as their fuel usage, was obtained from Appendix L of this EIR. Table 4.9-4 shows the type and quantity of equipment used, the worker VMT, and the associated energy usage.

Equipment Use

Off-site roadway improvements would include an approximately 1.3-mile long segment of Stampede Meadows Road. The improvements include pavement widening and shoulder improvements along the roadway segment and sight distance improvements at the Stampede Meadows Road and West Hinton Road intersection to provide adequate driver sight distance. Where feasible based on existing constraints, the paved surface of the roadway would be widened from the existing 20- to 24-foot wide paved surface to 32-feet wide and would include providing a 1-foot wide dirt shoulder. In addition, vehicle pullout areas would be constructed at three locations along the segment. To address sight distance improvements, two areas totaling approximately 29,200 square feet, (one of 14,100 square feet and one of 15,100 square feet), would be cleared of vegetation and large trees and graded to remove site obstructions.

Construction of the off-site roadway improvements would involve heavy equipment for excavating, laying aggregate base rock (AB), and paving asphaltic concrete (AC). Heavy equipment, haul trucks and water trucks would require diesel fuel to operate. Haul truck trips include the following daily trip estimates:

- Export Trips = 6 truckloads (12-one-way trips) x 10 days for excavation
- Import Trips = 8 truckloads (16 one-way trips) x 4 days for AB
- Import Trips = 10 truckloads (20 one-way trips) x 4 days for AC

- Import Trips = 10 truckloads (20 one-way trips) x 2 days for AC overlay

Construction activities would also require two water trucks for excavation, two water trucks for laying AB, one water truck for AC paving, and one water truck for AC overlaying per day. Each water truck is assumed to travel 40 miles per day. The total water truck and haul truck VMT equals 1,600 per day (when all phases occur simultaneously) and 7,440 VMT for the total construction period (approximately one month).

Worker Transportation Energy Use

Road improvement construction would involve the vehicular transportation of workers, which would require gasoline or diesel fuel. The construction crew would likely be based out of Teichert Construction's Lincoln office. Most employees live in the Roseville and Rocklin area and although hotels may be provided for workers, it is assumed, as a worst-case scenario, that all employees commute from the Roseville and Rocklin area. Average vehicle occupancy for workers is assumed to be approximately 1.2 workers per vehicle. Worker commute trips include the following daily trip estimates:

- Excavation crew = 6 workers (10 one-way trips) x 10 days
- AB crew = 6 workers (10 one-way trips) x 4 days
- AC crew = 10 workers (18 one-way trips) x 6 days
- Managers/Inspectors = 4 workers (12 one-way trips) x 20 days

The total construction worker VMT equals 4,350 per day (when all phases occur simultaneously) and 42,456 for the total construction period. Table 4.9-4 presents energy consumption from construction of the off-site roadway improvements.

Table 4.9-4
ENERGY CONSUMPTION FROM OFF-SITE ROADWAY IMPROVEMENT CONSTRUCTION
EQUIPMENT AND VEHICLES

Equipment Type	Quantity	Diesel Fuel (gallons)	BTUs
Air Compressors	2	237	32,973,558
Cranes	1	311	43,291,005
Crawler Tractors	4	1,039	144,411,971
Excavators	7	1,374	190,927,820
Generator Sets	2	394	54,744,561
Graders	5	1,477	205,369,164
Pavers	2	168	23,303,428
Paving Equipment	2	149	20,767,000
Plate Compactors	2	22	3,029,622
Pumps	2	394	54,744,561
Rollers	6	585	81,324,207
Rough Terrain Forklifts	2	253	35,228,160
Rubber Tired Loaders	2	684	95,116,032

Table 4.9-4
ENERGY CONSUMPTION FROM OFF-SITE ROADWAY IMPROVEMENT CONSTRUCTION
EQUIPMENT AND VEHICLES (cont.)

Equipment Type	Quantity	Diesel Fuel (gallons)	BTUs
Scrapers	5	3,578	497,351,163
Signal Boards	12	156	21,665,318
Tractors/Loaders/Backhoes	13	1,551	215,556,708
Construction Equipment Total	69	12,373	1,719,804,277
Worker Vehicles		42,456 VMT	251,042,328
Haul/Water Trucks		7,440 VMT	108,817,440
Total Construction Energy Expenditure			2,079,663,995

As shown in Table 4.9-4, total energy expenditure during construction would be approximately 2.1 billion BTUs.

Preparation and Operation of Project Site

Site Preparation

Prior to initiation of mining activities in the West Pit, the area would be prepared by removal of all organic material and salvage of the existing top soil. All trees within the footprint of the area to be mined would be removed through the use of both heavy equipment and hand tools. It is estimated that approximately 750 trees would be removed, yielding a total of 188 one-way trips to transport the trees. Trees would be transported a distance of 75 miles via heavy duty diesel trucks to a lumber mill located in Quincy, for a total of 14,100 VMT for tree transport. Once the area is cleared of vegetation, the uppermost layer of soil would be salvaged using dozers and the available soil would be stockpiled for use in future reclamation activities. These pieces of equipment would require gasoline, diesel, and potentially other sources of fuel to operate. Site preparation for all phases was conservatively assumed to use the same equipment, require the same number of workers, and operate for the same duration (93 days) as the worst-case quarry mine operational scenario. As shown in Table 4.9-5, total energy consumptions from site preparation would be approximately 5.7 billion BTUs.

Table 4.9-5
ENERGY CONSUMPTION FROM PROJECT SITE PREPARATION
EQUIPMENT AND VEHICLES

Equipment Type	Quantity	Diesel Fuel (gallons)	BTUs
Dozer	1	9,703	1,348,710,106
Loader	1	7,177	997,608,649
Portable Pump	1	6,105	848,540,690
Excavator	1	5,896	819,600,756
Water Truck	1	9,330	1,296,836,640
Site Preparation Equipment Total	5	38,211	5,311,296,841
Worker Vehicles		29,295 VMT	173,209,715
Haul Trucks		14,100 VMT	206,226,600
Total Site Preparation Energy Expenditure			5,690,733,156

Project Operation

The proposed project's operational energy demand would be associated with heavy equipment usage for site preparation, quarry mine operation, and aggregate processing plant operation, as well as haul truck and worker vehicle travel. Diesel fuel would be the energy source for the heavy equipment and haul trucks, and gasoline would be the fuel source for the worker vehicles. Information on the type and number of heavy equipment pieces, as well as their fuel usage, was obtained from Appendix L of this EIR. The hours of operation for the heavy equipment were determined based on three operating scenarios contained in the 2011 Reclamation Plan (ESRS 2011). The three scenarios are based on the hours per day of operational activities and the resulting levels of production. The three scenarios include worst-case daily production (16 hours, 10,800 tons per day for 93 days), peak daily production (12 hours, 4,100 tons per day for 180 days), and average daily production (8 hours, 3,170 tons per day for 180 days). The amount of energy used for the various pieces of equipment would be dependent on the operational scenario.

Information on the number of vehicle trips and trip distance was obtained from the TIA prepared for the project (LSC 2017). As described in Section 4.5.5, if the timber harvest occurs during operation of the project site, then the timber harvest truck trips would replace aggregate exporting truck trips and would not affect the overall worst-case daily vehicle trips. Energy consumption is considered over the life of the project; therefore, although an overlap of the timber harvest truck trips with operation would temporarily increase the VMT due to the additional distance traveled by the timber harvest trucks, the small number of trips (188 trips over the life of the project) would not increase the overall VMT generated by the project.

Heavy-Duty Equipment Energy Use

Quarry Mine

Operation of the quarry would involve the removal of the overburden above the construction-grade aggregate, followed by removal of hardrock aggregate (product) from the geologic formation through a multi-step process including drilling, blasting, and excavation using heavy equipment. Following blasting, bulldozers or similar excavating equipment would be used to load aggregate material into internal project haul trucks for transport to the crusher (processing plant) located in the East Pit. Rock fragments that are too large for transporting to the processing plant would undergo primary crushing in the active quarry area and would then be transported via haul trucks to the processing area. Energy usage associated with heavy machinery used during quarry mine operation for the three production scenarios is shown in Table 4.9-6.

Aggregate Processing Plant

Aggregate material loosened from the West Pit would be taken to the processing plant in the East Pit for screening and crushing, and then it would be stockpiled for shipping. Processing to create construction aggregate products involves crushing and screening of sorted graded materials. Energy usage associated with heavy machinery used during aggregate processing plant operation for the three production scenarios is shown in Table 4.9-6. The total energy usage for the aggregate plant heavy equipment would be approximately 17.1 billion BTUs.

**Table 4.9-6
HEAVY EQUIPMENT ENERGY USAGE (OPERATIONAL)**

Equipment Type	Qty	Worst-Case Annual		Peak Annual		Average Annual	
		Diesel Fuel (gallons)	BTUs	Diesel Fuel (gallons)	BTUs	Diesel Fuel (gallons)	BTUs
Quarry Mine							
Dozer	1	9,703	1,349,710,106	14,085	1,957,804,992	9,390	1,305,203,328
Loader	1	7,177	997,608,649	10,418	1,448,141,587	6,946	965,427,725
Portable Pump	1	6,105	848,540,690	8,862	1,231,752,614	5,908	821,168,410
Excavator	1	5,896	819,600,756	8,559	1,189,743,034	5,706	793,162,022
Water Truck	1	9,330	1,296,836,640	13,543	1,882,504,800	9,029	1,255,003,200
Aggregate Processing Plant							
Loader	1	7,177	997,608,649	10,418	1,448,141,587	6,946	965,427,725
Haul Trucks	4	74,638	10,374,693,120	108,346	15,060,038,400	72,230	10,040,025,600
Jaw Crusher	1	6,511	905,055,466	9,452	1,313,790,192	6,301	875,860,128
Screening System	1	597	82,997,545	867	120,480,307	578	80,320,205
TOTAL	12	127,986	17,671,651,620	184,550	25,652,397,514	123033	17,101,598,342

Operational Mobile Energy Usage

Haul Truck Energy Use

Roughly half of the trucks hauling aggregate from the site are single 12-ton dump trucks, and half are trucks with other configurations (such as long-bed trucks or ones towing a trailer) with approximately double that capacity. Therefore, for this analysis, an average of 18 tons of aggregate per truck load was used.

Under the worst-case production scenario, 10,080 tons of aggregate material, or 560 loads, would be hauled out of the site per day. As each truck load involves an empty truck entering the site and a full truck exiting the site, the total number of one-way trips per day generated by aggregate exporting trucks would be 1,120 trips. The average trip length for aggregate exporting trucks is estimated to be 20 miles, resulting in 22,400 daily VMT and 2,083,200 annual VMT (assuming 93 working days per year).

Using this same calculation method, the peak production scenario, with 4,100 tons of aggregate material per day for 180 days, would result in 1,640,000 annual VMT and the average production scenario, with 3,170 tons of aggregate material per day for 180 days, would result in 1,268,000 annual VMT.

Haul trucks would be required to import backfill to the project site. The backfill trucks are estimated to haul at most one-quarter of the amount hauled by aggregate exporting trucks, or 2,520 tons per day under the worst-case production scenario, 1,025 tons per day under the peak production scenario, and 793 tons per day under the average production scenario. With an average of 18 tons per truck and 20 miles per trip, backfill import would result in 520,800 annual VMT under the worst-case production scenario, 410,000 annual VMT under the peak production scenario, and 317,000 annual VMT under the average production scenario. Table 4.9-7 summarizes the annual VMT and BTU demand for haul trucks (including the export trips and backfill trips) associated with operation of the project.

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**Table 4.9-7
WORKER TRIPS AND HAUL TRUCKS ENERGY USAGE (OPERATIONAL)**

Vehicle Type	Fuel Economy (mpg)	Energy Consumption Factor (BTU/Vehicle Mile)	Worst-Case Scenario		Peak Scenario		Average Scenario	
			VMТ per year	BTU per year	VMТ per year	BTU per year	VMТ per year	BTU per year
Worker Vehicles	21.14	5,913	29,295	173,209,715	56,700	335,244,610	56,700	335,244,610
Haul Trucks	9.50	14,626	2,604,000	38,087,392,332	2,050,000	29,984,314,239	1,585,000	23,182,994,180
Total Mobile Energy Consumption			38,260,602,047		30,319,558,849		23,518,238,790	

Source: LSC 2017; CARB 2014

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Worker Transportation Energy Use

The project would generate up to 15 round trips per day for employees (30 total ADT) at an estimated length of 10.5 miles per trip, totaling 315 daily VMT, and 29,295 annual VMT for the worst-case scenario (93 days) and 56,700 annual VMT for the peak production and average production scenarios (180 days). Table 4.9-7 summarizes the annual VMT and BTU demand for passenger vehicles associated with operation of the project.

Summary of Operational Energy Usage

Total energy consumption for the haul trucks and worker trips would be approximately 38.2 billion BTUs under the worst-case scenario, 30.3 billion BTUs for the peak daily scenario, and 23.5 billion BTUs under the average scenario per year.

Electricity Usage

During operation of the project, electricity would be used in the processing area, for the scale, and in the on-site office building. The project is estimated to use approximately 1,440 MWh of electricity per year, or 4,915 million BTUs per year.

Summary of Project Energy Use

The project would require energy for the use of heavy equipment, including site preparation (Table 4.9-5) and operation of the quarry mine and aggregate processing plant (see Table 4.9-6), on-road transportation (e.g., haul trucks and worker vehicles, see Table 4.9-7), and electricity demand. Table 4.9-8 summarizes the project's total energy consumption and converts the values to MWh and BTU for energy comparison purposes. As shown in Table 4.9-8, the proposed project would result in an annual energy demand of between approximately 15 and 20 GWh or 51 and 66 billion BTU depending on the project scenario.

**Table 4.9-8
PROJECT ANNUAL ENERGY CONSUMPTION**

Source	Worst-Case Annual		Peak Annual		Average Annual	
	MWh	BTUs (million)	MWh	BTUs (million)	MWh	BTUs (million)
Heavy Equipment	6,734	22,983	9,072	30,964	6,567	22,413
On-Road Transportation	11,271	38,467	8,944	30,526	6,951	23,724
Electricity	1,440	4,915	1,440	4,915	1,440	4,915
TOTAL	19,445	66,364	19,456	66,404	14,958	51,052

Note: Annual energy consumption includes site preparation, operation of the quarry mine and aggregate processing plant, on-road transportation (haul trips and vehicle trips), and electricity demand.

Energy Reduction Measures

The proposed project would be required to comply with County, State and federal energy conservation measures related to project construction and operations. The proposed project includes design features that would be implemented to ensure that the project would not use energy in a wasteful manner or conflict with adopted energy conservation plans. Such measures include:

- Limiting the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds, both California- or non-California based trucks) to 5 minutes at any location on the project specifications;
- Using off-road compression ignition equipment operators to reduce unnecessary idling with a two-minute time limit.
- Shutting off engines of on-road and off-road material hauling vehicles while queuing for loading and unloading for time periods longer than two minutes.
- Utilizing alternative fuel equipment (i.e., compressed or liquefied natural gas, biodiesel, electric) to the extent reasonably and economically feasible.
- Using appropriately sized equipment.

4.9.5 Level of Significance Before Mitigation

The expansion of Boca Quarry is necessitated by the demand for aggregate in the region such as, from road construction, repaving of I-80 and general public and private road construction and maintenance. This demand will not change if this project is approved or denied.

Without the operation of the proposed project, local demand for aggregate would likely be met from other regional sources, and regardless of the sources of aggregate, energy would be used in the process of meeting the local demand.

To provide an approximation of the amount of energy that would be reduced with construction of the project, energy usage from haul trucks traveling further distances was calculated. For example, the nearest source for aggregate are in the Reno/Sparks area. This location is approximately 40 miles from the project site. Therefore, a single 18-ton truck load of aggregate delivered from Reno/Sparks area would travel 60 miles instead of 20 miles with the proposed project.

Due to the lack of available data for the out-of-county aggregate truck trips, emissions were estimated based on the assumptions that the demand for aggregate supply would remain at the same level as Scenario 3, Average Daily Production, of approximately 3,170 tons of aggregate hauled per day, generating 352 trips per day.

The additional 40 miles per trip would result in an increase in VMT by 2,536,000 miles per year (180 days). This would require an additional 37,093 million BTUs per year. As a result, it can be reasonably assumed that the proposed project would result in a reduction of 37,093 million BTUs because the quarry would be placed in closer proximity to the demand.

Based on the above analysis, the project would not consume electricity, natural gas, gasoline, diesel, or other non-renewable energy types in a wasteful, inefficient, or unnecessary manner. Furthermore, the project may result in a regional reduction in haul truck VMT, and thus a reduction in diesel fuel usage. Therefore, impacts related to energy usage from the proposed project would be less than significant and no consideration of additional energy mitigation is warranted.

4.9.6 Mitigation Measures

Impacts would be less than significant and no mitigation is warranted.

4.9.7 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse energy impacts would result from implementation of the proposed project.

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4.10 HAZARDS AND HAZARDOUS MATERIALS

This section discusses the proposed project as it relates to hazards and hazardous materials based on current and proposed site conditions, local maps, a regulatory database search for the project area, and the federal, state, and local regulations related to hazards and hazardous materials that may apply to the project area and operation. Hazards associated with airborne toxics risks are discussed in Section 4.7. Hazards associated with geologic risks are discussed in Section 4.1. Hazards associated with floods are discussed in Section 4.2.

For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. A “hazardous material” is defined in the Code of Federal Regulations (CFR) as “a substance or material that ... is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

“Hazardous material” means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

4.10.1 Existing Conditions

Hazardous Materials Sites

The project site has been inactive since 2008 and no hazardous materials are currently stored on-site. Fuel, hydraulic fluid, coolant, lubricants, compressed gases (oxygen, carbon dioxide, nitrogen and acetylene), and other heavy equipment service materials used for the currently permitted activities in the East Pit are stored at the Martis Valley Quarry. Similarly, all blasting materials are stored in a secure magazine at the Martis Valley Quarry. Materials used for blasting include ammonium nitrate and fuel oil which are mixed in the drill holes.

All of the materials at that site are disclosed in the HMBP which was accepted by the California Environmental Reporting System on December 6, 2016. The Materials Safety Data Sheets associated with each of these substances discloses their potential risk to human health. The primary health risks associated with these materials would generally occur when put in direct contact with either eyes or skin, or by ingestion, or inhalation. Some of the materials are flammable or combustible and could result in an explosion if handled improperly.

HELIX Environmental Planning Inc. conducted a records search of the Envirostor and Geotracker databases in August 2018. Managed by the California Department of Toxic Substances Control and SWRCB, respectively, these databases contain a summary of all known sites that handle, store, treat, or dispose of hazardous materials and locations where hazardous materials releases or incidents occurred. The records indicated that there were not any existing or past hazardous materials incidents at the project site or off-site roadway improvement area (SWRCB 2018).

Evacuation Routes

The project site can be accessed from two roads, both of which are low traffic volume and are a short distance to I-80. Hinton Road exits the project area to the South, passes under I-80 and intersects with Hirschdale Road which meets Stampede Meadows Road at an on-ramp complex of I-80. West Hinton Road exits the project site to the north and intersects with Stampede Meadows Road which proceeds to the on-ramp complex of I-80. West Hinton Road is used as the haul route for product leaving the site and the roads are not part of an evacuation route for any population centers. The surrounding area is remote and undeveloped with the majority of the development in the area located south of I-80 (GoogleEarth© 2018).

Airports and Schools

The nearest airport, the Tahoe Truckee Airport, is located approximately 5.35 miles southwest of the project site. The Airport Influence Area extends roughly 2.7 miles from the airport's runways and does not extend over the project site or off-site roadway improvement area. No private or government airstrips are located within ten miles of the proposed project site (Nevada County 2014).

Glenshire Elementary School is the school nearest to the project site and is located more than two miles southwest of the project site (Nevada County 2018).

Wildfire Hazard Severity Zones

California law requires CAL FIRE to identify areas based on the severity of fire hazard likely to occur in a particular area. Factors considered in the rating include fuel (flammable materials), slope and weather conditions. The zones are classified according to the severity of the fire based on the anticipated behavior and likelihood of threats to structures. The project site is located within a State Responsibility Area classified as a Very High Hazard Severity Zone (Nevada County 2018; CAL FIRE 2019).

The majority of the off-site roadway improvement area is located in a Federal Responsibility Area. The USFS has identified the Wildfire Hazard Potential for the off-site roadway improvement area as ranging from Moderate to Very High (USFS 2019).

4.10.2 Regulatory Framework

Development of the proposed project is subject to a number of regulatory requirements and industry standards related to the storage, transport, and use of hazardous materials. Most regulations originate at the state and federal levels, with local county and city agencies enforcing these regulations. In the case of the proposed project, ammonium nitrate would be used for blasting.

Federal

The Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATF), the Department of Homeland Security, and the Department of Transportation coordinate a federal effort to improve chemical risk management, advance ammonium nitrate safety, and protect human health and the environment.

Department of Transportation

The Department of Transportation (DOT) regulates transportation of ammonium nitrate under its Hazardous Materials Regulations.

The following forms of ammonium nitrate are listed in the DOT Hazardous Materials Table (49 CFR 172.101) with their Hazard Class or Division and identification number assigned to each proper shipping name:

- Ammonium nitrate emulsion or ammonium nitrate suspension or ammonium nitrate gel, intermediate for blasting explosives, Division 5.1, UN3375.
- Ammonium nitrate-fuel oil mixture containing only prilled ammonium nitrate and fuel oil, Division 1.5D, NA0331.
- Ammonium nitrate, liquid (hot concentrated solution), Division 5.1, UN2426.
- Ammonium nitrate, with more than 0.2 percent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance, Division 1.1D, UN0222.
- Ammonium nitrate, with not more than 0.2% total combustible material, including any organic substance, calculated as carbon to the exclusion of any other added substance, Division 5.1, UN1942.

Explanation of Hazard Class numbers:

- Division 1.1 - Explosives (with a mass explosion hazard) A mass explosion is one which affects almost the entire load instantaneously.
- Division 1.5 - Very insensitive explosives; blasting agents.
- Division 5.1 – Oxidizer.
- Class 9 - Miscellaneous Hazard Material.

DOT also requires safety and security plans for persons transporting any quantity of a Division 1.1 material and placarded quantities of Division 1.5 material, or large bulk quantities (greater than 6,614 lbs. or 792 gals.) of ammonium nitrate, ammonium nitrate fertilizers, or ammonium nitrate emulsions, suspensions, or gels. The project site's safety and security plan must conform to requirements in 49 CFR 172 Subpart I.

Department of Homeland Security

The Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) program applies to facilities that possess threshold quantities of certain types of ammonium nitrate. Facilities in possession of Chemicals of Interest (listed in 6 CFR Part 27 Appendix A) meeting or exceeding specific threshold quantities are required to complete a "Top-Screen" questionnaire to identify the types and quantities of Chemicals of Interest the facility possesses. CFATS regulates facilities that possess two

forms of ammonium nitrate. The first is a form with more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance. The second is ammonium nitrate in solid form, with a minimum nitrogen concentration of 23%, or any mixture containing 33 percent solid ammonium nitrate or greater. The CFATS program, authorized by P.L. 113-254, the Protecting and Securing Chemical Facilities from Terrorist Attacks Act of 2014, identifies and regulates high-risk chemical facilities to ensure they have security measures in place to reduce the risks associated with these chemicals. CFATS regulations are found in 6 CFR Part 27.

Based on the Top-Screen, if DHS initially determines the facility to be high-risk, the facility must complete and submit a Security Vulnerability Assessment, which is then reviewed by DHS to make a final determination on whether the facility is high-risk. Facilities receiving a final high-risk determination must develop and submit for DHS's review, a Site Security Plan (SSP), or alternatively, an Alternative Security Program, that describes the specific security measures the facility will utilize to meet the 18 applicable risk-based performance standards under CFATS. The agency must then review the facility's SSP to determine if it should be approved.

Bureau of Alcohol, Tobacco, Firearms, and Explosives

The ATF of the Department of the Justice regulates the importation, manufacture, distribution, and storage of explosive materials including blasting agents and other explosive materials containing ammonium nitrate. ATF's explosives regulations are codified in 27 CFR Part 555. Any user of explosives must obtain a user permit from ATF. All explosive materials must be obtained from a dealer licensed by ATF.

National Fire Protection Association

National Fire Protection Association (NFPA) assigns ammonium nitrate an instability rating of 3 (in a range of 0-4 with 4 being the most unstable) to alert emergency responders that ammonium nitrate is capable of detonation, explosive decomposition, or explosive reaction when exposed to a strong initiating source or when confined at high temperature. Ammonium nitrate explosions occur more readily when fuels or sensitizing contaminants are present. NFPA codes and standards are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together volunteers representing various viewpoints and interests to achieve consensus on safety issues. These codes and standards are not binding but may be adopted by reference into laws or regulations. Users of the codes and standards should consult applicable federal, state and local laws and regulations for conflicts or additional requirements.

NFPA 400 Code Chapter 11 addresses the storage, use, and handling of solid ammonium nitrate. It also covers liquid ammonium nitrate solutions 70 percent or more ammonium nitrate by weight. It does not cover ammonium nitrate or mixtures that are DOT Hazard Class 1 (explosives and blasting agents) which are covered in NFPA 495 and includes explosives and blasting agents containing ammonium nitrate.

Environmental Protection Agency

The USEPA is responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are contained mainly in CFR Titles 29, 40, and 49. Hazardous materials, as defined in the CFR, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws (which are described below):

- Resource Conservation and Recovery Act of 1976 (RCRA) (42 U.S. Code [USC] 6901 et seq.);
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also called the Superfund Act) (42 USC 9601 et seq.); and
- Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499).

These laws and associated regulations include specific requirements for facilities that generate, use, store, treat, and/or dispose of hazardous materials. The USEPA provides oversight and supervision for federal Superfund investigation/remediation projects, evaluates remediation technologies, and develops hazardous materials disposal restrictions and treatment standards. Much of the focus of these regulations is the regulation of hazardous wastes and substances that are toxic to the environment if accidentally discharged.

The RCRA establishes a framework for national programs to achieve environmentally sound management of both hazardous and nonhazardous wastes. Under CERCLA, the USEPA has authority to seek the parties responsible for releases of hazardous substances and ensure their cooperation in site remediation. CERCLA also provides federal funding (the “Superfund”) for remediation. SARA Title III, the Emergency Planning and Community Right-to-Know Act (EPCRA), requires companies to declare potential toxic hazards to ensure that local communities can plan for chemical emergencies.

Occupational Safety and Health Administration

The U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200) requires that workers be informed of the hazards associated with the materials they handle. For instance, manufacturers must appropriately label containers, material safety data sheets must be available in the workplace, and employers must properly train workers. Workers at hazardous waste sites must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response regulations (29 CFR 1910.120).

OSHA regulates the manufacture, keeping, having, storage, sale, transportation, and use of explosives and blasting agents under its Occupational Safety and Health Standards for explosives and blasting agents (29 CFR 1910.109). Blasting agents are frequently formulated with ammonium nitrate. OSHA's standard at 29 CFR 1910.109(i) contains requirements for ammonium nitrate stored in the form of crystals, flakes, grains or prills including fertilizer grade, dynamite grade, nitrous oxide grade, technical grade, and other mixtures containing 60 percent or more of ammonium nitrate by weight.

Ammonium nitrate is a hazardous chemical covered under the OSHA Hazard Communication Standard. Facilities handling and storing ammonium nitrate must submit information regarding chemical hazards (including ammonium nitrate) to their State or Tribal Emergency Response Commission (SERC or TERC), Local Emergency Planning Committee (LEPC), and local fire department in accordance with EPCRA. Facilities regulated under EPCRA must submit the following:

- Safety Data Sheets providing the chemical's hazard information and emergency response guidelines (EPCRA Section 311 and 40 CFR 370) and
- A Hazardous Chemical Inventory form that provides, among other things, the quantity, storage types, and locations of the ammonium nitrate at their facility (facilities handling FGAN do not

qualify for the EPCRA “routine agricultural activity” exemption). (EPCRA Section 312 and 40 CFR 370).

Facilities located within one of the 27 OSHA State Plans should contact their State Plan office for the specific requirements in their state, which may differ but must be at least as effective OSHA standards.

State

California Highway Patrol

The California Highway Patrol enforces regulations specifically related to the transport of hazardous materials. This agency determines container types used and licenses hazardous waste haulers for hazardous waste transportation on public roadways.

California Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC), a division of the Cal/EPA, has primary regulatory responsibility over hazardous materials in California, working in conjunction with the USEPA to enforce and implement hazardous materials laws and regulations. DTSC can delegate enforcement responsibilities to local jurisdictions. The hazardous waste management program enforced by DTSC was created by the Hazardous Waste Control Act (California Health and Safety Code, Section 25100 et seq.), which is implemented by regulations described in California Code of Regulations (CCR) Title 26. The state program thus created is similar to but more stringent than the federal program under RCRA. The regulations list materials that may be hazardous and establish criteria for their identification, packaging, and disposal. Environmental health standards for management of hazardous waste are contained in CCR Title 22, Division 4.5. In addition, as required by California Government Code Section 65962.5, DTSC maintains a Hazardous Waste and Substances Site List for the state, called the Cortese List.

The Cortese List is a planning document used by state and local agencies to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code Section 65962.5 requires Cal/EPA to develop and update the Cortese List annually, at minimum.

California Emergency Management Agency

The California Emergency Management Agency adopted the 2007 State Hazard Mitigation Plan on October 8, 2007. This plan is the official statement of California’s statewide hazard mitigation goals, strategies, and priorities. Hazard mitigation can be defined as any action taken to reduce or eliminate long-term risk to life and property by natural and human caused disasters. The plan, required under federal law, includes chapters on hazard assessment, local hazard mitigation planning, and mitigation strategy and must be updated every three years.

California Division of Occupational Safety and Health

The California Division of Occupational Safety and Health (Cal/OSHA) is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA requires many entities to prepare injury and illness prevention plans and chemical hygiene plans.

California Department of Forestry and Fire Protection

Sections 4201–4204 of the California Public Resources Code and Sections 51175–51189 of the Government Code require identification of fire hazard severity zones within the state of California. Fire prevention areas considered to be under state jurisdiction are referred to as “state responsibility areas.” In state responsibility areas, the California Department of Forestry and Fire Protection (CAL FIRE) is required to delineate three hazard ranges: moderate, high, and very high; whereas “local responsibility areas,” which are under the jurisdiction of local entities (e.g., cities, counties), are required to only identify very high fire hazard severity zones. The hazard ranges are measured quantitatively, based on vegetation, topography, weather, crown fire potential (a fire’s tendency to burn upward into trees and tall brush), and ember production and movement within the area of question.

Local Regulations

Certified Unified Program Agencies

Senate Bill 1082 (1993) established the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program. The Unified Program consolidates, coordinates, and makes consistent hazardous materials and hazardous waste program elements. A CUPA is a county, city, or joint powers agency approved and designated by Cal/EPA to implement the Unified Program and is responsible for all six program elements of the Unified Program within its jurisdiction. The NCDEH is the CUPA for Nevada County. The CUPA uses education and enforcement programs to minimize the risk of chemical exposure to human health and the environment. The CUPA forwards important facility information to local fire prevention agencies that enables them to take appropriate protective actions in the event of an emergency at regulated facilities. The Nevada County CUPA program elements include:

1. Hazardous Materials Release Response Plans and Inventory (Business Plans)
2. California Accidental Release Program (CalARP)
3. Underground Storage Tanks (UST)
4. Aboveground Petroleum Storage Spill Prevention Control and Countermeasures (SPCC)
5. Hazardous Waste Generation and Onsite Treatment

Nevada County

General Plan

The Safety Element of the Nevada County General Plan (Chapter 10; 2014) identifies the primary goal (GH-10.5) for hazardous materials is to “Protect public health, safety, natural resources, and property through regulation of use, storage, transport, and disposal of hazardous materials.”

Local Hazard Mitigation Plan

The County has identified the greatest safety risks present within the County and what resources are available to confront them. Transportation of hazardous materials along I-80 was among the risks that the County accepts every day.

Land Use and Development Code

Chapter II (Zoning Regulations), Article 3 (Specific Land Uses) Sec. L-II 3.22 Surface Mining Permits and Reclamation Plans identifies quarrying as a type of surface mining and describes the process by which quarries may be permitted to operate and the lands on which they may operate. Specifically, the code states that a Reclamation Plan will be required and that financial assurances will be required to ensure compliance with elements of the Reclamation Plan, including but not limited to, revegetation and landscaping requirements, restoration of aquatic or wildlife habitat, restoration of water bodies and water quality, slope stability and erosion and drainage control, disposal of hazardous materials, and other measures, if necessary.

Office of Emergency Services

The Nevada County Office of Emergency Services (OES), in coordination with the Nevada County Operational Area Emergency Services Council, has developed a Local Hazard Mitigation Plan (LHMP) for Nevada County to meet the requirements of the Disaster Management Act on behalf of the County, its incorporated cities and towns and participating districts.

4.10.3 Significance Thresholds

Based on Appendix G of the State CEQA Guidelines, a hazards and hazardous materials impact is considered significant if implementation of the proposed project would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
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;
3. Emit hazardous emissions or require handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
4. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Section 65962.5 of the California Government Code and, as a result, would create a significant hazard to the public or the environment;
5. Result in a safety hazard for people residing or working in the project area, where the project is located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport;
6. Result in a safety hazard for people residing or working in the project area, where the project is located near a private airstrip;
7. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

8. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.10.4 Impact Analysis

Significance Threshold 1 – Hazards from the Routine Transport, Use, or Disposal of Hazardous Materials

The proposed project would involve the transport, storage, use, and disposal of hazardous materials, including materials used for blasting (ammonium nitrate and fuel oils), gasoline, diesel fuels, lubricants, hydraulic oil, and compressed oxygen, nitrogen, carbon dioxide, and acetylene. No hazardous materials are currently stored at the project site – they are stored at the Martis Valley Quarry pursuant to a Hazardous Materials Business Plan (HMBP) and transported to the project site as-needed. Under the proposed project, fuels and lubricants needed for equipment maintenance and repair would be transported daily and blasting materials would be transported up to two times per week. During the life of the mine, the applicant may continue to transport hazardous materials stored at the Martis Valley Quarry to the project site, as needed, or the applicant may relocate hazardous materials storage to the project site. An evaluation of accidental release from storing materials on the project site is included under Significance Threshold 2, below.

Ammonium nitrate is a stable material when it has not been mixed with an organic compound, typically fuel oil. The mixture is created on-site immediately before use, so there is very little danger associated with the transport of these unmixed materials. All allowable uses would be subject to compliance with federal, state, and local hazardous materials regulations, and would be monitored by the state (e.g., Cal/OSHA and DTSC) and/or County. Blasting and handling of the materials is only performed by a licensed professional. Therefore, it is not anticipated that the routine use of these materials handled in accordance with these laws and regulations would create a significant hazard to the public or the environment.

The routine transport, use, and disposal of hazardous materials are subject to local, state, and federal regulations to minimize risk and exposure. No extremely hazardous substances (i.e., those governed pursuant to Title 40, Part 335 of the CFR) are anticipated to be produced, used, stored, transported, or disposed of as a result of the proposed project. However, if hazardous materials are spilled or released during routine transport, use, or disposal, these substances could pose a risk to the environment and to human health, which would be a potentially significant impact. Mitigation Measure HAZ-1 would be implemented to reduce potential impacts from minor spills or discharges of potentially hazardous materials associated with improper transport, use, or disposal.

Significance Threshold 2 – Accidental Release of Hazardous Materials

As mentioned under Threshold 1, accidental releases of hazardous materials during construction of the off-site roadway improvements or operation of the mine have the potential to adversely affect onsite workers, public health, and/or the environment. Accidental gasoline, diesel fuels, lubricants, or hydraulic oil used on the site would be cleaned up on-site without the material discharging from the site or becoming an on-site health hazard.

Should hazardous materials be stored at the project site, they may be stored in above ground storage tanks or locked storage facilities in their appropriate containers. The blasting materials include ammonium nitrate and fuel oils which are stored in cylinders. Additional materials include propane, fuel, various oils, lubricants and greases, antifreeze, fire suppressants, and oxygen. The location of the hazardous materials storage would be based on the site conditions at the time the relocation occurs.

Routine handling and storage of ammonium nitrate, especially in small quantities associated with a single blast, is generally safe from a hazardous, accidental release standpoint. However, large quantities stored for use over an extended period of time can be hazardous in improper storage conditions. For example, contamination by organic compounds, including sawdust, can cause an explosive destabilization of the material. Additionally, high temperatures can cause a spontaneous, explosive decomposition of the material. Finally, in the case of a fire or other emergency, first responders could unknowingly put themselves in danger if the stored ammonium nitrate was not properly identified. Impacts associated with the accidental release of hazardous materials would be potentially significant. Mitigation Measures HAZ-1 and HAZ-2 would be implemented to address risks associated with improper storage of hazardous materials.

As described under Threshold 4 in Section 4.7.5, asbestos may be naturally occurring in the project site and in the off-site roadway improvement area and may occur in the pavement in the off-site roadway improvement area. Ground disturbing activities associated with construction of the off-site site roadway improvement area and mining operations in the project site have the potential to expose sensitive receptors to asbestos, if present, which would result in a potentially significant impact.

Significance Threshold 3 – Hazardous Materials within the Vicinity of Schools

There are no schools within 0.25 mile of the project site. The nearest school is over two miles southwest of the project site. The project would have no impact in regard to the emission or handling of hazardous materials within 0.25 mile of schools.

Significance Threshold 4 – Hazardous Materials List

As discussed in Section 4.10.1, a review of state and federal databases confirmed that the project would not be located on lands that are included on a list of hazardous materials sites compiled pursuant to Gov. Code Section 65962.5. Therefore, the project would have no impact to the public or environment by being located on a listed hazardous material site.

Significance Thresholds 5 and 6 – Hazards Associated with a Public Airport or Private Airstrip

The project site and off-site roadway improvement area are not located within 2 miles of a public airport or public use airport, nor are the project site and off-site roadway improvement area located within an airport influence area. Tahoe Truckee Airport is nearest to the project site and is located approximately 5.35 miles southwest of the project site. The project would have no impact in regard to public airports or private airstrips.

Significance Threshold 7 – Interfere with an Emergency Response/Evacuation Plan

The project would not interfere with the implementation of or physically interfere with an adopted emergency response or evacuation plan. In times of emergency or disaster response, the state highways would serve as primary routes, and designated county arterial roadways in the area would serve as secondary routes. The project site is not in an evacuation area – neither Hinton Road or Stampede Meadows Road are evacuation routes identified in the Nevada County or City of Truckee Emergency Plans (Nevada County 2011a, b). Operations at the project site would be in accordance with the safety and evacuation plan prepared for the project and approved by the County.

The proposed project would not impair implementation of, or physically interfere with, an adopted emergency response plan or an emergency evacuation plan, and potential project impacts would be less than significant.

Significance Threshold 8 – Create Exposure to Wildfire Risk

The project site is located within a State Responsibility Area classified as a Very High Hazard Severity Zone by CAL FIRE (Nevada County 2018; CAL FIRE 2019). CAL FIRE maps fire hazard severity for State and Local Responsibility Areas. The majority of the off-site roadway improvement area is located in a Federal Responsibility Area. The USFS has identified the Wildfire Hazard Potential for the off-site roadway improvement area as ranging from Moderate to Very High (USFS 2019).

Heavy equipment, chainsaws, and vehicles (including personal automobiles transporting workers) have the potential start a fire during construction of the off-site roadway improvement area and during activities on the project site that involve working in or near vegetated areas. Besides a brief period of ground clearing, however, the bulk of project operations would occur in the quarry pit where combustible fuel would not likely be present.

Despite this low probability for the project's implementation to create a fire risk, vegetation and slash removed during site preparation may be placed on soil stock piles and burned. Proposed mitigation (MM HAZ-3) would require the removal of dried vegetation or other combustible materials, to the extent feasible, to reduce the potential of wildland fires. Additionally, during construction, spark arrestors or turbo chargers (which eliminate sparks in exhaust) and fire extinguishers would be required for all heavy equipment pursuant to MM HAZ-4. With the implementation of the proposed mitigation (MMs HAZ-3 and HAZ-4), the potential for exposure to wildland fires would be reduced, and associated impacts would be reduced to a level of less than significant.

4.10.5 Level of Significance Before Mitigation

Based on the above analysis, potentially significant impacts could occur associated with: (1) reasonably foreseeable release of hazardous materials if not correctly stored on the project site and without the proper authorization; (2) accidental release of hazardous materials; (3) and exposure to wildfire risk.

The project would result in less than significant impacts associated with: (1) hazardous materials in the vicinity of schools; (2) hazardous materials sites; (3) hazards associated with a public airport or private airstrip; and (4) interfering with an emergency response/evacuation plan.

4.10.6 Mitigation Measures

The proposed project would potentially result in significant impacts related to accidental release of hazardous materials. Accordingly, the following mitigation measures shall be implemented to ensure that any potential adverse impacts from project-related hazardous material storage would be reduced below a level of significance.

HAZ - 1 Should the hazardous materials used for operation of the mine be relocated and stored on the project site, the applicant must adhere to all applicable codes and regulations regarding the storage of hazardous materials and the generation of hazardous wastes set forth in the California Health and Safety Code Sections 25500 – 25519 and 25100 – 25258.2 including the electronic reporting requirement to the California Environmental Reporting System (CERS). The applicant shall apply for and obtain a permit for the storage of hazardous materials and the generation of hazardous wastes from NCDEH CUPA. The operator shall secure and annually renew the permit for this facility within 30 days of becoming subject to applicable regulations.

The building's design for the storage of ammonium nitrate or other blasting materials shall meet the criteria for such buildings as designated by OSHA and the ATF.

HAZ - 2 In order to protect the public from potential release of hazardous materials, the project applicant shall prepare and implement an HMBP in accordance with the requirements of the County Public Health Department Environmental Services Division and the Hazardous Materials Release Response Plan and Inventory Act of 1985. Under this state law, the applicant is required to prepare an HMBP to be submitted to the County Public Health Department, Environmental Health Services Division, which is the Certified Unified Program Agency for the County, or can be filed through the California Environmental Reporting System. The HMBP shall include a hazardous material inventory, emergency response procedures, training program information, and basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of at the proposed project site. The HMBP shall include an inventory of the hazardous waste generated on-site, and would specify procedures for proper disposal. As required, hazardous waste would be transported by a licensed hauler and disposed of at a licensed facility. According to the HMBP reporting requirements, workers must be trained to respond to releases of hazardous materials in accordance with State and federal laws and regulations governing hazardous materials and hazardous waste (e.g., HAZWOPER training required by OSHA). Any accidental release of small quantities of hazardous materials shall be promptly contained and abated in accordance with applicable regulatory requirements and reported to the Environmental Health Services Division. As the Certified Unified Program Agency for the County, the Environmental Health Services Division of the County Public Health Department is responsible for implementation and enforcement of HMBPs.

HAZ-3 Construction contractors and/or the site operator shall ensure that during construction and/or during vegetation clearing of the mine, all areas of the construction site and/or the mine in which spark-producing equipment and vehicles may operate shall be cleared of dried vegetation or other materials that could serve as fuel for combustion. This

includes parking areas, staging areas, and the construction zone. The contractor shall keep these areas clear of combustible materials for the duration of construction.

- HAZ-4** Construction contractors and/or the site operator shall ensure that all equipment with internal combustible engines will be equipped with a spark arrester that shall be maintained in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

4.10.7 Significant Unavoidable Adverse Impacts

Based on the above analysis, potentially significant impacts related to hazards and hazardous materials from project implementation would be limited to improper storage of ammonium nitrate, accidental release of hazardous materials, and wildfire risk. These potential impacts would be reduced to less than significant levels through the identified mitigation measures by incorporating OSHA standards into the design of the storage building, preparing and filing a HMBP with the County, implementing Mitigation Measure AQ-4 in regard to asbestos, removing dried vegetation and ensuring that equipment is equipped with spark arrestors.

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4.11 CULTURAL AND TRIBAL RESOURCES

Technical studies used for the following analysis include the following: (1) Cultural Resources Inventory of 168 Acres for Teichert Aggregates Boca Quarry Expansion Project Nevada County (Vierra and Associates 2006) and (2) Cultural Resources Inventory for the Boca Quarry Expansion Project Nevada County, California (Parus 2013). In October 2017, HELIX conducted a records search at the North Central Information Center (NCIC) to update the previously prepared studies and the results and recommendations are summarized in the Cultural Resources Record Search Update Technical Memorandum (HELIX 2018b). No pedestrian survey was conducted by HELIX as part of the records search update. In 2017, the County initiated consultation with interested Native American tribes pursuant to AB 52. The studies and results of the AB 52 consultation are summarized in this section along with other applicable data, with the complete technical reports and AB 52 consultation records included in Appendix M of this EIR (CONFIDENTIAL – NOT FOR PUBLIC REVIEW).

4.11.1 Existing Conditions

Area of Potential Effect

The Area of Potential Effects (APE) is defined as the geographic area or areas within which a project may directly or indirectly cause alterations in the character or use of significant historical or archaeological resources. The APE is influenced by the scale and nature of the project as well as by the types of cultural and tribal resources in the vicinity. For the purposes of this analysis, the APE is understood to be the area that could potentially be subjected to ground disturbance during implementation of the proposed project.

Surveys for the proposed project covered the entire 230-acre project site and the 22-acre off-site roadway improvement area; however, the APE for the proposed project consists of the 158-acre ultimate disturbed area and the 22-acre off-site roadway improvement area for a total APE of approximately 180 acres.

Precontact Background

The precontact cultural history of the northern Sierra has been refined since archaeological investigations in the region began in the 1950s and an initial history was developed by Heizer and Elsasser (1953). Table 4.11-1 summarizes a cultural chronology of the northern Sierra adapted from Kowta (1988) and Moratto (1999). Such timetables provide a framework to discuss culture history in relation to broad changes seen in the archaeological record. It should be noted that the precontact chronology for the region is being refined on a continuing basis, with new discoveries and improvements in the accuracy of dating techniques.

**Table 4.11-1
NORTHERN SIERRA REGIONAL CHRONOLOGY**

Period	Cultural Complex	Age*
Paleo-Indian	N/A	11,500 BP to 8,000 BP
Early Archaic	N/A	8000 BP to 5000 BP
Middle to Late Archaic	Martis	4500 BP to 1500 BP
	Mesilla	3000 BP to 2000 BP
	Bidwell	2000 BP to 1200 BP
Emergent	Sweetwater	1200 BP to 400 BP
	Oroville	400 BP to 200 BP
	Maidu	200 BP to Present

*BP: Years Before Present

Paleo-Indian Period (11,000 BP to 8,000 BP)

The archaeological manifestations of California's earliest people consist of large stemmed or lanceolate points that are typically of high-quality lithic material such as obsidian or chert, a variety of heavy core tools, bifaces, patterned and un-patterned flake tools, and chipped stone crescents (McGuire 1997). As elsewhere in the state, Paleo-Indian occupations in northeast California are typically found around the former shores of extinct pluvial lakes (McGuire 1997). Evidence of terminal Pleistocene occupation of northeastern California includes the discovery of Paleo-Indian stemmed points along Honey Lake Basin (Milliken and Hildebrandt 1997). Although Paleo-Indian adaptations have typically been interpreted as small bands of highly mobile big game hunters, sites around Honey Lake have a high assemblage diversity that includes both flaked and ground stone, suggesting a reliance on both plant and animal foods. High quantities of rabbit, fish, and shellfish remains provide further evidence of diversification (McGuire 2007).

Early Archaic Period (8000 BP to 5000 BP)

The most significant change reflected archaeologically during this period is the adaptive response by people to the drying trend of the Altithermal. Warmer, dryer temperatures resulted in the disappearance of several former water bodies. Most early Holocene sites occur along ancient shorelines, whereas middle Holocene sites occur almost exclusively upslope on alluvial fans located next to prominent drainages or springs (McGuire 2007:170). Towards the end of the Early Archaic plant resource exploitation intensified, evidenced by an increase in milling equipment from the early to middle Holocene (Rosenthal 2000). The Martis Complex is attributed to the end of the Early Archaic period and is the first substantial archaeologically visible occupation in the area (McGuire 2007). Martis sites are typically located in upland contexts and show a prevalence of basalt artifacts and extensive debitage around upland quarries.

Middle to Late Archaic (5000 BP to 1200 BP)

Further resource intensification and a continued trend towards higher site visibility mark the Middle to Late Archaic period in northeast California. Evidence of pit-house villages, midden deposits, hearths, ovens, burials, ceremonial activity, and obsidian production exemplify this cultural florescence (McGuire 2002). An increased emphasis on logistical mobility has been proposed by some (McGuire 2002) during the Middle Archaic based on the number of hunting camps and features in upland contexts. Obsidian and basalt bifaces and quarrying sites may also suggest a rise in logistically oriented

movements. There is evidence of “keying in” on a few select sources of tool stone during the Middle Archaic (McGuire 2007). Whether this was a result of population packing or preference for specific stone sources is undetermined, however, the fact that more and more obsidian was being traded to distant regions may indicate certain groups were settling into specific territories.

The Late Archaic saw the introduction of bow and arrow technology. The onset of this period is defined by climatic instability in much of California and the Great Basin (McGuire 2007). This instability was largely caused by the Medieval Climatic Anomaly, a warm dry interval which occurred from about 1100 to 600 BP (Stine 1994). Some of the largest known villages in the region date to this period (Rosenthal 2000), but they appear to have been occupied for shorter periods than their Middle Archaic counterparts and may have been a defensive response to an increase in social conflict (McGuire 2002:174). There is an increase in tool-stone diversity at archaeological sites compared to the Middle Archaic, which may be attributed to the scavenging of older tools, increased reliance on exchange networks, and the use of secondarily deposited pebbles and cobbles (Young 2002).

Emergent Period (1200 BP to Contact)

Ancestral forms of historic Native American groups become apparent during the Emergent Period (McGuire 2002). This period is marked by the presence of Gunther Stemmed points, Cottonwood Triangular points, and Desert Side-notched points at archaeological sites (Compas 2005). Emergent Period peoples practiced a broad-based subsistence strategy, but particularly important foods were acorn, deer, and anadromous fish. Faunal evidence from archaeological contexts during this period show a rebound in large animal remains (Carpenter 2002) compared to the Late Archaic. Some areas in northeast California saw the occupation of large, upland village sites, perhaps the manifestation of a defensive strategy (Carpenter 2002). North of the current project area, Kowta (1988) analyzed what he interpreted as a precontact Maidu settlement and burial (CA-PLU-33/H). Milling stones, manos, a steatite pipe, bone beads, abalone shell, Olivella shell beads, pine nut beads, and coiled basketry were all recovered (McGuire 2002). Kowta concluded that social stratification was evident among the burials. For example, the placement of ceremonial blade in a grave suggested the grave was that of a shaman.

Ethnographic Background

At the time of European contact, the project vicinity was occupied by the Washoe tribe of Native Americans. The Lake Tahoe area is the nucleus of Washoe territory and is considered by the Washoe to be the “physical and spiritual center of the Washoe world” (Lindström and Hall 1994). Prehistoric remains in the traditional Washoe territory are considered by the Washoe to be of their direct ancestors. Washoe Tribe members point to the lack of an oral tradition of migration or mass movement to support that the prehistoric history of the Tahoe Basin is the history of the Washoe Tribe (Lindström et al. 2007). The project area falls within the traditional territory of the northern Washoe, or *Wélmelti’*.

There are little or no records of the Washoe until after the 1849 California gold rush and 1858 Nevada silver strike because of their remoteness in the high Sierra. Because they stayed away from early settlers, the bulk of our information begins around the turn of the twentieth century. Since that time, considerable ethnographic work with the Washoe has been accomplished, which continues today (Downs 1966:3; d’Azevedo 1986:498). Their language is an isolate, with no recognizable relationships to the dominant Numic language family speakers to the east or any of the Penutian language stock Native American groups to the west (Mithun 2001:557).

The ethnographic Washoe engaged in a seasonal round, relying on a diverse range of resources (fish, animals, and plants) that were harvested at specific times of the year. This seasonal round was flexible depending upon the availability or abundance of resources. There was a tendency to live on the lakeshore or other lower elevation areas during colder times, and move up to higher elevations in warmer times. Ethnographers have noted that the Washoe tended to avoid living at sacred places, including one that is close to the current project area (Downs 1966; d'Azevedo 1986; Rucks 2011).

Permanent winter villages were established by local groups on high ground near springs and rivers, usually at the nexus of several ecological zones. Individual, circular houses were usually 12 to 15 feet in diameter and made of poles interlocked at the top like a cone. The sides were covered with bark slabs or thatched with grass, tule, and willow (d'Azevedo 1986:479-481). Temporary summer dwellings were dome-shaped and thatched with grass and tule. Unlike the tribes to the west, the Washoe did not construct communal sweat lodges, dance houses, or granaries. The dead were disposed of in a variety of ways, including cremation (Kroeber 1925:573), tree or scaffold exposure, burial under logs, or burial in remote places (d'Azevedo 1986:488).

Local group households usually consisted of extended, multigenerational families (d'Azevedo 1986:470). A headman was chosen from among the households, often with a hereditary leadership background, and frequently had marriage connections with numerous other locals' groups. Additional political roles among the Washoe included war leaders and the head of the communal rabbit hunt. In historic times, under Euro- American influence, a headman might become the spokesman for several groups.

Washoe territory provided them with a rich variety of local food resources, and groups also dispersed as much as 20 to 40 miles in any direction outside their core area to collect seasonally available foods (e.g., acorns, pine nuts, spawning fishes) (d'Azevedo 1986:472-473). Trout, suckers, tui chub, white fish, and other fish were caught in large numbers from numerous lakes, including Tahoe, Mono, Walker, Pyramid, and Honey Lakes, as well as the rivers and creeks feeding these lakes, and dried for later use. Although mule deer, antelope, and mountain sheep were the primary big game, the relative abundance of rabbits and hares made them more important. Porcupine, beaver, chipmunks, squirrels, gophers, woodchucks, badgers, and birds were also eaten, but reptiles were strictly avoided. Insects, such as locusts and grasshoppers, provided a highly nutritious supplement to the diet.

Since the spring growing season was short in the high elevations of the Washoe core area, the community dispersed widely to make effective use of harvesting locations (d'Azevedo 1986:473; Downs 1966:25-35). Acorns were the main staple for the western and northern groups, whereas pine nuts filled that role in the south and east. More than 170 plants were used, including several grass species; sunflower, wild mustard, wild rye, pigweed, and other plant seeds; lily, wild onion, bitterroot, tule, and cattail bulbs and roots; three species of "Indian potatoes"; a variety of berries (elderberry, chokecherry, buckberry, serviceberry, currants, wild plum, manzanita, gooseberry, strawberry); greens and shoots (watercress, miner's lettuce, and wild rhubarb); and mushrooms.

To gather and collect food resources, the Washoe used a wide array of tools, implements, and enclosures (d'Azevedo 1986:477-478). These included bows and arrows, traps and snares, nets, and rock blinds for hunting land mammals and birds, and duck and other shaped decoys for hunting waterfowl. Communal hunting drives were used to take both large and small mammals, using large nets and clubs. Snowshoes were made for winter hunting trips. Cedar bark and tule rafts were used for lake fishing and reaching bird eggs along the banks. Woven tools (seed beaters, burden baskets, and carrying nets) and sharpened digging sticks were used to collect plant resources.

The Washoe processed and cooked food resources with a variety of tools, including baskets, wooden fire pokers, paddles for stirring mush, and implements for lifting hot stones into cooking baskets. Bountiful harvests of unprocessed acorns and pine nuts were cached in the family-held groves where they were collected. Around Honey and Pyramid Lakes, the Northern Paiute and northernmost Washoe groups jointly used acorn gathering and fishing areas. Trade was more frequent among Washoe groups and the Northern Paiute, but the Washoe also acquired acorns, seashells, and skins from the Wintu, and exported salt, obsidian, pine nuts, and rabbit skins to the Maidu (d'Azevedo 1986:471). The Washoe occasionally traveled to the Pacific coast for mussels and other shellfish (Downs 1966:36-37).

External relations with many Native American groups were not always friendly. There were frequent clashes when Washoe groups encountered the Sacramento River Valley Miwok, Maidu, and Nisenan in the foothill gathering locales, since each claimed the same resource areas. Conflicts have also been recorded with the Konkow to the southwest and the Atsugewi and Achumawi to the northwest; the Washoe would have had to cross Maidu and Northern Paiute lands to reach these groups (d'Azevedo 1986:469).

The Washoe had little or no contact with Europeans, except for the occasional fur trapper, until the 1849 gold rush and the 1858 silver strike in Virginia City brought miners and settlers through their territory. Even after this, there is little mention of the Washoe in settler accounts for several years because they moved their camps away from Euro-American immigrants. Following attempts to drive off settlers, and facing increasing attacks by Paiutes who had acquired guns and horses, many Washoe sought accommodations with ranchers and farmers who had appropriated their lands (d'Azevedo 1986:494). The Washoe soon were prevented from fishing in Lake Tahoe and other prime areas by Euro-American commercial fisheries, and loggers cut down the piñon pine forests. Faced with such difficulties, many Washoe participated in the Ghost Dance of the 1870s, a religious movement that diffused among Great Basin native peoples and prophesized an end to Euro-American expansion. Later, the Peyote Cult religion gained widespread popularity and is now organized in the form of the Native American Church.

By 1859, the Washoe were urged to move to proposed reservations at Pyramid and Walker Lakes with the Paiutes, but Washoe leaders refused to take their people to the homeland of a tribe that was now their enemy. Between 1887 and 1917, the federal government, the state of Nevada, and sympathetic Euro-Americans set aside small parcels of land for the Washoe, in mostly worthless land, including Dresslerville Colony, Reno-Sparks Colony, and Carson Colony in Nevada. In 1936, the Washoe Tribe of Nevada and California was formed under regulations of the 1934 Indian Reorganization Act, and started taking actions on their own behalf. They submitted land compensation claims to the Indian Claims Commission along with other California and Nevada tribes, and received a monetary award in the 1970s, which the Washoe invested in lands and businesses (d'Azevedo 1986:497).

Although the Washoe escaped the waves of infectious epidemics encountered by California coastal and valley tribes, and avoided direct contact with Euro-American immigrants, the miners and settlers affected their traditional collecting, hunting, and fishing areas heavily. As a consequence, their numbers were reduced by 1910 to perhaps 800 from a pre-contact population estimated at 1,500 (Kroeber 1925:570). As of 1984, the Washoe estimated a population of 1,530 on the tribal rolls (d'Azevedo 1986:493). Today, the tribe has four communities—one in California at Woodfords, and three in Nevada at Carson, Dresslerville, and Stewart—and shares the Reno-Sparks Indian Colony with Paiute and Shoshone (Washoe Tribe of Nevada and California 2010). The Washoe tribal headquarters is located at

Gardnerville, Nevada, with tribal trust parcels in Alpine, Placer, and Sierra Counties, California; and Douglas, Carson, and Washoe Counties, Nevada.

Historic Background

Post-contact history for the State of California generally is divided into three specific periods: the Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848–present). Although there were brief visits by Spanish, Russian, and British explorers from 1529 to 1769, the beginning of Spanish settlement in California occurred in 1769 with a settlement at San Diego. Twenty-one missions were established from 1769 to 1823 along the Pacific coast. After the end of the Mexican Revolution (1810–1821) against the Spanish crown, the Mexican Period is marked by an extensive era of land grants, mainly in the interior of the state but none in Nevada County, as well as exploration by American fur trappers west of the Sierra Nevada Mountains. In 1826, Jedediah Smith was the first trapper to enter California over the Sierra Nevada.

In Nevada County, the early explorations during the Spanish and Mexican periods were limited. In 1844, the first emigrant group to cross the Sierra Nevada by wagon followed the California Trail, a branch of the Emigrant Trail also known as the Truckee Pass Emigrant Road, which followed the Truckee River valley in Nevada westward through Donner Pass. The following year, Captain John C. Frémont entered California with a small detachment via the same trail. Although hundreds of emigrant groups traversed this route, the most famous is the Donner Party. Donner Memorial State Park west of Truckee commemorates their endurance of the tragic winter of 1846/1847.

The American Period was initiated in 1848 with the signing of the Treaty of Guadalupe Hidalgo, which ended the Mexican–American War. Gold was discovered the same year at Sutter’s Mill on the American River in Coloma. Thousands of emigrants, some of whom stayed in Nevada County, traveled westward on the Truckee Route of the California Trail. The county was formed in 1851 from territory that was part of Yuba County, and Nevada City was made the county seat (Hoover et al. 2002:251). Although gold seekers used other, easier cross-Sierran routes after 1849, such as Carson Pass and Johnson’s Cutoff, beginning in 1850 mining established Nevada County as the heart of the region known as the “Northern Mines.” Throughout the early Gold Rush era, and the later discovery in 1859 of silver on the Comstock in Nevada, logging, transportation, and agriculture, as well as ice production, supported the mining industry.

In 1868, the Central Pacific Railroad (CPRR) conquered the Sierra summit, pulling its first locomotive into Truckee. The Dutch Flat-Donner Wagon Road was renamed Main Street and by 1869, the Transcontinental Railroad was completed, and Truckee became an important juncture between the two coasts. In 1870, the CPRR and Southern Pacific Railroad (SPRR) came under the same ownership and were eventually reorganized in the late 1900s under the SPRR name (now owned by the UPRR).

The start of lumbering in the Truckee and Tahoe basins in the mid-1860s was largely coincident with the building of the CPRR and the subsequent opening of markets along its route. West of the California-Nevada state line at Tahoe’s North Shore, lumbering tended to be oriented more toward the demands of the railroad; farther east, it served the needs of the Comstock Lode mines. The expansion beyond sawmilling into such facilities as planing mills, box factories, and sash and door establishments meant that self-sufficient communities like Truckee grew up where the larger mills were situated. In this era, the logistics of timber extraction and transport were accomplished by large lumber companies, whose timber holdings locked up immense blocks of land.

By the turn of the century, the land in the Truckee and Tahoe basins had been largely stripped of pine, although fir and other tree species considered unsuitable for ties and timbers remained. With the introduction of paper mills, the fir trees were intensively harvested between 1900 and the 1920s for use as pulpwood. By the 1950s, the pines that grew after the 1800s logging era were mature enough to harvest. This modern era lumber harvest continued on a reduced scale through the 1970s. By the 1980s, the forests in the Lake Tahoe vicinity were more valuable for recreational uses. Large-scale logging continued elsewhere in the northern Sierra but not in this region.

With completion of the Transcontinental Railroad through Truckee in 1868, ice could be harvested and transported cost-effectively. The ice industry was soon dominated by companies in the Truckee-Donner area, at least 15 of which have been documented. Between 1868 and the 1920s, the business rivaled the economic importance of the lumber industry (Earl 2004; Hansen 1987; Itogowa 1974; Lord 1994:36).

During the building of the railroad, the CPRR had established a station at Boca at the mouth of the Little Truckee River. The small town soon developed a lumber mill, ice industry, and brewing company. In 1868, the first company in the Truckee Basin to harvest ice was at Boca. Located at a small lake on the Little Truckee River, the Boca Mill & Ice Company (later the Union Ice Company), was also the last of the regional companies to harvest ice in the mid-1920s (Lindström et al. 2007:42; Smith 1993:4).

Situated near present-day Boca Reservoir, the ice on the original Boca Lake was harvested by horses that pulled saws used to cut blocks of ice. With completion of the Virginia and Truckee Railroad in 1872, the ice industry flourished since the blocks could be readily transported by rail to the Comstock mines where it was used to cool underground chambers below the 140-degree temperatures (Department of Water Resources 1991:21; Earl 1996:12; Hartl 2001:6-7; Hinkle and Hinkle 1987:336-337; Lindström et al. 2007:42; Lord 1994:36; Meschery 1978:48). Ice from Boca and other companies in the region was also used to refrigerate railroad cars to transport California's fruits and vegetables to eastern markets.

The Boca Brewery opened in 1875 and operated until 1896, utilizing the abundant supply of ice from the lake. The very successful company transported its lager beer via the CPRR to the West Coast and foreign markets. The site of the Boca Brewery (P-29-000662, CA-NEV-600H), which was burned after the machinery and other items were sold when the company closed, has been recommended as being eligible for listing in the National Register of Historic Places (NRHP) (Speer 1984). The Boca townsite (P-29-000662, CA-NEV-600H) has also been evaluated for NRHP inclusion and was recommended as being eligible under Criteria A and D (Smith 1993:4). The town figured prominently in the early industrial development of the Truckee Basin, including the lumbering, ice, and brewing industries. The Boca Ice Harvest Site was listed in 1983 as a California Point of Interest (P610).

Boca Dam was completed in 1939 as part of the federal Newlands Project, which was among the first five projects authorized under the National Reclamation Act of 1902. The Act authorized projects that were designed to reclaim the arid lands of the West for agricultural uses. Other components of the Newlands Project (also called the Truckee-Carson Project) included the outlet works at Lake Tahoe, Lahontan Dam Reservoir, and hundreds of miles of canals (Wieprecht et al. 1980). As part of the historically significant Newlands Project, Boca Dam (P-29-003283) was listed in the NRHP in 1981 (No. 81000712). The dam impounds irrigation water in Boca Reservoir primarily for the Truckee Storage Project for distribution to the agricultural industry in the Truckee Meadows area around Reno and Sparks, Nevada, (Bureau of Reclamation 2011). Boca Dam and Reservoir are currently operated by the Washoe County Water Conservation District.

The existing Boca Quarry has been used as a source of aggregate since the 1950s. The first official use permit for a quarry operation was obtained in 1983. In the mid-1990s, the property was sold and began operations under the name Hirschdale Cinder Quarry. In 2005, Teichert Aggregates became the new operator of the quarry and renamed it Boca Quarry (County of Nevada 2012: ES.1-ES.2).

Paleontological Setting

The project site is characterized by a sequence of Pleistocene-age (between approximately 2.6 million and 12,000 years old) volcanic and sedimentary rocks, locally overlain by recent, or Holocene-age (less than approximately 12,000 years old), surficial deposits. Volcanic deposits at the project site exhibit thicknesses of up to 170 feet and consist generally of a sequence of basalt flows and breccias (angular rock fragments cemented in a fine-grained matrix), with lesser amounts of cinders, ash, and rhyolitic (the volcanic equivalent of granitic) tuff (consolidated volcanic ash). The underlying sedimentary rocks consist of a sequence of claystone and sandstone strata.

Fossils are generally found only in sedimentary deposits, while volcanic and metamorphic (heat-transformed) rocks do not typically contain fossils in a scientifically significant setting. Because the proposed mining and related excavation/reclamation activities would not extend below the on-site volcanic deposits (and thus would not encounter the underlying sedimentary units), the project site is considered to have a low sensitivity for paleontological resources.

Record Search Results

On October 26, 2017, HELIX conducted a cultural resource records search to identify previously documented cultural resources within a 0.25-mile radius of the project boundaries. The search included current inventories of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Historical Landmarks listings (CHL), and the California Points of Historical Interest list. The California State Historic Property Data File (HPDF) for Nevada County was also reviewed to determine if any local resources have been previously evaluated for historic significance within the search radius.

Results from the NCIC record search indicate that 15 resources (refer to Table 4.11-2) have been recorded and 17 studies (refer to Table 4.11-3) have been conducted within 0.25 mile of the project area.

**Table 4.11-2
PREVIOUS STUDIES CONDUCTED WITHIN 0.25 MILE OF THE PROJECT SITE**

Resource #	Period	Description	Author/Year Recorded	Within Project APE?
P-29-000084	Historic/ Precontact	Lithic Scatter and Privy/Dump/Trash Scatter	A. Elsasser, S. C. Way/1954	No
P-29-000138	Historic/ Precontact	Lithic Scatter and Privy/Dump/Trash Scatter	Alvine McLane, et al./1981	No
P-29-000613	Historic	Central Pacific Railroad Company of California	Susan Lindstrom/1995	Crosses Project
P-29-000627	Historic/ Precontact	Multi-component site: precontact lithic scatter; 1930s-1950s debris scatter; 1900 water conveyance system	Crittenden, L./1981; Sutherland/1990; Budd and Edwards/1994; Waechter and McCabe 2007	Yes
P-29-000651	Historic	Boca & Loyalton Railroad	Michael Baldrice, Jennifer Sigler/2002	Crosses Project
P-29-000662	Historic	Boca Townsite and Boca Brewery	Paul Wilford/1977	Yes
P-29-002967	Historic	Boca Bridge	O.M. Uhi/1951	No
P-29-003020	Historic	West Hinton Road	McCabe, A./2007	Yes
P-29-003283	Historic	Water Conveyance System; Boca Dam	Wilbur E. Wieprecht, et al/1980	No
P-29-004316	Historic	CCC Camp Boca remnants	Carrie E. Smith/2009	No
P-29-004317	Historic	Historic debris	Carrie E. Smith/2009	No
P-29-004364	Historic	Single Story cabin	LSA/2012	No
P-29-004365	Historic	Dynamited quarry depressions	LSA/2012	Yes
P-29-004500	Historic	Roads/trails	Heather Norby & Steven Melvin/2015	No
P-29-004506	Historic	Roads/trails	Heather Norby & Steven Melvin/2015	No

Source: HELIX 2018b

**Table 4.11-3
SURVEYS CONDUCTED WITHIN 0.25 MILE OF PROJECT SITE**

Report #	Author, Year	Title
000067	Weigel, Lawrence/1983	Archaeological Survey for the Widening & Redecking of the Boca Bridges on Interstate 80, Nevada County
008181	O'Connell, Keith/2002	Cellular Communications Tower Site-Boca, Stampede Meadows Road URS Project No.: 64-48000001.000 133
008190	Brown, Jody/1999	Historic Property Survey Report and Finding of Effect for proposed Interstate 80 Rehabilitation Project Between Union Mills Overcrossing and Hinton Road (03-NEV-80, PM 20.3/23.6, KP 32.7/38.0, EA 03-366100)
008192	Bass, Henry/1984	Archaeological Survey Report for the Proposed Interstate 80 Westbound Chain-on Lane Project in Boca
008193	Sutherland, Barbara/1990	Cultural Resource Inventory of the Boca Borrow Pit Project, Report Number 05-17-906
008194	Budd, Jon/1994	Archaeological Reconnaissance of the Federal Highway Administration Road Improvements on Stampede-Smithneck Road Federal Highway 126
008267	Smith, Carrie/1993	Cultural Resource Survey and Evaluation for the Boca America's Great Outdoors Recreation Proposals
008270	Villiard, Perette, et al. /1981 Markley, Richard	Cultural Resources Report Boca Bridge
008619	Arrington, Cindy et al./2006	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California
008959	Waechter, Sharon A. /2007 and Lindstrom, Susan G.	A Cultural Resources Study for the Proposed Teichert Aggregates Quarry Development near Boca Reservoir, Nevada County, California
009404	Lindstrom, Susan/1998	Reno Flood Warning System Heritage Resource Inventory
010166	Nepstad, Michael/2007	Boca Dam Geologic Testing
010434	Snyder, Jon W./1997	Central Pacific Transcontinental Railroad, Sacramento to Nevada State Line – HAER CA-196
010621	Duke, Darren, et al./2010 Sharon and Garner, Albert	Cultural Resources Inventory of NV Energy Transmission Line Assets on the Tahoe National Forest, Truckee and Sierraville Ranger Districts, California Forest Service Report Number: TNF01555/R2009051700058
011359	Sikes, Nancy E., et al./2013 Cindy J. and Rodman, Tobin	Cultural Resources Inventory for the Boca Quarry Expansion Project Nevada County, California
011976	Waechter, Sharon A., et al./2015	Archaeological and Historical Investigations for the US Bureau of Reclamation Boca Safety of Dams Modification Project, Nevada County
012221	Bos, Sydney and Leonard, Megan E./2015	Archaeological & Historic Architecture Records Preview for the Union Pacific Railroad Roseville Subdivision Positive Train Control Mile Posts 176, 177, 214.1, & 219.1 TCNS# 134209

Source: HELIX 2018b

Cultural Resources Site Summary

The results of the October 2017 record search and the technical studies conducted in support of the project indicate that six cultural resources are located within the proposed project APE:

- **P-29-000613, the Central Pacific Railroad**, crosses a portion of the roadway improvement area. The railroad was evaluated in 1998 and recommended eligible for the NRHP under Criterion A.
- **P-29-000627, a multicomponent site** consisting of a prehistoric rock ring, flaked- and ground-stone tools, and a historic water conveyance system and debris scatter. The site was evaluated in 2007 and was recommended as not eligible for listing in the NRHP or the CRHR under any criteria. According to Parus Consulting (2013), “the site remains in poor condition (and) is being impacted by recreation activities, debris discard, and by the traffic generated by the Boca Reservoir shooting area, as well as by natural erosional processes. Modern trash, including a variety of bullet shell casings, paper and plastic, was found scattered throughout the site boundaries.”
- **P-29-000651, the Boca & Loyalton Railroad**, crosses a portion of the roadway improvement area. The railroad has not been evaluated for CRHR or NRHP eligibility.
- **P-29-000662, the Boca Town and Boca Brewery site**, is bisected by the roadway improvement area. The site has twice been recommended as eligible for listing on the NRHP and the CRHR, in 1975 and again in 1984.
- **P-29-003020, West Hinton Road**, extends from the roadway improvement area east to the boundary of the ultimate disturbed area. The road was evaluated in 2015 and was recommended as not eligible for listing in the NRHP or the CRHR under any criteria.
- **P-29-004365, a dynamited quarry depression**, is located within the West Pit, in the ultimate disturbed area. The site has not been evaluated for listing on the NRHP or CRHR but has been recorded on Department of Parks and Recreation (DPR) forms. The forms note that the quarry does not appear on historical maps, is not represented in reviewed literature, and is unknown to local informants. Its age is unknown, and photographs included with the forms do not depict more than a random pile of dynamited rocks apparently associated with construction of local roads. The lack of uniqueness, and the probability that it is not over 45 years old, leads to the conclusion that the quarry does not meet any of the criteria for listing on the NRHP or CRHR and therefore requires no further study.

4.11.2 Regulatory Framework

Federal Regulations

National Historic Preservation Act of 1966

Federal agencies are required to consider the effects of their actions on historic properties and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings under Section 106 of the National Historic Preservation Act (Section 106). Federal agencies are responsible for initiating Section 106 review and completing the steps in the process that are

outlined in the regulations. They must determine if Section 106 applies to a given project and, if so, initiate review in consultation with the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO). Federal agencies are also responsible for involving the public and other interested parties. Furthermore, Section 106 requires that any federal or federally assisted undertaking, or any undertaking requiring federal licensing or permitting, consider the effect of the action on historic properties listed in or eligible for the NRHP. Under the CFR, 36 CFR Part 800.8, federal agencies are specifically encouraged to coordinate Section 106 compliance with the NEPA process. The implementing regulations “Protection of Historic Properties” are found in 36 CFR Part 800. Resource eligibility for listing on the NRHP is detailed in 36 CFR Part 63 and the criteria for resource evaluation are found in 36 CFR Part 60.4 [a-d].

National Register of Historic Places

The NHPA established the NRHP as the official federal list for cultural resources that are considered important for their historical significance at the local, state, or national level. To be determined eligible for listing in the NRHP, properties must meet specific criteria for historic significance and possess certain levels of integrity of form, location, and setting. The criteria for listing on the NRHP are significance in American history, architecture, archaeology, engineering, and culture as present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. In addition, a resource must meet one or these eligibility criteria:

- a. Is associated with events that have made a significant contribution to the broad patterns of our history.
- b. Is associated with the lives of persons significant in our past.
- c. Embodies the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values, represent a significant and distinguishable entity whose components may lack individual distinction.
- d. That have yielded, or may be likely to yield, information important in prehistory or history.

Criterion d is usually reserved for archaeological resources. Eligible properties must meet at least one of the criteria and exhibit integrity, measured by the degree to which the resource retains its historical properties and conveys its historical character.

Federal Criteria of Adverse Effects

In consultation with the SHPO/THPO and other entities that attach religious and cultural significance to identified historic properties, the Agency shall apply the Criteria of Adverse Effect to historic properties within the APE. The Agency official shall consider the views of consulting parties and the public when considering adverse effects.

Under federal regulations, 36 CFR Part 800.5, an adverse effect is found when an undertaking alters, directly or indirectly, any of the characteristics of a historic property that qualifies the property for inclusion in the NRHP in a manner that diminishes the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Consideration will be given to all qualifying characteristics of a historic property, including those that may have been identified after the original evaluation of the property’s eligibility for listing in the NRHP. Adverse effects may include reasonably

foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

According to 36 CFR Part 800.5, adverse effects on historic properties include, but are not limited to, those listed below:

1. Physical destruction of or damage to all or part of the property.
2. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties per 36 CFR Part 68 and applicable guidelines.
3. Removal of the property from its historic location.
4. Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance.
5. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.
6. Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization.
7. Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long term preservation of the property's historic significance.

If Adverse Effects Are Found

If adverse effects are found, the agency official shall continue consultation as stipulated at 36 CFR Part 800.6. The agency official shall consult with the SHPO/THPO and other consulting parties to develop alternatives to the undertaking that could avoid, minimize, or mitigate adverse effects to historic properties. According to 36 CFR Part 800.14(d), if adverse effects cannot be avoided then standard treatments established by the ACHP may be used as a basis for Memorandum of Agreement (MOA).

According to 36 CFR Part 800.11(e), the filing of an approved MOA, and appropriate documentation, concludes the Section 106 process. The MOA must be signed by all consulting parties and approved by the ACHP prior to construction activities. If no adverse effects are found and the SHPO/THPO or the ACHP do not object within 30 days of receipt, the agencies' responsibilities under Section 106 will be satisfied upon completion of report and documentation as stipulated in 36 CFR Part 800.11. The information must be made available for public review upon request, excluding information covered by confidentiality provisions.

Federal Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA), established in 1990, provides a cooperative process for museums and federal agencies to the return certain Native American cultural

items including human remains, funerary objects, sacred objects, or objects of cultural patrimony to lineal descendants, and culturally affiliated Indian tribes and Native Hawaiian organizations. NAGPRA also includes requirements for unclaimed and culturally unidentifiable Native American cultural items, intentional and inadvertent discovery of Native American cultural items on federal and tribal lands, and penalties for noncompliance and illegal trafficking of these items. On March 15, 2010, the Department of the Interior issued a final rule on 43 CFR Part 10, of the NAGPRA Regulations – Disposition of Culturally Unidentifiable Human Remains. The final rule implements NAGPRA by adding procedures for the disposition of culturally unidentifiable Native American human remains in the possession or control of museum of federal agencies. The rule also amends sections related to purpose and applicability of the regulations, definitions, inventories of human remains and related funerary objects, civil penalties, and limitations and remedies. The rule became effective on May 14, 2010.

State Regulations

California Environmental Quality Act

Historical Resources

Cultural resources considered under CEQA include, but are not limited to, archaeological sites, historic structures, historic transportation corridors, and traditional cultural landscapes. Per PRC Section 5020.1(j), any of these resources may be considered an “historical resource” if it can be demonstrated to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California by meeting the criteria for listing on the CRHR per CCR at Title 14 CCR Section 4850.

Title 14 CCR Chapter 3 Section 15064.5 is associated with determining the significance of impacts on archeological and historical resources. Here, the term historical resource includes the following:

1. A resource listed in, or determined eligible by the State Historical Resources Commission, for listing in the CRHR (PRC Section 5024.1; Title 14 CCR, Section 4850 et seq.).
2. A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in an historical resource survey meeting the PRC Section 5024.1(g) requirements, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. 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 may be considered a historical resource, provided the Lead Agency’s determination is supported by substantial evidence in light of the whole record. 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 (PRC Section 5024.1; Title 14 CCR Section 4852) including the following:
 - a. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.

- b. Is associated with the lives of persons important in our past.
- c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- d. Has yielded, or may be likely to yield, information important in prehistory or history.

Typically, archaeological sites exhibiting significant features qualify for the CRHR under Criterion D because such features have information important to the prehistory of California. A Lead Agency may determine that a resource may be a historical resource as defined in PRC Section 5020.1(j) or 5024.1 even if it is:

- 1. Not listed in or determined to be eligible for listing in the CRHR.
- 2. Not included in a local register of historical resources pursuant to PRC Section 5020.1(k).
- 3. Identified in an historical resources survey per PRC Section 5024.1(g).

Unique Archaeological Resources

Amendments to the CEQA Guidelines direct lead agencies to first evaluate an archeological site to determine if it qualifies as a historical resource. If an archeological site is an historical resource, in that it is listed or eligible for listing in the CRHR, potential adverse impacts to it must be considered as stated in PRC Section 21084.1 and 21083.2(l). If an archeological site is considered not to be an historical resource but meets the definition of a “unique archeological resource” as defined in PRC Section 21083.2, then it would be treated in accordance with the provisions of that section.

A unique archaeological resource is described as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

- 1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- 2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- 3. Is directly associated with a scientifically recognized important precontact or historic event or person.

A non-unique archaeological resource requires no further consideration, other than simple recording of its components and features.

Under CEQA isolated artifacts are typically not considered historical resources or unique archaeological resources. Historic structures that have had their superstructures demolished or removed can be considered historic archaeological sites and are evaluated following the processes used for precontact sites. Finally, OHP recognizes an age threshold of 45 years. Cultural resources built less than 45 years ago may qualify for consideration, but only under the most extraordinary circumstances.

Paleontological Resources

CEQA requires that public agencies and private interests identify the environmental consequences of their proposed projects on any object or site of significance to the scientific annals of California, including paleontological resources (PRC § 5020.1 [b]).

Fossils are important examples of the major periods of California prehistory. Section V(c) of Appendix G of the CEQA Guidelines addresses potential impacts to paleontological resources by asking, “Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?” Section XVIII(a) of the appendix asks a second question equally applicable to paleontological resources: “Does the project have the potential to... eliminate important examples of the major periods of California history or pre-history?” If CEQA studies determine that a potentially significant impact to paleontological resources may result from the proposed project, a mitigation plan must be designed and implemented to protect those resources.

The CEQA Lead Agency for a project is responsible to ensure that paleontological resources are avoided and/or protected during implementation of the project, or that impacts to paleontological resources by the project are mitigated to below the level of significance. PRC § 21081.6 requires that the Lead Agency demonstrate project compliance with mitigation measures developed during the environmental impact review process.

Health and Safety Code, Sections 7050 and 7052

Section 7050.5 of the Health and Safety Code declares that, in the event of the discovery of human remains outside a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

Assembly Bill 52 and Related Public Resources Code Sections

AB 52 was approved by California State Governor Edmund Gerry “Jerry” Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a NOP or a Notice of Intent to Adopt a Negative Declaration or MND will be filed on or after July 1, 2015.

The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe” that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a Lead Agency shall, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for the tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a Lead Agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the Lead Agency shall:

provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project and who have requested in writing to be informed by the Lead Agency. Tribes interested in consultation must respond in writing within 30 days from receipt of the Lead Agency's formal written notification and the Lead Agency must begin consultation within 30 days of receiving the tribe's request for consultation.

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

If a California Native American Tribe has requested consultation pursuant to PRC Section 21080.3.1 and has failed to provide comments to the Lead Agency, or otherwise failed to engage in the consultation process, or if the Lead Agency has complied with Section 21080.3.1(d) and the California Native American Tribe has failed to request consultation within 30 days, the Lead Agency may certify an EIR or adopt an MND.

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American Tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the Lead Agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the Lead Agency publishes any information submitted by a California Native American Tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

Local Regulations

Nevada County General Plan

Goal 19.1 of the Cultural Resources Element of the Nevada County General Plan includes goals to protect and, where economically feasible, restore significant archaeological and historical resources (Chapter 19; Nevada County 2012). It has enacted a Cultural Resources Ordinance to ensure effective preservation, protection and management of cultural resources.

The Cultural Resources Ordinance also specifies the mitigation procedures to be followed once a resource has been identified and determined to be significant. The preferred measure would be avoidance and/or protection of a site by project redesign or fencing, etc. If the resource is or will be impacted, a professional archaeologist/historian/architectural historian should be contacted to set up a research design to deal with the resource.

The Cultural Resources Element also notes that "approximately 52,069 acres or about eight per cent of Nevada County has been subjected to archaeological survey with relatively "complete" systematic coverage. Within this total area, approximately 1,490 prehistoric and historic archaeological sites have been recorded to date." In addition, "within Nevada County, 39 sites are either listed on or have been

determined eligible for the National Register of Historic Places. Another 22 historic properties have been nominated to the National Register but their eligibility remains to be determined. An additional 19 sites are listed as California Historic Landmarks, 27 properties have been established as Points of Historic Interest and another three sites are on the State Inventory of Historic Places.”

4.11.3 Significance Thresholds

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact associated with cultural resources if the project would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5 of the California Environmental Quality Act Guidelines.
2. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to section 15064.5 of the California Environmental Quality Act Guidelines.
3. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
4. Disturb any human remains, including those interred outside of formal cemeteries.
5. 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 geologically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:
 - a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
 - b. A resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the Lead Agency shall consider the significance of the resource to a California Native American tribe.

4.11.4 Impact Analysis

Significance Threshold 1 – Historical Resources

Six cultural resources intersect the proposed project’s APE: the Boca & Loyalton Railroad (P-29-000651), the Central Pacific Railroad (P-29-000613), West Hinton Road (P-29-003020), a dynamited quarry depression (P-29-004365), a multi-component site (P-29-000627), and the Boca Town and Boca Brewery site (P-29-000662). Of these, none require additional study, avoidance or mitigation during implementation of the proposed project.

Although both of the railroads cross portions of the roadway improvement area, neither will be significantly impacted by any of the project activities. West Hinton Road has been recommended ineligible for inclusion in the NRHP and CRHR and therefore requires no avoidance or mitigation. The DPR form for the dynamited quarry depression notes that the quarry does not appear to be a unique

resource and is probably not over 45 years old, which indicates that it would not qualify as a significant cultural resource under CEQA or Section 106. The multi-component site was evaluated in 2007 and was recommended as not eligible for listing in the NRHP or the CRHR under any criteria. Finally, the Boca Town and Brewery site has been recommended as eligible for listing on the NRHP and the CRHR. While the site is well outside of the proposed mine expansion area, it is bisected by the existing, paved two-lane Stampede Meadows Road. However, no identified structural remnants or historic elements that contribute significantly to the eligibility of this resource would be disturbed or impacted by the proposed improvements to Stampede Meadows Road. As such, the proposed project will not cause a substantial adverse change to the Boca Town and Brewery site.

While the proposed project would not result in potentially significant impacts to known CRHR-eligible resources, there is always the possibility that previously undiscovered historical resources are present within the project APE. Ground disturbing activities could damage or destroy previously undiscovered historical resources, which would result in a potentially significant impact. Mitigation Measure CUL-1 requires the documentation, evaluation, and treatment of previously unknown historical resources if they are encountered during construction.

Significance Threshold 2 – Unique Archaeological Resources

No sites meeting the criteria of a unique archaeological resource are known to exist within the APE. Of the two previously documented archaeological sites within the project area, the multi-component site (P-29-000627) is in poor condition with little integrity remaining, and the Boca Town and Boca Brewery site (P-29-000662) has already been determined to qualify as a historical resource under CEQA, thus negating the need to evaluate it as a potential unique archaeological resource.

However, it is possible that subsurface excavation activities may encounter previously undiscovered unique archaeological resources, which would result in a potentially significant impact. Mitigation Measure CUL-2 requires the documentation, evaluation, and treatment of previously unknown unique archaeological resources if they are encountered during construction.

Significance Threshold 3 – Paleontological Resources

The project area is considered to have a low sensitivity for paleontological resources. The area is dominated by volcanic deposits, including basalt flows and breccias, up to 170 feet thick. These volcanic deposits are underlain by sedimentary claystone and sandstone strata. Fossils are generally found only in sedimentary deposits, while volcanic and metamorphic rocks do not typically contain fossils in a scientifically significant setting. Further, the pedestrian surveys conducted in 2006 and 2013 that included the project APE and its vicinity did not identify any evidence of paleontological resources.

Proposed mining and related excavation/reclamation activities would not extend below the on-site volcanic deposits, and thus would not encounter the underlying sedimentary units. However, paleontological resources have been identified within Nevada County, and any excavations that extend to the sedimentary strata could potentially encounter significant fossils. Unanticipated and accidental paleontological discoveries during project implementation have the potential to affect significant paleontological resources. This is considered a potentially significant impact. Mitigation Measure CUL-3 requires that paleontological resources encountered during construction be examined and evaluated, and salvaged if found to be significant.

Significance Threshold 4 – Human Remains

No human remains are known to exist within the project site, nor were there any indications of human remains found during the 2006 and 2013 field surveys. However, there is always the possibility that activities associated with the proposed project could potentially damage or destroy previously undiscovered human remains which would result in a potentially significant impact. Mitigation Measure CUL-4 outlines the procedures that are required should human remains be discovered or recognized during construction.

Significance Threshold 5 – Tribal Cultural Resources

AB 52 consultation conducted between Nevada County and interested Native American tribes determined that no known tribal cultural resources are present within the APE. The County sent invitations to initiate AB 52 consultation on the Boca Quarry EIR to Darrel Cruz, Director of the Washoe Tribe of Nevada and California, on November 3, 2017 and again on December 13, 2017. On December 19, 2017, a response was received from Mr. Cruz stating that “although there are Native American archaeological resources associated with the Boca Reservoir and adjoining lands, I am not aware of cultural resources within the project site that may be affected by the proposed project. However, if you have knowledge of cultural resources or if an archaeological survey was or will be conducted for this project, we ask to be allowed to review that information and offer comments prior to construction.” On May 8, 2018, the County received an email from Cherilyn Neider of the United Auburn Indian Community thanking the County for consultation and concluding the AB 52 consultation: “Following the discussion during our meeting with the County of Nevada on May 2, [2018], UAIC has no additional comments on this project and defers further consultation to the Washoe Tribe of Nevada and California.” Documentation associated with AB 52 consultation is provided in Appendix M-4.

However, construction of the proposed project would require ground disturbing activities that may have the potential to encounter undiscovered tribal cultural resources. Mitigation Measure CUL-1 requires that newly discovered cultural materials be documented, evaluated, and treated if they are found to be significant.

4.11.5 Level of Significance Before Mitigation

An impact is considered significant if it affects a resource that is eligible for listing in the CRHR or meets the criteria of a unique archaeological resource. Based on the analysis provided above, implementation of the proposed project would result in potentially significant project-specific impacts related to:

(1) undiscovered cultural resources, including historical resources; (2) unique archaeological resources, (3) paleontological resources, (4) human remains, and (5) tribal cultural resources.

4.11.6 Mitigation Measures

The following mitigation measure shall be required to offset potential impacts to cultural resources:

CUL-1 It is possible that ground-disturbing activities during construction may uncover previously unknown resources that meet the criteria for historical resources under CEQA. In the event that buried cultural resources are discovered during construction, operations shall stop within 50 feet of the find and a qualified archaeologist shall be consulted to determine whether the resource is potentially eligible for listing on the CRHR. The Washoe Tribe shall

also be notified of the discovery. The applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement.

If the archaeologist determines that construction activities could damage a potential historical resource, mitigation will be implemented in accordance with Section 15126.4 of the State CEQA Guidelines. If avoidance of the site is not feasible, a qualified archaeologist will prepare and implement a detailed treatment plan in consultation with the County. Treatment for most historical resources would consist of (but would not be not limited to) documentation of the resource on the appropriate DPR 523-series forms, sample excavation and artifact collection (if appropriate), and historical research. The treatment plan will include provisions for analysis of data in a regional context, reporting of results in a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

CUL-2 In the event that archaeological resources are discovered during construction, mitigation measure CUL-1 shall first be applied. If the qualified archaeologist determines that the find does not meet the criteria of a historical resource under CEQA, the criteria of a unique archaeological resource described in PRC Section 21083.2(g) shall be applied.

If the archaeologist determines that construction activities could damage a resource that meets the criteria of a unique archaeological resource, mitigation will be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines. The applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Consistent with Section 15126.4(b)(3), mitigation may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If preservation in place is not feasible, a qualified archaeologist will prepare and implement a detailed treatment plan in consultation with the County. Treatment of unique archaeological resources may consist of (but would not be not limited to) sample excavation, artifact collection, site documentation on DPR 523 forms, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan will include provisions for analysis of data in a regional context, reporting of results in a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

CUL-3 In the event a fossil is discovered during construction for the proposed project, excavations within 50 feet of the find shall be temporarily halted or delayed until the discovery is examined by a qualified paleontologist in accordance with Society of Vertebrate Paleontology standards. If the find is determined to be significant and if avoidance is not feasible, the paleontologist shall design and carry out a data recovery plan consistent with the Society of Vertebrate Paleontology standards. The applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement.

CUL-4 In the event of the accidental discovery or recognition of any human remains, State CEQA Guidelines Section 15064.5; Health and Safety Code Section 7050.5; PRC Section 5097.94

and Section 5097.98 must be followed. If during project development there is accidental discovery or recognition of any human remains, the following steps shall be taken:

- a. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains are Native American, the coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or persons it believes to be the “most likely descendant” (MLD) of the deceased Native American(s). The MLD shall make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98.
- b. Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of MLD or on the project site in a location not subject to further subsurface disturbance:
 - i. The NAHC is unable to identify a MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission.
 - ii. The descendant identified fails to make a recommendation.

The landowner or his authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.

4.11.7 Significant Unavoidable Adverse Impacts

Although the proposed project would not result in potentially significant impacts to known historical, archeological, paleontological resources, human remains or tribal cultural resources, there is always the possibility that previously unidentified resources are present subsurface within the project APE. With proper implementation of the mitigation measures listed above, all potentially significant impacts would be reduced to below a level of significance, and no significant, unavoidable adverse impacts to cultural or tribal resources would result from the proposed project.

5.0 CUMULATIVE IMPACTS

5.1 BACKGROUND

Section 15355 of the State CEQA Guidelines defines cumulative impacts as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” These individual effects may entail changes resulting from a single project or from a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the proposed project when added to other past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects occurring over a period of time.

Section 15130 of the State CEQA Guidelines requires that an EIR address the cumulative impacts of a project when the project’s incremental effect would potentially be cumulatively considerable. Where a Lead Agency determines the incremental effect of the project would not be cumulatively considerable, a brief description of the basis for such a conclusion must be included. The term “cumulatively considerable” means that the incremental effects of the individual project are considerable when viewed in connection with the effects of past projects, other current projects and the effects of probable future projects (State CEQA Guidelines Section 15065[c]).

Section 15130(b) of the State CEQA Guidelines requires that an evaluation of cumulative impacts include either:

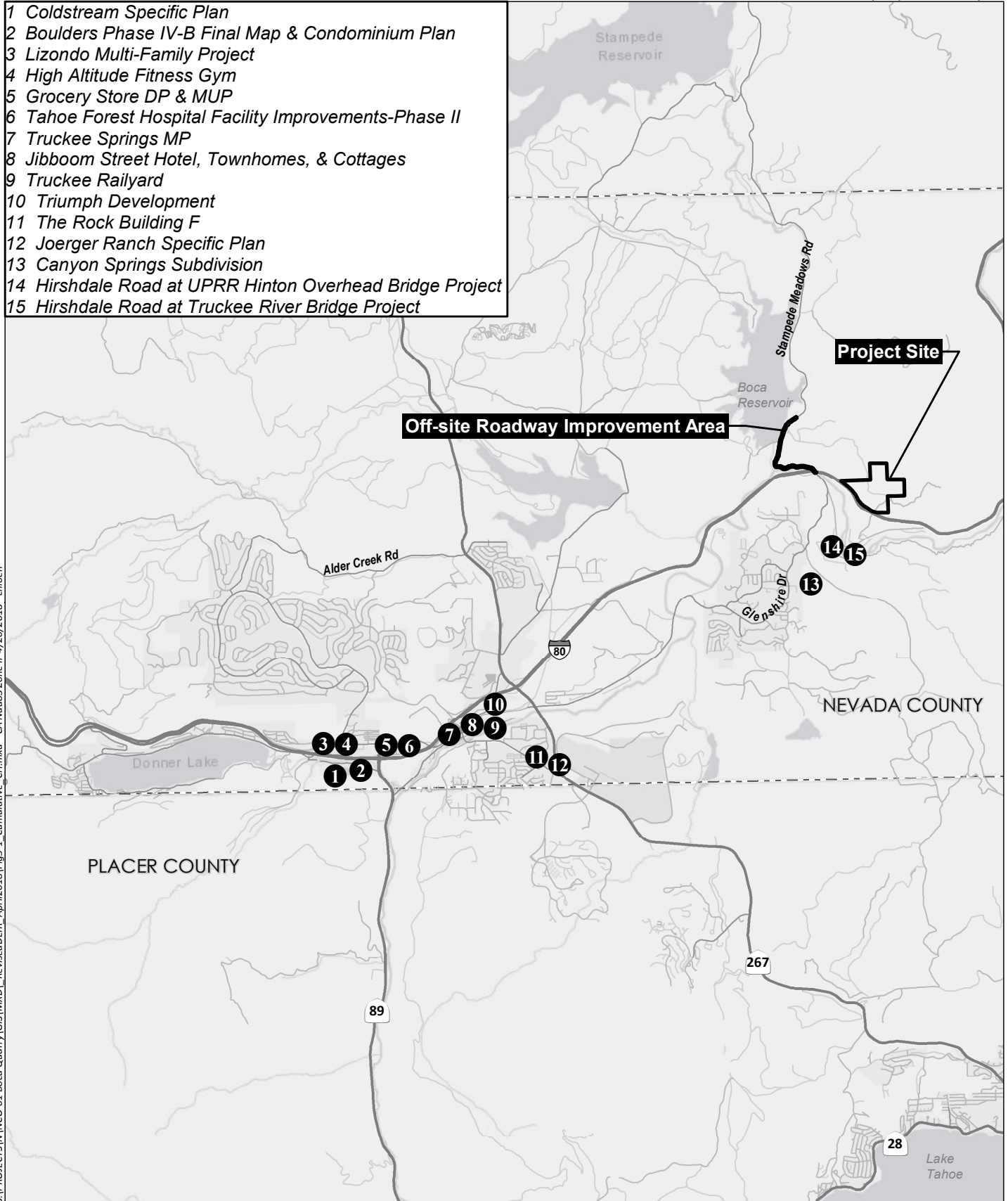
- 1 A list of past, present and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or
- 2 A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated region- or area-wide conditions contributing to the cumulative impact.

Cumulative impacts for the proposed quarry expansion project consider the impacts associated with the mining and reclamation activities. Other related projects that need to be considered in the cumulative analysis include those that would contribute to the impacts on the same environmental resources, infrastructure, or public services and facilities that would be impacted by the 2011 Reclamation Plan evaluated in this EIR. This could include projects located outside of the Lead Agency’s jurisdiction. For the purposes of this EIR, a list of projected development projects was compiled to develop a reasonable estimate of the cumulative impacts that would occur within neighboring portions of both the County of Nevada and the Town of Truckee. A list of nine projects, together with their projected land use characteristics, is presented below in Table 5-1. The proposed projects include residential, commercial, institutional, transportation-related, and recreational. The locations of the projects are depicted on Figure 5-1. The numbering assigned to each project in the figure corresponds to the numbers on the list of approved projects included in Table 5-1.

**Table 5-1
CHARACTERISTICS OF CUMULATIVE PROJECTS**

Map Key	Project Name	Location	Acres	Proposed Improvements
1	Coldstream Specific Plan	Coldstream Road on the Teichert property between Donner Memorial State Park and The Boulders Condominiums. Town of Truckee	178	Approved Specific Plan that proposes up to 70,000 sf of retail and commercial uses and approximately 345 residential units.
2	Boulders Phase IV-B Final Map and Condominium Plan	1541 Dolomite Way, Town of Truckee	0.44	Approved project to construct eight condominium units within two buildings.
3	Lizondo Multi-Family Project	11985 Sierra Drive, Town of Truckee	5.68	Proposed project to subdivide parcel into 11 single family parcels.
4	High Altitude Fitness Gym	11798 Donner Pass Road, Town of Truckee	7	Approved project to construct a 27,500 square foot fitness building with 119 parking spaces.
5	Grocery Store Development	11213 Donner Pass Road, Town of Truckee	1	Development of 17,568 square-foot grocery store, two residential units (530 and 788 square feet) and 53 on-site parking spaces.
6	Tahoe Forest Hospital Facility Improvements	Gateway area, on the south side of Donner Pass Road between the intersections of Levon Avenue and Pine Avenue. Town of Truckee	n/a	Development permit application for: (1) demo of commercial building at Pine Ave/Tahoe Drive and replace with new parking improvements; and (2) demo apartment building on Levon Avenue and use site for removal. .
7	Truckee Springs Master Plan	Downtown Truckee, south of I-80, west of Brockway Road, at western terminus of S. River Street. Town of Truckee	26	Proposed Master Plan, proposed land uses include lodging and residential (14.6 acres), residential (2.2 acres), and open space (8.7 acres). The Master Plan application is currently under review.
8	Jibboom Street Hotel, Townhomes, and Cottages	10060 Jibboom Street, Town of Truckee	0.7	Proposed project to construct a 20,006 square foot hotel, 149 square foot office, 800 square feet of retail space, 280 square feet of laundry facilities, eight 900 square-foot single family residences, twenty 900-1,800 square-foot townhomes, four 600-square foot townhomes.

- 1 Coldstream Specific Plan
- 2 Boulders Phase IV-B Final Map & Condominium Plan
- 3 Lizondo Multi-Family Project
- 4 High Altitude Fitness Gym
- 5 Grocery Store DP & MUP
- 6 Tahoe Forest Hospital Facility Improvements-Phase II
- 7 Truckee Springs MP
- 8 Jibboom Street Hotel, Townhomes, & Cottages
- 9 Truckee Railyard
- 10 Triumph Development
- 11 The Rock Building F
- 12 Joerger Ranch Specific Plan
- 13 Canyon Springs Subdivision
- 14 Hirshdale Road at UPRR Hinton Overhead Bridge Project
- 15 Hirshdale Road at Truckee River Bridge Project



Source: Base Map Layers (Esri), Town of Truckee Planning Department (surrounding projects)

**Table 5-1
CHARACTERISTICS OF CUMULATIVE PROJECTS (cont.)**

Map Key	Project Name	Location	Acres	Proposed Improvements
9	Truckee Railyard Mixed Use Development Master Plan	Downtown Truckee, south of I-80 at Glenshire Drive, E River Street, and Brockway Road. Town of Truckee.	75	Approved Master Plan, current development plans include Rail House Theater, Truckee Artist Lofts. Construction is underway.
10	Triumph Development	Southwest corner of I-80 and Highway 267 interchange. Town of Truckee.	13	Approved development permit application for development of 71,090 square foot hotel with 361 parking spaces, and five three story apartment buildings with 138 rental units, and common amenities.
11	The Rock Building F	11177 Brockway Road, Town of Truckee.	0.25	Approved project to construct 5,395 square foot commercial building and 624 square foot café.
12	Joerger Ranch Specific Plan	Intersection of Highway 267, Brockway Rd., and Soaring Way. Town of Truckee.	67	The Town of Truckee is currently processing the final map for the specific plan which encompasses approximately 67 acres of mostly undeveloped land that will include a mix of commercial, residential, and open space land uses.
13	Canyon Springs Subdivision	Adjacent to Martis Peak Road, Town of Truckee.	289	Proposed subdivision of six parcels into 177 single-family parcels, and eight parcels for affordable housing. Proposal includes approximately 171 acres of open space. (APNs: 49-020-17, 18, 19, 20, 21 and 22).
14	Hirschdale Road at UPRR Hinton Overhead Bridge Project	Hirschdale Road south of Glenshire Drive, Nevada County.	0.25	Seismic retrofit of existing piers and superstructure. Deck rehabilitation, overhang removal, conversion to a one-lane bridge, and installation of restrainers. Scheduled for summer 2021 construction.
15	Hirschdale Road at Truckee River Bridge Project	Hirschdale Road at Truckee River, Nevada County.	0.25	Retrofit the existing piers and replace the existing superstructure and abutments. Narrow bridge to support lower traffic volumes. Scheduled for summer 2021 construction.

Sources: Nevada 2019; Truckee 2019

5.2 CUMULATIVE EFFECTS ANALYSIS

The proposed project has the potential to contribute to cumulative impacts associated with ongoing development in and around the Town of Truckee and unincorporated Nevada County. The analyses of the resulting cumulative impacts associated with regional issues (i.e., biological resources, air quality and traffic and circulation) were based primarily on regional plans and policies, such as the Nevada County General Plan and Town of Truckee General Plan. Both of these regional studies have undergone separate CEQA reviews. The environmental impacts associated with the individual projects identified in Table 5-1; their cumulative effects, as a group and when combined with the anticipated short-term

environmental effects of the proposed project, are analyzed on a topic-by-topic basis in Sections 5.2.1 through 5.2.11, below.

5.2.1 Geology and Soils

Geological constraints and hazards are localized to the specific project site, and potential impacts are associated with the site-specific geophysical properties and the grading and extraction characteristics of the proposed expansion. During reclamation grading, large areas of uncovered ground surfaces would be exposed to potential erosional forces from strong winds and rainfall. Grading of the proposed project would contribute to potential cumulative erosion-related impacts associated with other approved and planned developments within the Truckee River watershed. Project-related sedimentation impacts would be minimized through implementation of the proposed 2011 Reclamation Plan, and mitigation measures included in Section 4.1 of this EIR.

Other projects that would contribute to cumulative effects in the area also would be required to implement similar mitigation measures in compliance with existing water quality regulations. Continued administration and enforcement of grading and erosion control standards by the local government jurisdictions responsible for issuing grading permits, and continued application of erosion control BMPs that are required elements of NPDES General Construction Permits, would reduce cumulative impacts involving construction-generated erosion to below a level of significance. The incremental effects of the cumulative projects would not combine to result in a cumulatively significant impact, and the proposed project would result in a less than significant contribution to cumulative impacts on geology and soils in the area.

Development of several of the proposed projects in the Town of Truckee and surrounding County of Nevada would increase the total number of persons and structures exposed to potentially hazardous effects associated with strong ground motion during an earthquake event, however, the proposed project would not contribute to this cumulative effect.

5.2.2 Hydrology and Water Quality

To the extent that there are other active grading and construction projects underway at the same time within the Truckee River watershed, the reclamation phases would potentially contribute to short-term, cumulative water quality impacts associated with erosion, sediment transport, and spills or runoff of solid and liquid wastes, fuels, lubricants, etc. Compliance with mandatory SWPPPs and erosion controls required under local grading ordinances, and compliance with federal NPDES Permit requirements, would reduce short-term cumulative effects to below a level of significance. Additionally, project-related sedimentation impacts would be minimized through implementation of the water quality control measures listed in Section 4.2 and contained in the SWMP prepared for the project. Combined, these existing regulations would require other cumulative projects to implement similar water quality control measures.

Completion of the proposed on-site drainage channels, basins and energy dissipation structures would ensure that peak flow discharges from the quarry would remain within the project site and would not contribute to any off-site flood hazards. This would be a standard requirement for all developments in the region. Significant cumulative impacts related to drainage, flooding or sedimentation are not anticipated as a result of the proposed project and cumulative projects.

In terms of water supply, implementation of the proposed project would not result in the addition of substantial areas of impervious or compacted surfaces that would reduce existing infiltration. Water use from Dobbas Spring under the proposed project would range from approximately 39 to 56 acre-feet per year and would remain constant over the proposed 30-year project mining period. Accordingly, potential project-related impacts to local groundwater recharge capacity would be less than significant. In terms of a cumulative impact to water supply, several of the projects listed above would be required to complete a WSA based on the requirements of SB 610 and California Water Code Sections 10910 through 10915. The WSA for each applicable project would determine potential impacts and subsequent mitigation to offset potentially significant impacts to the region's water supply. The incremental effects of the cumulative projects would not combine to result in a cumulatively significant impact, and the proposed project would result in a less than significant contribution to cumulative impacts on hydrology and water quality in the area.

5.2.3 Biological Resources

The context for analyzing impacts to biological resources in a cumulative context is based on existing and planned development in the region that would result in the loss of biological resources. The proposed project would impact approximately 131.5 acres of existing habitat on the project site (including 7.3 acres of unvegetated rock/talus) and 13.2 acres (including 3.8 acre of existing roadway and 3.7 acre of disturbed/ruderal areas) in the off-site roadway improvement area. Refer to Table 4.3-4 and Table 4.3-5 for impacts to existing habitats in the project site and the off-site roadway improvement area, respectively. The proposed project has the potential to significantly impact nesting birds, including yellow warbler, a CDFW species of special concern; wildlife from the use of night lighting; and vegetation outside of the ultimate disturbance area from fugitive dust. In addition, the project is currently designed to avoid all areas identified as potentially containing wetlands or other waters of the U.S. or State, or habitats under jurisdiction of CDFW, but if the off-site roadway improvements are unable to avoid wetlands, then the project would result in potentially significant impacts to features potentially under jurisdiction of the USACE, RWQCB and/or CDFW.

While a number of the cumulative projects are within the more urban areas of the Town of Truckee and may involve development/redevelopment of previously disturbed areas, some of the projects are in currently undeveloped areas. The Canyon Springs Subdivision is an approximately 289-acre development southwest of the project site that is located in currently undisturbed. Continued development in the region would contribute to a cumulative loss of undisturbed habitats and would result in a continued reduction in native habitats available to wildlife species in the region. While the proposed project would disturb a large area and would remove existing habitat for species in the project site for quarry operations, the 2011 Reclamation Plan would be implemented and includes restoring the mine expansion area with native vegetation which would restore habitats available in the project site and would reduce the project's contribution to the cumulative effect on habitat loss. The analysis of impacts to mule deer migration in Section 4.3 of this EIR concluded that at the project level, potential impacts to mule deer migratory corridor would be less than significant. The finding is based on the apparently low value of the ultimate disturbed area for migration and foraging habitat. However, in the context of the great expanses of almost entirely undisturbed habitat surrounding the project site, including large undeveloped areas south of I-80, the project may contribute to cumulative regional loss of the integrity of previously undisturbed migratory corridors (whether major, minor, or unmapped). In the case of most of the regional mule deer habitat loss due to development projects, the impact upon migratory corridors is permanent and extends the year-round presence of humans, off-road vehicles, and dogs into areas where they are rare or non-existent at present. The proposed project would contribute to a

cumulatively considerable impact on mule deer migration. With implementation of the proposed Mitigation Measures CUM-1A and 1B, the project's contribution to cumulative impacts on mule deer migration would be less than significant.

As identified in Section 4.3, the proposed project has the potential to affect aquatic habitats that may be found to be under jurisdiction of the USACE, RWQCB and/or CDFW which would be a potentially significant impact if the appropriate permits are not obtained and any required compensatory mitigation is not provided. Mitigation measure BIO-2 would reduce the potentially significant impacts to below a level of significance at the project level. The cumulative projects would also be required to comply with federal and State regulations and permitting requirements in regard to these regulated habitats, and the proposed project would not contribute to cumulatively considerable impacts to regulated habitats. The project may affect nesting yellow warbler and other nesting birds which would be a potentially significant impact. Mitigation measure BIO-1 would reduce the potentially significant impact to below a level of significance. The cumulative projects would also be required to comply with regulations protecting sensitive species and nesting birds, and the proposed project would not contribute to cumulatively considerable impacts to sensitive species or nesting birds. The proposed project would result in potentially significant impacts on wildlife from reduced water quality and night lighting, and on vegetation outside of the ultimate disturbed area from fugitive dust as a result of project operations; however, implementation of Mitigation Measures BIO-3, BIO-4, and BIO-5 would reduce the impacts to below a level of significance. Cumulative projects would also be required to comply with standards related to water quality, reducing overspill from night lighting, and regulations to reduce fugitive dust. The proposed project would not contribute to cumulative considerable impacts on wildlife or vegetation from water quality, night lighting or fugitive dust.

With implementation of the proposed mitigation at a project-specific level, and the proposed mitigation for the project's contribution to cumulatively considerable impacts, all potentially significant impacts would be reduced to below a level of significance.

- CUM-1A** To offset cumulatively considerable impacts on mule deer migration and foraging habitat, the applicant shall incorporate reclamation planning objectives and specifications to include re-vegetation with species known to be used as browse or herbaceous forage by migrating or summer-resident mule deer into the Reclamation Plan for the project. The species incorporated into the Plan shall be prepared or reviewed by a qualified biologist and approved by the County.
- CUM-1B** The Reclamation Plan for the project shall identify the following phasing: Prior to commencement of year five of the operation within Phase 2, the Phase 1 quarry area (excluding the processing and stockpile areas) reclamation and re-vegetation activities shall be fully installed. This mitigation would allow the re-vegetation in Phase 1 to establish itself before encroachment into the Phase 3 area begins, thereby providing new habitat, as required in mitigation measure CUM – 1A, for the local mule deer herd. Prior to commencement of operations in the West Pit, the applicant shall submit to the County a monitoring plan for monitoring the success of the revegetation efforts as they relate to the mule deer. The monitoring plan shall include provisions for monitoring and annual reporting to the County and shall include provisions for adjusting the reclamation efforts as needed, before the end of the active mining activities.

5.2.4 Aesthetics

As detailed in Section 4.4, the project site is not designated as a scenic vista, nor is it located within any scenic vistas identified by the County of Nevada or Town of Truckee, nor is nearby I-80 a designated scenic highway. The changes proposed by the revised Reclamation Plan would result in potential significant impacts associated with very brief views from I-80, local roadways (Glenshire Drive) and from the residences along the eastern fringe of the Town of Truckee. Hydroseeded and revegetated areas on approximately 72 percent of the project's disturbed areas would ultimately blend with existing shrubs and grasses on and adjacent to the site. Additionally, newly exposed rock slopes that would otherwise contrast with the surrounding oxidized and weathered rock faces and talus would be "varnished" with Permeon, which is an environmentally safe product that speeds the oxidation process and "weathers" the rock to match adjacent rock features. Thus, the project's contribution to cumulatively considerable impacts associated with visual character and quality of the surrounding area would be substantially minimized and somewhat temporary. Implementation of the mine reclamation plan and the proposed mitigation measure would help lessen the adverse aesthetic impacts for all of the Key Views, but the impact to the Key Views would still be considered significant and unavoidable. There are no mitigation measures, beyond those already imposed, that would reduce this cumulative impact to a less than significant level. Therefore, the project's contribution on the visual character of the area would be cumulatively considerable and significant and unavoidable.

5.2.5 Traffic and Circulation

An analysis of potential project impacts to traffic and circulation is provided in Section 4.5. The proposed project would result in potentially significant impacts associated with: (1) effects on traffic circulation during construction of the off-site roadway improvement area; (2) roadway integrity as a result of the continued use of local and County-maintained roadways; and (3) roadway hazards associated with sight distance and bicyclist safety. An analysis of the project's operational effects on LOS in a cumulative context was included in Section 4.5 (refer to the discussion of Cumulative Plus Project Level of Service in Section 4.5.5). With implementation of the proposed project, although the LOS on some movements would degrade by one level, all intersection movements would continue to operate at an acceptable LOS C or better, with the proposed project in place and including cumulative traffic. The County proposes to rehabilitate the existing Hirschdale Road bridges over the Truckee River and UPRR corridor (both bridges are south of the project site) during summer 2019. Construction of the off-site roadway improvement area and/or operation of the proposed project may occur at the same time as construction of the bridges. The bridges are not along the proposed haul route for the project or the off-site roadway improvement area, and residents in the area would not experience a cumulative effect from construction traffic for the bridges with any of the proposed project elements (which are all north of I-80). Traffic generated from the proposed developments of the cumulative projects were considered in the cumulative analysis contained in Section 4.5. The analysis contained in Section 4.5.5 concluded that the proposed project would not significantly contribute to cumulative impacts on the area's roadways or intersections during operation of the project.

Mitigation is proposed to reduce the project-specific impacts to traffic circulation during construction of the off-site roadway improvement areas to below a level of significance. The construction-related impacts on traffic circulation would be temporary, and with implementation of the proposed mitigation (Mitigation Measure TRANS-1), the project would not contribute to a cumulatively considerable effect on the area's roadways or intersections.

As previously mentioned, the applicant would enter into a Development Agreement with the County and Town of Truckee which would identify annual fees owed based on the annual tons of materials hauled. The Development Agreement would also outline a maintenance schedule for the County and Town of Truckee based on the quantities of materials hauled. Mitigation Measures TRANS-2 and TRANS-3 would be implemented to prevent haul trucks from using routes other than the designated haul route, which could result in impacts on roadway integrity outside of the established haul route. These measures would reduce the project-specific impacts to below a level of significance and would avoid a potentially significant cumulatively considerable impact from a reduction in roadway integrity in the region.

Implementation of mitigation measure TRANS-4 would reduce the potentially significant project-specific impacts related to sight distance to below a level of significance; however, while implementation of TRANS-4 and TRANS-5 would also reduce the severity of the project-related impacts related to bicyclist safety, the widened roadway and shoulder improvements would be limited to where those improvements may be feasibly installed based on final project design. Due to existing constraints along the roadway, the roadway segment would not be able to be widened to achieve the full width considered the standard for accommodating bicyclists along its entire length. Impacts to bicycle safety would remain potentially significant and unavoidable.

Implementation of mitigation measure TRANS-4 would reduce the existing hazardous condition at the West Hinton Road intersection with Stampede Meadows Road due to inadequate sight distance to below a level of significance. The potentially significant impact is a site-specific issue and is not associated with a cumulative considerable impact. With implementation of the proposed mitigation, the project-specific impacts would be reduced to below a level of significance and the project would not contribute to a cumulatively considerable impact.

Implementation of the proposed project may result in an increase in potentially hazardous conditions for bicyclists using Stampede Meadows Road. While implementation of Mitigation Measures TRANS-4 and TRANS-5 would reduce the severity of the project-related impacts related to bicyclist safety, the widened roadway and shoulder improvements would be limited to where those improvements may be feasibly installed based on final project design. Due to existing constraints along the roadway, the roadway segment would not be able to be widened to achieve the full width considered the standard for accommodating bicyclists along its entire length. Impacts to bicycle safety would remain potentially significant and unavoidable. The project would contribute to a significant and unavoidable cumulatively considerable impact related to bicyclist safety. There are no feasible mitigation measures, beyond those already imposed that would reduce this cumulative impact to a less than significant level.

With implementation of the proposed project-specific mitigation measures, the proposed project would not contribute to cumulatively considerable impacts for traffic and circulation, except for those related to bicycle safety which would be significant and unavoidable.

5.2.6 Noise

The proposed project would involve mining, processing, sales, and truck transport from the site between 6 a.m. and 6 p.m., Monday through Friday, and between 7 a.m. and 4 p.m. on Saturday. From time to time, customer demand and/or operational considerations may involve periods of extended hours which can include two shifts and result in operating hours starting at 5 a.m. and ending as late as 9 p.m. Material load out could occur 24 hours per day, 7 days per week. Noise in the County is governed by the

Nevada County Noise Element. Acceptable noise exposure limits are subdivided by type of zoning district and in terms of day (7 a.m. to 7 p.m.), evening (7 p.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.). Based on the noise analysis contained in Section 4.6, operation activities at the mine could result in potentially significant impacts at Receptor 14 during the day, evening and nighttime, at Receptor 7 during the evening and nighttime hours, and at Receptor 11 during nighttime hours. Additional potentially significant impacts could result from truck traffic at Receptors 12 through 14 during the day, evening and nighttime. Mitigation Measures NOI-1 through NOI-4 would reduce the potentially significant project impacts to below a level of significance. Operation of the project would not contribute to cumulative considerable impacts associated with noise.

Heavy truck traffic on both the private (West Hinton Road) and public (Stampede Meadows Road) segments of the haul route would generate average noise levels below the project daytime, evening, and nighttime noise level standards related to all receptors except Receptors 12, 13, and 14. Mitigation Measures NOI-1 and NOI-2 would reduce the potentially significant project impacts to below a level of significance. The project would not contribute to cumulative considerable impacts associated with heavy truck traffic noise.

Construction of the off-site roadway improvement area would result in a potentially significant noise impact; however, Mitigation Measure NOI-5 requires compliance with County restrictions regarding the daily timeframes for construction activities. In addition, due to the distance between the off-site roadway improvement area and other cumulative projects, the cumulative effect from construction of the off-site roadway improvement area would be less than significant.

5.2.7 Air Quality

In analyzing cumulative impacts from a proposed project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the NSAQMD is listed as "non-attainment" for the State ambient air quality standards. A project that has a significant impact on air quality with regard to emissions of ROG, NO_x (precursors to O₃), PM₁₀, and PM_{2.5}, as determined by the screening criteria outlined in Section 4.7, would have a significant cumulative effect. According to the State CEQA Guidelines, if a project would individually have a significant air quality impact, the project would also be considered to have a significant cumulative air quality impact. With regard to past and present projects, the background ambient air quality, as measured at the monitoring stations maintained and operated by the NSAQMD, measures the concentrations of pollutants from existing sources. Existing project impacts are therefore included in the background ambient air quality data.

As shown in the emissions evaluation in Section 4.7, the proposed project production volumes are expected to result in a significant incremental increase in air pollutant NO_x and PM₁₀ emissions upon implementation of the project. As stated in the discussion of cumulative impacts in Section 4.7.5, any project resulting in a significant impact on air quality at the project level would also be considered to result in a significant cumulative air quality impact. Incorporation of project-level mitigation measures (AQ-1, AQ-2 and AQ-3) would reduce, but not eliminate, the project's contribution to cumulative NO_x and PM₁₀ emissions. Therefore, a cumulatively considerable, significant and unavoidable impact related to NO_x and PM₁₀ emissions would occur. As a result, the project's contribution to cumulative air quality impacts would be cumulatively considerable and significant and unavoidable.

5.2.8 Greenhouse Gas Emissions

GHG impacts associated with the project would be generated by off-site roadway improvement construction, project site preparation and operation-related activities (aggregate processing, onsite equipment, explosive detonation, and truck traffic). The project would provide a source of aggregate for regional demand which would be approximately 40 miles closer than what exists currently. As detailed in the analysis presented in Section 4.8, the shorter trip length associated with the proposed project would result in a nominal increase of overall regional GHG emissions by 27 MT of CO₂e per year.

The NSAQMD does not have thresholds of significance for GHGs but encourages that the information be present for decision makers. The County has established a GHG goal of encouraging project applicants to reduce GHG emissions to the extent feasible. The proposed project would increase the region's annual GHG emission level by approximately 27 MT of CO₂e per year. The increase would be nominal when compared to regional, state, and global GHG emissions. Therefore, the project would not conflict with any local regulations pertaining to greenhouse gases.

GHG impacts would be less than significant on a project-specific basis, however, because GHG emissions are inherently cumulative, the impacts related to GHG emissions resulting from the proposed project would contribute to cumulative impacts but not at a significant level.

5.2.9 Energy

Energy impacts associated with the project would be generated through the use diesel fuel, gasoline, and electricity. Diesel fuel would be utilized by heavy equipment during construction and operation of the project, as well as by aggregate and backfill material haul trucks. Gasoline would be utilized by worker vehicles during construction and operation of the project. Electricity would be used to power the onsite office and certain components of the processing area. Based on the analysis presented in Section 4.9, the project would not consume electricity, natural gas, gasoline, diesel or other non-renewable energy types in a wasteful, inefficient, or unnecessary manner. The project would be required to comply with county, state and federal energy conservation measures related to project construction and operations. The project includes design features that would be implemented to ensure that the project would not use energy in a wasteful manner. Project-specific energy use would result in a less-than-significant impact.

The cumulative projects would require the use of diesel fuel, gasoline, natural gas, and electricity during their construction and operation. The cumulative projects, as with the proposed project, would be required to comply with applicable city, State, and federal energy conservation measures and implement project-specific design features to reduce energy use. Cumulative impacts would therefore be less than significant.

5.2.10 Hazards and Hazardous Materials

The cumulative setting for hazards includes the unincorporated areas of Nevada County. As discussed in Section 4.10, implementation of the proposed project would not result in any potentially significant impacts that could not be mitigated to a less than significant level. Hazard-related impacts tend to be site-specific and project-specific. Implementation of the proposed project would not contribute to a cumulatively considerable increased risks of hazards in the area. Mitigation Measures HAZ-1 through HAZ-4 have been included to reduce the risk of on-and off-site hazards and fires, and to reduce potential

risks associated with blasting and the transport, use and storage of hazardous materials. Thus, the project's impacts would not contribute to a cumulatively considerable increase in risks of on- and off-site hazards and fires, and no further mitigation is required.

5.2.11 Cultural and Tribal Resources

With regard to historical resources and unique archaeological resources, the proposed project would not contribute significantly to cumulative impacts within the region. Direct impacts on known historical resources would be less than significant. As described in Section 4.11.4, known historical resources, including the Central Pacific Railroad (P-29-000613) and the Boca Town and Boca Brewery site (P-29-000662), will not be significantly impacted by any of the project activities. Further, no sites meeting the criteria of a unique archaeological resource are known to exist within the APE. If a previously unidentified historical resource or unique archaeological resource cannot be avoided, mitigation measures CUL-1 and CUL-2 would ensure that impacts are reduced to a level of less than significant by documentation, testing, research, and/or data recovery.

The cumulative projects identified in Table 5-1 would also be expected to have mitigation measures that would reduce potential impacts on historical and unique archaeological resources. Projects would require compliance with CEQA and/or Section 106 to consider and resolve significant impacts on cultural resources. Therefore, impacts of the proposed project would not have the potential to combine with impacts from past, present, or reasonably foreseeable projects to result in a cumulative impact on historical and unique archaeological resources.

With regard to paleontological resources, the proposed project would not contribute significantly to cumulative impacts within the region. Although the potential for encountering paleontological resources is low, significant fossils may be discovered if excavations extend through the surficial volcanic deposits to the underlying sedimentary strata. Through implementation of mitigation measure CUL-3 direct impacts on paleontological resources would be reduced to a level that is less than significant. In addition, the cumulative projects would also be expected to reduce potential impacts on paleontological resources through avoidance or mitigation. Therefore, impacts of the proposed project would not have the potential to combine with impacts from past, present, or reasonably foreseeable projects to result in a cumulative impact on paleontological resources.

With regard to disturbance of human remains, the proposed project would not contribute significantly to cumulative impacts within the region. Although no human remains have been identified within the project area to date, there is potential for their discovery during project implementation. If human remains were to be discovered during the quarry expansion, mitigation measure CUL-4 would ensure that the remains are treated in accordance with the California Public Resources Codes, thereby reducing impacts to a less than significant level. The potential impacts of the cumulative projects would also be expected to be reduced by compliance with Public Resources Codes. Therefore, impacts of the proposed project would not have the potential to combine with impacts from past, present, or reasonably foreseeable projects to result in a cumulative impact on human remains.

With regard to tribal cultural resources, the project would not contribute significantly to cumulative impacts within the region. Although no tribal cultural resources have been identified through tribal consultation under AB 52, there is potential for their discovery during project implementation. If tribal cultural resources were to be discovered during the quarry expansion, mitigation measures CUL-1 and CUL-2, which provide instructions for evaluating the significance of newly discovered cultural materials, would reduce potential impacts to a less than significant level. The cumulative projects would also be expected to reduce potential impacts on tribal cultural resources through AB 52 consultation, avoidance, or mitigation. Therefore, impacts of the proposed project would not have the potential to combine with impacts from past, present, or reasonably foreseeable projects to result in a cumulative impact on tribal cultural resources.

6.0 PROJECT ALTERNATIVES

Pursuant to Section 15126.6(a) of the State CEQA Guidelines, this section discusses two alternatives to the proposed project that could feasibly accomplish the proposed project objectives. This section also describes alternatives that were considered but rejected from further study. The environmental assessment provided in this section will enable the County to exercise greater discretion in its decisions regarding whether to approve the project as proposed, to approve a project with changes such as those described in the following alternatives, or to reject the proposed project or any alternatives at this time.

Comments were received during and following the public review period of the 2012 Draft EIR regarding this topic from the following agencies and individuals: Taylor & Wiley Attorneys of Counsel on behalf of the project applicant (11/6/2012), the Hirschdale Community (10/29/2012), the Hirschdale Community (10/29/2012), Law Office of Donald B. Mooney on behalf of the Buckhorn Ridge Homeowners Association (2/21/2013). Refer to Appendix A for the comments received and responses to those comments.

6.1 RATIONALE FOR ALTERNATIVE SELECTION

Section 15126(f) states that “the range of alternatives 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 State CEQA Guidelines provide several factors that should be considered in regard to the feasibility of an alternative; those factors include: (1) site suitability; (2) economic viability; (3) availability of infrastructure; (4) general plan consistency; (5) other plans or regulatory limitations; (6) jurisdictional boundaries (projects with a reasonably significant impact should consider the regional context; and (7) whether the project applicant can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent).

A total of four alternatives to the proposed project were considered: (1) Other Quarry Locations and (2) No Project Alternative: No Development; (3) No Project Alternative: Existing Plan Alternative; (4) Reduced Daily Production Alternative. The first two listed alternatives (Other Quarry Locations and No Project Alternative: No Development) were determined to be infeasible and were rejected from further study. Those alternatives are discussed in Section 6.2, Alternatives Considered but Rejected from Further Study.

The remaining two alternatives (No Project Alternative: Existing Plan Alternative and Reduced Daily Production Alternative) were considered feasible and the impacts of those alternatives are evaluated in Section 6.3. The rationale for and characteristics of each of the alternatives addressed are described below, followed by a comparison of the environmental effects associated with the proposed project versus each alternative. Please note that the comparison of environmental effects focuses on the same topics addressed in Section 4.1 through Section 4.11 in this EIR. Following the comparative analysis of each alternative versus the proposed project, the environmentally superior alternative is identified and the reasons for that selection are explained in Section 6.4, Comparative Impact Analysis.

6.2 ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER STUDY

State CEQA Guideline 15126.69(c) requires that an EIR identify alternatives that were considered and rejected as infeasible, and briefly explain the reasons for their rejection. Alternatives considered and rejected were (1) Other Quarry Locations and (2) No Project Alternative: No Development.

6.2.1 Other Quarry Locations

The project applicant has been operating in the Truckee area since at least the 1960s supplying aggregate for housing developments, I-80 construction and reconstruction and various other developments in the Truckee/Tahoe area. In the 1960s, Teichert operated an aggregate production facility at a site today referred to as Cold Stream. When reserves at that site began to run low, Teichert leased and then purchased the site of their present Martis Valley Quarry operations. That site, located in the Town of Truckee, began operations in 1984 and was expected to have 30 to 40 years of reserves. As development activities increased in the Truckee Tahoe market area, production at the Martis Valley Quarry facility rapidly expanded and at its peak (around 2004-2006) was producing close to 1,000,000 tons per year. As production expanded at Martis Valley Quarry, the original reserve life began to shrink because of the increased demand and production. Currently, aggregate reserves for the Martis Valley Quarry are limited.

During the past 15 years, Teichert has continued to search for additional aggregate sites in the Truckee/Tahoe area. In the early part of the current decade, Teichert purchased the site known as the Truckee Quarry from a Reno-based company. The site was previously idle but operations recommenced in 2016 and 2017. The Truckee Quarry was originally mined for decorative rock (volcanic) typically used in landscaping; but subsequently discovered that the cinder found at the quarry can be used in certain types of concrete where light weight is desired and that the basalt deposits can be crushed and used for road base. However, with the diminished reserves at the Martis Valley Quarry, Truckee Quarry alone lacks the types of materials necessary to serve the market area.

In 2005 Teichert leased the Boca Quarry (the currently proposed project site) from the owner. That lease was subsequently expanded to include the area now being reviewed for the quarry's expansion as part of the proposed project. Prior to signing the lease for Boca Quarry, Teichert evaluated approximately 15 properties in the region. Because the cost of aggregate is highly dependent on trucking distance, Teichert limited its search for properties to a 30-mile radius from the Town of Truckee. Numerous real estate agents were contacted to look for aggregate sites that met the criteria Teichert was looking for including the following characteristics: greater than 100 acres; located near highway; free of sensitive issues such as wetlands or endangered species; could not be located near residential areas; and finally, the site had to have a substantial deposit of high quality aggregate.

As Teichert looked at the various sites that were presented by local realtors or identified by Teichert's in-house geology staff, almost all of the sites were ruled out because it did not meet one or more of the factors noted above. Several of the sites were evaluated and, in a couple of instances, actually drilled to test the volume and quality of the potential aggregate material. The proposed project site ultimately was the only site that met all of the criteria noted above and the expanded lease was signed in 2005.

6.2.2 No Project Alternative: No Development

One definition of the “no project” alternative under State CEQA Guidelines Section 15126.6 (e)(3)(B) is the circumstance under which the project does not proceed, and the property remains in its existing condition. Under this No Project Alternative, the completion of the East Pit and its subsequent reclamation as allowed under the currently approved 2007 Reclamation Plan (RP06-001) would not occur. This is not a feasible scenario since SMARA requires that the existing quarry be reclaimed to a usable condition that is readily adaptable for alternate land uses and creates no danger to public health or safety. If the County of Nevada, as the Lead Agency, adopted this “no project” alternative, the State Mining and Geology Board would be required to step in and ensure that reclamation of the property be conducted in conformance with SMARA.

6.3 ALTERNATIVES CONSIDERED FOR EVALUATION

6.3.1 No Project Alternative: Development Under the Existing Plan

This alternative is required under Section 15126.6(e) of the State CEQA Guidelines and represents a possible scenario that could occur if the proposed reclamation plan amendment was not approved. According to Section 15126.6 (e)(3)(A) of the State CEQA Guidelines, when the project is the revision of an existing land use plan or regulatory plan, policy or ongoing operation, the “no project” alternative would be the continuation of the existing plan, policy or operation into the future. Under the No Project Alternative, operations in the East Pit would be allowed to resume under the currently approved 2007 Reclamation Plan (RP06-001) and Use Permit (U06-012), but no mining in addition to the currently approved operations would be allowed. The impact footprint would remain at the currently approved 40-acre area. There are approximately one to two years of reserves remaining in the East Pit if mined at 250,000 tons per year. Upon completion of mining, the site would be reclaimed in accordance with the 2007 Reclamation Plan to a natural condition which would allow the site to be readily adapted to alternative and beneficial land uses consistent with the existing County Zoning Code designation of FR which provides for production, protection, and management of timber (and support uses); equipment storage; temporary offices; low intensity recreational uses; and open space.

The No Project Alternative would not fulfill the project objectives for Market Position and Production and Timeframe as described in Section 3.2 because it would not allow the project applicant to be a regional provider with access to 17 million tons of aggregate over the next 30 years, due to the limited quarry footprint of only 40 acres and the limited remaining reserves. Existing demand and any future increases in demand for aggregate material would likely have to be supplied from out-of-County sources which could result in an increase in cost and impacts from material transportation.

6.3.2 Reduced Daily Production Alternative

Under the Reduced Daily Production Alternative, operations in the East Pit would be allowed to resume under the currently approved 2007 Reclamation Plan (RP06-001) and Use Permit (U06-012). Under this alternative, the total footprint of the mine would be the same as the proposed project – the extraction area would be expanded to include the West Pit for an ultimate disturbed area of 158 acres – and the total maximum extraction from the mine would remain the same as under the proposed project (17 million tons). SMARA requires that However, the daily production would be limited to approximately 2,520 tons per day (approximately 0.25 of the maximum daily production of 10,080 tons under the proposed project). As such, annual production would be limited to 250,000 tons per year, approximately

0.25 of the maximum annual production of the proposed project (1 million tons per year). The annual production of 2,520 tons per day would result in approximately 280 daily on-way truck trips (approximately 0.25 of the 1,120 trips that would be generated by the proposed project). The processing operations located in the East Pit would also remain in the same location. Because the total allowable production from the mine would remain the same, reducing the maximum annual production of the quarry would extend the life of the mine when compared with the proposed project because the aggregate reserve would be removed at a slower rate. Reducing the annual and daily production could also reduce the daily hours of operations, and could avoid the need for nighttime operations.

The Reduced Daily Production Alternative would not fulfill the project objectives for Market Position and Production and Timeframe described in Section 3.2 because it would not allow the project applicant to maximize production on the site in response to regional demand. If the demand for aggregate material in the Tahoe/Truckee area exceeded the 250,000 tons per year allowable under the Reduced Daily Production Alternative, the remaining supply would likely have to be sourced from out-of-County sources.

6.4 COMPARATIVE IMPACT ANALYSIS

6.4.1 No Project Alternative: Development Under the Existing Plan

Geology and Soils

As described in Section 4.1, implementation of the proposed project would result in potentially significant impacts related to geology and soils, which would be reduced to a less than significant level through the implementation of mitigation measures. Under the No Project Alternative, the proposed quarry footprint would not be expanded and mining would be limited to the East Pit. Fewer mine bench cuts would be made, and a reduced area of land would be mined for aggregate materials. The smaller footprint would reduce or avoid the potential for slope-stability impacts to occur when compared to the proposed project and Reduced Daily Production Alternative. While the proposed mitigation would reduce the potential for impacts associated with slope instability, the reduced footprint under this alternative would further reduce the potential for slope instability to occur. All other impacts related to geology and soils would be less than significant, similar to the proposed project. This alternative would have a reduced impact to geology and soils when compared to the proposed project.

Hydrology and Water Quality

As described in Section 4.2, implementation of the proposed project would result in potentially significant impacts related to hydrology and water quality, which would be reduced to a less than significant level through the implementation of mitigation measures. As described in Section 4.2, the proposed project would implement an extensive system of drainage control and water quality that would prevent storm water from leaving the site, which would be similar to the storm water management under the No Project Alternative. However, under the No Project Alternative, mining operations would not expand beyond the present mining plan boundary. The potential for erosion and impacts to water quality would be reduced due to the smaller mining footprint. Similar to the proposed project, all impacts related to hydrology and water quality would be less than significant based on the implementation of standard operational measures contained in the currently approved 2007 Reclamation Plan, conformance to SMARA and other applicable regulatory standards. Water consumption under the proposed project would be greater than that needed for the No Project

Alternative and would require mitigation to reduce potentially significant impacts to below a level of significance. This alternative would have a reduced impact to hydrology and water quality when compared to the proposed project.

Biological Resources

Under the No Project Alternative, direct impacts to biological resources would be substantially reduced since mining would be limited to the East Pit and no vegetation clearance would occur within the West Pit expansion area. The No Project Alternative would not impact the foraging habitat for the Loyalton-Truckee mule deer herd to the extent of the proposed project, however; indirect impacts such as fugitive dust and night lighting would remain potentially significant without appropriate regulatory standards and mitigation. Similar to the proposed project, mitigation would be required to reduce potentially significant impacts to below a level of significance with mitigation. This alternative would have a reduced impact to biological resources when compared to the proposed project.

Aesthetics

As described in Section 4.4, implementation of the proposed project would result in potentially significant impacts to aesthetics. Impacts related to visual character would remain significant and unmitigable. Under the No Project Alternative, the currently approved footprint of the quarry in the East Pit would not be expanded which would reduce the visibility of the quarry from the surrounding areas when compared with the proposed project. No additional mitigation would be required under the No Project Alternative besides the revegetation required pursuant to the currently approved 2007 Reclamation Plan. This alternative would have a reduced impact on aesthetics when compared to the proposed project.

Traffic and Circulation

As described in Section 4.5, implementation of the proposed project would result in potentially significant impacts to traffic and circulation. Impacts related to bicycle safety would remain significant and unmitigable. Under the No Project Alternative, the daily truck trips on West Hinton Road and Stampede Meadows Road would be considerably less than those associated with the proposed project since the annual production level would be reduced to 250,000 tons and only the East Pit would be mined. Under this alternative, the proposed roadway improvements along Stampede Meadows Road would not be implemented. Therefore, while the number of truck trips associated with the No Project Alternative would be less than under the proposed project and would be for a shorter duration (the East Pit is anticipated to require approximately one to two more years), the currently inadequate sight distances at the intersection of West Hinton Road and Stampede Meadows Road would not be corrected, Stampede Meadows Road would not be widened, and “Share the Road” signs would not be installed. Therefore, the No Project Alternative would result in potentially significant impacts in regard to sight distance and bicycle safety that would not be addressed through mitigation.

In addition, the signs that would be installed to notify haul trucks of the appropriate route to avoid trucks from entering the residential neighborhoods south of I-80 would not be installed. While the haul route would remain the same as under the proposed project, the additional measures to reduce traffic impacts on the local roadways would not be implemented. Lastly, once the East Pit is closed, the regional VMT for aggregate trucks would likely increase because construction aggregate would be transported to meet demand from sources farther away as shown on Figure 4.5-4 in Section 4.5 of

this EIR. While the No Project Alternative would reduce the numbers of haul trucks on the local roads and would be for a shorter duration, several impacts would not be addressed or mitigated under the No Project Alternative. Therefore, the overall traffic-related impacts from this alternative would be similar to the proposed project.

Noise

As described in Section 4.6, under the proposed project, operational activities and heavy trucks would result in noise impacts at noise sensitive receptors in the area but would be mitigable. Receptor 7 represents residences and a church. These noise sensitive land uses would experience noise impacts from operational activities occurring between 7 p.m. and 7 a.m. Receptors 12, 13, and 14 are currently undeveloped parcels that may be developed with noise-sensitive land uses during operation of the project. These receptors may experience noise impacts from haul trucks during daytime, evening and nighttime. Receptor 14 would also experience impacts from excavation activities in the West Pit between 7 p.m. and 7 a.m. Refer to Figure 4.6-2 in Section 4.6 of this EIR for the locations of the receptors. Under the No Project Alternative, the noise associated with mine operations would be less than the proposed project at Receptors 7 and 14. While the location of the processing plant would remain the same, the excavation areas would remain in the East Pit which would be further from the receptors than under the proposed project. While the noise levels generated by the individual trucks would remain the same under this alternative, the overall noise levels associated with truck traffic would be less than under the proposed project due to the reduced number of daily truck trips would be less due to the reduced production levels. Increases in noise levels associated with the No Project alternative would be short-term since mining of the East Pit would be completed in one to two years versus 30 years with the proposed project. This alternative would have a reduced impact on noise when compared to the proposed project.

Air Quality

As described in Section 4.7, implementation of the proposed project would result in potentially significant impacts that would remain significant and unmitigable. Under the No Project Alternative, air quality emissions from the project site would be reduced when compared to the proposed project, and activities in the East Pit would continue to contribute to emissions in the region. The significant and unavoidable air quality impacts identified in Section 4.7 would not occur under this alternative, since there would be no emissions generated from vehicle trips, mining activities, or materials processing activities, other than those generated by operation of the East Pit. This alternative would have a reduced impact on air quality when compared to the proposed project.

It should be noted that while the direct impacts of the No Project Alternative on air quality would be reduced when compared to the proposed project, there is the potential for indirect impacts. Emissions from haul trucks in the region could increase as other, more distant, aggregate sources are used to serve local demand for aggregate. Even with potential expansion of existing quarries and development of new quarries within Nevada County, it is likely that out-of-County import of aggregate would be required on an ongoing basis. Some aggregate producers and users have already begun to import sand and gravel to meet their needs from a wide range of out-of-County mining sources and locations. As with in-County mining sources, the use of out-of-County mining sources to replace the deficit that would be created by not expanding the mining operation at the project site would have the potential to result in site-specific air quality effects at those out-of-County locations. If trucking were to be the predominant form of transport of out-of-County sources into the County, effects on transportation and air emissions

associated with haul trucks under this scenario would be greater than those estimated for the proposed project.

Greenhouse Gas Emissions

Under the No Project Alternative, GHG emissions from the proposed project would be eliminated, although emissions from the East Pit and aggregate processing would resume under the current permit. Emissions from haul trucks may increase as other, more distant, aggregate sources are used to serve local demand for aggregate. Even with potential expansion of existing quarries and development of new quarries within Nevada County, it is likely that out-of-County import of aggregate would be required on an ongoing basis. As detailed in Section 4.8.4, the increased trucking activity is estimated to generate approximately 4,131 MT CO₂e per year. Emissions of this magnitude represent an increase of 4,105 MT CO₂e per year when compared to the proposed project. This alternative would have a greater impact on GHG when compared to the proposed project.

Energy

Under the No Project Alternative, energy usage associated with the proposed project would be eliminated, although energy usage associated with operation of the East Pit would resume under the current operation for another one to two years. Energy would continue to be utilized by haul trucks for the out-of-County import of aggregate that would be required on an on-going basis. Overall, the energy required for mining operations under the No Project Alternative (500,000 tons of aggregate over two years) would be less than the energy required for mining operations under the proposed project scenario (17 million tons of aggregate over 30 years). This alternative would have a reduced impact to energy when compared to the proposed project.

Hazards and Hazardous Materials

As described in Section 4.10, implementation of the proposed project would result in potentially significant impacts related to hazardous materials which would be reduced to a less than significant level through the implementation of mitigation measures. Operation of the mine at the project site would require the transport, storage, and use of hazardous materials for both the proposed project and the No Project Alternative. Under the No Project Alternative, the quantity and duration of use of materials at the site would be reduced due to the anticipated life of the East Pit and the reduced area being mined. Under the No Project Alternative, the hazardous materials storage would not be relocated from the Martis Valley Quarry to the project site. Potentially significant impacts associated with storing the materials under the proposed project would be avoided under this alternative. This alternative would have a reduced impact associated with hazardous materials when compared to the proposed project.

Cultural and Tribal Resources

As described in Section 4.11, implementation of the proposed project would result in potentially significant impacts related to cultural resources (including tribal cultural resources) which would be reduced to a less than significant level through the implementation of mitigation measures. Under the No Project Alternative, direct impacts to potential cultural resources would be substantially reduced since mining would be limited to the East Pit and no ground disturbance would occur within the West Pit. The No Project Alternative would not impact the potential cultural resources in the proposed West Pit, however; indirect impacts from ground disturbance in the East Pit would remain potentially

significant without appropriate regulatory standards and mitigation. This alternative would have a reduced impact associated with cultural resources when compared to the proposed project.

6.4.2 Reduced Daily Production Alternative

Geology and Soils

Impacts related to geology and soils would be the same as the proposed project since the expanded mining footprint would remain the same under this alternative.

Hydrology and Water Quality

Impacts related to hydrology, water quality and water supply would be the same as the proposed project since the expanded mining footprint would remain the same under this alternative.

Biological Resources

Impacts related to biological resources would be the same as the proposed project since the expanded mining footprint would remain the same under this alternative. Final reclamation of the site would take longer since reduced annual production levels would extend the life of the mine; and, therefore it would take longer to restore the site to its pre-mining conditions for biological resources. Impacts would still be less than significant with implementation of the mitigation identified for the proposed project. This alternative would result in impacts to biological resources similar to the proposed project.

Aesthetics

Impacts related to aesthetics would be similar to the proposed project since the expanded mining footprint would remain the same under this alternative. Final reclamation of the site would take longer since reduced annual production levels would extend the life of the mine and surrounding sensitive receptors would be exposed to the review of the mining operation for a longer period than identified for the proposed project. Impacts would remain significant and unavoidable with implementation of the mitigation identified for the proposed project. Overall, this alternative would result in aesthetic impacts similar to the proposed project.

Traffic and Circulation

The potentially significant project impacts related to traffic and circulation from project implementation with respect to roadway structural integrity and sight distance at the intersection of West Hinton Road with Stampede Meadows Road would be the same under this alternative. Mitigation would be required to reduce the impacts; however, similar to the proposed project, impacts would remain significant and unavoidable in regard to bicycle safety.

Under the Reduced Daily Production Alternative, the daily truck trips on West Hinton Road and Stampede Meadows Road would be considerably less than those associated with the proposed project since the daily production would be limited to 2,520 tons.

The reduction in truck traffic from limiting production would decrease truck traffic on the local roadway system including West Hinton Road and Stampede Meadows Road; however, it would not avoid or lessen potentially regional and cumulative significant impacts. If regional construction demand is greater

than the 250,000 tons per year supplied from the project site, then aggregate material would be transported from another aggregate source farther away shown in Figure 4.5-4, leading to additional impacts to regional traffic congestion and highway maintenance. Similar to the proposed project, impacts would remain significant and unavoidable in regard to bicycle safety. Overall, this alternative would result in reduced impacts to traffic and circulation in the area when compared with the proposed project.

Noise

Under the Reduced Daily Production Alternative, annual aggregate production at the quarry would be restricted to 250,000 tons per year and maximum daily production would also be reduced to approximately 2,500 tons per day, or approximately 140 daily truck trips. It would be expected that the reduced production would allow for shorter work days than under the proposed project.

Because the footprint of this alternative would be the same as the proposed project, Under the Reduced Daily Production Alternative, the noise associated with mine operations Under the Reduced Daily Production Alternative would similar to the proposed project at Receptors 7 and 14 but could be for a shorter duration each day due to the potentially shorter shifts and lower likelihood of nighttime activities. Similarly, noise levels associated with production and truck trips would occur at the same levels but for a shorter duration each day when compared with the proposed project. The potential for nighttime load out would be minimized under this alternative. This alternative would result in noise impacts less than the proposed project.

Air Quality

Under the Reduced Daily Production Alternative, annual aggregate production at the quarry would be restricted to 250,000 tons per year. The Reduced Daily Production Alternative is equivalent to one quarter of Scenario 2, Worst Case Daily Production presented in Section 4.7. Consequently, total annual operation of mining and processing equipment, total number of vehicle trips generated annually by this alternative and associated annual air emissions would be approximately one-quarter of the proposed project. However, emissions from haul trucks would likely increase as sources outside the region are used to serve local demand for aggregate.

Table 6-1 presents the maximum daily emissions of criteria pollutants of the Reduced Daily Production Alternative compared to the applicable regulatory threshold. As shown in Table 6-1, all pollutant emission for the Reduced Daily Production Alternative would be below the NSAQMD threshold and would be a less than significant impact. The Reduced Daily Production Alternative would avoid significant impacts from NO_x and PM₁₀ emissions, whereas under the proposed project it would remain significant.

Table 6-1
REDUCED DAILY PRODUCTION ALTERNATIVE
WORST-CASE DAILY QUARRY OPERATIONAL EMISSIONS

	Criteria Pollutant Emissions (lbs/day)					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Mining Activities	5.72	34.42	58.81	0.09	43.46	28.19
Materials Processing	8.60	50.39	80.26	0.16	340.72	164.88
On- and Off-site Traffic	8.09	38.79	253.07	0.97	7.57	3.53
Total Emissions Without Reduction	22.40	123.60	392.14	1.23	391.75	166.60
Total Emissions With Reduction	5.60	30.90	98.04	0.31	97.94	41.65
NSAQMD Significance Threshold	137	n/a	137	n/a	137	n/a
Significant Impact?	No	n/a	No	n/a	No	n/a

Source: HELIX 2019

Notes: There are no criteria pollutant emission standards for CO, ROG, and PM_{2.5}; Reduced Daily Production Alternative is one-quarter of “Worst-case” daily production, yielding 250,000 tons per year.

The estimated annual average DPM emissions generated by this alternative would be approximately one-quarter of the emissions generated by the proposed project. Consequently, the total carcinogenic risk at the sensitive receptors from the Reduced Production Alternative over the 30-year life of the quarry is estimated to be approximately one-quarter of the proposed project, and similarly less than significant.

Potential episodes of fugitive dust generated by this alternative in the site vicinity would be similar to or less than the proposed project and would be mitigated with implementation of a formal comprehensive dust control program. As with the proposed project, effects associated with a potential airborne release of crystalline silica for this alternative would be less than the project, and similarly less than significant.

As with the proposed project, when considering the Reduced Daily Production Alternative together with anticipated cumulative development in the area, this alternative would result in cumulatively considerable impacts associated with a contribution to regional criteria pollutants and TACs. Mitigation measures to reduce emissions and particulate matter would reduce the effects, but like the proposed project, the project would result in a significant and unavoidable cumulative impact associated with contribution to regional criteria pollutants and TACs. This alternative would have a reduced impact on air quality when compared to the proposed project.

As previously mentioned under the evaluation of air quality in Section 6.4.1, it should be noted that while the direct impacts of the Reduced Daily Production Alternative on air quality would be reduced when compared to the proposed project, there is the potential for indirect impacts. Emissions from haul trucks in the region could increase as other, more distant, aggregate sources are used to serve local demand for aggregate. Even with potential expansion of existing quarries and development of new quarries within Nevada County, it is likely that out-of-County import of aggregate would be required on an ongoing basis. Some aggregate producers and users have already begun to import sand and gravel to meet their needs from a wide range of out-of-County mining sources and locations. As with in-County mining sources, the use of out-of-County mining sources to replace the deficit that would be created by not expanding the mining operation at the project site would have the potential to result in site-specific

air quality effects at those out-of-County locations. If trucking were to be the predominant form of transport of out-of-County sources into the County, effects on transportation and air emissions associated with haul trucks under this scenario would be greater than those estimated for the proposed project.

Greenhouse Gas Emissions

Estimated annual GHG emissions for the Reduced Daily Production Alternative would cumulatively contribute approximately 1,089 metric tons of CO₂e per year, which is approximately one-quarter of the total estimated GHG emissions for the proposed project. As stated in the No Project Alternative, the demand for aggregate would be met by more distant sources without the proposed project. Similarly, under the Reduced Alternative, aggregate demand would be met from other regional sources, thereby increasing haul truck trip length and associated emissions. Based on the analysis contained in Section 4.8, haul trucks from more distant sources of aggregate would generate 4,032 metric tons of CO₂e per year without the proposed project. Aggregate production under the Reduced Alternative would be one-quarter of the aggregate produced under the proposed project, leaving three-quarters of aggregate to be hauled from other regional sources. Under this assumption, haul trucks from more distant regional sources would generate approximately 3,024 metric tons of CO₂e per year (three-quarters of 4,032 metric tons of CO₂e). The aggregate produced under the Reduced Alternative would reduce the need to import aggregate from out of the region at a rate of one-quarter that of the proposed project, thereby reducing region-wide GHG emissions by approximately 1,008 metric tons of CO₂e per year (one-quarter of 4,032 metric tons of CO₂e). Therefore, after accounting for these reduced trucking emissions, the Reduced Daily Production Alternative would generate approximately 81 additional metric tons of CO₂e per year due to haul truck emissions compared to the proposed project.

Energy

Under the Reduced Daily Production Alternative, although annual aggregate production at the quarry would be restricted to 250,000 tons per year, the total amount of aggregate mined over the life of the project would still equal 17 million tons. Therefore, the amount of energy required per year for the mining operations would be less than the proposed project, but the total amount of energy required for mining operations over the life of the project would be the same as the proposed project. Additionally, because annual production would be reduced, aggregate would have to continue to be imported from out-of-county locations to serve the local annual aggregate demand that would no longer be met by the project's production. The Reduced Daily Production Alternative would therefore result in greater energy usage than the proposed project.

Hazards and Hazardous Materials

Under the Reduced Daily Production Alternative, the amount of hazardous materials used per year for the mining operations would be less than the proposed project, but the total amount of hazardous materials required for mining operations over the life of the project would be the same as the proposed project. The Reduced Daily Production Alternative would therefore have the same impacts associated with hazardous materials as the proposed project.

Cultural and Tribal Resources

Impacts related to cultural and tribal resources would be the same as the proposed project since the expanded mining footprint would remain the same under this alternative.

6.5 ENVIRONMENTALLY SUPERIOR PROJECT

Table 6-2 summarizes the results of the comparative impact analysis presented in the preceding sections.

Table 6-2
PROJECT ALTERNATIVE IMPACTS COMPARED TO THE PROPOSED PROJECT

Environmental Issue	Proposed Project		No Project: Development Under the Existing Plan	Reduced Daily Production Alternative
	Direct	Cumulative	Relative Change in Impact as Compared to Project	
Geology and Soils	SM	NS	Less	Equal
Hydrology and Water Quality	SM	NS	Less	Equal
Biological Resources	SM	SM	Less	Equal
Aesthetics	SU	SU	Less	Equal
Traffic and Circulation	SU	SU	Equal	Less
Noise	SM	SM	Less	Less
Air Quality	SU	SU	Less	Less
Greenhouse Gas Emissions	NS	NS	Greater	Greater
Energy	NS	NS	Less	Greater
Hazards and Hazardous Materials	SM	LTS	Less	Equal
Cultural and Tribal Resources	SM	LTS	Less	Equal

LTS = Less Than Significant; SM = Significant but Mitigable; SU = Significant and Unavoidable (Not Mitigable)

As shown in Table 6-2, the No Project Alternative would result in the reduction of all potentially significant impacts except traffic and circulation. Although the No Project Alternative would be considered the environmentally superior alternative, it does not fulfill the basic objectives of the project. Moreover, State CEQA Guidelines Section 15126.6(e)(2) states that if the environmentally superior alternative is the no project alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives considered.

Based on the above analysis, the Reduced Daily Production Alternative would be the environmentally superior alternative because it would reduce impacts to local nighttime noise, traffic, and air quality in the immediate project vicinity. Noise impacts would be less than under the proposed project because operational hours would likely be reduced and the potentially significant impact associated with nighttime operational noise would likely be eliminated. The number of daily truck trips would be less than under the proposed project.

All project site specific criteria air pollutant emissions for the Reduced Daily Production Alternative would be below the NSAQMD threshold and would be a less than significant impact. The Reduced Daily Production Alternative would avoid significant impacts from NO_x and PM₁₀ emissions at the project-

level, whereas under the proposed project it would remain significant and unavoidable. However, while incrementally less when compared with the proposed project, the Reduced Daily Production Alternative would similarly result in potentially significant impacts associated with fugitive dust which would be mitigated through implementation of mitigation measure.

While the Reduced Daily Production Alternative would be the environmentally superior project, it would not fulfill the project objectives for Market Position and Production and Timeframe described in Section 3.2 because it would not allow the project applicant to be a leading regional provider and produce up to 1 million tons of aggregate per year since the annual production would be limited to only 250,000 tons per year. As discussed above, if the demand increases for aggregate material in the Tahoe/Truckee area beyond the 250,000 tons per year, the remaining supply would likely have to come from out-of-County locations at an increased transportation cost and with the potential to result in site-specific air quality effects at those out-of-County locations, as well as an increase in GHG emissions and energy consumption when compared to the proposed project.

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7.0 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126(c) of the State CEQA Guidelines requires an evaluation of significant irreversible environmental changes which would likely occur should the proposed project be implemented. Examples of irreversible changes identified in Section 15126.2(c) of the State CEQA Guidelines include: (1) the use of substantial amounts of nonrenewable resources (e.g., energy and mineral resources); (2) primary and secondary impacts that commit future generations to a particular use of the land; and (3) irreversible damage that could be caused by environmental accidents associated with a project. Irretrievable commitments of resources are evaluated to assure that current consumption is justified.

The project site has served as a hard rock quarry since the 1950s and, as such, it has provided a useful aggregate resource for various purposes over this time. The proposed project would expand the mining operation and provide aggregate resources to meet the local demand. The proposed project is expected to have an operational period of approximately 30 years and reclamation would occur as slopes are completed. Final reclamation would take approximately five additional years after completion of mining. The 2011 Reclamation Plan provides for the project site to be returned to an open space condition similar to pre-mining conditions as allowed under existing County Zoning Code designation of forest which provides for production, protection, and management of timber (and support uses); equipment storage; temporary offices; low intensity recreational uses; and open space. Thus, the proposed project would consume mineral resources and this would be an irreversible change.

The proposed off-site roadway improvements would commit natural resources, including soils and wetlands along Stampede Meadows Road, to pavement. This area varies in width along both sides of the route from 50 to 100 feet from the edge of the existing roadway pavement.

Additional non-renewable resources committed as a result of the proposed project would include the use of energy (non-renewable fossil fuels) and materials (lumber, asphalt, petrochemicals, gravel, etc.) to mine and reclaim site. The short-term commitment of natural resources to mine and reclaim the site would not constitute an unusual or unexpected demand upon these natural resources. These demands must be weighed against the benefits of the project, which would include: (1) continued mining of known reserves thereby providing a local, reliable, and economic source of construction aggregate to the Truckee/Tahoe area; (2) future open space use of the property in accordance with existing zoning and Nevada County General Plan designations; and (3) continued employment opportunities. These project benefits would offset the incremental loss of non-renewable natural resources associated with the proposed project. No long-term significant impact upon these additional non-renewable resources is assessed.

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8.0 GROWTH INDUCEMENT

In accordance with Section 15126(d) of the State CEQA Guidelines, an EIR must include an analysis of the potential growth-inducing impacts of the proposed project. The growth inducement analysis must address two issues, including: (1) The 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; and (2) The potential for the project to encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. This second issue involves the potential for the project to induce further growth by the expansion or extension of existing services, utilities, or infrastructure. The State CEQA Guidelines further state that “[i]t must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment” (Section 15126.2[d]).

Mining and reclamation of the remaining portions of the East Pit and the expansion area (West Pit) in accordance with the proposed 2011 Reclamation Plan would generate jobs. Operations, including mining, processing, and administrative functions, are expected to employ between six and 15 people. These short and long-term employment demands would not have a significant impact on local housing supply or demand and would not induce additional economic growth. Also, the proposed off-site roadway improvements would not meet either of the two growth inducement issues cited above as no additional capacity is created by these safety improvements.

The expansion of the existing quarry is in direct response to the demand for aggregate in the Truckee area. The availability of aggregate material in proximity to projected growth areas in the region could be construed as enabling growth to occur. Growth has been planned for and accommodated in local general plans. The proposed project is not removing an impediment to growth and it is not considered to be growth-inducing because it would provide the Truckee-Tahoe area with a local source of aggregate materials at a quality suitable for the planned construction projects. Implementation of the proposed project would accommodate the proposed and projected growth of the region for the duration of its proposed and estimated operation period. Consistent with the proposed 2011 Reclamation Plan, the site would be mined in phases and reclamation would occur concurrent with mining activities. Following the life of the mine, the entire site would be reclaimed to a condition that would be readily adaptable for alternative land uses and for subsequent beneficial use of the land in accordance with the FR zoning and FR-160 land use designation.

Because this proposed expansion would primarily occur on a site already utilized for mining and would not require the development of major new infrastructure facilities (such as a new access route, wastewater treatment plant or water storage and distribution system) or any amendments to adopted land use plans and policies by the governing jurisdictions, no significant growth-inducing effects are associated with the proposed project.

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9.0 EFFECTS FOUND NOT TO BE SIGNIFICANT

This section of the EIR addresses those environmental issues from the CEQA checklist (State CEQA Guidelines Appendix G), for which no significant environmental impacts are anticipated, with respect to the proposed project. Section 15128 of the State CEQA Guidelines requires that an EIR contain a brief statement of the reasons that certain issues have been identified during the environmental review process as having no, or no significant, project-related impacts and are therefore not addressed in detail in the EIR. These issues are summarized below, with all other potential issue areas evaluated in the preceding sections of the document.

9.1 AGRICULTURE/FORESTRY RESOURCES

There are no designated important Farmlands on the project site or off-site roadway improvement area and there are no agricultural operations in the vicinity. The project site likely does not meet the criteria for inclusion in the Williamson Act due to its lack of agricultural uses and lack of public recreation potential.

Similarly, the project site and off-site roadway improvement area are not within a Timberland Production Zone and generally lack substantial timber resources. The project site is, however, zoned FR-ME (Forest with Mineral Extraction combining district) which while the zoning provides areas for the protection, production, and management of timber and timber support uses, the ME combining district allows surface mining due to the identified viable aggregate resource for Eastern Nevada County. Due to the FR zoning, however, the removal of trees and wood products from the project site would need to be handled and disposed of in accordance with the Forest Practice Act of 1973. As indicated in Section 3.3.1, a Timberland Conversion Permit (14 CCR Section 1105) would be obtained from the California Department of Forestry and Fire Protection, which includes approval of a Timber Harvest Plan. A total of approximately 750 commercially viable trees would be harvested (ESRS 2018a).

The vegetation mapping for the project site (Table 4.3-1 and Figure 4.3-1a) indicates that approximately 60 percent of the project site is made up of a mix of Jeffrey Pine-Antelope Bitterbrush Association and Jeffrey Pine/Mountain Mahogany Woodland. The remaining 40 percent of the project site is comprised of mixed vegetation types including bitterbrush scrubs and rock outcroppings. Pursuant to the 2011 Reclamation Plan, reclamation of the project would include applying similar types of mixed vegetation in quantities representative of what is on site in order to restore the disturbed areas to a pre-mining condition.

Segments of the off-site roadway improvement area have land use designations for FOR-160 and zoning designations of FR (refer to Table 2-1). The proposed improvements would not involve the removal of commercially viable trees, so no permit would be required. Therefore, implementation of the proposed project would result in a less than significant impact on important agricultural or timber resources.

9.2 LAND USE/PLANNING

As described in Policy 17.15 of the Minerals Management Chapter in the Nevada County General Plan (Chapter 17; Nevada County 1995), all surface mining operations require Conditional Use Permits to be issued by the County, and large-scale mining activities are not allowed in incompatible land use and

zoning designations. This policy was first introduced into Nevada County's General Plan in 1990, approximately six years after the approval of the original Hirschdale Cinder Quarry Use Permit and Reclamation Plan in the current project site. In addition, the Nevada County Zoning Code (Land Use and Development Code Chapter II, Section L-11 3.22, Surface Mining Permits and Reclamation Plan) allows surface mining operations within an FR zone when an ME combining district overlay is in place, along with an approved Conditional Use Permit and Reclamation Plan.

Policy 17.18 of the Nevada County General Plan states that a Reclamation Plan consistent with SMARA is required for all mining operations. Reclamation shall prevent, mitigate, or minimize adverse effects on the environment; encourage the production and conservation of minerals; provide for the protection and subsequent beneficial use of mined and reclaimed land; eliminate residual hazards to the public health and safety, ensure that mined lands are reclaimed on a timely basis to a useable condition that is readily adaptable for alternative land uses; and avoid the environmental and legal problems created by improperly abandoned mines.

As previously mentioned, the land use designation of the project site is currently FR-160 and the zoning designation is FR-ME. Portions of the project site have been used for mining since 1983, under the authority of Use Permits and Reclamation Plans approved by the County, but prior to the current ME zoning designation. In 2005, the project site was rezoned to add the ME combining district to the existing FR-160 zoning. As such, the project site conforms to Nevada County General Plan Policy 17.15. In 2007, the Nevada County Planning Commission approved the Use Permit (U06-012) and Amended Reclamation Plan (RP06-001) for the quarry operations in the East Pit, which focused on bringing the operation into conformance with the land use and zoning requirements outlined in the Nevada County General Plan and Nevada County Zoning Code (Land use and Development Code Chapter II), including conformance with SMARA.

The currently permitted 40-acre East Pit in the project site is in full conformance with State and local laws regarding mining activity. The proposed project would result in the expansion of the operation into the West Pit thus extending the lifespan of the mining operation. The proposed project would operate pursuant to an Amended Use Permit (U11-008) and Reclamation Plan (RP11-001; 2011 Reclamation Plan) approved by the County, and in accordance with SMARA. The 2011 Reclamation Plan would be implemented and is consistent with the policies contained in the Nevada County General Plan. Consistent with the proposed 2011 Reclamation Plan, the site would be mined in phases and reclamation would occur concurrent with mining activities. Following the life of the mine, the entire site would be reclaimed to a condition that would be readily adaptable for alternative land uses and for subsequent beneficial use of the land in accordance with the FR zoning and FR-160 land use designation.

Because the project site is currently zoned for mining, and the proposed project is consistent with the activities allowable in the FR-ME zoning district, and the project includes implementation of a Reclamation Plan, the proposed project would not result in land use impacts at the project site.

The proposed roadway and intersection improvements in the off-site roadway improvement area would be consistent with the existing land uses and would enhance the condition of the roadway segment. Implementation of the off-site roadway improvements would not result in land use impacts at the off-site roadway improvement area.

There are no established communities within the project boundary or immediately adjacent to the project (on the north side of I-80) or within the off-site roadway improvement area. The proposed project would result in no impact related to division of established communities.

9.3 MINERAL RESOURCES

As described in Policy 17.15 of the Minerals Management Chapter in the Nevada County General Plan (Chapter 17; Nevada County 1995), all surface mining operations require Conditional Use Permits to be issued by the County, and large-scale mining activities are not allowed in incompatible land use and zoning designations. The project site is zoned FR-ME which allows for surface mining which serves as a legislative “notice” to those surrounding land uses (and future land uses) that there is the potential for surface mining to occur. The proposed project is consistent with the expansion of the mining operation would not result in adverse mineral resource impacts. The County encourages the local production of mineral resources in rural areas where potential land use conflicts are relatively minimal.

The off-site roadway improvement area is not located in areas zoned ME, and the proposed improvements do not involve deep excavation or extraction of resources. The proposed project would result in no impact related to the loss of availability of a known mineral resource.

9.4 POPULATION AND HOUSING

Housing is addressed in the 2014-2019 Housing Element Update of the Nevada County General Plan (Chapter 8, Nevada County 2014). The proposed project would not result in an increase in the population of the area and would not include the construction of new homes or businesses or increase roadway capacity which could induce population growth. Operation of the proposed mine expansion would employ approximately six to 15 people which would not result in a considerable increase in population. Construction of the off-site roadway improvement area would include approximately 22 construction workers and four managers/inspectors, which would also not result in a considerable increase in population. In addition, the roadway construction activities would be short term in duration and would be temporary. The proposed project would not result in the displacement of existing residential units, nor would it prohibit future residential uses from being constructed on any of the adjacent properties. Given the existing zoning within this area, and the low residential densities they provide, the proposed project would result in no impact on population and housing resources.

9.5 PUBLIC SERVICES

Public services are addressed in the Public Facilities and Services Element of the Nevada County General Plan (Chapter 3, Nevada County 1995). Implementation of the proposed project would not result in an increase in the population of the area or a change in the land uses envisioned for the project site. The activities associated with the proposed expansion would be consistent with the currently permitted activities for mining in the East Pit. As a result, the proposed project would not place a significant increased demand upon public services in the project area and no significant impacts are anticipated with respect to fire protection, police protection, schools, and other government facilities.

9.6 RECREATION

Recreation is addressed in the Recreation Element of the Nevada County General Plan (Chapter 5, Nevada County 1995). There are no recreational uses, facilities or resources on the project site;

however, the project site and off-site roadway improvement area are in an area that provides recreational resources for residents and visitors to the area.

Recreational uses in the area include use of the Boca Quarry Reservoir and hiking along various trails accessing the reservoir. The reservoir is one of several in the area that provides irrigation water, flood control, wildlife habitat, and recreation opportunities including fishing, boating, and camping. The project site is located approximately 1.6 miles southeast of the Boca Reservoir at its confluence with the Truckee River. Stampede Meadows Road follows the eastern edge of Boca Reservoir and parking and roads providing access to the reservoir directly intersect Stampede Meadows Road within the off-site roadway improvement area.

The Boca Townsite Trail is a 0.5-mile long USFS trail in the Tahoe National Forest. It is at approximately 5,600 feet amsl, and is located north of the UPRR corridor, east of Stampede Meadows Road. The trail meanders up a hill where the small town of Boca once stood. While there is no formally established trail system along Stampede Meadows Road, it is a popular route for bicyclists and motorists accessing recreational facilities in the area. The haul route along West Hinton Road passes the Boca Reservoir shooting area on USFS land. The Truckee River RV Park is south of the I-80/Hirschdale Road interchange.

Recreationists in the area were considered sensitive receptors in the evaluation of impacts of the proposed project, and as appropriate depending on the resource evaluated, the evaluation of impacts to those sensitive receptors was included in Section 4.4, Aesthetics; Section 4.5, Traffic and Circulation; Section 4.6, Noise; and Section 4.7, Air Quality. Refer to these sections for an evaluation of potential impacts of the proposed project on the recreational users.

While the proposed project does not include recreational facilities, the proposed off-site roadway improvements include several elements to address concerns related to safety for bicyclists using the haul route for the quarry. As described in Section 3.3.10, while Stampede Meadows Road lacks designated bicycle lanes and shoulders, the roadway was identified through public feedback as an area used by bicyclists. Through subsequent analysis as part of the TIA for the project, it was determined that the existing conditions of the roadway and use by bicyclists provide a potentially hazardous condition and the addition of vehicles on Stampede Meadows Road as a result of the project would aggravate the existing hazardous condition (LSC 2017), and elements to improve Stampede Meadows Road in the off-site roadway improvement area were incorporated into the project design and evaluated as part of the project.

As described in Section 3.3.10, the off-site roadway improvements would include pavement widening and shoulder improvements along an approximately 1.3-mile long segment of Stampede Meadows Road. “Share the Road” signs would also be installed along Stampede Meadows Road within the off-site roadway improvement area to alert motorists to the presence of cyclists. The potential impacts of construction of these improvements on the environment have been evaluated as part of the overall project description. Potentially significant impacts from construction of the proposed off-site roadway improvements have been identified for the following resource areas: Section 4.3, Biological Resources – (1) nesting birds and (2) jurisdictional waters of the U.S. and State and/or aquatic habitats under jurisdiction of CDFW; Section 4.5, Traffic and Circulation – traffic and circulation during construction; and Section 4.11, Cultural and Tribal Resources – inadvertent discovery. With implementation of the mitigation measures identified in those sections, the potentially significant impacts would be reduced to a level of less than significant.

In addition, the analysis of potential impacts in Section 4.5 includes an evaluation of the effectiveness of implementation of the proposed off-site roadway improvements on bicycle safety (refer to the discussion of bicycle safety in Significance Threshold 4). Mitigation is required to address potentially significant impacts; however, while the proposed mitigation would reduce the severity of the project-related impacts related to bicyclist safety, the necessary improvements would be limited by existing constraints along the roadway segment, and the roadway design for the off-site roadway improvement area may not achieve the full width considered the standard for accommodating bicyclists along its entire length. Impacts to bicycle safety would remain potentially significant and unavoidable.

Appendix G of the State CEQA Guidelines considers the following thresholds of significance in regard to recreation: (1) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?; and (2) Would the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

The proposed project would not result in an increase in population which would result in an increase in the use of existing recreational facilities. In addition, while the proposed project includes construction of improvements to address facilities used by bicyclists, because Stampede Meadows Road does not include an existing designated bicycle route or bicycle lanes, the project is not expanding recreational facilities; therefore, the project would result in no impact under this criterion. Refer to the previously mentioned sections for a detailed evaluation of impacts associated with the proposed project. No additional analysis of potential impacts associated with recreation is required. The proposed project would result in no impact in regard to recreation.

9.7 UTILITIES/SERVICE SYSTEMS

Electrical service for the project site is provided by Sierra Pacific Power. The project site is not served by public water or a public sewage system. No public storm drain is located on the project site. The project site has developed water and sanitation services for their employees per the requirements of U06-012 for the mining operation and the proposed project would continue to use these facilities within the existing yard. The County Department of Environmental Health, through their standard conditions, would require the maintenance of these existing systems. No significant impact to utilities and service systems would result from the proposed project.

9.8 WILDFIRE

For projects located in or near State Responsibility Areas or lands classified as very high hazard severity zones, Appendix G of the State CEQA Guidelines considers the following thresholds of significance in regard to wildfire: (1) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan; (2) Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; (3) Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; and (4) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The analysis in Section 4.10 includes an evaluation of the project's impacts on an adopted emergency response plan and emergency evacuation plan with findings of less than significant (Threshold 7).

The project consists of expansion of an existing mine and does not include the construction of residences. There are no project occupants, so no impact would occur. The analysis in Section 4.10 includes an evaluation of the project's potential to exacerbate wildfire risk. Mitigation is required to address potentially significant impacts and would reduce them to a level of less than significant. Additional impacts to the environment associated with the proposed project are analyzed in this EIR.

There have been no recent wildfires at the mine site, and areas outside of the currently permitted East Pit are vegetated. The project site is located outside of the 100-year flood hazard zone of the Truckee River, and there are no other drainages through the proposed mine site. The mine is located in a basin that is separated from lower elevation areas by intervening topography. Due to the existing site conditions and because the mining operations would involve removing the existing soils, working the underlying bedrock to engineered slopes and implementing stormwater management, should a wildfire occur in areas surrounding the mine during mining operations, the project would not expose downslope resources or downstream people or structures to risks from flooding or landslides. No impact would occur.

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12.0 REFERENCES

12.1 LITERATURE CITED

Balance Hydrologics, Inc., (BHI).

2018 Water Supply Assessment, Boca Quarry Expansion EIR, Nevada County. March 1.

Baldwin, B.G, D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D.H. Wilken (Baldwin et al.).

2012 The Jepson Manual. Vascular Plants of California. University of California Press, Berkley and Los Angeles, California.

Bollard Acoustical Consultants (BAC).

2018 Environmental Noise and Vibration Assessment for the Boca Quarry Expansion Project. April 6.

California Air Pollution Control Officers Association (CAPCOA).

2015 Air Toxics “Hot Spots” Program Risk Assessment Guidelines.

California Air Resources Board (CARB).

2017a *Air Quality Data Statistics*. Available at: <https://arb.ca.gov/adam>. Accessed November 2017.

2017b California Greenhouse Gas Emission Inventory – 2017 Edition.
<https://www.arb.ca.gov/cc/inventory/data/data.htm>. Accessed March 2018.

2017c California’s 2017 Climate Change Scoping Plan. November 2017.
https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

2016a Overview: Diesel Exhaust and Health. <https://www.arb.ca.gov/research/diesel/diesel-health.htm>. April.

2016b *Ambient Air Quality Standards*. Available at:
<http://www.arb.ca.gov/research/aqs/aqs2.pdf>. Accessed November 2017.

2014 EMFAC Model

2011 Health Effects of Diesel Exhaust. Available from:
<http://www.arb.ca.gov/research/diesel/diesel-health.htm>.

2009 *ARB Fact Sheet: Air Pollution and Health*. December 2. Available at:
<http://www.arb.ca.gov/research/health/fs/fs1/fs1.htm>. Accessed December 2017.

2008 *Climate Change Draft Scoping Plan*. June Discussion Draft.

2005 *Air Quality and Land Use Handbook: A Community Health Perspective*. April.

- 2002 2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations. <https://www.arb.ca.gov/toxics/atcm/asb2atcm.htm>. Accessed December 2017.

California Department of Fish and Wildlife (CDFW)

- 2017 California Natural Diversity Data Base. Sacramento, California. Accessed November 20, 2017. Information expires on May 3, 2018.

California Department of Transportation (Caltrans).

2018. California Scenic Highway Mapping System. List of Scenic Highways, updated September 7, 2011. Accessed online at http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/ on January 7.

- 2015 Caltrans 2015 Count Data.

California Department of Water Resources (DWR).

- 2003 California's Groundwater. Bulletin 118. October 1.

California Department of Forestry and Fire Protection (CAL FIRE)

- 2019 Fire Hazard Severity Zone Viewer. Accessed April 25, 2019. Available at: <http://egis.fire.ca.gov/FHSZ/>

California Energy Commission (CEC).

- 2017a Energy Almanac: Total System Electric Generation. Available from: http://www.energy.ca.gov/almanac/electricity_data/total_system_power.html.
- 2017b California Energy Commission – Energy Facility Status. Available from: http://www.energy.ca.gov/sitingcases/all_projects.html.
- 2017c California Energy Demand Updated Forecast, 2017-2027.
- 2017d Energy Almanac: Supply and Demand of Natural Gas in California. Available from: http://www.energy.ca.gov/almanac/naturalgas_data/overview.html.
- 2017e Energy Almanac: California Gasoline Data, Facts and Statistics. Available from: http://www.energy.ca.gov/almanac/transportation_data/gasoline/.
- 2017f Energy Almanac: Diesel Fuel Data, Facts, and Statistics. Available from: http://www.energy.ca.gov/almanac/transportation_data/diesel.html.
- 2016a Electricity Consumption by County. Available from: <http://www.ecdms.energy.ca.gov/elecbycounty.aspx>
- 2016c Gas Consumption by County. Available from: <http://www.ecdms.energy.ca.gov/gasbycounty.aspx>
- 2016b Electricity Consumption by Entity. Available from: <http://ecdms.energy.ca.gov/elecbyutil.aspx>.

- 2016d Gas Consumption by Entity. Available from: <http://ecdms.energy.ca.gov/gasbyutil.aspx>.
- California Native Plant Society (CNPS)
- 2001 Inventory of Rare and Endangered Plants of California, 6th Edition. CNPS, Sacramento, California.
- California Geological Survey (CGS)
- 2010 Fault Activity Map of California. Geologic Data Map No. 6.
- 2007 Fault-Rupture Hazard Zones in California. Special Publication 42, Interim Revision.
- Ecosynthesis Scientific & Regulatory Services, Inc. (ESRS)
- 2018 Teichert Boca Quarry Biological Review. January.
- 2014 Teichert Boca Quarry Biological Inventory Addendum. January.
- 2012 Teichert Boca Quarry Wetlands and Other Waters. July.
- 2011 Teichert Aggregates Boca Quarry Reclamation Plan. July.
- 2009 Teichert Aggregates Boca Quarry Final Biological Inventory. December.
- Federal Emergency Management Agency (FEMA)
- 2010 Flood Insurance Rate Map (FIRM), Nevada County and Incorporated Areas. Map No. 06057C0300E. February 3.
- Golder Associates (Golder)
- 2010a Stability Evaluation of the West Pit, Boca Quarry Hirschdale, California. August.
- 2010b Stormwater Management Plan, Boca Quarry West Pit, Hirschdale, California. July 8.
- Google Earth (Google Earth)
- 2018 Aerial review of Project Site and Vicinity. Accessed September 24, 2018.
- HELIX Environmental Planning, Inc. (HELIX)
- 2019 Air Quality and Greenhouse Gas Analysis Technical Report for the Teichert Aggregates Boca Quarry Use Permit and Reclamation Plan Modification. April.
- 2018 Cultural Resources Record Search Update, Boca Quarry Expansion Project, Nevada County. Technical Memorandum dated April 20, 2018.
- 2014 HELIX calculation of habitat impacts from shapefile boundaries of habitats provided by Adrian Juncosa of ESRS.
- 2012a Teichert Aggregates Boca Quarry Expansion Visual Analysis and Supplemental Visual Impact Assessment. May

- 2012b HELIX calculation of habitat impacts from shapefile boundaries of habitats provided by Adrian Juncosa of ESRS.
- Intergovernmental Panel on Climate Change (IPCC)
- 2014 *Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.*
- 2013 *Climate Change 2013: The Physical Science Basis. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.*
- 2007 *Climate Change 2007: The Physical Science Basis. Summary for Policymakers. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* February.
- International Code Council, Inc. (ICC)
- 2006 International Building Code (IBC).
- Liberty Utilities (Liberty Utilities).
- 2017 Clean Energy. Available from: <https://california.libertyutilities.com/south-lake-tahoe/residential/evolve/eliminating-coal-from-our-power-mix.html#navbar-clean-energy-residential>
- LSC Transportation Consultants, Inc. (LSC)
- 2018a Teichert Boca Quarry Expansion – Construction Traffic Impacts. February 26.
- 2018b Teichert Boca Quarry Expansion – Timber Harvesting Traffic Impacts. September 10.
- 2017 Teichert Boca Quarry Expansion Traffic Impact Analysis. October 20.
- National Aeronautics and Space Administration (NASA), Goddard Institute for Space Studies.
- 2018 Listed on page 4.8-1
- 2016 *2016 Climate Trends Continue to Break Records.* July 19. Available at: <https://www.nasa.gov/feature/goddard/2016/climate-trends-continue-to-break-records> Accessed December 2017.
- National Oceanic and Atmospheric Administration, Earth System Research Laboratory (NOAA)
- 2017 *Trends in Atmospheric Carbon Dioxide. Recent Global Carbon Dioxide.* Available at: <http://www.esrl.noaa.gov/gmd/ccgg/trends/global.html>. Accessed November 2017.
- Nevada, County of (Nevada County; County)
- 2019 Capital Improvement Plan 2019 Annual Update. County of Nevada Community Development Agency, Department of Public Works 2018-2019 thru 2022-2023. February.
- 2018 GIS Layer search of County record information accessed on September 24, 2018 and available at: <https://gis.nevcounty.net/MyNeighborhood/>

- 2018a Nevada County Bridges Replacement and Rehabilitation Program 2017 – 2022. Available at: dokkenbridge.com/Nevada-county/. Accessed September 20, 2018.
- 2018b Nevada County Regional Transportation Plan 2015 – 2035. January.
- 2016 Nevada County General Plan, Chapter 1: Land Use. Updated.
- 2014 Nevada County General Plan, Chapter 8: Housing 2014-2019; Chapter 9: Noise; Chapter 10: Safety. Updated.
- 2011a Nevada County. 2011. Emergency Operations Plan Annex B Mass Evacuation.
- 2011b Nevada County. 2011. Emergency Operations Plan Annex D Hazardous Materials Area Plan.
- 2010 Nevada County General Plan, Chapter 4: Circulation Element. Updated.
- 2007 Nevada County Land Use and Development Code.
- 2002 Nevada County Natural Resources Report.
- 1995 Nevada County General Plan, Chapter 3: Public Facilities and Services; Chapter 5: Recreation; Chapter 11: Water Element; Chapter 12: Soils Element; Chapter 13: Wildlife and Vegetation Element; Chapter 14: Air Quality Element; Chapter 17: Mineral Management; Chapter 18: Aesthetics; Chapter 19: Cultural Resources.
- Northern Sierra Air Quality Management District (NSAQMD).
- 2016 *Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects*. May.
- Parus Consulting, Inc. (Parus).
2013. Cultural Resources Inventory for the Boca Quarry Expansion Project. Nevada County, California. November 21.
- Regional Water Quality Control Board (RWQCB) – Lahontan Region
- 2008 Resolution R6T-2008-0019; Approval of Amendments to the Water Quality Control Plan for the Lahontan Region to Incorporate a Total Maximum Daily Load (TMDL) and TMDL Implementation Plan for Sediment in the Middle Truckee River Watershed, Placer, Nevada and Sierra Counties, and Certification of a Substitute Environmental Document. May 14.
- 2007 Surface Water Ambient Monitoring Program (SWAMP) at the Lahontan Region: Summary of Results for Years 2000–2005. California Regional Water Quality Control Board, Lahontan Region, South Lake Tahoe, CA. July 2007.
- 1995 Water Quality Control Plan for the Lahontan Region, North and South Basins (Basin Plan). As amended through 2016.

- R.K. Vierra and Associates, Inc. (Vierra and Associates)
 2006 Cultural Resources Inventory of 168 Acres for Teichert Aggregates Boca Quarry Expansion Plan Project. February.
- Sacramento Metropolitan Air Quality Management District (SMAQMD)
 2008 *Aggregate & Rock Crushing Operations Policy Manual*. November 24
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evans
 2009 A Manual of California Vegetation, Second Edition. California Native Plant Society Press.
- South Coast Air Quality Management District (SCAQMD)
 1993 (as amended). *CEQA Air Quality Handbook*.
- State Surface Water Ambient Monitoring Program (SWAMP)
 2011 Toxicity in California Waters. October.
- 2010 Summary of Toxicity in California Waters: 2001-2009. November.
- State Water Resources Control Board (SWRCB)
 2018 Geotracker website accessed on September 24, 2018 and available at:
<https://geotracker.waterboards.ca.gov/map/>
- 2010 Clean Water Act Section 303(d) 2010 List of Water Quality Limited Segments. Available at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.
- Transportation Research Board.
 2016 Highway Capacity Manual.
- Truckee, Town of (Truckee).
 2019 Town of Truckee List of Active Projects Updated March 12, 2018. Accessed online April 15.
- 2017 Truckee Municipal Code, Zoning Districts and Allowable Land Uses. 2017 Zoning Map.
- 2006 2025 General Plan. Resolution No. 2006-60.
- U.S. Department of Agriculture (USDA)
 2012 Descriptions of the Kyburz, Sierraville, Trojan and Jorge soil series. Available at the following locations (respectively):
https://soilseries.sc.egov.usda.gov/OSD_Docs/K/KYBURZ.html;
https://soilseries.sc.egov.usda.gov/OSD_Docs/S/SIERRAVILLE.html;
https://soilseries.sc.egov.usda.gov/OSD_Docs/T/TROJAN.html;
https://soilseries.sc.egov.usda.gov/OSD_Docs/J/JORGE.html.

U.S. Environmental Protection Agency (USEPA).

2017a Criteria Air Pollutants. Available at: <https://www.epa.gov/criteria-air-pollutants>. Accessed November 2017.

2015 Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013. April 15. Available at: <https://www.epa.gov/sites/production/files/2016-03/documents/us-ghg-inventory-2015-chapter-executive-summary.pdf> Accessed November 2017.

2001 *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources*. January 2001.

World Resources Institute (Word Resources Institute).

2017 CAIT Climate Data Explorer. Available at: <http://cait2.wri.org/wri/>. Accessed November 2017.

12.2 PERS. COMMUN.

Juncosa, Adrian. Owner of Ecosynthesis Scientific & Regulatory Services, Inc. (ESRS).

2018 Clarification of findings of botanical surveys (no impact) provided by Adrian Juncosa in e-mail dated June 26, 2018.

2018 Approximate number of commercially viable trees provided by Adrian Juncosa in e-mail dated August 17, 2018.

2012 Email transmission to Matt Fremont of HELIX on May 3, 2018.

Shade, Coleen. Senior Planner with the County of Nevada Planning Department.

2018 Confirmation of existing permit for existing septic system on the project site provided by Coleen Shade during phone conversation with Catherine Silvester, Environmental Specialist with HELIX Environmental Planning, Inc. on August 8, 2018.

Wood, Becky. Environmental Health and Safety Manager with Teichert Materials.

2018 Clarification of hazardous materials use, transport, and relocation on the project site provided by Becky Wood during phone conversation with Catherine Silvester, Environmental Specialist with HELIX Environmental Planning, Inc., on August 7, 2018

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