

Idaho-Maryland Mine Project

SCH# 2020070378

Draft Environmental Impact Report

Volume I of X (Chapters 1-8)

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County of Nevada



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Prepared by



1501 SPORTS DRIVE, SUITE A, SACRAMENTO, CA 95834

Idaho-Maryland Mine Project Draft Environmental Impact Report

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Lead Agency

County of Nevada
Community Development Agency
Planning Department
950 Maidu Avenue, Suite 170
Nevada City, CA 95959-8617

Matt Kelley
Senior Planner
(530) 265-1222

Prepared By

Raney Planning and Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834
(916) 372-6100

Contact:
Nick Pappani
Vice President

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LIST OF ACRONYMS

A

AAQS	ambient air quality standards
AASHTO	American Association of State and Highway Transportation Officials
AB	Assembly Bill
ABA	acid base accounting
ADMP	Asbestos Dust Mitigation Plan
AHERA	Asbestos Hazard Emergency Response Act
AHM	acutely hazardous material
ALUC	Airport Land Use Commission
AMSL	above mean sea level
ANFO	ammonium nitrate fuel oil
ANSI	American National Standards Institute
APE	Area of Potential Effects
APM	Applicant Proposed Measure
APN	Assessor's Parcel Number
ARAR	applicable, relevant, and appropriate requirements
AST	above-ground storage tank
ASTM	American Society for Testing and Materials
ASUR	Asbestos, Serpentinite, and Ultramafic Rock
ATCM	Airborne Toxic Control Measure
ATS	Average Travel Speed

B

BAAQMD	Bay Area Air Quality Management Plan
BAC	Bollard Acoustical Consultants
bgs	below ground surface
BMI	benthic macroinvertebrates
BMPs	Best Management Practices
BO	Biological Opinion

C

CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CalAPR	California Accidental Release Program
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code

CALINE4	California LINE Source Dispersion Model
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CBC	California Building Code
CBSC	California Building Standards Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDM	Clean Development Mechanism
CDMG	California Department of Mines and Geology
CEC	California Energy Commission
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFCs	chlorofluorocarbons
cfm	cubic feet per minute
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geologic Survey
CH ₄	methane
CHRIS	California Historical Resources Information System
CI	compression ignition
CIP	Capital Improvement Plan
cis-1,2-DCE	cis-1,2-dichloroethylene
CIWMB	California Integrated Waste Management Board
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNGR	Centennial Narrow Gauge Railroad
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CPB	cemented-paste backfill
CPG	Comprehensive Preparedness Guidance
CPUC	California Public Utilities Commission
CQA	construction quality assurance
Cr ⁺³	Trivalent Chromium
Cr ⁺⁶	Hexavalent Chromium
CREC	Controlled Recognized Environmental Conditions
CRHR	California Register of Historic Resources
CRLF	California red-legged frog
CRNA	California Natural Resources Agency
CRPR	California Rare Plant Rank
CRSD	Cubed-Root Scale Distance
CSAs	Community Service Areas

CSD	Corner Sight Distance
CVRWQCB	Central Valley Regional Water Quality Control Board
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWPP	Community Wildfire Protection Plan
Cy	cubic yard

D

dB	Decibel
dBA	A-weighted sound level
DBH	diameter at breast height
DCH	Designated Critical Habitat
DOC	Geologic Map of Chico Quadrangle, DOC, 1992; Special Report 164
DOT	Department of Transportation
DPM	diesel particulate matter
DS	Deer Creek South
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources

E

EAP	Energy Action Plan
EAS	Emergency Alert System
EB	Eastbound
ECC	Emergency Command Center
ECP	Erosion and Sediment Control Plan
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EMT	Emergency Medical Technician
EO	Executive Order
EOC	Emergency Operations Center
EOP	Emergency Operation Plan
EPA	Environmental Protection Agency
EPAP	Existing Plus Project Conditions
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Environmental Site Assessment
ESAL	Equivalent Single Axle Loads

F

FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Seventy Zone
FHWA	Federal Highway Administration

FICON	Federal Interagency Commission on Noise
FMA	Flood Mitigation Assistance Program
FPA	Forest Practice Act
FPD	Fire Protection District
FPP	Fire Protection Plan
FPR	Forest Practice Rules
FRA	Federal Responsibility Area
FSCNC	Fire Safe Council of Nevada County
FTA	Federal Transit Administration

G

GAC	granular activated carbon
GHG	greenhouse gas
GIS	Geographic Information Systems
GMP	groundwater monitoring plan
gpd	gallons per day
gpm	gallons per minute
GSP	Groundwater Sustainability Plan
GVFD	Grass Valley Fire Department
GWh	gigawatt hours
GWP	global warming potential

H

H ₂ S	hydrogen sulfide
HARP2	Hotspots Analysis and Reporting Program Version 2
HAS	hydrologic study area
HCFCs	hydrochlorofluorocarbons
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons
HFRA	Healthy Forest Restoration Act
HMGP	Hazard Mitigation Grant Program
HMP	Habitat Management Plan
HOV	high-occupancy vehicle
hp	horsepower
HRA	Health Risk Assessment
HREC	Historical Recognized Environmental Condition
HSWA	Hazardous and Solid Waste Amendments
HWCL	Hazardous Waste Control Law
Hz	Hertz

I

IBC	International Building Code
ICC	International Code Council

ICE	internal combustion engines
IGP	Industrial General Permit
IND	Nevada County Industrial
IPaC	USFWS Information, Planning, and Consultation System
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
I-SWPPP	Industrial Stormwater Pollution Prevention Plan
ITP	Incidental Take Permit

J

JOA	Joint Operations Agreement
-----	----------------------------

K

KMnO ₄	potassium permanganate
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L

LAMP	Local Area Management Plan
LCFS	Low Carbon Fuel Standard
L _{dn}	day-night average noise descriptor
L _{eq}	average, or equivalent, sound level
LHMP	Local Hazard Mitigation Plan
L _{max}	maximum noise level
LOS	level of service
LRRSP	Loma Rica Ranch Specific Plan
LUDC	Land Use and Development Code

M

M1	Light Industrial
M1-ME	Light Industrial, Mineral Extraction Combining District
M1-SP	Light Industrial, Site Performance Combining District
MAP	Model Accreditation Plan
MBTA	Migratory Bird Treaty Act
MCAB	Mountain Counties Air Basin
MCL	Maximum Contaminant Level
ME	Mineral Extraction Combining District
mg/kg	milligrams per kilogram
MMT	million metric tons
MnO ₂	manganese dioxide
MPv	mapped Tertiary volcanics
MRZ	Mineral Resource Zone
MSHA	Mine Safety and Health Administration
msl	mean sea level
MSSD	Minimum Stopping Sight Distance

MT	metric tons
MTCO ₂ e	metric tons of CO ₂ equivalent
MWh	megawatt-hours

N

NAAQS	National Ambient Air Quality Standards
N ₂ O	nitrous oxide
NAHC	Native American Heritage Commission
NaOCl	sodium hypochlorite
NCALUCP	Nevada County Airport Land Use Compatibility Plan
NCCFD	Nevada County Consolidated Fire District
NCCP	Natural Community Conservation Plan
NCEHD	Nevada County Environmental Health Department
NCFD	Nevada City Fire Department
NCIC	North Center Information Center
NCLC	Nevada County Landmark Commission
NCNGR	Nevada County Narrow Gauge Railroad
NCTC	Nevada County Transportation Commission
NDS	National Data and Surveying Services
NED	National Elevation Dataset
NEHRP	National Earthquake Hazards Reduction Program
NF ₃	nitrogen trifluoride
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NGRR	Narrow Gauge Railroad
NH ₃	ammonia
NHPA	National Historic Preservation Act
NHTSA	National Highway Transportation Safety Administration
NID	Nevada Irrigation District
NIH	National Institute of Health
NIMS	National Incident Management System
NIOSH	National Institute for Occupational Safety and Health
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO ₂	nitrogen dioxide
NOA	Notice of Applicability
NOI	Notice of Intent
NOP	Notice of Preparation
NOT	Notice of Termination
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPDWR	National Primary Drinking Water Regulations
NRCS	Natural Resources Conservation Survey
NRHP	National Register of Historic Places
NSAQMD	Northern Sierra Air Quality Management District
NSPS	New Source Performance Standards
NTU	nephelometric turbidity units

NWI National Wetland Inventory

O

O₃ ozone
OA Operational Area
OAP Odor Abatement Plan
OEHHA Office of Environmental Health Hazard Assessment
OES Office of Emergency Services
OHP Office of Historic Preservation
OHWM ordinary high water mark
OITC Outdoor-Indoor Transmission Class
OPR Office of Planning and Research
OSHA Occupation Safety and Health Administration
OSMRE Office of Surface Mining, Reclamation, and Enforcement
OWTS On-Site Wastewater Treatment Systems

P

PBS Precision Blasting Services
PCAPCD Placer County Air Pollution Control District
PCBs polychlorinated biphenyls
PCE tetrachloroethylene
PCM Phase Contrast Microscopy
PCP pentachlorophenol
PDM Pre-Disaster Mitigation Program
PEA Preliminary Endangerment Assessment
PELs permissible exposure limits
PFCs perfluorocarbons
PFFS percent of free-flow speed
PFL Professional Forester's Law
PM₁₀ respirable particulate matter
PM_{2.5} fine particulate matter
POI Points of Historical Interest
ppm parts per million
PPV peak particle velocities
PRC Public Resources Code
PRDs Permanent Road Divisions
PSPS public safety power shutoff
PTSF Percent Time Spent Following
PVC polyvinyl chloride

R

RAO Remedial Action Objective
RAP Remedial Action Plan
RCNM Roadway Construction Noise Model

RCRA	Resource Conservation and Recovery Act
RDC	Regional Dispatch Center
REA	Registered Environmental Assessor
REC	Recognized Environmental Condition
RMS	root-mean-square
ROG	reactive organic gases
ROW	right-of-way
RoWD	Report of Waste Discharge
RPF	Registered Professional Forester
RPS	Renewable Portfolio Standard
RTMF	Regional Transportation Mitigation Fee
RTP	Regional Transportation Plan
RWMP	Raw Water Master Plan
RWQCB	Regional Water Quality Control Board

S

SAFE	Safer Affordable Fuel-Efficient
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SC	Scenic Corridor Combining District
SCAQMD	South Coast Air Quality Management District
SCH	State Clearinghouse
SEMS	Standardized Emergency Management System
SF ₆	sulfur hexafluoride
SFHA	Special Flood Hazard Area
SGM	Sustainable Groundwater Management
SGMA	Sustainable Groundwater Management Act
SHL	State Historic Landmarks
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLCP	Short-Lived Climate Pollutant
SLIC	Spills, Leaks, Investigations and Cleanup
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SO ₂	sulfur dioxide
SR	State Route
SRA	state responsibility areas
STC	Sound Transmission Class
SVI	Sacramento Valley Index
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TACs	toxic air contaminants
TCE	trichloroethylene

TCP	Timberland Conversion Permit
TCR	Transportation Concept Report
TDM	Travel Demand Model
TDS	total dissolved solids
THP	Timberland Harvest Plan
TI	Traffic Index
TMA	Transportation Management Association
TMDL	Total Maximum Daily Load
TPA	Timberland Productivity Act
TPZ	Timberland Production Zone
TSCA	Toxic Substances Control Act
TTLC	Total Threshold Limit Concentration
TWLT	two-way-left-turn-lane

U

UAIC	United Auburn Indian Community of the Auburn Rancheria
UBC	Uniform Building Code
UFP	ultrafine particles
USBM	U.S. Bureau of Mines
USDA	U.S. Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	Urban Water Management Plan

V

VCA	Voluntary Cleanup Agreement
VCM	Vinyl Chloride
VdB	Velocity Decibels
VES	Visual Encounter Surveys
VMT	vehicle miles traveled
VOC	volatile organic compound

W

WB	Westbound
WBCSD	World Business Council for Sustainable Development
WDRs	Water Discharge Requirements
WLPZ	Watercourse and Lake Protection Zone
WM	Waste Management
WRI	World Resources Institute
WSA	Water Supply Assessment
WTP	water treatment plant

Y

YSAQMD

Yolo-Solano Air Quality Management District

1. INTRODUCTION

1. INTRODUCTION

1.1 PURPOSE AND INTENDED USES OF THIS EIR

This Draft Environmental Impact Report (EIR) has been prepared for the proposed Idaho-Maryland Mine Project (referred to in this Draft EIR as the “proposed project” or “project”) in accordance with the California Environmental Quality Act (CEQA) of 1970, Public Resources Code (PRC) §§ 21000-21178, as amended, and the Guidelines for Implementation of the California Environmental Quality Act, California Code of Regulations (CCR) Title 14, §§ 15000-15387 (CEQA Guidelines). The County of Nevada (County) is the CEQA lead agency for the environmental review of the proposed project evaluated herein and has the principal responsibility for approving the project. The entity applying for entitlements from the County is Rise Grass Valley, Inc., referenced herein as the project applicant, applicant, Rise, and Rise Grass Valley.

This Draft EIR will be circulated for public and agency review and comment and the County will then prepare a Final EIR with responses to comments on the Draft EIR. County decisionmakers must certify the Final EIR complete and adequate prior to making project approval decisions. As required by Section 15121 of the CEQA Guidelines, this EIR will (a) inform public agency decision-makers, and the public generally, of the significant environmental effects of the project, (b) identify possible ways to minimize the significant adverse environmental effects, and (c) describe reasonable and feasible project alternatives which reduce environmental effects. The public agency shall consider the information in the EIR along with other information that may be presented to the agency in deciding whether to approve the project.

As provided in the CEQA Guidelines Section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social issues. CEQA requires the preparation of an EIR prior to approving any project that may have a significant effect on the environment. For the purposes of CEQA, the term project refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]). With respect to the proposed project, the Nevada County has determined that the proposed development is a project within the definition of CEQA, which has the potential for resulting in significant environmental effects. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth-inducing impacts, and cumulative impacts.

1.2 PROJECT SUMMARY

This section provides a general overview of the project location and components. For additional project description details, please refer to Chapter 3, Project Description, of this EIR.

Project Location and Setting

The proposed project’s surface components would be located on approximately 175.64 acres consisting of the Brunswick Industrial Site, the Centennial Industrial Site, and a 0.30-acre portion of East Bennett Road for off-site improvements associated with a potable water pipeline easement. The project would also involve underground mining within an approximately 2,585-



acre mineral rights boundary owned by the applicant. The potable water pipeline easement would be located along East Bennett Road, and would be contained within the existing right-of-way.

Both the Brunswick Industrial Site and the Centennial Industrial Site are located within unincorporated western Nevada County and are owned by Rise Grass Valley. The approximately 119-acre Brunswick Industrial Site is located southwest of the intersection of East Bennett and Brunswick Roads, and is comprised of Assessor's Parcel Numbers (APNs): 006-441-003 (12503 Brunswick Road), 006-441-004 (12625 Brunswick Road), 006-441-005 (12791 Brunswick Road), 006-441-034 (12381 Brunswick Road), 009-630-037 (12369 East Bennett Road), and 009-630-039 (12301 Millsite Road). The approximately 56.41-acre Centennial Industrial Site is located southwest of the intersection of Idaho Maryland Road and Centennial Drive and is comprised of APNs: 009-550-032, 009-550-037 (10344 Centennial Drive), 009-550-038 (10350 Centennial Drive), 009-550-039 (10344 Centennial Drive), 009-550-040, and 009-560-036 (10350 Centennial Drive).

The much larger mineral rights boundary encompasses approximately 2,585 acres and generally contains properties surrounding the Brunswick and Centennial Industrial Sites, with the majority of additional land area located north of the Brunswick Industrial Site and east of the Centennial Industrial Site. This generally includes most of the Nevada County Airport and surrounding Air Park, as well as property along both sides of Brunswick Road, Greenhorn Road, and Idaho Maryland Road.

Project Components

The proposed project would reinitiate underground mining and gold mineralization processing for the Idaho-Maryland Mine over an 80-year permit period with gold mineralization processing and underground exploration and mining proposed to operate 24 hours a day, 7 days a week during full operations. Following completion of mining and processing activities, the project sites would be reclaimed to open space and land suitable for future development of industrial uses. Generally, the proposed project would include the following components:

- Dewatering the existing underground mine workings;
- Underground mining at a depth of 500 feet or more in areas underlying the mineral rights properties;
- Construction and operation of aboveground processing and water treatment facilities at the Brunswick Industrial Site;
- Engineered fill placement for potential future industrial pad development at the Centennial and the Brunswick Industrial Sites;
- Installation of a potable water pipeline for residential potable water supply; and
- Reclamation of the project sites in accordance with a proposed Reclamation Plan.

The majority of the aboveground facilities, access to the underground mining, and a portion of the engineered fill would be located on the Brunswick Industrial Site. The aboveground facilities would be located within a 29-acre industrial area that would include but not be limited to, a headframe building around the existing concrete silo used to hoist rock from the Brunswick shaft; covered conveyor system used to transport a) barren rock to a truck hauling area within an adjacent enclosed building, and b) gold concentrate to the processing plant; a processing plant to grind rock and recover gold minerals through various processes; and other appurtenant structures such as office and warehouse space. An above-ground water treatment plant would also be built at the Brunswick Industrial Site to treat groundwater associated within initial and ongoing



(“maintenance”) dewatering of the underground mine workings. A new aboveground pipe would convey treated water from the water treatment plant along an existing dirt road to the planned discharge point at South Fork Wolf Creek. The pipe and discharge point are located entirely within the property boundaries.

Engineered fill generated by the proposed mining activities would be placed on approximately 31 acres of the Brunswick Industrial Site to create a level pad of approximately 21 acres for potential future industrial use. In total, up to approximately 60 acres of the 119-acre site could be subject to surface disturbance and/or development for the aboveground facilities and fill placement. The remaining 59 acres would remain undeveloped and would not be subject to surface disturbance or infrastructure improvements.

Engineered fill would also be placed on the Centennial Industrial Site, provided that the separate DTSC cleanup project has been approved and completed on the Centennial Industrial Site. In that case, engineered fill would be transported by truck from the Brunswick Industrial Site and placed on approximately 44 acres of the Centennial Industrial Site to create approximately 37 acres for potential future industrial use. The remaining approximately 12 acres would remain as a private driveway for site access and open space. The open space area would include Wolf Creek, a 100-foot setback for riparian area on Wolf Creek, and an undisturbed area providing protection for identified special-status plant species.

After full placement of fill at the Centennial and Brunswick Industrial Sites to the pad design elevations, the need for hauling of engineered fill would continue due to ongoing mining over the Use Permit term of 80 years, and thus, hauling would shift entirely to local and regional markets for sale as construction aggregate and fill. If the separate DTSC cleanup project is not approved by DTSC and completed within the term of the Idaho Maryland Mine Project use permit, engineered fill would be placed on the Brunswick site, but not the Centennial site, and the remainder would be hauled to local and regional markets.

A buried potable water pipeline would be constructed as part of the proposed project to provide water to residences along a portion of East Bennett Road. The pipeline would extend an existing NID potable water pipeline along an approximately 1.25-mile segment of East Bennett Road to provide potable water service to residential properties currently on wells that may be affected by the project’s dewatering of the mine. NID would be the water supplier for the potable water service.

1.3 APPROACH TO CENTENNIAL INDUSTRIAL SITE BASELINE

According to the CEQA Guidelines Section 15125(a), “An EIR must include a description of the physical environmental conditions in the vicinity of the project. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.” Notably, the purpose of this requirement, “...is to give the public and decision makers the most accurate and understandable picture practically possible of the project’s likely near-term and long-term impacts.”

The CEQA Guidelines, and the courts, have noted that in some situations, the physical conditions existing at the time the environmental analysis commences (e.g., for an EIR, the Guidelines describe this as publication of the Notice of Preparation [NOP]) do not always provide the most accurate and understandable picture practically possible of the project’s likely impacts. For example, Guidelines Section 15125(a)(1) states that, “...where necessary to provide the most accurate picture practically possible of the project’s impacts, a lead agency may define existing



conditions by referencing historic conditions, or conditions expected when the project becomes operational, or both, that are supported with substantial evidence.”

Similarly, in *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439 (*Neighbors for Smart Rail*), the Supreme Court stated, “...we note that in appropriate circumstances an existing conditions analysis may take account of environmental conditions that will exist when the project begins operations; the agency is not strictly limited to those prevailing during the period of EIR preparation. An agency may, where appropriate, adjust its existing conditions baseline to account for a major change in environmental conditions that is expected to occur before project implementation.” This is different than use of a future baseline, a subject dealt with in both the CEQA Guidelines Section 15125(a)(2) and *Neighbors for Smart Rail*. A future baseline is understood to be a point in time beyond the date of project operations, as was the case in *Neighbors for Smart Rail*.

For the following reasons, the environmental baseline for the Centennial Industrial Site has been adjusted to be consistent with date-of-project implementation for several CEQA topics, as further discussed below. As noted by the court, “...such a date-of-implementation baseline does not share the principal problem presented by a baseline of conditions expected to prevail in the more distant future following years of project operation - it does not omit impacts expected to occur during the project’s early period of operation.”

- In 2005, the Environmental Protection Agency (“EPA”) identified the Centennial Industrial Site as potentially needing some level of environmental remediation due to historic mining operations that occurred prior to Rise’s ownership of the site, and in 2018, the EPA confirmed that environmental remediation was necessary.
- Rise Grass Valley Inc. entered into a Voluntary Cleanup Agreement (VCA; Docket No. HSA-FY18/19-014) with the Department of Toxic Substances Control (DTSC) for the voluntary cleanup of soil contamination on the Centennial Industrial Site.
- Generally, the contamination is a result of use of the Centennial Site for deposition of tailings and waste rock associated with the former Idaho-Maryland Mine, northeast of the site (across what is now Centennial Drive/Whispering Pines Lane). A 20-stamp mill was erected near the main Idaho Shaft (east of the Centennial Site) circa 1920. Crushed ore from the mill was treated with mercury for gold recovery. The resulting sand slurry (mercury-treated tailings) were deposited in an unlined gully along the eastern Centennial Site boundary and is referred to in the Remedial Action Plan (RAP) and associated documents as the Eastern Tailings Pond. A ball mill was constructed near the stamp mill in 1936, and cyanide was used to recover gold from the crushed ore. The cyanide was reportedly recovered in a “scrubber” system and reused. The resulting sand slurry (cyanide-treated tailings) were deposited in an unlined pond with mine waste rock berms in the northwestern portion of the site adjacent to Wolf Creek. The newer, cyanide-treated tailings pond is designated as the Western Tailings Pond within the RAP and associated documents.
- Extensive site investigation, overseen by DTSC, has identified mill tailings, waste rock and affected soil at the site that contain lead, arsenic, mercury and other metals at concentrations exceeding background soil metals concentrations and regulatory benchmark concentrations. Elevated soil metals concentrations present a potential human health risk resulting from routine, long-term exposures, as well as ecological concerns in terms of impacts to plant and animal species.



- A Centennial Industrial Site Remedial Action Plan has been prepared by NV5, on behalf of Rise, and describes the proposed procedures for conducting remedial activities needed to meet Remedial Action Objectives (RAO's).¹ The RAOs are intended to specify contaminants and media of concern, potential exposure pathways, and remediation goals for commercial/industrial land use. The remediation goals are acceptable exposure levels that are protective of human health and the environment and do not conflict with applicable, relevant and appropriate requirements (ARARs) under federal and state environmental law.
- The remedial action under environmental review by DTSC is known as "Stabilization and On-Site Placement Under Land Use Controls". Generally, the remedial action is intended to reduce the potential for routine contact with soil having elevated metals concentrations, and to reduce the potential for leaching and erosion, by excavation, consolidation on-site at a designated location, capping with clean engineered fill, and establishment of land use controls. Numerous health, safety, and environmental protection measures to limit the risk of exposure during excavation and placement of the contaminated soils will be a part of the remedial action effort. These measures are outlined in the RAP and will be finalized as part of the RDIP and include:
 - Health & Safety Plan;
 - Dust Monitoring Plan;
 - Verification Sampling and Analysis Plan;
 - Groundwater Monitoring and Reporting Plan; and
 - Operation and Maintenance Plan

Regarding the Verification Sampling and Analysis Plan, it is noted that at locations of remedial excavation, post-excavation sampling and analysis are required to verify that the underlying materials are acceptable for the intended land use (commercial and industrial).

- More specifically, the remedial action includes excavation of soils within the former eastern and western tailing ponds and on-site consolidation of contaminated materials, as well as stabilization of contaminated materials within a small hot spot area by cement treatment prior to on-site consolidation. Stabilization includes mixing Portland cement with hot spot contaminated soils in the designated consolidation area to prevent potential water quality impacts. Other contaminated soils from the former tailing ponds that do not pose potential water quality impacts will be placed within the consolidation area as engineered fill without cement treatment. The 5.6-acre consolidation area would be located along the eastern boundary of the Centennial Industrial Site and capped with four feet of clean engineered soil, with the end result being an engineered fill pad.
- The excavation areas would be backfilled and regraded with clean fill to promote drainage, and erosion controls would be installed. The engineered fill pad would be graded so that runoff would drain away from the fill slope into surface and subsurface drainage controls.
- Following completion excavation, stabilization, and placement activities disturbed areas will be hydroseeded or broadcast seeded with an erosion-control native seed mix to reduce erosion and maintain fill slope stability.
- Separate CEQA review of the RAP is being conducted with DTSC as the CEQA lead agency. DTSC released the CEQA document (Initial Study/Mitigated Negative Declaration [MND]) for the "Centennial M1 Property Clean-Up Project Remedial Action Plan" project, SCH# 2021070473) for public review on July 26, 2021. The IS/MND identifies mitigation

¹ NV5. *Draft Final Remedial Action Plan, Centennial M-1 Property*. January 25, 2021.



measures with which Rise, as the property owner responsible for implementing the Centennial M1 Property Clean-Up Project Remedial Action Plan (Centennial Clean-Up Project) would need to comply, prior to and during remedial activities associated with the RAP, that would ensure that physical impacts to the environment are mitigated to a less-than-significant level.

Thus, substantial evidence exists to support adjusting the environmental baseline for Centennial Industrial Site to use the above-described post-remediation condition instead of existing conditions at the Centennial Industrial Site. Such adjustments will give the public and decision makers the most accurate and understandable picture of the Idaho Maryland Mine project's impacts for certain resource topics affected by landform alteration/soil disturbance activities, as discussed in the bullets below. For evaluation of other resource topics, the environmental baseline is existing conditions at the Centennial Industrial Site as those resource evaluations are less dependent on landform/soil disturbance. The environmental baseline for all other project components, including construction and operations at the Brunswick Industrial Site use existing conditions as the environmental baseline. Thus, the use of a future post-remediation environmental baseline is limited to the Centennial Industrial Site and resources as discussed below.

- **Aesthetics:** The separate soil cleanup activity on the Centennial Industrial Site carried out pursuant to DTSC oversight (discussed in Section 1.4 below ["Centennial Clean-Up Project"]), would be completed before implementation of project-related activities at the Centennial Industrial Site, and would result in removing the contaminated surface soils, trees, and other vegetation on a large portion of the property and creating an elevated pad area where the consolidated soil would be collected and capped. Therefore, for the purposes of the aesthetics analysis, the environmental baseline for the Centennial Industrial Site has been adjusted to be consistent with reasonably anticipated conditions following completion of the DTSC cleanup project.
- **Agriculture and Forestry Resources:** The separate Centennial Clean-Up Project would be completed before implementation of project-related activities at the Centennial Industrial Site and would result in the loss of forestry resources. Therefore, for the purposes of the analysis of forestry resources, the environmental baseline for the Centennial Industrial Site has been adjusted to reflect the reasonably anticipated conditions of the site following the remediation activities (CEQA Guidelines Section 15125(a)).
- **Biological Resources:** The separate Centennial Clean-Up Project would be completed before implementation of project-related activities at the Centennial Industrial Site and would result in the alteration and/or removal of certain habitats capable of supporting special-status species. Therefore, for the purposes of the analysis of biological resources, the environmental baseline for the Centennial Industrial Site has been adjusted to reflect the reasonably anticipated conditions of the site following the remediation activities (CEQA Guidelines Section 15125(a)).
- **Hazards and Hazardous Materials:** The separate Centennial Clean-Up Project would be completed before implementation of project-related activities at the Centennial Industrial Site and would result in elimination of Recognized Environmental Conditions associated with the Centennial Industrial Site. Therefore, for the purposes of the analysis of hazards,



the environmental baseline for the Centennial Industrial Site has been adjusted to reflect the reasonably anticipated conditions of the site following the remediation activities (CEQA Guidelines Section 15125(a)).

- **Wildfire:** The separate Centennial Clean-Up Project would be completed before implementation of project-related activities at the Centennial Industrial Site and would reduce on-site vegetation fuel sources. Therefore, for the purposes of the analysis of wildfire, the existing conditions environmental baseline for the Centennial Industrial Site has been adjusted to reflect the reasonably anticipated conditions of the site following the remediation activities (CEQA Guidelines Section 15125(a)).

1.4 INDEPENDENT UTILITY

California courts have considered distinct activities as one CEQA project and required them to be reviewed together only in two situations: 1) When the purpose of the project under review is to provide the necessary first step toward a larger development; and 2) When development of the project under review requires or presumes completion of another activity. (*Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 CA4th 1209, 1223).² In *Banning Ranch*, the court upheld an EIR for a park and access road project against a claim that a proposed residential development that would also use the access road should have been treated as part of the park project. The court concluded that, even though the residential project was foreseeable and the access road would benefit it, the residential project could not be viewed as a “consequence” of the access road. Although the park project in *Banning Ranch* would further the residential project in a limited way, (by providing access), it was not proposed to induce the residential project, and it did not include any steps, such as rezoning, that would amount to an approval for that project.

While the Centennial and Brunswick Industrial Site properties are owned by the same entity and related such that the Centennial Industrial Site is analyzed for the potential deposition of waste rock from the Idaho-Maryland Mine Project, the majority of project mining operations would occur at the Brunswick Industrial Site. Brunswick Industrial Site mining-related activities, such as initial mine dewatering and treatment, exploration, blasting, and waste rock stockpiling, could commence prior to completion of the separate Centennial Clean-Up Project. There is sufficient flexibility in the project design such that waste rock could first be deposited at the Brunswick Industrial Site, if necessary, until such time that the Centennial Clean-Up Project is complete and a No Further Action Letter is issued by DTSC. This EIR also anticipates that waste rock from the Brunswick Industrial Site could also be sold as engineered fill to local and regional markets to be used as aggregate in roadway and construction projects. Consequently, the Idaho-Maryland Mine Project can proceed independently from the Centennial Clean-Up Project, even if the Centennial Clean-Up Project is not completed within the term of the mining permit, in which case, material from the Idaho-Maryland Mine Project would not be placed on the Centennial Industrial Site.

The utility and purpose of the Centennial Clean-Up Project is to ensure timely and efficient cleanup of the Centennial Industrial Site due to existing site conditions, and is required under both California and federal environmental regulations—not because it would benefit the Idaho-Maryland Mine Project. Similar to the holding of *Banning Ranch*, the Centennial Clean-Up Project would happen whether or not an underground mine is approved by Nevada County for the Brunswick Industrial Site. As stated above, the Centennial Industrial Site was identified by the

² The reader may also refer to Stephen L. Kostka and Michael H. Zischke, *Practice Under the California Environmental Quality Act, Second Edition (Continuing Education of the Bar: California)*, March 2020, Section 12.10.



EPA for cleanup purposes long before Rise purchased either the Centennial or Brunswick properties, and long before the Idaho-Maryland Mine Project was proposed. Consequently, under the holding in *Banning Ranch*, the Centennial Clean-Up Project should be analyzed separately from the Idaho-Maryland Project under CEQA. (See *Banning Ranch*, at 1223-1224.)

The utility and purpose of the Idaho-Maryland Mine Project is to allow for exploration and development of underground natural resources, and does not help nor hinder the environmental cleanup of the Centennial Industrial Site. While it may be suggested that the Centennial Clean-Up Project, were it to be successfully completed, could benefit the Idaho-Maryland Mine Project in a limited way (i.e., serving only as a waste rock stockpile location), similar to the court's ruling in *Banning Ranch*, the Idaho-Maryland Mine Project would not be a "consequence" of the Centennial Clean-Up Project, as the Idaho-Maryland Mine Project can proceed without completion of the Clean-Up project.

Based on the above, the operation of the Idaho-Maryland Mine carried out at the Brunswick Industrial Site can be implemented independently from the completion of the Centennial Clean-Up Project. If the Centennial Industrial Site is successfully cleaned up, then it would be used for the limited purpose of engineered fill placement.

1.5 EIR PROCESS

The EIR process begins with the decision by the lead agency to prepare an EIR, either during a preliminary review of a project or at the conclusion of an Initial Study. Once the decision is made to prepare an EIR, the lead agency sends a NOP to appropriate government agencies and, when required, to the State Clearinghouse (SCH) in the Office of Planning and Research (OPR), which will ensure that responsible and trustee State agencies reply within the required time. The SCH assigns an identification number to the project, which then becomes the identification number for all subsequent environmental documents on the project. Commenting agencies have 30 days to respond to the NOP and provide information regarding alternatives and mitigation measures they wish to have explored in the Draft EIR and to provide notification regarding whether the agency will be a responsible agency or a trustee agency for the project. An NOP (see Appendix A) was prepared for the proposed project and circulated from July 17, 2020 through August 17, 2020. A public scoping meeting was held on July 27, 2020 for the purpose of informing the public and receiving comments on the scope of the environmental analysis to be prepared for the proposed project. See Section 1.8 below for a summary of comments received on the NOP.

As soon as the Draft EIR is completed, a Notice of Completion will be filed with the SCH and a public notice of availability will be published to inform interested parties that a Draft EIR is available for agency and public review. In addition, the notice provides information regarding the location of copies of the Draft EIR available for public review and any public meetings or hearings that are scheduled. The Draft EIR will be circulated in accordance with CEQA Guidelines, during which time reviewers may make comments. The lead agency must respond to comments in writing, describing the disposition of any significant environmental issues raised and explaining in detail the reasons for not accepting any specific comments concerning major environmental issues. During the Draft EIR public review period, a public meeting will be held before the Planning Commission in order to receive verbal comments on the Draft EIR.

Following the Draft EIR comment period and the County's consideration of comments, a Final EIR will be prepared, containing comments and responses to comments on the Draft EIR. The Final EIR will also include any changes to the Draft EIR text made as a result of public comment.



Before approving a project, the lead agency shall certify that the Final EIR has been completed in compliance with CEQA, and that the Final EIR has been presented to the decision-making body of the lead agency, which has reviewed and considered the EIR. The lead agency shall also certify that the Final EIR reflects the lead agency's independent judgment and analysis.

The findings prepared by the lead agency must be based on substantial evidence in the administrative record and must include an explanation that bridges the gap between evidence in the record and the conclusions required by CEQA. If the decision-making body elects to proceed with a project that would have significant unavoidable impacts, then a Statement of Overriding Considerations explaining the decision to balance the benefits of the project against unavoidable environmental impacts must also be adopted.

1.6 SCOPE OF THE EIR

An Initial Study has not been prepared for the proposed project, as the EIR addresses all CEQA-required environmental topics identified in Appendix G of the CEQA Guidelines. The following environmental issue areas are addressed in the EIR:

- Aesthetics;
- Agriculture and Forestry Resources;
- Air Quality, Greenhouse Gas Emissions, and Energy;
- Biological Resources;
- Cultural and Tribal Cultural Resources;
- Geology, Soils, and Mineral Resources;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Population and Housing;
- Noise and Vibration;
- Public Services and Utilities;
- Transportation; and
- Wildfire.

The evaluation of effects is presented on a resource-by-resource basis in Chapters 4.1 through 4.13 of the EIR. Each chapter is divided into the following four sections: Introduction, Existing Environmental Setting, Regulatory Context, and Impacts and Mitigation Measures. Impacts that are determined to be significant in Chapters 4.1 through 4.13, and for which feasible mitigation measures are not available to reduce those impacts to a less-than-significant level, are identified as *significant and unavoidable*. Chapter 5 presents a discussion of growth-inducing impacts, a summary of cumulative impacts, and significant irreversible environmental changes associated with the project, as well as any significant unavoidable environmental changes associated with the project. Alternatives to the proposed project are discussed in Chapter 6 of the EIR.

1.7 NOTICE OF PREPARATION AND SCOPING

In accordance with CEQA Guidelines Section 15082, an NOP was circulated to the public, local, State and federal agencies, and other known interested parties for a 30-day public and agency review period on July 17, 2020 (included as Appendix A). The purpose of the NOP was to provide notification that an EIR for the proposed project was being prepared and to solicit public input on the scope and content of the document.



The NOP was circulated to agencies and the public from July 17, 2020 to August 17, 2020. In addition, pursuant to CEQA Guidelines Section 15082, Nevada County held a virtual NOP scoping meeting, due to COVID-19, during the 30-day review period, on July 27, 2020, for the purpose of presenting an overview of the NOP content and to subsequently solicit comments on the scope of the environmental analysis to be prepared for the proposed project. Comment letters were received during the NOP public review period from over 750 interested public agencies, persons and groups, and five comment letters were received after the NOP public review period. The comment letters are provided as Appendix B to this EIR. All comments were taken into consideration during the preparation of this Draft EIR. A summary of the NOP comments received is provided in Section 1.8 below.

1.8 COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

During the NOP public review period from July 17, 2020 to August 17, 2020, Nevada County received comment letters from over 750 interested public agencies, individuals and groups. A copy of each letter, along with the name, and if applicable, agency/organization, of each commenter, is provided in Appendix B of this EIR. The comment letters received during the NOP public review period were authored by representatives of public agencies and groups, as well as individual members of the general public.

The following list below in Table 1-1, categorized by issue, generally summarizes the concerns brought forth in the comment letters received on the scope of the EIR:

Table 1-1 Comments Received on the NOP	
<u>Aesthetics</u> (Chapter 4.1)	Concerns related to: <ul style="list-style-type: none"> • Impacts from development of the project site with industrial buildings, pipelines, driveways, etc. • Nighttime lighting at the mining site/light pollution; • Impacts to scenic vista along Brunswick Road; • Concerns that the project is inconsistent with the local topography; • Would the project leave surface areas deplete of vegetation? • Potential for adverse visual impacts related to: <ul style="list-style-type: none"> ○ Using tailings for future building pads; ○ The 80- to 90-foot-tall barren rock site on the Brunswick site; ○ Enclosing the old silo; ○ Construction of the 165-foot tall/six-story building; ○ The size of tailings piles; ○ Removal of woodlands.
<u>Agriculture and Forestry Resources</u> (Chapter 4.2)	Concerns related to: <ul style="list-style-type: none"> • Decline in forest health from reduced groundwater; • Noise may stress dairy cows and lead to reduced milk production; • Potential insect infestations due to stress of local forests; • Adjacent use of chemical reagents and impacts to organic agriculture; • The status of CalFire Timber Harvest permits.
<u>Air Quality, Greenhouse Gas Emissions, and Energy</u> (Chapter 4.3)	Concerns related to: <ul style="list-style-type: none"> • Potential for adverse health effects related to: <ul style="list-style-type: none"> ○ Emissions of carbon dioxide, carbon monoxide, asbestos,



	<ul style="list-style-type: none"> ○ mercury fumes, arsenic fumes, and exhaust; ○ Potential for increased respiratory illnesses; ○ Potential for cancer; ○ Emissions of silica dust/potential for silicosis, especially in those with asthma, COPD, and cystic fibrosis; ○ Impacts from friable asbestos in serpentine rock; ○ The HRA should encompass the entire 80-year lifetime of the project; ○ Students at Union Hill Elementary School; ○ Methane on miners; ○ Visitors at the Empire Mine recreation area; ● Increased air pollution as a result of increased traffic and diesel trucks; ● Odors from the water treatment plant on the Brunswick Industrial Site; ● Extent of pollution plume in static conditions versus windy conditions; ● Ammonium nitrate explosions on NO_x emissions; ● Impacts from the four industrial sized backup diesel generators and daily use of trucks, bulldozers, graders, and compactors; ● Dust-related impacts from truckload of crushed tailings; ● Impacts of PM that will be driven out of the mine by fans; ● PM analysis should address cumulative impacts including local and regional wildfire smoke; ● How will fugitive dust be minimized during high wind events? ● Increased emissions from idling cars after the addition of traffic signals; ● Acid rain from NO_x emissions; ● Enforcement of California Health and Safety Code Section 41700; ● Monitoring data from the Litton Building and Yuba City monitors are not representative of the project location; ● Emissions of sulfate, lead, and hydrogen sulfide; ● Project-related electricity usage on local utility capacity; ● GHG impacts/carbon footprint of mining operations; ● Request for the use of electric haul trucks; ● Climate change-related impacts caused by an increase in vehicular emissions and increased demand for electricity; ● CO₂ emissions from cement productions for backfilling the mine; ● Additional GHG emissions due to employee commutes; ● Removal of forested land on carbon sequestration; ● How would potential flooding of the meadow affect carbon and methane sequestration? ● Impacts to the PG&E power grid; ● Increased likelihood of power outages; ● Consistency with the Nevada County Energy Action Plan; ● Requests for an analysis of GHG emissions other than CO₂.
<p>Biological Resources (Chapter 4.4)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ● Potential adverse impacts to wildlife, including: <ul style="list-style-type: none"> ○ Birds; ○ Pine Hill flannelbush; ○ Yellow-breasted chat; ○ Olive-sided flycatcher;



	<ul style="list-style-type: none"> ○ Willow flycatcher; ○ Fish in Wolf Creek; ○ California red-legged frog; ○ Honeybee pollinators; ○ Benthic macroinvertebrates; ○ Black rail; ○ Yellow-legged frog; ○ Western pond turtle; ○ Cost-horned lizard; ○ Finger rush; ○ Townsend's big-eared bat; ○ Stebbins' morning glory; ○ Rainbow trout; ○ California horned lizard; ○ Western ridged mussel; ○ River otter; ○ Beaver; ○ Osprey; ● Potential adverse impacts to wildlife habitat, including: <ul style="list-style-type: none"> ○ Salmonoid spawning areas; ○ Mixed hardwood forest; ○ Wetland meadows; ○ South Fork Wolf Creek corridor; ○ McNab cypress woodlands; ○ Fremont cottonwood woodland; ○ Wolf Creek; ○ Bear River; ○ Yuba River; ○ Sacramento River; ○ Sacramento Delta; ○ San Francisco Bay; ○ NID canals; ○ Little Greenhorn Creek; ● Displacement of wildlife; ● Discharge of water on riparian habitat; ● Impacts to riparian trees; ● Potential changes to setbacks of streams and wetlands; ● Impacts to downstream aquatic resources; ● Destroying natural resources; ● Impacts related to an insufficient setback from Wolf Creek; ● Impacts of nitrate contamination on groundwater or surface water; ● Potential eutrophication of local watersheds; ● Acid mine drainage impacts on waterways; ● Dewatering impacts on water temperature, pH, nutrient concentrations, and turbidity; ● Development in open areas on animal vagility (ability to migrate); ● Impacts on community resilience; ● Changes in groundwater supply on Bennett Street Grasslands; ● Benthic macroinvertebrate uptake of heavy metals can lead to rapid contamination of the food web through biomagnification; ● Plants that uptake metals provide a pathway for contamination of the local food web.
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<p><u>Cultural and Tribal Cultural Resources</u> (Chapter 4.5)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> • Cultural, historical, or tribal cultural resources at the project site; • Project impact on the Round Hole Shaft; • Nevada County Historical Landmarks Commission designation of the mine as a Historic Landmark; • Engagement and involvement of local tribal leaders and community members; • Impacts to the cultural heritage and overall health of the local Nisenan Tribe.
<p><u>Geology, Soils, and Mineral Resources</u> (Chapter 4.6)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> • Effects of using seismic equipment within the project area; • The proximity to a known earthquake fault; • Seismic stability of underground tunnels; • Asbestos within serpentine rock; • Cumulative analysis of all associated earth tremors with other projects in the area; • Potential for sink holes; • Tailings storage on on-site soil health; • Structural stability of engineered fill made from mine tailings; • Potential for tailings piles to lead to landslides; • Potential settlement of structures; • Dewatering impacts on ground settlement; • Potential subsidence of surrounding residential and industrial areas; • Landfill/tailings piles must be designed to prevent seismically induced slope failure.
<p><u>Hazards and Hazardous Materials</u> (Chapter 4.7)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> • Potential for contamination resulting from: <ul style="list-style-type: none"> ○ Use of cyanide, lime, hydrochloric acid, mercury, methyl mercury; ○ Toxic chemical storage on-site; ○ Arsenic blooms and oil on Wolf Creek; ○ Chemical, oil, and engine cooling substance leaks; ○ Tailing storage on nearby properties; ○ Use of the reagents used as collectors, promoters, frothers, and flocculants; ○ The release of previously stable legacy toxicants; ○ Naturally-occurring contaminants released into the air and soil when mine rock is crushed; ○ Small drips and spills during fueling; ○ Potential hazards from mine tailings being left uncovered; • Impacts related to the storage of potentially harmful mine tailings; • Potential for contaminated soil; • The potential for an environmental accident; • Issues related to cleanup of the Centennial Site/Superfund Site; • Increase in hazards related to dangerous activities in underground mine shafts, including the use of explosives and rock crushers; • Potential hazards related to sink holes and abandoned mine shafts; • Potential hazards along school bus routes, particularly the Durham School Bus Transportation yard; • Impacts on Union Hill School;



	<ul style="list-style-type: none"> • Hazards related to the storage of a 30,000-gallon diesel tank on/near a known fault line; • Hazards related to transporting flammable substances in a fire-vulnerable community; • Details on on-site explosives storage and haul routes; • How will explosives be transported into Nevada County (i.e., trains, trucks, etc.)? • Would the 165-ft structure conflict with the Nevada County Airport approach area? • Impacts of particulate matter on aircraft engine filters; • Safety hazards to mine workers, including: underground gas leaks, black lung, etc. • Mine rescue teams and training will be required.
<p>Hydrology and Water Quality (Chapter 4.8)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> • Adverse impacts related to dewatering groundwater aquifer; • Lowering groundwater table/impacts to well water/concerns related to wells running dry; • Aquifer disruption and damage to the watershed; • Decrease in water quality; • Water pollution effects on both surface water (rivers and creeks) and groundwater; • Loss of hydraulic pressure that drives water flow throughout the project area; • Blasting may cause new breaks, which further drain away surface water and groundwater; • Potential violations of the Clean Water Act; • The extent of water consumption required for mining operations is not appropriate for the drought-prone project area; • Impacts of removing 815 million gallons of water; • Downstream erosion; • Potential spread of toxins in the case of a large flood; • Specific details of water treatment; • Potential for arsenic contamination in groundwater; • Efficacy of the filtration pond; • Will the pond be improved to meet modern standards? • Permeability of the clay-lined water treatment pond; • Will settling ponds lose efficacy during heavy rains? • Permeability of pond bottom; • Holding capacity and efficacy of the settling pond; • What is the backup plan for wastewater treatment during the wet season? • Redundant back-up energy generation must be in place to ensure that the water treatment remains fully operational during power outages; • What will happen to the residue from the pond? • Potential impacts to water reserves intended for fire protection? • The hydrology report and average rainfall estimates should consider climate change impacts; • Dewatering impacts on Banner Mountain and Greenhorn Area; • Erosion and siltation along Wolf Creek; • Compliance with the State Water Board agreement regarding Wolf Creek;



	<ul style="list-style-type: none"> • How would the project influence the 100-year floodplain adjacent to Wolf Creek? • How will runoff from on-site trucks and machinery be contained? • Potential contamination of groundwater; • Potential contamination of well water; • Mercury contamination; • Potential for radon to be emitted from sludge in the tailing pond; • Potential for ammonia nitrate fuel oil to pollute groundwater; • Levels of manganese, arsenic, lead, chromium, copper, aluminum, and zinc that would be in the effluent water; • Flooding risks for residents who live adjacent to Wolf Creek, downstream of the mine; • Water quality of the Upper Bear watershed; • Degradation of streambank stability; • Increased stormwater impacts to other surface water tributaries in the region; • Potential filter media plugging caused by the oxidation of iron and manganese; • Requests for inclusion of a water budget study; • Analysis of water use at the project site must include fire flow requirements and peak day demand for each metered connection; • Examine how long it would take to replenish groundwater depleted by the project over its 80-year lifespan, using different precipitation models and forecasts predicted by climate change.
<p>Land Use and Population and Planning (Chapter 4.9)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> • Changes in community character; • Many residences exist in the project area; • Project is inconsistent with the existing surrounding land use; • Mining is incompatible with the current residential land use; • Community displacement; • Would jobs be filled by non-local people? • Project consistency with the M1 zoning designation; • Cumulative impacts from the proposed rezone from M1-SP to M1-ME; • Abandonment of Ordinance 1853 regarding development of the Bohemia Mill site; • Potential loss of tourism; • Inconsistency with Grass Valley planning documents; • Subsurface mining is inconsistent with the surrounding urban environment; • Impacts related to housing availability for 200 outside workers; • Potential conflicts with the four central themes that articulate the vision for the development of the County pursuant to the General Plan; • Impacts to population and projected housing demand; • Changes to regional growth pattern; • Impacts to the airport; • Sierra Nevada Memorial Hospital, Nevada County Air Park, and parts of NID that have critical infrastructure located above the mineral rights boundary for Rise Gold might incidentally or accidentally be affected by blasting, tunneling, etc.?



	<ul style="list-style-type: none"> • Will the change of zoning to M1-ME cause reverse condemnation claims against the County? • Project generally inconsistent with the goals of the General Plan; • Impacts on open space within the Brunswick Basin;
<p>Noise and Vibration (Chapter 4.10)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> • Potential adverse effects from noise on: <ul style="list-style-type: none"> ○ Sleep quality; ○ Pets and wildlife; ○ Mental health; ○ Residences located above the mining tunnels; ○ People with seizure disorders; ○ Pregnant women; ○ Park visitors; ○ Nearby school; ○ Birds; • Increase in noise levels on surrounding residential areas; • Noise pollution from permitted underground blasting and operations of heavy equipment; • Noise impacts from crushing rock 24/7, including during nighttime hours; • Reduction of quiet enjoyment for residents; • Impacts of 200 to 400 truck trips per day on the ambient noise environment; • Back-up beepers; • Construction noise; • Vibration impacts on nearby residents; • Vibration impacts on high-tech companies; • Vibration impacts on nearby commercial businesses; • Requests for cumulative analysis of all operational noise in the area; • Requests for Cumulative noise analysis with other approved projects; • Noise impacts from noise reverberation off of freeway buffer walls; • Could blasting occur shallower than 500 feet? • Truck transport hours may conflict with typical City noise limits.
<p>Public Services and Utilities (Chapter 4.11)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> • Impact to local schools; • Potential increase in demand for police officers/police service; • Potential increase in demand for fire protection; • Potential increase in demand for emergency medical services; • Would the project provide funding to local schools, parks, or recreational facilities? • Infrastructure for purchased water is not yet in place for many homes that currently rely on well water; • How would new water infrastructure be provided to the homes that currently rely on well water? • Would improvements be provided to the potable water pipeline easement along East Bennett Road? • Increased risk of power disruption/power outages; • Current electricity infrastructure may not support energy demand from project;



	<ul style="list-style-type: none"> • Suggestions to install a new flow measuring station along Wolf Creek; • Is the existing road/trail suitable to hold the discharge pipeline?
<p>Transportation (Chapter 4.12)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> • Potential traffic-related impacts at/along: <ul style="list-style-type: none"> ○ E. Bennett Road and Brunswick Road intersection; ○ Brunswick Road and Loma Rica intersection; ○ Brunswick Road, East Bennett Road, and Whispering Pines Lane; ○ Idaho-Maryland Road and Brunswick Road intersection; ○ State Route 49/20 and Idaho-Maryland Road interchange; ○ State Route 49/20 and Brunswick Road interchange; ○ State Route 174 and Brunswick Road intersection; • General increased truck traffic; • The additional heavy traffic from commercial vehicles and mining employee commutes; • Increased wear/damage on rural roadways; • Transportation hazards related to the slope at the Brunswick and Whispering Pines Lane intersection; • Decrease in roadway safety; • How will local roadways be maintained? • Have plans been made for road maintenance and roadway improvements? • Increase in potholes; • Reduced efficacy of emergency evacuation routes; • Conflicts with emergency evacuation routes, particularly along East Main Street and Idaho Maryland Road; • Intersections along East Main Street and State Route 49/20 are currently overwhelmed/operate poorly; • Transportation impacts from moving engineered fill from the Brunswick Industrial Site to the Centennial Industrial Site; • Impacts of roadway closures; • Cumulative traffic impacts with buildout of the Loma Rica development; • Requests for analysis of cumulative traffic and traffic safety impacts over the 80-year lifetime of the project; • Would increased runoff in Wolf Creek influence the State Highway System, where Wolf Creek crosses State Route 20? • Increased roadway hazards from trucks carrying rocks, if rocks were to fly out and hit windshields; • Impacts to ingress and egress caused by truck traffic; • Potential conflict between the project and Grass Valley's plan to create a public trail along Wolf Creek/Idaho Maryland Road corridor; • Roadway safety during icy and/or snowy conditions; • Changes in bicycle safety from addition of heavy-duty trucks; • Pedestrian and cyclist safety impacts on E. Bennett, Greenhorn, and Brunswick roads.
<p>Wildfire (Chapter 4.13)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> • Increased risk of structure fire and wildfire; • Increased wildfire risk associated with on-site fuel storage; • Increased wildfire risk associated with increased electricity demand;



	<ul style="list-style-type: none">• Potential for dewatering to divert groundwater from surface vegetation, leading to dried vegetation and increased fire risk;• Installation of fire hydrants;• Impacts on FAIR Plan Fire Insurance for residents;• Fire hazards associated with tree removal.
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All of these issues, insofar as they are within the purview of CEQA (i.e., concerns related to physical impacts on the surrounding environment), are addressed in this EIR, in the relevant sections identified in the first column.

1.9 DRAFT EIR AND PUBLIC REVIEW

This Draft EIR is being circulated for public review and comment for a period of 60 days. During this period, the general public, organizations, and agencies can submit comments to the Lead Agency on the Draft EIR's accuracy and completeness. Release of the Draft EIR marks the beginning of a 60-day public review period pursuant to CEQA Guidelines Section 15105. The public can review the Draft EIR at the County's website at:

<https://www.mynevadacounty.com/3195/Idaho-Maryland-Mine---Rise-Grass-Valley>.

Comments may be submitted both in written form and/or orally at the public hearing on the Draft EIR. Notice of the time and location of the hearing will be published in local newspapers, mailed to property owners and residents surrounding the project, emailed to residents that have requested to be placed on the County's email notification list for the project, posted on the County's website, and posted at and adjacent to the site prior to the hearing. All comments or questions regarding the Draft EIR should be addressed to:

Matt Kelley, Senior Planner
Nevada County Planning Department
950 Maidu Avenue
Nevada City, CA 95959-8617
Idaho.MMEIR@co.nevada.ca.us
(530) 265-1423

1.10 ORGANIZATION OF THE DRAFT EIR

The Idaho-Maryland Mine Project EIR is organized into the following sections:

Chapter 1 – Introduction

The Introduction chapter provides an introduction and overview describing the intended use of the Draft EIR and the review and certification process, as well as summaries of the chapters included in the Draft EIR and summaries of the issues and concerns received from the public and public agencies during the NOP review period.

Chapter 2 – Executive Summary

This chapter summarizes the elements of the project and the environmental impacts that would result from implementation of the proposed project, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation. In addition, the Executive Summary includes a summary of the project alternatives and areas of known controversy.



Chapter 3 – Project Description

The Project Description chapter provides a detailed description of the proposed project, including the project's location, background information, objectives, and technical characteristics.

Chapter 4 – Environmental Setting, Impacts, and Mitigation

This chapter contains a project-level and cumulative analysis of environmental issue areas associated with the proposed project. The section for each environmental issue contains an introduction and description of the setting of the project site, identifies impacts, and recommends appropriate mitigation measures.

Chapter 5 – Statutorily Required Sections

The Statutorily Required Sections chapter of the EIR provides discussions required by CEQA regarding impacts that would result from the proposed project, including a summary of cumulative impacts, potential growth-inducing impacts, summary of impacts related to energy in accordance with Appendix F and G of the CEQA Guidelines, significant and unavoidable impacts, and significant irreversible changes to the environment.

Chapter 6 – Alternatives Analysis

The Alternatives Analysis chapter of the EIR describes and evaluates the alternatives to the proposed project. It should be noted that the alternatives will be analyzed at a level of detail less than that of the proposed project; however, the analyses will include sufficient detail to allow for a meaningful comparison of impacts.

Chapter 7 – References

The References chapter of the EIR provides bibliographic information for all references and resources cited.

Chapter 8 – EIR Authors and Persons Consulted

The EIR Authors and Persons Consulted chapter of the EIR lists EIR and technical report authors who provided technical assistance in the preparation and review of the EIR.

Appendices

The Appendices include the NOP, list of NOP commenters and copies of comment letters received during the NOP comment period, and all technical reports prepared for the proposed project.



2. EXECUTIVE SUMMARY

2. EXECUTIVE SUMMARY

2.1 INTRODUCTION

The Executive Summary chapter of the EIR provides an overview of the proposed project (see Chapter 3, Project Description, for further details) and provides a table summary of the conclusions of the environmental analysis provided in Chapters 4.1 through 4.13. This chapter also summarizes the alternatives to the proposed project that are described in Chapter 6, Alternatives Analysis, and identifies the Environmentally Superior Alternative. Table 2-1 contains the environmental impacts associated with the proposed project, the significance of the impacts, the proposed mitigation measures for the impacts, and the significance of the impacts after implementation of the mitigation measures.

2.2 SUMMARY DESCRIPTION OF THE PROPOSED PROJECT

The proposed project's surface components would be located on approximately 175.64 acres consisting of: the Brunswick Industrial Site, the Centennial Industrial Site, and a portion of East Bennett Road where a new potable water line would be installed. The project would also involve underground mining within an approximately 2,585-acre mineral rights boundary owned by the applicant. The potable water pipeline easement would be located within the existing right-of-way (ROW) of East Bennett Road.

The Centennial and Brunswick Industrial Sites are located within unincorporated western Nevada County and are owned by Rise Grass Valley (Rise). The 119-acre Brunswick Industrial Site (Assessor's Parcel Numbers [APNs] 006-441-003, -004, -005, -034; and 009-630-037, -039) is located southwest of the intersection of East Bennett Road and Brunswick Road, and is accessible from Brunswick Road or East Bennett Road). The 56.41-acre Centennial Industrial Site (APNs 009-550-032, -037, -038, -039, -040; and 009-560-036) is located southwest of the intersection of Idaho Maryland Road and Centennial Drive.

The much larger mineral rights boundary encompasses approximately 2,585 acres and generally contains properties surrounding the Brunswick and Centennial Industrial Sites, with the majority of additional land area located north of the Brunswick Industrial Site and east of the Centennial Industrial Site. This generally includes most of the Nevada County Airport and surrounding Air Park, as well as property along both sides of Brunswick Road, Greenhorn Road, and Idaho Maryland Road.

The project sites contain the historic Idaho-Maryland Mine underground gold mine. The mine produced 2,414,000 ounces of gold between 1866 and 1956. The mine has been inactive since closure in 1956, and was inactive for several periods during the 1866-1956 production period.

The proposed project would reinitiate underground mining and gold mineralization processing for the Idaho-Maryland Mine over an 80-year permit period. Following completion of mining and processing activities, the project sites would be reclaimed to open space and industrial uses. The following sections provide an overview of these general project components:



- Dewatering the existing underground mine workings;
- Construction and operation of aboveground processing and water treatment facilities at the Brunswick Industrial Site;
- Engineered fill placement for industrial pad development at the Centennial and Brunswick Industrial Sites;
- Installation of a potable water pipeline for residential potable water supply; and
- Reclamation of the project sites in accordance with the proposed Reclamation Plan.

The majority of aboveground facilities, the access to the underground mining, the treated-water outfall structure, and a portion of the engineered fill would be located on the Brunswick Industrial Site. The approximately 29-acre aboveground area would provide all the facilities and infrastructure necessary to support dewatering, water treatment, underground mining, gold mineralization and rock processing, and loading and transport off-site. An aboveground pipe would convey treated water from the water treatment facility along an existing road to the planned discharge point at South Fork Wolf Creek. The pipe and discharge point would be located entirely within the property boundaries. Engineered fill would be placed on approximately 31 acres of the Brunswick Industrial Site to create a level pad of approximately 21 acres for future industrial use. In total, up to approximately 60 acres of the 119-acre site could be subject to surface disturbance and/or development for the aboveground facilities and fill placement. The remaining 59 acres would remain as open space and would not be subject to surface disturbance or infrastructure improvements.

Engineered fill would also be placed on the Centennial Industrial Site, provided that the separate DTSC cleanup project has been approved and completed on the Centennial Industrial Site. Engineered fill would be transported by truck from the Brunswick Industrial Site and placed on approximately 44 acres of the Centennial Industrial Site to create approximately 37 acres for future industrial use. The remaining approximately 12 acres would remain as a private driveway for site access and open space. The open space area will include Wolf Creek, a 100-foot setback for riparian area on Wolf Creek, and an undisturbed area providing protection for identified special-status plant species. If the separate DTSC cleanup project is not approved and completed within the term of the Idaho Maryland Mine Project use permit, engineered fill would be placed on the Brunswick Industrial Site, but not the Centennial Industrial Site, and the remainder would be hauled to local and regional markets.

After full placement of fill at the Centennial and Brunswick Industrial Sites to the pad design elevations, engineered fill produced during ongoing mining over the remaining period of mining would be delivered to local and regional markets.

A buried potable water pipeline would be constructed as part of the proposed project to provide water to residences along a portion of East Bennett Road. The pipeline would extend an existing NID potable water pipeline along an approximately 1.25-mile segment of East Bennett Road to provide potable water service to residential properties currently on wells that may be affected by the project's dewatering of the mine.

Of the total 175 acres included in the project sites, approximately 104 acres would be disturbed as a result of construction of the facilities proposed to support dewatering, mining, and processing at the Idaho-Maryland Mine, as well as engineered fill placement. However, a substantial portion of the Centennial Industrial Site will be disturbed separately, during remediation activities pursuant to the Remedial Action Plan (RAP). The estimated area of disturbance due to remedial activities



is assumed to be 28 acres; however, this may be refined in coordination with California Department of Toxic Substances Control (DTSC) during the required pre-excitation sampling prior to onset of remediation.

The proposed project would require County approval of the following:

- **Rezone application** to rezone the parcels located at the Brunswick Industrial Site from M1-SP to Light Industrial with Mineral Extraction Combining District (M1-ME) to allow for surface mining facilities related to the underground mining operations, pursuant to the Nevada County Land Use and Development Code (LUDC), Section L-II 2.7.3;
- **Use Permit** for the following uses and facilities over the 80-year permit life:
 - Operation of pumps and a water treatment facility to dewater the underground mine workings;
 - Construction of a water pipeline to transport treated water to an outfall located in South Fork of Wolf Creek;
 - Construction of the necessary aboveground facilities at the Brunswick Industrial Site (to include but not limited to, headframes and hoists, surface structures, a mineral processing plant) to support underground mining and mineral processing;
 - Underground mining, including drilling, blasting, and gold mineralization removal;
 - Gold mineralization and rock processing at the Brunswick Industrial Site off-site transport of gold concentrate;
 - Transport of engineered fill from the Brunswick Industrial Site and placement at the Centennial Industrial Site;
 - Transport of engineered fill from the Brunswick Industrial Site to off-site construction project;
 - Placement of engineered fill at the Brunswick Industrial Site; and
 - Construction of a potable water pipeline to supply residences along a portion of East Bennet Road.
- **Reclamation Plan and Financial Assurance Cost Estimate** to reclaim project related surface disturbance to a condition suitable for industrial uses as allowed by Nevada County LUDC, Section L-II 2.5 – Industrial Uses, Table L-II 2.5 D – Light Industrial;
- **Variance to the Building Height Limits** to allow for the construction of several structures up to a height of 165 feet, where a maximum height of 45 feet is required, pursuant to the Light Industrial Zoning District (Nevada County LUDC, Section L-II 2.5 – Industrial Uses, Table L-II 2.5.E);
- **Management Plans** in order to accomplish the following:
 - Allow for development within the required 100-foot setback from the Riparian Area of a Perennial Watercourse, pursuant to the Nevada County LUDC, Section L-II 4.3.17, at the Brunswick and Centennial Industrial Sites;
 - Minimize the direct impact to special-status plant species, pursuant to the Nevada County LUDC, Section L-II 4.3.12, at the Centennial Industrial Site;
 - Allow development within locations of areas of steep slopes that are in excess of 30 percent and high erosion potential at both the Brunswick and Centennial Industrial Sites, pursuant to the Nevada County LUDC, Section L-II 4.3.13;



- Allow for development within a building setback fault zone at the Brunswick Industrial Site, pursuant to the Nevada County LUDC, Section L-II 4.3.8; and
 - Allows limited grading within the County’s 100-foot buffer from the Wolf Creek 100-year floodplain boundary, subject to mitigations and conditions that must be complied with to ensure that the operations at the Centennial Industrial Site would not result in adverse effects to the 100-year floodplain associated with Wolf Creek.
-
- **Amendment to the Final Map for Bet Acres** recorded in February 1987 in Book 7 of Subdivision Maps at Page 75 to remove the “200’ Building Setback From Fault”, as shown on Sheet 4 of Final Map #85-7. The geotechnical support for removing this setback is provided in Chapter 4.6, Geology, Soils, and Mineral Resources.

 - **Boundary Line Adjustment** to transfer approximately 46.27 acres for three separate parcels (APN: 009-630-039, 006-441-034, 006-441-003) to reconfigure the property lines to resolve an issue of the proposed buildings crossing property lines at the Brunswick Industrial Site.

In addition, a number of other agency permits, beyond those required by the lead agency, would be required for the proposed project.

Please refer to Chapter 3, Project Description, of this EIR for a detailed description of the proposed project and entitlements, as well as a full list of the project objectives.

2.3 ENVIRONMENTAL IMPACTS AND PROPOSED AND RECOMMENDED MITIGATION

Under CEQA, a significant effect on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, mineral, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Mitigation measures must be implemented as part of the proposed project to reduce potential adverse impacts to a less-than-significant level, when feasible. Such mitigation measures are noted in this EIR and are found in the following technical chapters: Aesthetics; Air Quality, Greenhouse Gas Emissions, and Energy; Biological Resources; Cultural and Tribal Cultural Resources; Geology, Soils, and Mineral Resources; Hazards and Hazardous Materials; Hydrology and Water Quality; Noise and Vibration; Transportation; and Wildfire. The mitigation measures required for the proposed project, as presented in this EIR, will form the basis of the Mitigation Monitoring and Reporting Program. Any impact that remains significant after implementation of mitigation measures is considered a significant and unavoidable impact.

In Table 2-1, provided at the end of this chapter, a summary of the proposed project’s impacts are identified for each technical chapter (Chapters 4.1 through 4.13) of the EIR. In addition, Table 2-1 includes the level of significance of each impact, any mitigation measures required for each impact, and the resulting level of significance after implementation of mitigation measures for each impact.

2.4 SUMMARY OF PROJECT ALTERNATIVES

The following section presents a summary of the evaluation of the alternatives considered for the proposed project, which include the following:



- Alternative 1: No Project (No Build) Alternative;
- Alternative 2: Elimination of Centennial Industrial Site;
- Alternative 3: Expansion of Centennial Engineered Fill Pile and Elimination of Brunswick Engineered Fill Pile; and
- Alternative 4: Reduced Throughput.

For a more thorough discussion of project alternatives, please refer to Chapter 6, Alternatives Analysis.

Alternative 1: No Project (No Build) Alternative

The No Project (No Build) Alternative assumes that the Brunswick Industrial Site would remain in its current condition and would not be further developed. The Brunswick Industrial Site could be developed consistent with permitted and discretionary uses outlined in the properties land use and zoning designations. The alternative also assumes that the Centennial Industrial Site will be separately remediated under DTSC oversight, but otherwise remain undeveloped. The No Project (No Build) Alternative would not meet any of the project objectives.

Alternative 2: Elimination of Centennial Industrial Site

The project proposes to transport and place approximately 1,600,000 tons of engineered fill at the Centennial Industrial Site in order to create 31 acres of flat usable industrial land at that site. The Centennial Industrial Site could be excluded from the proposed project as the equivalent amount of engineered fill could be placed by increasing the height of the planned engineered fill area at the Brunswick Industrial Site.

This alternative would eliminate the Centennial Industrial Site, and any related impacts, entirely from the IMM Project. The indirect economic benefit from the creation of 52 acres of flat industrial land would be lost (31 acres of flat industrial land at the Centennial Industrial Site and 21 acres at the Brunswick Site – Brunswick acreage included here because the final pad configuration under this alternative would not be conducive to future development).

Project Objectives 1 through 7 and 10 would be achieved with this alternative and operating costs decreased due to the elimination of trucking from the Brunswick to Centennial Industrial Site. Project Objectives 8 and 9, related to increasing usable land for future industrial use at the Centennial and Brunswick Industrial Sites, respectively, would not be achieved.

The design of the engineered fill pad at Brunswick Industrial Site slopes from a final elevation of approximately 2,830 ft msl at the hillside to an elevation of 2,820 ft msl at the crest of the pad. The engineered fill pad at the Brunswick Industrial Site is designed to maximize usable area after construction. Alternative 2 would continue placing fill within the existing footprint to an elevation of ~2,880 ft msl. The placement of this additional fill would add additional volume of approximately 30 million ft³, or approximately 1.7 million tons, and allow for the replacement of storage lost from the elimination of the Centennial Industrial Site. The additional fill would have an area at the base elevation at 2,830 ft msl of approximately 18.5 acres and at the top 2,880 ft msl elevation of approximately 6.5 acres. The fill pad may be more visible through the buffer of trees from nearby properties but would still be below the elevation of residences on neighboring properties. The trees screening public views of the property from Brunswick Road would remain and obscure the visibility of the expanded fill pile from the roadway. The intensity of activity related to construction of the larger engineered fill pad under this Alternative would not increase, but the duration of the



activity would be lengthened due to the increase in material volume. Other aspects of the proposed project would remain unchanged.

Alternative 3: Expansion of Centennial Engineered Fill Pile and Elimination of Brunswick Engineered Fill Pile

The proposed project includes the placement of approximately 2,200,000 tons of engineered fill at the Brunswick Industrial Site in order to create 21 acres of flat usable industrial land at that site. The equivalent amount of engineered fill could be placed by increasing the height of the planned engineered fill area at the Centennial Industrial Site.

Alternative 3 would eliminate the engineered fill pile at the Brunswick Industrial Site, and any related impacts, from the proposed project, while the Centennial engineered fill pile would be higher with reduced usable area. The indirect economic benefit from the creation of 19 acres of flat industrial land would be lost. (18 acres of flat industrial land in alternate plan versus 31 acres in base plan at the Centennial Industrial Site and 15 acres of flat industrial land in alternate plan versus 21 acres in base plan at the Brunswick Industrial Site).

This alternative would fully meet Project Objectives 1 through 7 and 10; however, operating costs would increase due to the additional trucking from the Brunswick to Centennial Industrial Site. Project Objectives 8 and 9, related to increasing usable land area at the Centennial and Brunswick Industrial Sites to allow future industrial use, while being met with this alternative, would be better met by the proposed project. This is because the proposed project would create 31 acres of land suitable for future industrial use at Centennial, whereas this alternative would create 18 acres. Similarly, the project would create 21 acres of land suitable for future industrial use at Brunswick, whereas this alternative would create 15 acres.

The design of the engineered fill pad at Centennial Industrial Site slopes from a final elevation of approximately 2,560 ft msl at the east side to an elevation of 2,520 ft msl at the west side. The engineered fill pad at the Centennial Industrial Site is designed to maximize usable area after construction. The Alternative 3 plan would continue placing fill within the existing footprint to an elevation of approximately 2,580 ft msl. The placement of this additional fill would add additional volume of approximately 41 million ft³, or approximately 2.3 million tons, and allow for the replacement of storage lost from the elimination of the fill pile at Brunswick Industrial Site. The additional fill would have an area at the top 2,580 ft msl elevation of approximately 17.8 acres.

Alternative 4: Reduced Throughput

A reduced throughput alternative would reduce the proposed mine's production of 1,000 tons per day (365,000 tons per year) of gold mineralization to 500 tons per day (182,500 tons per year) of gold mineralization. The underground mining methods and aboveground production methods and facilities would remain substantially similar. Some reductions in equipment type, size, and numbers may occur but it would not result in a substantially different footprint than the proposed project. The life of the mine would be extended from 80 years to between 130-160 years to accommodate reduced daily and annual tonnage and still allow the underground resources to be fully developed. In addition, the proposed industrial pad development on both the Centennial and Brunswick Industrial Sites would still be constructed as proposed but it would take approximately double the amount of time, from 5-6 years to 10-12 years, for each stockpile area to reach the proposed design capacities and elevations.



This alternative may be inconsistent with several policies of the General Plan as identified below:

Policy 17.9: Encourage the mining of previously mined land, if such land still contains economically mineable minerals, so the land can be reclaimed for alternative uses.

As discussed above, this alternative delays how quickly the land can be reclaimed to a condition suitable for an “alternative use” of industrial by extending the construction of the industrial pads on both the Centennial and Brunswick Industrial Sites and extending the overall life of the project.

Policy 17.10: Consider the socio-economic impacts associated with proposed mining operations.

As discussed below, extending the life of the project affects the economics and ability to finance the project which may impact implementation of this project including the number of jobs, sales, property, and payroll taxes, and land value.

This alternative would fully meet Project Objectives 2 through 6, and 8 through 10. Project Objective 1 would not be met by this alternative. Based on the deposit, project’s location and land use constraints, market conditions, and various other factors, the project’s proposed 1,000 tons per day production level was identified as an optimum operating level. A substantial reduction in throughput would not meet Project Objective 1 and would change the project’s economics and ability to be financed. This would impact the number of employees hired (Project Objective 7),¹ the speed at which capital improvements could be made, and extend the life of the project. In addition, this would significantly delay rehabilitating the Centennial Industrial Site and increasing the usability of the Brunswick Industrial Site to a future use of industrial.

Environmentally Superior Alternative

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, “If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.” The No Project (No Build) Alternative would be considered the environmentally superior alternative, because the project site is assumed to remain in its current condition under the alternative. Consequently, the impacts resulting from the proposed project would not occur under the Alternative.

Based on the preceding alternatives analysis, the No Project (No Build) Alternative would be the environmentally superior alternative. Under this Alternative, the mine would not be operated at the Brunswick Industrial Site, and as a result, engineered fill would not be hauled to the Centennial Industrial Site. In general, no significant project-related impacts to the physical environment would occur under this Alternative. Given that the environmentally superior alternative would be the “no project” alternative, another alternative must be selected to be the environmentally superior alternative. Based on the preceding analysis, and a comparison of the alternatives in Table 6-1, it can be concluded that Alternative 2, Elimination of Centennial Industrial Site, would reduce the greatest number of project impacts. The EIR determined that the proposed project would result in

¹ Project Objective 7 reads as follows: “Provide jobs that provide a fair living wage for educated and skilled workers.” This objective would be partially met by this alternative, given that it would still create provide jobs that provide a fair living wage.



significant environmental impacts to 10 CEQA resource categories/topics. Alternative 2 would reduce the project's significant environmental impacts in nine of the 10 categories. Alternatives 3 and 4 would not reduce as many impacts, and in two cases, impacts would be greater when compared to the proposed project. For these reasons, Alternative 2 would be considered the environmentally superior alternative. The main objectives of the project would be achieved with this alternative, as follows:

- Construct a commercially viable, financeable, major underground gold mine operation that will produce 1,000 tons per day (365,000 tons per year) of gold mineralization.
- Locate the project on property that Rise Grass Valley, Inc. owns that provides an existing access to the underground workings.
- Utilize existing underground access points to limit new aboveground and underground surface disturbance.
- Locate the facilities necessary to support dewatering, mining, and processing on land historically disturbed and zoned for similar industrial type uses.
- Locate the majority of project facilities within a large property holding to provide buffer areas and minimize the potential for adverse environmental effects on neighboring properties.
- Provide property owners along East Bennett Road, an area currently with no service from the Nevada Irrigation District (NID) and using groundwater from wells, a reliable and clean potable water source from the NID.
- Provide jobs that provide a fair living wage for educated and skilled workers.
- Minimize impacts to wetlands, vernal pools, and other special-status species habitat located on the property and, to the extent feasible, mitigate any such impacts identified.

2.5 AREAS OF KNOWN CONTROVERSY

Areas of controversy that were identified in NOP comment letters, and are otherwise known for the project area, include, but are not limited to, the following:

- Change in aesthetics, including effects associated with lighting, topography, vegetation, the scenic vista along Brunswick Road, and the height of development on the site;
- Effects of project operations on local agricultural operations;
- Increased air pollution and greenhouse gas emissions;
- Increased odors and dust;
- Explosion potential;
- Acid rain potential;
- Increase in electricity usage;
- Impacts to wildlife and wildlife habitat;
- Impacts to historical resources;
- Impacts to the local Native American tribes and their resources;
- Seismic stability concerns;
- Potential presence of naturally occurring asbestos;
- Landslides, settlement, and subsidence concerns;
- Dewatering impacts;
- Hazardous materials usage, transport, and storage associated with project operations;
- Potential soil and water contamination associated with project operations;
- Physical safety hazards associated with project operations;
- Impacts to groundwater quality and levels;



- Flooding risks;
- Increased noise and vibration;
- Increased demand for public services and utilities;
- Increased truck traffic on local roadways; and
- Fire safety hazards.



**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.1 Aesthetics			
4.1-1 Have a substantial adverse effect on a scenic vista.	LS	None required.	N/A
4.1-2 Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway; in a non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.	S	4.1-2 In conjunction with submittal of Improvement Plans, the applicant shall submit a final Landscape Plan, prepared by a licensed landscape contractor, landscape architect, landscape designer, or horticulturist, for review and approval by the Nevada County Planning Department. The final Landscape Plan shall include the information identified in Nevada County Land Use and Development Code Sec L-II 4.2.7(E), such as: <ul style="list-style-type: none"> • all details depicted on the Preliminary plans and any modifications or additions included by conditions of approval; • location of all required plant materials, evenly dispersed within each required planting area; • legend listing the type, number, and size of plant materials, indicating both the required number and provided number, of each plant type; • irrigation plan; • if existing landscaping, including native vegetation, is to be retained, a note shall be provided on the plan stating that “any existing landscaping or native vegetation shown on the approved plan for retention, that is damaged or removed during construction, 	SU

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		<p><i>shall be repaired or replaced in kind with equivalent size”;</i></p> <ul style="list-style-type: none"> • <i>A Note on the Plan, certified by a Licensed Landscape Architect, Landscape Designer or Horticulturist, that trees are located on the Plan so as to cover 40% of the parking area with tree canopies within 15 years, consistent with Section 4.2.7.2.g of the Nevada County LUDC;</i> • <i>Assurance that the property owner will be responsible for the replacement of landscaping that does not survive or that deteriorates due to neglect;</i> • <i>All required trees shall be a minimum 15-gallon container size, with the trunk diameter no less than 1.5 inches for canopy trees, and 1-1.5 inches for understory trees, with the following exception: trees planting along project frontages for screening purposes shall include a mix of 15-gallon and 24-gallon trees. Shrubs shall be a minimum 5-gallon container size, and live groundcover plants shall cover bare ground.</i> • <i>Varied tree and plant materials shall be used throughout the parking lot. No one species shall comprise more than 75% of the plantings within each of the following categories: canopy tree, understory tree and shrubs. Native vegetation shall be included in all</i> 	

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		<p><i>required plantings unless confirmed by a licensed Landscape Architect that a native species will not satisfy a specific requirement;</i></p> <ul style="list-style-type: none"> <i>Planting areas within paved parking lots shall be separated from vehicular areas and street right-of-way by a permanently installed concrete or wooden perimeter curb at least 6" high and meet other requirements in Section 4.2.7.2.g.</i> 	
4.1-3 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	LS	None required.	N/A
4.1-4 Long-term changes in visual character associated with the proposed project in combination with cumulative development.	CC	Implement Mitigation Measure 4.1-2.	SU
4.1-5 Creation of new sources of light or glare associated with the proposed project in combination with cumulative development.	LCC	None required.	N/A
4.2 Agriculture and Forestry Resources			
4.2-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as	NI	None required.	N/A

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shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use, or involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.			
4.2-2 Conflict with existing zoning for agricultural use, or a Williamson Act contract.	NI	<i>None required.</i>	N/A
4.2-3 Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)), or result in the loss of forest land or conversion of forest land to non-forest use.	LS	<i>None required.</i>	N/A
4.2-4 Conflict with existing zoning for, or cause rezoning of, forest	LS	<i>None required.</i>	N/A

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land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)), or result in the cumulative loss of forest land or conversion of forest land to non-forest use.			
4.3 Air Quality, Greenhouse Gas Emissions, and Energy			
4.3-1 Conflict with or obstruct implementation of the applicable air quality plan.	S	<p>4.3-1(a) Prior to the initiation of construction, the following requirements shall be noted on project improvement plans. Improvements plans shall be submitted to the Nevada County Planning Department for review and approval.</p> <p>Mitigations for Use During Construction: The following measures are from the Northern Sierra Air Quality Management District and are based on the significance threshold level of emissions.</p> <p>For all Significance Level Thresholds (A, B, and C)</p> <p>a. Alternatives to open burning of vegetative material shall be used unless deemed infeasible by the Northern Sierra Air Quality Management District. Among suitable</p>	LS

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		<p><i>alternatives are chipping, mulching, or conversion to biomass fuel.</i></p> <p><i>b. Grid power shall be used (as opposed to diesel generators) for job site power needs where feasible during construction.</i></p> <p>Additional Measures for Emissions at Level B Thresholds:</p> <p><i>c. All controls discussed above (a and b) shall be implemented.</i></p> <p><i>d. Temporary traffic control shall be provided during all phases of the construction to improve traffic flow as deemed appropriate by the local transportation agencies and/or the California Department of Transportation.</i></p> <p><i>e. Construction activities shall be scheduled to direct traffic flow to off-peak hours as much as practicable.</i></p> <p>4.3-1(b) Construction Exhaust Emissions Minimization Plan. <i>Prior to the initiation of construction, Rise Grass Valley Inc. or its designee shall submit a Construction Exhaust Emissions Minimization Plan to Nevada County or its designated representative for review and approval. The Construction Exhaust Emissions Minimization Plan shall detail project compliance with the following requirements:</i></p>	

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		<ul style="list-style-type: none"> • <i>Where access to alternative sources of power and alternative-fueled equipment are available, portable diesel engines shall be prohibited.</i> • <i>All diesel-powered equipment with engines equal to or greater than 50 horsepower (hp) shall be powered by California Air Resources Board (CARB) certified Tier 4 Final engines. If 50 hp or greater engines that comply with Tier 4 Final emissions standards are not commercially available, then the project applicant shall ensure that all diesel-powered equipment equal to or greater than 25 hp shall have at least CARB-certified Tier 3 engines with the most effective Verified Diesel Emission Control Strategies available for the engine type, such as Level 3 Diesel Particulate Filters (Tier 4 engines automatically meet this requirement).</i> <ul style="list-style-type: none"> a. <i>For purposes of this mitigation measure, “commercially available” shall mean the availability of the Tier 4 Final equipment, taking into consideration factors such as critical path timing of construction and geographic proximity of the equipment location to the project sites.</i> 	

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		<p>b. The project applicant shall maintain and submit records to Nevada County concerning its efforts to comply with this requirement.</p>	
<p>4.3-2 Expose sensitive receptors to substantial pollutant concentrations.</p>	<p>S</p>	<p>4.3-2 Asbestos Dust Mitigation Plan. Prior to the initiation of any clearing, grading, or construction activities, Rise Grass Valley Inc. shall submit an Asbestos Dust Mitigation Plan (ADMP) to Northern Sierra Air Quality Management District (NSAQMD) for review and approval. The provisions of the ADMP shall be initiated at the beginning of the project (before clearing or grubbing) and maintained for the duration of the project. The Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (Title 17 of the California Code of Regulations [CCR] Section 93105) contains specific requirements for the preparation of an ADMP. Conditions of the ADMP shall include the following:</p> <ul style="list-style-type: none"> • Provisions of this ADMP shall apply throughout construction, operation, and reclamation activities, except as specified otherwise. • All visible track-out material (from vehicles leaving the work site) must be removed from all public roads at least once per day using wet sweeping or a HEPA-filter-equipped vacuum device. 	<p>LS</p>

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		<ul style="list-style-type: none"> • A gravel pad designed and maintained to effectively clean tires of exiting vehicles, a wheel wash system, or a minimum of 50 feet of pavement must be placed between the construction area and any public road, and must be used by all exiting vehicles (including personal vehicles and delivery trucks) throughout the duration of the project. • All active storage piles shall be adequately wetted or covered with plastic to ensure that no visible dust crosses the property boundary. Potential dust emissions from disturbed surface areas and storage piles that will remain inactive for more than seven days shall be controlled to completely prevent visible dust from crossing the property boundary by at least one of the following methods (pursuant to [e][4][C] of the ATCM): <ul style="list-style-type: none"> a. Keeping the surface adequately wetted; b. Applying chemical dust suppressants or chemical stabilizers according to the manufacturer's recommendations and all applicable regulations; c. Covering with tarp(s) or vegetative cover; 	

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		<p>d. <i>Installing wind barriers of 50 percent porosity around three sides of all storage piles; and/or</i></p> <p>e. <i>Installing wind barriers across open areas and between the project sites and any adjacent occupied residential or business property.</i></p> <ul style="list-style-type: none"> • <i>The maximum vehicle speed on all unpaved parts of the project sites must be clearly posted and must not exceed 15 miles per hour.</i> • <i>All areas where vehicles drive on the site, at all times when the area is subjected to vehicle or equipment traffic, shall be watered every two hours or kept adequately wetted to prevent visible dust emissions from leaving the property boundary, except where a gravel cover has been established that has a silt content of less than five percent and an asbestos content of less than 0.25 percent and is at least three inches thick.</i> • <i>For all earthmoving activities, at least one of the following methods of dust control shall be implemented, pursuant to (e)(4)(E) of the ATCM:</i> <ul style="list-style-type: none"> a. <i>Pre-wetting the ground to the depth of anticipated cuts; and/or</i> 	

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		<ul style="list-style-type: none"> b. <i>Suspending grading operations when visible dust emissions from any aspect of the grading (including tires, fans, and exhaust) cross the property line.</i> • <i>Trucks used for hauling material off site shall be maintained such that spillage cannot occur from holes or other openings.</i> • <i>All loads to be hauled off site shall be adequately wetted to prevent visible dust from escaping during transportation, pursuant to (e)(4)(F)2 of the ATCM, and shall either:</i> <ul style="list-style-type: none"> a. <i>be completely covered with tarps; or</i> b. <i>have at least six inches of freeboard on the sides of the bed of the vehicle, with no excavated material extending above the edges of the vehicle bed at any point.</i> • <i>Upon completion of the project, disturbed surface areas shall be stabilized, pursuant to (e)(4)(G) of the ATCM, using one or more of the following methods:</i> <ul style="list-style-type: none"> a. <i>establishment of a vegetative cover;</i> b. <i>placement of at least three inches of material having an asbestos content of 0.25 percent asbestos or less as</i> 	

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		<p><i>measured using an approved asbestos bulk test method; and/or</i></p> <p>c. <i>paving.</i></p> <ul style="list-style-type: none"> • <i>The NSAQMD's Air Pollution Control Officer may require bulk sampling at any time. If bulk sampling is required, the sampling shall be performed in accordance with California Air Resources Board Test Method 435. Where Method 435 specifies "serpentine," this shall apply to gravel, decomposed ultramafic rock, and any other material as specified by the Air Pollution Control Officer.</i> • <i>The NSAQMD's Air Pollution Control Officer may require air monitoring at any time, and may modify the ADMP on the basis of results of the monitoring. If required, provisions of air monitoring shall be determined in coordination with the NSAQMD.</i> • <i>Before site disturbance (e.g., clearing, grubbing, or grading) begins, the NSAQMD shall be informed by telephone at (530) 274-9360 of the exact day on which site disturbance will commence.</i> 	
<p>4.3-3 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.</p>	<p>LS</p>	<p><i>None required.</i></p>	<p>N/A</p>

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4.3-4 Result in the inefficient or wasteful use of energy.	LS	None required.	N/A
4.3-5 Conflict with a State or local plan for renewable energy or energy efficiency.	LS	None required.	N/A
4.3-6 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.	LCC	None required.	N/A
4.3-7 Generation of GHG emissions that may have a significant impact on the environment.	CC	<p>4.3-7(a) Construction GHG Emissions Reductions. To reduce greenhouse gas (GHG) emissions generated during project construction from construction equipment, the following measures shall be incorporated into the project construction drawings:</p> <ul style="list-style-type: none"> a) Properly tune and maintain all construction equipment in accordance with manufacturer's specifications; b) Where feasible, employ the use of electrical or alternative fueled (i.e., non-diesel) construction equipment, including forklifts, concrete/industrial saws, pumps, aerial lifts, air compressors, and other comparable equipment types to the extent commercially available; 	LCC

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		<p>c) <i>To reduce the need for electric generators and other fuel-powered equipment, provide on-site electrical hookups for the use of hand tools such as saws, drills, and compressors used for building construction;</i></p> <p>d) <i>Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes;</i></p> <p>e) <i>Use locally sourced or recycled materials for construction materials (goal of at least 20 percent based on costs for building materials, and based on volume for roadway, parking lot, sidewalk and curb materials). Wood products utilized should be certified through a sustainable forestry program; and</i></p> <p>f) <i>Minimize the amount of concrete for paved surfaces or utilize a low carbon concrete option.</i></p> <p>4.3-7(b) Carbon Offsets – Construction Emissions. <i>Rise Grass Valley Inc. (Rise) shall retire carbon offsets in a quantity sufficient to offset the project’s construction greenhouse gas (GHG) emissions to below the 1,100 metric ton carbon dioxide equivalent (MT CO₂e) per year construction threshold, consistent with the performance standards and requirements set forth below. Specifically, prior to Nevada County’s (County) issuance of the project’s first grading permit, Rise shall retire carbon offsets equaling 2,664 MT CO₂e, which was calculated by</i></p>	

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		<p>subtracting 1,100 MT CO₂e (threshold) from the construction emissions generated by the project.</p> <p>Carbon Offset Standards – Eligible Registries, Acceptable Protocols and Defined Terms: “Carbon offset” shall mean an instrument, credit or other certification verifying the reduction of GHG emissions issued by the Climate Action Reserve, the American Carbon Registry, or Verra (previously, the Verified Carbon Standard). This shall include, but is not limited to, an instrument, credit or other certification issued by these registries for GHG reduction activities within the Nevada County region. The Project shall neither purchase offsets from the Clean Development Mechanism (CDM) registry nor purchase offsets generated under CDM protocols. Qualifying carbon offsets presented for compliance with this mitigation measure may be used provided that the evidence required by the “Reporting and Enforcement Standards” below is submitted to the County demonstrating that each registry shall continue its existing practice of requiring the following for the development and approval of protocols or methodologies:</p> <p>i) Adherence to established GHG accounting principles set forth in the International Organization for Standardization (ISO) 14064, Part 2 or the World Resources Institute/World Business Council for Sustainable</p>	

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		<p><i>Development (WRI/WBCSD) Greenhouse Gas Protocol for Project Accounting; and</i></p> <p><i>ii) Oversight of the implementation of protocols and methodologies that define the eligibility of carbon offset projects and set forth standards for the estimation, monitoring and verification of GHG reductions achieved from such projects. The protocols and methodologies shall:</i></p> <ul style="list-style-type: none"> <i>a. Be developed by the registries through a transparent public and expert stakeholder review process that affords an opportunity for comment and is informed by science;</i> <i>b. Incorporate standardized offset crediting parameters that define whether and how much emissions reduction credit a carbon offset project should receive, having identified conservative project baselines and the length of the crediting period and considered potential leakage and quantification uncertainties;</i> <i>c. Establish data collection and monitoring procedures, mechanisms to ensure permanency in reductions, and additionality and geographic boundary provisions; and,</i> 	

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		<p>d. Adhere to the principles set forth in the program manuals of each of the aforementioned registries, as such manuals are updated from time to time.</p> <p>e. Be approved by the California Air Resources Board, and be compliant with 17 CCR § 95972.</p> <p>Further, any carbon offset used to reduce the project's GHG emissions shall be a carbon offset that represents the past or forecasted reduction or sequestration of one MT of CO₂e that is "not otherwise required" (CEQA Guidelines Section 15126.4[c][3]). Each carbon offset used to reduce GHG emissions shall achieve additional, real, permanent, quantifiable, verifiable, and enforceable reductions, which are defined for purposes of this mitigation measure as follows:</p> <p>i) "Additional" means that the carbon offset is not otherwise required by law or regulation, and not any other GHG emissions reduction that otherwise would occur;</p> <p>ii) "Real" means that the GHG reduction underlying the carbon offset results from a demonstrable action or set of actions, and is quantified under the protocol or methodology using appropriate, accurate, and conservative methodologies that account for all GHG emissions sources and sinks within the</p>	

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		<p><i>boundary of the applicable carbon offset project, uncertainty, and the potential for activity-shifting leakage and market-shifting leakage;</i></p> <p><i>iii) "Verifiable" means that the GHG reduction underlying the carbon offset is well documented, transparent and set forth in a document prepared by an independent verification body that is accredited through the American National Standards Institute (ANSI);</i></p> <p><i>iv) "Permanent" means that the GHG reduction underlying the carbon offset is not reversible; or, when GHG reduction may be reversible, that a mechanism is in place to replace any reversed GHG emission reduction;</i></p> <p><i>v) "Quantifiable" means the ability to accurately measure and calculate the GHG reduction relative to a project baseline in a reliable and replicable manner for all GHG emission sources and sinks included within the boundary of the carbon offset project, while accounting for uncertainty and leakage; and</i></p> <p><i>vi) "Enforceable" means that the implementation of the GHG reduction activity must represent the legally binding commitment of the offset project developer to undertake and carry it out.</i></p> <p><i>The protocols and methodologies of the Climate Action Reserve, the American Carbon Registry, and</i></p>	

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		<p><i>Verra establish and require carbon offset projects to comply with standards designed to achieve additional, real, permanent, quantifiable, verifiable and enforceable reductions. Additionally, the “Reporting and Enforcement Standards” below ensure that the emissions reductions required by this mitigation measure are enforceable against Rise, as the County has authority to hold Rise accountable and to take appropriate corrective action if the County determines that any carbon offsets do not comply with the requirements set forth in this mitigation measure.</i></p> <p><i>The above definitions are provided as criteria and performance standards associated with the use of carbon offsets. Such criteria and performance standards are intended only to further construe the standards under CEQA for mitigation related to GHG emissions (see, e.g., State CEQA Guidelines Section 15126.4(a), (c)), and are not intended to apply or incorporate the requirements of any other statutory or regulatory scheme not applicable to the project (e.g., the Cap-and-Trade Program).</i></p> <p>Reporting and Enforcement Standards: <i>Prior to issuance of requested grading permits, Rise shall submit a report to the County that identifies the quantity of emission reductions required by this mitigation measure, as well as the carbon offsets to be retired to achieve compliance with this measure.</i></p>	

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		<p><i>For purposes of demonstrating that each offset is additional, real, permanent, quantifiable, verifiable and enforceable, the report shall include: (i) the applicable protocol(s) and methodologies associated with the carbon offsets, (ii) the third-party verification report(s) and statement(s) affiliated with the carbon offset projects, (iii) the unique serial numbers assigned by the registry(ies) to the carbon offsets to be retired, which serves as evidence that the registry has determined the carbon offset project to have been implemented in accordance with the applicable protocol or methodology and ensures that the offsets cannot be further used in any manner.</i></p> <p><i>If the County determines that the project's carbon offsets do meet the requirements of this mitigation measure, the offsets can be used to reduce project GHG emissions and project permits shall be issued. If the County determines that the project's carbon offsets do not meet the requirements of this mitigation measure, the offsets cannot be used to reduce project GHG emissions and project permits shall not be issued. Additionally, the County may issue a notice of non-consistency and cease permitting activities in the event that the County determines the carbon offsets provided to reduce project GHG emissions are not compliant with the aforementioned standards. In the event of such an occurrence, project permitting activities shall not resume until Rise has demonstrated that the previously provided</i></p>	

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		<i>carbon offsets are compliant with the standards herein or have provided substitute carbon offsets achieving the standards of this mitigation measure in the quantity needed to achieve the required emission reduction.</i>	
4.3-8 Conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.	LCC	None required.	N/A
4.3-9 Result in the inefficient or wasteful use of energy or conflict with a State or local plan for renewable energy or energy efficiency.	LS	None required.	N/A
4.4 Biological Resources			
4.4-1 Have a substantial adverse effect to special-status plant species either directly or through habitat modifications.	S	<i>Pine Hill Flannelbush</i> 4.4-1(a) <i>Prior to issuance of grading permits for the Centennial Industrial Site, the project applicant shall implement project-specific mitigation measures 1-3 within the Centennial Pine Hill Flannelbush Habitat Management Plan (Matuzak 2021) (HMP), to the satisfaction of the County, USFWS and CDFW. Project-specific mitigation measures generally include protective measures for the Pine Hill flannelbush within the on-site avoidance area. For project actions that will directly impact the Pine Hill flannelbush, measure 4 (monitoring) shall occur on an ongoing basis, and measure 5 depends upon the results of monitoring,</i>	LS

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		<p><i>and thus, measures 4 and 5 are not required prior to issuance of grading permits):</i></p> <ol style="list-style-type: none"> 1. <i>Seed Collection;</i> <i>Collect seed for seedbanking and for future replacement and recovery efforts pursuant to the requirements of Section 6.2 of the HMP.</i> 2. <i>Develop Transplantation Plan and Monitoring Plan;</i> <i>The Transplantation and Monitoring Plan shall be developed in consultation with USFWS and CDFW, and shall, at a minimum, address location(s) for dormant season relocation, site selection for transplanting, and metrics of successful establishment (i.e., Section 6 of the HMP).</i> 3. <i>Transplanting;</i> <i>Transplant the individuals of Pine Hill flannelbush that fall within the disturbance footprint to another site with similar soil, hydrologic, vegetation type and aspect. The transplantation site(s) selected shall extend the known population spatially, in other words, planting beyond the known perimeters of the existing population is preferable, to maintain</i> 	

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p><i>population coverage. Transplanting shall occur in the season deemed to have the greatest potential for success, generally the fall, after rains have commenced.</i></p> <p>4. <i>Transplant Monitoring; and</i></p> <p><i>Transplants shall be monitored every month for the first six months, then subsequently, every two months for the first two years. After monitoring identifies successful establishment and flowering for the second season for each of the transplants, transplanting will have been deemed successful.</i></p> <p>5. <i>Alternative Measures to Transplantation and Seed Collection (if required pursuant to the criteria in the HMP)</i></p> <p><i>If Steps 1-4 of the HMP are not successful in maintaining the Pine Hill flannelbush population numbers, then the following measures shall be taken:</i></p> <ul style="list-style-type: none"> <i>o Individuals shall be grown from seed and transplanted out in a 100:1 ratio for those taken.</i> <i>o Transplants of individuals grown from seed shall be planted with similar soil,</i> 	

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		<p><i>hydrologic, vegetation type and aspect.</i></p> <ul style="list-style-type: none"> ○ <i>Transplanting shall occur in the season deemed to have the greatest potential for success, generally the fall, after rains have commenced.</i> ○ <i>Transplants shall be monitored every month for the first six months, then subsequently, every two months for the first two years.</i> <p><i>Habitat Enhancement: Prior to issuance of grading permits, pursuant to the HMP, the applicant shall enhance Pine Hill flannelbush habitat outside the disturbance footprint, which could include removal of invasive plants and conducting a pilot study by collaborating with CAL FIRE or other research facility to conduct prescribed fire in areas to enhance natural germination and recruitment, as Pine Hill flannelbush need fire for successful germination, and root sprouts.</i></p> <p><i>Conservation Easement: Prior to issuance of grading permits, the applicant shall record a Conservation Easement for the on-site Pine Hill flannelbush avoidance area, or use a similar land protection mechanism that runs with the land in perpetuity, to protect the Pine Hill flannelbush plants within the avoidance area. The management guidelines for the Conservation Easement or similar mechanism shall</i></p>	

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		<p><i>require that the habitat be managed for the Pine Hill flannelbush and its associated habitat. The applicant shall also record a Conservation Easement or use a similar land protection mechanism for any off-site areas not owned by the applicant where the transplants are to be located.</i></p> <p><i>Other Special-Status Plant Species</i></p> <p><i>4.4-1(b) Prior to issuance of grading permits for the Centennial Industrial Site and Brunswick Area (i.e., Brunswick Industrial Site and East Bennett Road ROW), focused plant surveys shall be performed according to CDFW and CNPS protocol (e.g., “Procotols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities”, CDFW 2018), as generally described below. If special-status plant species (i.e., federal and/or state endangered, threatened, or proposed candidates for listing; CRPR Lists 1 or 2) are not found during appropriately timed focused surveys, then further mitigation is not necessary. The results of the surveys shall be submitted to the Nevada County Planning Department.</i></p> <p><i>Prior to Improvement Plan approval for each phase of the project, focused surveys shall be performed by a qualified botanist during the appropriate early blooming period (April to May) for those special-</i></p>	

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		<p><i>status plant species identified in the Biological Resources Assessments as potential occurring within the Centennial Industrial Site and/or Brunswick Area. Furthermore, should additional plants having the potential to occur within these areas be given special-status in the future, the qualified botanist shall also determine the presence/absence of such species. The survey(s) shall be conducted on-site as well as in any off-site improvement areas, as applicable for each phase, during the early identification periods (bloom periods) for all potentially occurring special-status plant species. If the special-status plant species are not found to be present during the focused survey(s), then no further action is required. The results of the focused surveys shall be submitted to the Nevada County Planning Department.</i></p> <p><i>If any special-status plant species are found, protection of such plant shall include complete avoidance, transplantation, or on- or off-site restoration of the special-status plant species that could be impacted by site disturbance. These protective measures for such plants shall be included as part of the required development of a Habitat Management Plan (HMP) as part of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12, which 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,</i></p>	

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		<p><i>to minimize or compensate for such impacts and to retain their habitat as non-disturbance open space. The HMP shall include the avoidance, minimization, and mitigation measures outlined below as part of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12.</i></p> <p><i>At a minimum, the HMP shall include the following protective measures for special-status plant species with the potential to be impacted by the proposed disturbance:</i></p> <ul style="list-style-type: none"> • <i>a map of the location of special-status species that may be disturbed or need to be protected;</i> • <i>location of environmental protection fencing to be placed around the individual plants to be protected;</i> • <i>identification of the location of protected plants on design and construction drawings;</i> • <i>environmental awareness training for all personnel working on the project during initial site disturbance to discuss the location of the protected plants and the measures to be taken to avoid impacts to them; and</i> • <i>weekly site monitoring by a qualified biologist to ensure that the special-status plants are being protected during site disturbance and construction.</i> 	

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		<p><i>Where individuals would be potentially affected directly by site disturbance and transplantation of individual plants is required to minimize and mitigate for impacts to such species, the following shall be integrated into the HMP:</i></p> <ul style="list-style-type: none"> • <i>remove bulbs of individual plants to be directly impacted during the dormant season;</i> • <i>relocate the bulbs to a site with similar soil, hydrologic, vegetation type and aspect as the portion of the project site where the plants are found; and</i> • <i>identify the location(s) for dormant season relocation and site selection for transplantation.</i> <p><i>The HMP would also include a requirement to meet the following criteria:</i></p> <ul style="list-style-type: none"> • <i>metrics of successful establishment, which would include a minimum of 80 percent survival of the transplants after two years of transplanting the species.</i> <p><i>If the 80 percent survival is not established after two years, transplants of individuals grown from seed shall be planted at a location with similar soil, hydrologic, vegetation type and aspect as the portion of the site where they are found. Transplantation shall</i></p>	

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		<p>occur in the season deemed to have the greatest potential for success, generally the fall, after rains have commenced. Transplants shall be monitored every month for the first six months, then every two months for a minimum of two years. After two summer seasons of monitoring identifies successful establishment of 50 percent of the initial transplants, transplant seedlings will be deemed successful.</p>	
<p>4.4-2 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status wildlife species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.</p>	<p>S</p>	<p><i>Foothill Yellow-Legged Frog</i> 4.4-2(a) <u>Pre-construction Survey and Avoidance and Minimization Measures.</u> A pre-construction survey shall be conducted by a qualified biologist following CDFW recommended Visual Encounter Survey (VES) methods no more than fourteen (14 days) prior to disturbance within and directly adjacent to (i.e., riparian zone) the South Fork Wolf Creek and Wolf Creek. If the pre-construction survey does not detect foothill yellow-legged frog, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required.</p> <p>If this species is documented during pre-construction VES method surveys (egg masses, juveniles, or adults), disturbance to the stream and species shall be completely avoided given the species is listed as Threatened under CESA. If the species is documented during the pre-construction VES</p>	<p>LS</p>

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		<p><i>surveys, CDFW shall be contacted immediately. An Incidental Take Permit (ITP) may be required from CDFW as part of the development of conservation measures to ensure avoidance and minimization of potential impacts to any frogs identified within South Fork Wolf Creek and/or Wolf Creek. The ITP may allow a CDFW qualified wildlife biologist with a CDFW handling permit for the species to move individuals out of the disturbance areas to avoid impacting this species and/or other potential conservation measures to avoid and minimize impacts to the species.</i></p> <p><i><u>Watercourse/Wetlands/Riparian Areas Management Plans.</u> The applicant shall implement the mitigation measures identified in the Aquatic Resources Management Plans for the Centennial Industrial Site and Brunswick Area, pursuant to Mitigation Measure 4.4-3, which include measures designed to protect aquatic resources and the biological resources they support. Such measures generally include, but are not limited to, mitigation for encroachment into non-disturbance buffers, restoration of impacted areas within stream zones, implementation of Best Management Practices (BMPs) during construction, and post construction erosion control.</i></p>	

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		<p><i>Western Pond Turtle</i> 4.4-2(b) <u>Pre-construction Survey and Avoidance and Minimization Measures.</u> A pre-construction survey shall be conducted by a qualified biologist no more than seven (7) days prior to the proposed disturbance within 325 feet of perennial water sources at both the Centennial and Brunswick Industrial Sites. The survey(s) shall include a search of these suitable habitat areas for western pond turtle nests and mature adults. If the pre-construction survey does not detect western pond turtle, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required. If a western pond turtle is found, it should be allowed to move out of the way of the disturbance zone on its own or a qualified wildlife biologist with a CDFW handling permit for the species can move individuals out of the disturbance areas to avoid impacting this species.</p> <p>If a nest is documented during pre-construction surveys, a non-disturbance buffer shall be established, as determined by a qualified biologist, based on the location of the nest until all eggs have hatched and the juveniles have dispersed out of the proposed impact area.</p>	

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		<p><u>Watercourse/Wetlands/Riparian Areas Management Plans.</u> The applicant shall implement the mitigation measures identified in the Aquatic Resources Management Plans for the Centennial Industrial Site and Brunswick Area, pursuant to Mitigation Measure 4.4-3, which include measures designed to protect aquatic resources and the biological resources they support. Such measures generally include, but are not limited to, mitigation for encroachment into non-disturbance buffers, restoration of impacted areas within stream zones, implementation of BMPs during construction, and post construction erosion control.</p> <p><u>California Red-Legged Frog</u> 4.4-2(c) <u>Pre-construction Survey and Avoidance and Minimization Measures.</u> A qualified wildlife biologist approved by USFWS shall conduct preconstruction surveys within areas of suitable habitat on both the Centennial and Brunswick Industrial Sites in accordance with The Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog (USFWS Guidance, August 2005) to avoid disturbance and take of the species. This Guidance recommends a total of up to eight (8) surveys to determine the presence of CRLF at or near a project site. If the protocol surveys do not detect CRLF, a letter report documenting the results of the survey shall be provided to the Nevada County</p>	

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		<p><i>Planning Department, and additional measures are not required.</i></p> <p><i>If CRLF are identified during the pre-construction surveys, coordination and consultations with the USFWS shall be required through a FESA Section 7 or Section 10 process. As part of the consultation process, specific avoidance, minimization, and mitigation measures shall be required to be implemented, which could include, but may not be limited to the following: additional pre-construction surveys and daily monitoring to ensure that the proposed site disturbance will not disturb individual CRLF, environmental awareness training to contractors working within or adjacent to CRLF habitat, and exclusionary fencing installation between CRLF aquatic habitat and disturbance areas.</i></p> <p><i>Additionally, a Habitat Management Plan (HMP) shall be required for any state or federally listed special-status wildlife species if documented within the Centennial or Brunswick Industrial Sites. The HMP would be developed for the special-status species as part of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12 and it would include the avoidance, minimization, and mitigation measures outlined above and as part of any coordination or consultation with the USFWS compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12.</i></p>	

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		<p><u>Watercourse/Wetlands/Riparian Areas Management Plans.</u> The applicant shall implement the mitigation measures identified in the Aquatic Resources Management Plans for the Centennial and Brunswick Industrial Sites, pursuant to Mitigation Measure 4.4-3, which include measures designed to protect aquatic resources and the biological resources they support. Such measures generally include, but are not limited to, mitigation for encroachment into non-disturbance buffers, restoration of impacted areas within stream zones, implementation of BMPs during construction, and post construction erosion control</p> <p><u>California Black Rail</u> 4.4-2(d) <u>Pre-construction Survey and Avoidance and Minimization Measures.</u> Pre-construction surveys for California black rail shall be conducted by a qualified biologist prior to the implementation of any ground disturbance within or directly adjacent to any perennial marsh habitat within the Centennial and Brunswick Industrial Sites. The pre-construction surveys for this species shall occur no more than fourteen (14) days prior to any such disturbance within or directly adjacent to the species habitat. The pre-construction surveys shall include conducting call back/response surveys. This species is most active between two hours before and three hours after sunrise; therefore, surveys shall start at sunrise and continue no later than 0930. If evening surveys are to</p>	

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		<p><i>be conducted, they shall be paired with a morning survey, and all sites shall have surveys conducted at both time periods. The preferred method for conducting surveys via the call-back/response protocol of Evens et al (1991). If the pre-construction survey does not detect evidence of California black rail, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required. If a positive call back is identified during the surveys, then the species is assumed to be present and the area shall be avoided from disturbance in order to avoid impacts to individuals of the species, if feasible.</i></p> <p><i>Given the species is a CESA listed species, coordination with CDFW shall occur if a positive response to the call-back/response surveys occurs and if any proposed disturbance may impact the species. Any area containing this species would likely need to be avoided in order to avoid impacts to and take of this species, if feasible, or additional mitigation measures would be required in coordination with CDFW to minimize and avoid impacts to such species. Additional avoidance measures could include, but may not be limited to the following: environmental awareness training, daily construction monitoring by a CDFW qualified biologist when disturbance related activities occur within or directly adjacent to the species habitat, and</i></p>	

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		<p><i>exclusionary fencing installation between the species habitat and the proposed disturbance areas. Additionally, an ITP could be required by CDFW if complete avoidance of the species is not feasible. Areas where no positive response to the call-back/response surveys are assumed to not contain individuals of the species and therefore, disturbance in those areas would have no impact on this species.</i></p> <p><i><u>Watercourse/Wetlands/Riparian Areas Management Plans.</u> The applicant shall implement the mitigation measures identified in the Aquatic Resources Management Plans for the Centennial and Brunswick Industrial Sites, pursuant to Mitigation Measure 4.4-3, which include measures designed to protect aquatic resources and the biological resources they support. Such measures generally include, but are not limited to, mitigation for encroachment into non-disturbance buffers, restoration of impacted areas within stream zones, implementation of BMPs during construction, and post construction erosion control.</i></p> <p><i>Coast Horned Lizard</i> 4.4-2(e) <i><u>Pre-construction Survey and Avoidance and Minimization Measures.</u> A pre-construction survey shall be conducted by a qualified biologist no more than seven (7) days prior to disturbance within the areas of the Centennial and Brunswick Industrial Sites that contain disturbed or developed surfaces</i></p>	

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		<p><i>and annual grassland vegetation community. If the pre-construction survey does not show evidence of coast horned lizard, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required.</i></p> <p><i>If the species is documented during pre-construction survey(s), a qualified wildlife biologist (approved by CDFW) shall move individual coast horned lizards outside of the proposed disturbance area(s) in order to avoid an impact to this species. Once the coast horned lizard(s) have been removed from the disturbance area(s) and out of harm's way, the proposed work would no longer pose a risk to individuals of the species.</i></p> <p><i>Special-Status Bats</i> 4.4-2(f) <u>Pre-construction Survey and Avoidance and Minimization Measures.</u> A pre-construction bat roosting survey shall be conducted by a qualified biologist no more than seven (7) days prior to disturbance of any structures or riparian and forested woodlands within the Centennial Industrial Site and Brunswick Area to identify the presence or absence of roosting bats. If the pre-construction survey does not show evidence of roosting bats, a letter report documenting the results of the survey shall be provided to the Nevada County Planning</p>	

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		<p><i>Department, and additional measures are not required.</i></p> <p><i>If any Townsend’s big-eared bats (or any other species of bat, including the hoary and pallid bat) are identified during roosting surveys, passive removal of the roosting bats prior to disturbance to structures and riparian and forested woodlands shall be implemented to avoid impacts to this species. Passive removal includes allowing roosting bats to freely leave the roost site (riparian and forested woodlands and any structure). Once the roosting bats have been passively removed from the structure(s) and riparian and forested woodlands, the structure(s) would be closed off from recurring bat roosting within the structure(s) and the proposed work within the structure(s) would no longer pose a risk to individuals of the species. For riparian and forested woodlands containing bat roosts, the removal of trees associated with such woodlands would only occur once the bats leave the day roosts. Furthermore, if a maternal (breeding) roost is documented, no disturbance shall occur until the breeding roost has dispersed from the structure or riparian and forested woodlands they are found in.</i></p> <p><i>Non-Special Status Raptors and Migratory Birds</i> 4.4-2(g) <u>Pre-construction Survey and Avoidance and Minimization Measures. Prior to initiation of ground-</u></p>	

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		<p><i>disturbing activities for any phase of project construction, if construction is expected to occur during the raptor nesting season (February 1 to August 31), a qualified biologist shall conduct a preconstruction survey prior to vegetation removal. The pre-construction survey shall be conducted within 7 days prior to commencement of ground-disturbing activities. The survey shall be conducted within all areas of proposed disturbance and all accessible areas within 250 feet of proposed disturbance. If the pre-construction survey does not show evidence of active nests, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required. If construction does not commence within 7 days of the pre-construction survey, or halts for more than 14 days, an additional pre-construction survey shall be required.</i></p> <p><i>If any active nests are located within the proposed disturbance area, an appropriate buffer zone shall be established around the nests, as determined by the project biologist. The biologist shall mark the buffer zone with construction tape or pin flags and maintain the buffer zone until the end of breeding season or the young have successfully fledged. Buffer zones are typically 100 feet for migratory bird nests and 500 feet for raptor nests. If active nests are found within the disturbance footprint, a qualified biologist shall</i></p>	

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		<p><i>monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. Guidance from CDFW shall be required if establishing the typical buffer zone is impractical. If construction activities cause the nesting bird(s) to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the exclusionary buffer shall be increased, as determined by the qualified biologist, such that activities are far enough from the nest to stop the agitated behavior. The exclusionary buffer shall remain in place until the young have fledged or as otherwise determined by a qualified biologist.</i></p>	
<p>4.4-3 Have a substantial adverse effect on riparian habitat or other sensitive natural community, or State or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.</p>	<p>S</p>	<p>4.4-3(a) <i>Prior to initiation of ground-disturbing activities, the applicant shall provide a US Army Corps of Engineers (Corps) verification letter to the Nevada County Planning Department, indicating Corps' concurrence with the total acreage of jurisdictional waters that would be impacted within the Centennial Industrial Site and Brunswick Area as a result of the proposed project.</i></p> <p>4.4-3(b) <i>The applicant shall implement the Watercourse/Wetlands/Riparian Areas Management Plans prepared for the Centennial Industrial Site and Brunswick Area, as approved in their final form by Nevada County. Specifically, the applicant shall implement the mitigation measures and conditions identified in the Management Plans, which include</i></p>	<p>LS</p>

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		<p><i>measures designed to protect aquatic resources and the biological resources they support. Such measures generally include, but are not limited to, the following and shall be implemented in accordance with their specified timing (e.g., either prior to, during, or after ground disturbance activities within non-disturbance buffers):</i></p> <ul style="list-style-type: none"> • Encroachment into the Non-Disturbance Buffers <ul style="list-style-type: none"> ○ <i>Limit construction to periods of extended dry weather and the dry summer season, if feasible;</i> ○ <i>Establishing the areas around active stream channels and wetlands as Environmentally Sensitive Area where those areas will not be impacted by construction or thereafter;</i> ○ <i>No fill or dredge material will enter or be removed from any wetlands or streams except for those identified in Table 4.0 and Table 5.0 in the Management Plans during construction and thereafter;</i> ○ <i>Use appropriate machinery and equipment to limit disturbance within and directly adjacent to these areas;</i> 	

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		<ul style="list-style-type: none"> ○ Placement of soil erosion control devices (such as wattles, hay bales, etc.) between the protected aquatic resources (wetlands and streams) and the areas to be graded and disturbed to limit potential runoff and sedimentation into such protected resources; ○ Dewatering of any streams that will be required to occur as part of the proposed disturbance within the Brunswick Area must include a Water Diversion Plan and be approved by CDFW prior to the implementation of such dewatering activities; and ○ Implement Best Management Practices during and following construction. <ul style="list-style-type: none"> • Restoration of Areas Adjacent to Impacted Streams <ul style="list-style-type: none"> ○ <u>Centennial Industrial Site</u> ○ Placement of rock and rip rap along the embankment of Wolf Creek should be avoided given the proposed Centennial Site Idaho-Maryland Mine Project will not encroach into Wolf Creek; 	

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		<ul style="list-style-type: none"> ○ Some rock and rip rap can be placed at the top of the embankment of the ephemeral and intermittent streams within the Centennial Site Idaho-Maryland Mine Project, if needed, to protect the embankment(s) from erosion after construction is completed. This would potentially be implemented for ephemeral and intermittent streams that will not be completely filled or impacted and occur directly adjacent to the proposed fill of those streams; and ○ Plant willow cuttings from the adjacent willow trees and other native shrubs and riparian trees along the embankments of streams not being impacted and filled as needed. A revegetation plan will be a requirement of the CDFW Streambed Alteration Agreement that will include impacts to the bed and bank, of any stream within the Centennial Site Idaho-Maryland Mine Project Area. Implementation of General and Project Specific Conditions will be required for all permits for the proposed project. 	

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		<p><u>Brunswick Area</u></p> <ul style="list-style-type: none"> ○ Placement of rock and rip rap along the embankment of the South Fork Wolf Creek should be minimized to reduce the footprint of such impacts to the perennial creek and its embankments; ○ Some of the rock and rip rap can be placed at the top of the embankment of the South Fork Wolf Creek to protect the embankment from further erosion during restoration of the riparian zone and embankment on the southern side of the perennial stream. ○ Plant willow cuttings from the adjacent willow trees and other native shrubs and riparian trees along the embankment and broadcast seed the embankment with local, native grass seed. A revegetation plan will be a requirement of the CDFW Streambed Alteration Agreement that will include impacts to the bed and bank, of any stream within the Brunswick Area. Implementation of General and Project Specific Conditions will be required for all permits for the proposed project. 	

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		<ul style="list-style-type: none"> • Implement BMPs During Construction <ul style="list-style-type: none"> ○ <i>Minimize the number and size of work areas for equipment and spoil storage sites in the vicinity of any streams and wetlands that will not be disturbed by project development. Place staging areas and other work areas outside of the 50-foot non-disturbance buffers of ephemeral and intermittent aquatic resources and 100-foot non-disturbance buffers of perennial aquatic resources.</i> ○ <i>The applicant shall exercise reasonable precaution to protect the aquatic resources within the Centennial Industrial Site and Brunswick Area, as well as the adjacent non-disturbance buffers of such aquatic resources, from pollution with fuels, oils, and other harmful materials. Construction byproducts and pollutants such as oil, cement, and wash water shall be prevented from discharging into or near these resources and shall be collected for removal off the site. All construction debris and associated materials and</i> 	

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		<p><i>litter shall be removed from the work site immediately upon completion.</i></p> <ul style="list-style-type: none"> ○ <i>No equipment for vehicle maintenance or refueling shall occur within the 50-foot and 100-foot non-disturbance buffers. The contractor shall immediately contain and clean up any petroleum or other chemical spills with absorbent materials such as sawdust or kitty litter. For other hazardous materials, follow the cleanup instruction on the label.</i> <ul style="list-style-type: none"> • Implement Post Construction Erosion Control <ul style="list-style-type: none"> ○ <i>Exposed bare soil along the embankment of South Fork Wolf Creek, where the outfall and dissipation rip rap will occur, as well as the embankment of Wolf Creek and any exposed bare soil adjacent to the other mapped aquatic resources within the Centennial Industrial Site and Brunswick Area, including their 50-foot and 100-foot non-disturbance buffers, shall be protected against loss from erosion by the seeding of an erosion control mixture and restored with</i> 	

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		<p><i>native grasses and mulching pursuant to Nevada County and regulatory agency guidelines. Non-native species that are known to invade wild lands, such as orchard grass, velvet grass, rose clover, winter and spring vetch, and wild oats shall not be used as they displace native species.</i></p> <p>4.4-3(c) <i>To the extent feasible, as determined by the qualified biologist in coordination with the Corps, the project shall be designed to avoid and minimize adverse effects to waters of the U.S. or jurisdictional waters of the State of California within the project area. Prior to initiation of ground-disturbing activities, a Section 404 permit for fill of any jurisdictional wetlands within the Centennial Industrial Site and Brunswick Area shall be acquired, and mitigation for impacts to jurisdictional waters that cannot be avoided shall conform with the Corps "no-net-loss" policy, and be based on the final impact acreages verified by the Corps. Mitigation for impacts to both federal and State jurisdictional waters shall be addressed using these guidelines. Compensatory mitigation can include but is not limited to the following: onsite and/or offsite wetland creation and/or restoration, purchase or placement of conservation easements, payment of an in-lieu fee, and/or purchase of mitigation credits at an approved Corps wetland mitigation or conservation bank.</i></p>	

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		<p><i>The applicant must also obtain a water quality certification from the RWQCB under Section 401 of the Clean Water Act (CWA). Written verification of the Section 404 permit and the Section 401 water quality certification shall be submitted to the Nevada County Planning Department.</i></p> <p>4.4-3(d) <i>Prior to initiating of ground disturbing activities within the non-disturbance buffers for aquatic resources on the Centennial Industrial Site and Brunswick Area, the applicant shall apply for a Section 1600 Lake or Streambed Alteration Agreement from CDFW. Impacts to CDFW 1600 jurisdictional areas shall be outlined in the application and are expected to be in substantial conformance with the impacts to biological resources outlined in this EIR (see Tables 4.4-9 through 4.4-11). Impacts for each activity shall be broken down by temporary and permanent, and a description of the proposed mitigation for biological resource impacts shall be outlined per activity and then by temporary and permanent. Minimization and avoidance measures within jurisdictional areas shall be proposed as appropriate and may include: preconstruction species surveys and reporting, protective fencing around avoided biological resources, worker environmental awareness training, seeding disturbed areas immediately adjacent to riparian areas with native seed, and installation of project-specific storm water BMPs. Mitigation may include restoration or enhancement of jurisdictional</i></p>	

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		<p><i>resources on- or off-site, purchase of habitat credits from an agency-approved mitigation/conservation bank, off-site or on-site conservation easements, working with a local land trust to preserve aquatic or riparian areas, or any other method acceptable to CDFW.</i></p> <p><i>A site revegetation plan would be required to be developed and approved by CDFW as part of a Streambed Alteration Agreement permit condition and native trees planned for removal with a diameter at breast height of 4 inches or greater would need to be mitigated for through planting of native riparian trees within adjacent stream zones not being impacted by the Idaho-Maryland Mine Project, with clear success criteria identified, monitoring and reporting required, and corrective actions to be taken if mitigation measures do not meet the proposed success criteria.</i></p> <p><i>Written verification of the Section 1600 Lake or Streambed Alteration Agreement shall be submitted to the Nevada County Planning Department.</i></p>	
<p>4.4-4 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or</p>	<p>LS</p>	<p>None required.</p>	<p>N/A</p>

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impede the use of native wildlife nursery sites.			
4.4-5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, or have a substantial adverse effect on the environment by converting oak woodlands.	LS	None required.	N/A
4.4-6 Cumulative loss of habitat for special-status species.	CC	4.4-6 Implement Mitigation Measures 4.4-1(a-b), 4.4-2 (a-g), and 4.4-3(a-d).	LCC
4.5 Cultural and Tribal Cultural Resources			
4.5-1 Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines, Section 15064.5.	S	4.5-1(a) Following initial mine dewatering, and prior to commencement of underground mining, the project applicant shall share the historical documentation of the Idaho-Maryland Mine Company in their possession with the public through one of the following libraries: the California State Library, the California Geology and Mining Library, or the Searls Library. The library shall consist of the following information: <ul style="list-style-type: none"> • Surface Maps (5 maps) – Approx. year at 1956, Showing topography, buildings, roads, exploration trenches and drill holes, underground workings at surface, and geology; 	LS

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		<ul style="list-style-type: none"> • 103 Level Maps (103 maps) – Approx. year 1942, Showing mine tunnels, raises and shafts, survey stations, geology, and drill holes; • Mine Geology Maps (61 maps) – Approx. year 1956, Showing geology on tunnels driven post WW2; • Mine Stoping Maps (219 Maps) – Approx. year 1956, Showing mine stoping; • Operation Reports 1919 to 1924 and 1926 to 1935, Providing monthly or annual reports on underground exploration and mine development; • Monthly Development Reports – 1936 to 1956, Providing monthly reports on mine development; • Geological Summary Reports – 1936 to 1942, Providing monthly reports on underground exploration; • Underground Geology Photos – Collection of photos from 1940's of underground tunnels and geology; and • A digital mine model, including a 2D and 3D digitization of historic mine tunnels available in AutoCAD dwg and dxf formats. <p><i>Proof of submittal to one of the above-listed libraries shall be provided to the Nevada County Planning Department.</i></p>	

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		4.5-1(b) <i>Following initial mine dewatering, and prior to commencement of underground mining, the project applicant shall retain a qualified historian meeting the Secretary of the Interior's standards, to perform a historical study of the underground mine workings in the areas deemed safe by a certified mining geologist. The historical study shall include but not be limited to an evaluation of the underground work environment, engineering, equipment, and practices, to the maximum extent feasible. The historical study shall be deposited at the same library selected in Mitigation Measure 4.5-1(a).</i>	
4.5-2 Cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines, Section 15064.5.	S	4.5-2 <i>If cultural resources are discovered during construction or mining activities, pursuant to Nevada County LUDC Section L-II 4.3.6, all work shall cease within 200 feet of the find (based on the apparent distribution of cultural resources) and the County shall be immediately notified. Examples of cultural materials include midden soil, artifacts, chipped stone, exotic (non-native) rock, or unusual amounts of baked clay, shell, or bone.</i> <i>A qualified archeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology, as appropriate, shall assess the significance of the find and make recommendations for further evaluation and treatment as necessary, to the satisfaction of the County. Further evaluation and treatment</i>	LS

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		<p><i>recommendations shall be consistent with CEQA Guidelines Section 15126.4(3) and may include processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, construction monitoring of further construction activities, and/or returning objects to a location within the project area where they will not be subject to future impacts.</i></p> <p><i>Following a review of the find and consultation with appropriate experts, the authority to proceed may be accompanied by the addition of development requirements which provide for protection of the site and/or additional measures necessary to address the unique or sensitive nature of the site. The treatment recommendations made by the cultural resource specialist shall be documented in the project record. Any recommendations made by these experts that are not implemented, must be documented and explained in the project record. Work in the area(s) of the cultural resource discovery may only proceed after authorization is granted by the Nevada County Planning Department following coordination with cultural resources experts.</i></p>	
<p>4.5-3 Disturb any human remains, including those interred outside of dedicated cemeteries.</p>	<p>S</p>	<p>4.5-3 <i>Any person who, in the process of project activities, discovers any human remains within the project area, shall cease from all project activities within at least 200 feet of the discovery. In the event that human remains are encountered, the sheriff-coroner shall be</i></p>	<p>LS</p>

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		<i>notified immediately upon discovery. In the event that Native American human remains are encountered, the Native American Heritage Commission or the most likely descendants of the buried individual(s) who are qualified to represent Native American interests shall be contacted. Specific treatment of Native American human remains shall occur consistent with State law.</i>	
4.5-4 Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe.	S	4.5-4 <i>Implement Mitigation Measures 4.5-2 and 4.5-3.</i>	LS
4.5-5 Cause a cumulative loss of historic resources.	LS	<i>None required.</i>	N/A
4.5-6 Cause a cumulative loss of cultural resources	LS	<i>None required.</i>	N/A
4.6 Geology, Soils, and Mineral Resources			
4.6-1 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving	S	4.6-1 <i>Prior to approval of Improvement Plans, the design recommendations from the Brunswick Industrial Site Geotechnical Report (November 18, 2019) shall be incorporated into the Plans to the satisfaction of the</i>	LS

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<p>rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, and landslides.</p>		<p><i>Nevada County Building Department. Recommendations regarding slope stability and seismic criteria are set forth in Sections 5.1 and 5.2 of the Geotechnical Report, including but not limited to:</i></p> <ul style="list-style-type: none"> • <i>Permanent cut slopes shall not be steeper than 2:1, horizontal to vertical (H:V).</i> • <i>Fill slopes greater than 30 feet in height shall be terraced with surface drains that restrict surface runoff from travelling more than 30 feet continuously down the fill slope face. The applicant shall retain NV5 to review fill slope configurations greater than approximately 10 feet in height, prior to fill placement.</i> • <i>Fill shall be placed in horizontal lifts to the lines and grades shown on the grading plan. Slopes shall be constructed by overbuilding the slope face and then cutting it back to the design finished grade slope gradient. Fill shall not be constructed or extended horizontally by placing soil on an existing slope face and/or compacted by track walking.</i> • <i>Building footings shall be trenched into competent native soil, weathered rock or compacted fill, and reinforced with a minimum of two No. 4 rebar reinforcement, one near the top of the footing and one near the bottom.</i> 	

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		<ul style="list-style-type: none"> • Slab-on-grade floors shall be used and designed by a structural engineer with regard to the anticipated loading. Interior building concrete slab-on-grade floor shall meet minimum concrete slab thickness, steel reinforcement, rebar, and crushed rock or aggregate base layer specifications in Section 5.2.3 of the Geotechnical Report. • Rock anchors or doweling shall be used to provide lateral and uplift resistance where shallow, competent rock limits footing excavation. Rock anchors should only be installed in competent rock. 	
<p>4.6-2 Result in substantial soil erosion or the loss of topsoil.</p>	<p>S</p>	<p>4.6-2 Prior to approval of Improvement Plans, the Plans shall incorporate the Mitigation Measures and Best Management Practices (BMP) included in Section 5 of the Management Plans for Steep Slope and High Erosion Potential (Centennial Industrial Site and Brunswick Industrial Site, 2020), as approved in their final form by Nevada County. Mitigation Measures and BMPs set forth in the Management Plans include but are not limited to:</p> <ul style="list-style-type: none"> • Incorporating the provisions of the Erosion and Sediment Control Plans (ECPs) (December 15, 2020) into the project design, including the “Notes” on the ECPs; including but not limited to the following: 	<p>LS</p>

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		<ul style="list-style-type: none"> ○ <i>The structural and hydraulic adequacy of all storm water containment or conveyance facilities shown on the ECPs shall be verified by a civil engineer, and he/she shall so attest on the Plans, with proof provided to Nevada County prior to any project grading, clearing, or tree disturbance.</i> ○ <i>Soil stockpiling shall have proper erosion control measures applied to control runoff and prevent erosion.</i> ○ <i>All areas where construction activities have been completed between April 15th and October 15th shall be planted no later than November 1st. Land disturbance areas completed at other times of the year shall be planted within 15 days. If re-vegetation is infeasible or cannot be expected to stabilize an erodible area with assurance during any part of the rainy season and the unstable area exceeds 2,500 square feet, additional erosion and sediment control measures or irrigation of planted slopes may be required, as determined appropriate, to prevent increased sediment discharge.</i> 	

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		<ul style="list-style-type: none"> • <i>Obtaining coverage under the SWRQB NPDES Construction General Permit (Order No. 2009-0009-DWQ), including: <ul style="list-style-type: none"> ○ <i>Submittal of a Notice of Intent (NOI) and payment of permit fee(s);</i> ○ <i>Preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for each Site;</i> </i> • <i>Performing earthwork in accordance with the grading recommendations presented in the Centennial Industrial Site and Brunswick Industrial Site Geotechnical Engineering Reports (NV5);</i> • <i>Prohibiting disturbance of steep slopes (slopes of 30+ percent) beyond the area proposed to receive fill during that season (i.e., prior to the next anticipated storm event);</i> • <i>Monitoring of Mitigation Measures in accordance with the Construction General Permit monitoring requirements, as set forth in Section 5.3 of the Management Plans; and</i> • <i>Implementation of remedial measures in the event that water quality standards set forth in the Construction General Permit are not being met.</i> 	
4.6-3 Be located on a geological unit or soil that is unstable, or that	S	4.6-3(a) <i>The Improvement Plan submittals shall include final geotechnical engineering reports produced by a</i>	LS

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<p>would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, or be located on expansive soil, as defined in Table 18-1B of the UBC.</p>		<p><i>California Registered Civil Engineer or Geotechnical Engineer. The Improvement Plans shall include the recommendations of the Geotechnical Engineering Reports, including but not limited to the following:</i></p> <ul style="list-style-type: none"> • <i>Grading</i> • <i>Import Fill</i> • <i>Existing Fill</i> • <i>Cut Slope Grading</i> • <i>Engineered Fill Placement</i> • <i>Fill Slope Grading</i> <p><i>In accordance with the recommendations from the Geotechnical Engineering Reports (Geotechnical Engineering Report, Idaho-Maryland Mine Project – Brunswick Industrial Site. November 18, 2019; and Geotechnical Engineering Report, Idaho-Maryland Mine Project – Centennial Industrial Site. December 20, 2019), grading plan review and construction monitoring shall occur, as follows:</i></p> <ul style="list-style-type: none"> • <i>Prior to construction, a licensed geotechnical engineer shall be retained at the applicant’s expense to review the final grading plans to confirm whether the recommendations from the Geotechnical Engineering Reports have been adequately incorporated in the plans, and to provide additional and/or modified recommendations, if necessary; and</i> 	

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		<ul style="list-style-type: none"> The applicant shall retain a licensed geotechnical engineer to perform construction quality assurance (CQA) monitoring during all earthwork grading performed by the contractor to determine whether the recommendations of the Geotechnical Engineering Reports have been implemented, and if necessary, provide additional and/or modified recommendations. <p>A CQA report demonstrating successful compliance with Geotechnical Engineering Report recommendations in all on-site earthwork shall be submitted to Nevada County periodically, but not less than once per quarter.</p> <p>4.6-3(b) In conjunction with submittal of Improvement Plans for the Brunswick Industrial Site, the applicant shall submit a grading plan, cross sections, and a slope stability analysis of proposed cut slopes for the new service shaft collar and the clay-lined pond dam repair work, for review and approval of the Nevada County Building Department. The submittal shall be prepared and stamped by a licensed geotechnical engineer. The grading plan and cross sections shall depict typical temporary cut slope gradients, excavation depths, maximum water surface elevation, and earthwork volume estimates, and any</p>	

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		<p><i>additional geotechnical engineering methods, such as shoring, to mitigate potential slope instability.</i></p> <p>4.6-3(c) <i>In conjunction with submittal of Improvements Plans for the Centennial and Brunswick Industrial Sites, the applicant shall submit a physical closure evaluation of the following near-surface mine features to the Nevada County Building Department:</i></p> <ul style="list-style-type: none"> • <i>East Eureka Shaft (shall be closed prior to initial mine dewatering)</i> • <i>East Eureka Drain (shall be closed prior to initial mine dewatering)</i> • <i>Idaho Drain Tunnel (shall be closed prior to initial mine dewatering)</i> • <i>Idaho Pump Shaft (shall be closed prior to initial mine dewatering)</i> • <i>Idaho Shaft (shall be closed prior to initial mine dewatering)</i> • <i>South Idaho Shaft (shall be closed prior to placement of engineered fill at the Centennial Industrial Site)</i> <p><i>The evaluation shall be stamped by a licensed geotechnical engineer and identify methods of physical closure, based on overexcavation of surface soil in the areas of these features to determine where competent, native soil/rock is located and to identify the trend of any subsurface mining-related structures.</i></p>	

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		<p><i>Closure methods could include but not be limited to the use of a cast-in-place concrete cap or plug supported by temporary false work and covered to the ground surface with engineered fill. The closure design shall include drainage piping for those near surface features that currently discharge groundwater, and closure shall occur prior to initial mine dewatering or, for the South Idaho Shaft, prior to the placement of engineered fill at the Centennial Industrial Site.</i></p>	
<p>4.6-4 Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.</p>	<p>S</p>	<p>4.6-4 <i>In conjunction with submittal of Improvement Plans, the project applicant shall submit a complete sewage disposal design report accounting for all sewage waste water disposal per project buildout, for review and approval of the Nevada County Environmental Health Department. Unless otherwise determined in the sewage disposal design report, the Improvement Plans shall comply with the recommendations set forth in the septic system evaluation prepared for the Brunswick Industrial Site by Navo & Sons, Inc., including the following:</i></p> <ul style="list-style-type: none"> • <i>Leach lines shall be installed 36 inches wide by 24 inches deep, with 12 inches of drain rock and 7-foot separation on center per line, installed level on contour.</i> • <i>The leach shall be pressure dosed leach lines consisting of a minimum of four zones. The rotation of zones would allow the zones to rest</i> 	<p>LS</p>

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		<p><i>in between doses and prevent over saturation of any one zone. In addition, if one zone has a problem, that zone could be isolated and repaired while other zones are working. This would result in little to no downtime and greatly reduce the possibility of sewage spills (surfacing).</i></p> <ul style="list-style-type: none"> • <i>Duplex (two) pumps shall be used in the pump tank to ensure that if one pump fails, a backup exists. The pumps would alternate to the extent of their life, unless one fails.</i> • <i>Due to the distance and elevation between the proposed shower and laundry area to the leach field, the pump line would be running through a low area upgradient from potentially sensitive areas. The pump line shall be sleeved in this low area to avoid potential issues related to sensitive areas if the line were to rupture.</i> • <i>During installation, existing trees shall be maintained in place to the extent feasible to avoid the creation of large holes in the leach area, help stabilize soil, and help absorb leaching effluent.</i> • <i>The following setbacks shall be maintained:</i> <ul style="list-style-type: none"> ○ <i>10 feet from developed property lines;</i> ○ <i>50 feet from undeveloped property lines;</i> 	

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		<ul style="list-style-type: none"> ○ 50 feet from seasonal drainages; ○ 25 feet from center line of swales; and ○ 100 feet from any perennial streams or domestic wells. <ul style="list-style-type: none"> • The pressure dose septic system shall be maintained annually for the life of the system. • The septic system shall be installed by a licensed contractor (A, C-34, or C-42) familiar with installation of the proposed system. • A permit to install the septic system shall be obtained from the NCEHD. • The pump screen shall be removed and rinsed annually. • The pump, pump float, alarm float, and alarm shall be checked for proper operation annually. • The primary and 100 percent repair area shall be protected from vehicular traffic, structures, or any other activity that may cause alterations such as grading, cuts/fills, etc. • All drainage shall be diverted away from the septic tank, pump tank, and leach field. Irrigation in the area of the leach trenches shall be kept to a minimum to avoid saturation of the soil. Drip irrigation should be used. • Water conservation is recommended to maximize the life expectancy of the absorption trenches. 	

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		<ul style="list-style-type: none"> Any leaks shall be fixed immediately to avoid unnecessary saturation of the leach trenches. 	
4.6-5 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	LS	None required.	N/A
4.6-6 Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State or of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.	LS	None required.	N/A
4.6-7 Cumulative increase in the potential for geological related impacts and hazards.	LS	None required.	N/A
4.7 Hazards and Hazardous Materials			
4.7-1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	S	4.7-1(a) The mine operator shall comply with all applicable federal and state regulations governing the transport, underground storage and use of explosives, including MSHA (CFR Title 30, Part 57), OSHA (CFR Title 29, Part 1910 and 1926), and CCR (Title 8, Part 5251ff. and 5291). 4.7-1(b) The mine operator shall prepare a Risk Assessment when the underground mine is accessible after initial dewatering and before storage of explosives	LS

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		<p><i>underground, specifying the location of each magazine and its maximum storage capacity. The Risk Assessment shall be performed by a qualified professional (e.g., licensed engineer) in accordance with the Methods and Algorithms Used for Quantitative Risk Analysis of the Institute of Markers of Explosives and submitted to MSHA for their review. The Risk Assessment shall demonstrate protection of the public from hazards of explosives storage and be provided to the Nevada County Planning Department before underground storage of explosives.</i></p> <p>4.7-1(c) <i>The mine operator shall ensure, through the enforcement of contractual obligations, that all contractors or suppliers transport explosives in a manner consistent with all applicable regulations and guidelines. Proof of the agreement between the operator and contractor or supplier transporting explosives shall be provided to the Nevada County Planning Department before transporting explosives to the site.</i></p> <p>4.7-1(d) <i>Prior to the transport, storage, or use of hazardous materials or explosives at the site, the mine operator shall prepare a Hazardous Materials Business Plan (HMBP). The County shall review and approve the HMBP prior to the use or storage of hazardous materials or explosives on-site.</i></p>	

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<p>4.7-2 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment or be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.</p>	<p>S</p>	<p>4.7-2(a) <i>If disturbance of the mine waste beneath the southeastern paved area within the Brunswick Industrial Site is proposed as part of the project, the site-specific arsenic concentration data resulting from the Phase I/II ESA prepared by NV5 for the proposed project shall be furnished to the project contractor(s) so the contractor(s) can comply with applicable health and safety requirements accordingly. The project contractor(s) shall retain a Certified Industrial Hygienist to develop specific handling procedures for the mine waste, including dust mitigation. Mine waste shall not be removed from the site without regulatory approval by the RWQCB or DTSC. Verification of proper handling and disposal of the mine waste shall be provided to the Nevada County Planning Department.</i></p> <p>4.7-2(b) <i>If unidentified or suspected contaminated soil or groundwater evidenced by stained soil, noxious odors, or other factors, is encountered during site improvements, work shall stop in the area of potential contamination, and the type and extent of contamination shall be identified by a Registered Environmental Assessor (REA) or qualified professional. The REA or qualified professional shall prepare a report that includes, but is not limited to, activities performed for the assessment, summary of anticipated contaminants and contaminant concentrations, relevant Environmental Screening Levels for identified contaminants, whether the</i></p>	<p>LS</p>

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		<p><i>contaminants exceed Environmental Screening Levels, thus warranting remediation, and recommendations for appropriate handling and disposal. Site improvement activities shall not recommence within the contaminated areas until any necessary remediation identified in the report is complete. The report and verification of proper remediation and disposal shall be submitted to the Nevada County Planning Department for review and approval.</i></p> <p>4.7-2(c) <i>Prior to commencement of any construction activities, the project applicant shall determine the location of all existing wells on the site. Prior to any ground disturbance activities within 50 feet of an identified well on the project site, the applicant shall hire a licensed well contractor to obtain a well abandonment permit from the NCEHD for any wells that will no longer be used, and properly abandon the on-site wells, pursuant to Department of Water Resources Bulletin 74-81 (Water Well Standards, Part III), for review and approval by the NCEHD.</i></p>	
<p>4.7-3 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive</p>	<p>LS</p>	<p>None required.</p>	<p>N/A</p>

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noise for people residing or working in the project area.			
4.7-4 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LS	None required.	N/A
4.7.5 Cumulative hazards to the public or the environment related to increases in the transport, storage, and use of hazardous materials.	LS	None required.	N/A
4.8 Hydrology and Water Quality			
4.8-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.	S	4.8-1(a) <i>The applicant shall submit a Notice of Intent (NOI) to the Central Valley Regional Water Quality Control Board (RWQCB) for coverage under the Limited Threat Discharge permit (General Order R5-2016-0076; NPDES No. CAG995002), at least six months prior to construction of the water treatment system; and the Notice of Applicability (NOA) shall be received before initial mine dewatering can begin and provided to Nevada County Planning Department. The NOI shall include evaluation of potential constituents of concern, including ammonia, arsenic, hexavalent chromium, iron, manganese, pH, total suspended solids, TDS, and cis-1,2-DCE, and demonstrate that water treatment plant (WTP) design shall successfully treat mine water to meet the water quality standards and treatment goals identified in the</i>	LS

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		<p><i>Limited Threat Discharge Order. Upon construction of the WTP, sampling shall be provided to the RWQCB demonstrating that the treated water meets the water quality standards and treatment goals specified in the Order. Ongoing monitoring of treated water shall occur at a location specified by the State prior to the point of discharge at South Fork Wolf Creek. The owner shall be required to submit quarterly monitoring reports to the State Regional Water Quality Control Board, demonstrating compliance with the maximum daily effluent limitations specified in Section V of the NPDES permit. The applicant shall submit to the County a copy of the NOI and evidence of the applicant's receipt of the NOA specified above prior to initial mine dewatering. The applicant shall submit copies of sampling and monitoring reports to the County at the time such reports are submitted to the RWQCB.</i></p> <p><i>The applicant shall also submit a Report of Waste Discharge (RoWD) and obtain Waste Discharge Requirements (WDRs) for use of the surface impoundment (i.e., Brunswick clay-lined pond) in the mine water treatment process. At a minimum, the liner of the clay-lined surface impoundment shall be upgraded to include a synthetic liner meeting the specifications in Title 27, Section 22490(f), of the California Code of Regulations. Prior to initial mine dewatering, the applicant shall submit to the Nevada County Planning Department a copy of the RoWD</i></p>	

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		<p><i>and evidence of the applicant's receipt of WDRs, as well as evidence of the completion of modifications to the clay-lined pond in compliance with the requirements.</i></p> <p>4.8-1(b) <i>Prior to commencement of construction activities, the applicant shall submit a Notice of Intent (NOI) to the Central Valley RWQCB for coverage under the Construction General Permit applicable for any site on which construction is to occur and prepare a Construction Stormwater Pollution Prevention Plan (C-SWPPP). The applicant shall submit a copy of the NOI and C-SWPPP to the to the Nevada County Planning Department prior to the initiation of construction activities at a given site. C-SWPPP(s) shall be maintained and all BMPs and reporting requirements complied with until such time as terminated as a result of the completion of construction and permanent site stabilization or until an Industrial SWPPP becomes applicable to the site pursuant to Mitigation Measure 4.8-1(c).</i></p> <p>4.8-1(c) <i>Prior to commencement of operations at the Brunswick Industrial Site, the applicant shall submit a Notice of Intent (NOI) to the Central Valley RWQCB for coverage under the Industrial General Permit for the Brunswick Industrial Site and prepare an Industrial Stormwater Pollution Prevention Plan (I-SWPPP). The applicant shall submit a copy of the NOI and I-SWPPP to the to the Nevada County</i></p>	

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		<p><i>Planning Department prior to termination of the C-SWPPP.</i></p> <p>4.8-1(d) <i>Prior to placement of CPB in the mine, the applicant shall conduct strength, rheological, and geochemical testing using the final CPB formulation in order to confirm that no constituents (e.g., pH values or chromium) release above water quality standards from the final selected CPB formulation, as a result of the binder composition or the interaction between the binder and the tailings material. The applicant shall submit a RoWD to the Central Valley RWQCB for the use of CPB at least six months prior to the proposed initial use of CPB. The WDR permit shall be received by the applicant prior to initiating any mine backfilling using CPB. The applicant shall submit to the Nevada County Planning Department a copy of the RoWD and evidence of the applicant's receipt of WDRs prior to the use of CPB.</i></p> <p>4.8-1(e) <i>The applicant shall submit a RoWD and obtain WDRs from the Central Valley RWQCB for construction of the engineered fill areas. The WDR permit shall be received by the applicant prior to initiating any engineered fill placement activities at the Centennial or Brunswick Industrial Sites. Proof of coverage shall be provided to the Nevada County Public Works Department. As part of this process, the RWQCB will determine the appropriate mining waste classification for the proposed engineered fill, and will consider the</i></p>	

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		<p><i>following factors: (1) whether the waste contains hazardous constituents only at low concentrations; (2) whether the waste has no or low acid generating potential; and (3) whether, because of its intrinsic properties, the waste is readily containable by less stringent measures. The engineered fill areas shall be constructed in accordance with the Title 27 specifications, pursuant to the mining waste classification determined by the RWQCB. The applicant shall submit to the Nevada County Planning Department a copy of the RoWD and evidence of the applicant's receipt of WDRs prior to the placement of fill or fill site preparation disturbance at the Brunswick Industrial Site and Centennial Industrial Site.</i></p>	
<p>4.8-2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.</p>	<p>S</p>	<p>4.8-2(a) The project applicant shall implement the Groundwater Monitoring Plan (GMP) prepared by Itasca Denver, Inc. (February 2021), as approved by the County. Implementation of the GMP shall be initiated prior to the dewatering of the mine and on an ongoing basis. Pursuant to the GMP, a network of monitoring wells shall be installed to the satisfaction of the Nevada County Environmental Health Department. Prior to construction of any monitoring wells within the County or City right-of-way, the applicant shall obtain an encroachment permit from the Public Works Department of the respective agency. Groundwater-level information shall be obtained from the project groundwater monitoring wells and collected on a quarterly basis, and</p>	<p>LS</p>

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		<p><i>submitted in report form to the Nevada County Environmental Health Department, and used to generate the following information:</i></p> <ol style="list-style-type: none"> <i>1) Water-level monitoring data for a minimum of 12 months before commencement of dewatering of the mine.</i> <i>2) Water-level hydrographs for each well showing the water-level variations over the monitoring period and a comprehensive well hydrograph showing long-term water levels for each well over the entire monitoring period.</i> <i>3) Potentiometric-surface contour maps showing the groundwater elevations across the site. These may be produced for a subset of the shallow wells and a second subset for the deeper wells if it is judged that the shallow and deep well systems are in separate water-bearing zones. Alternatively, a combined potentiometric map that includes both shallow and deep well pairs may be constructed if it is judged that the shallow and deep wells are installed within the same water-bearing zone.</i> <i>4) A projected water-level impact assessment for individual domestic wells shall be performed once dewatering of the underground mine workings commences, based on responses of the measured groundwater levels of the project</i> 	

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		<p><i>monitoring wells. The projected groundwater drawdown shall be estimated for each domestic well in the project area. This impact assessment shall be performed by tabulating the variation of the measured water levels from the project monitoring wells over the monitoring period and during the dewatering of the underground mine workings and mining operations. For each domestic well, a projected and seasonally averaged water level shall be estimated based on the domestic well location and the background potentiometric conditions, which will serve as a baseline groundwater level and shall be developed prior to the initiation of dewatering of the underground mine workings.</i></p> <p>4.8-2(b) <i>If, based on the GMP, it is determined that mining operations are resulting in a significant impact to any well(s) (i.e., a 10 percent or greater reduction of the water column of any well), pursuant to Nevada County General Plan Policy 17.12, the project applicant shall be responsible for providing a comparable supply of water to such homes or businesses whose wells are significantly impacted, and if necessary, providing an immediate water supply until the source of the problem is determined and rectified. The comparable supply of water shall be provided to the satisfaction of the Nevada County</i></p>	

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		<p><i>Environmental Health Department. Such action could include extension of NID potable water or deepening of domestic water wells, in all cases paid for by the project applicant.</i></p> <p>4.8-2(c) <i>Prior to commencement of initial mine dewatering, the project applicant shall implement the Well Mitigation Plan (February 2, 2021, Rise Grass Valley, Inc.) by connecting 30 properties in the East Bennett area to the NID potable water system (see Figure 1 and Table 1 of the Well Mitigation Plan for specific property locations). The project applicant shall be responsible for fully funding the following for each property connection:</i></p> <ol style="list-style-type: none"> 1) <i>Engineering and Permitting</i> 2) <i>Construction of main water piping</i> 3) <i>Construction of service lateral piping</i> 4) <i>Installation of water meters at property line</i> 5) <i>Connection of water meters to house (If requested and authorized by property owner)</i> 6) <i>Closure of domestic water wells (If requested and authorized by property owner)</i> 7) <i>NID installation and capacity charges for a 5/8-inch meter connection.</i> 8) <i>Reimbursement for water charges, for monthly fixed service charges and use of up to 400 gallons per day, will continue until the sooner of the following occurs: 1) The property</i> 	

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		<p><i>is sold by the owner after the NID connection is accomplished and paid for by Rise. 2) The property is annexed into the City of Grass Valley.</i></p> <p>9) <i>Of the 30 properties, it is anticipated that only APN 009-600-012 is not eligible for water cost reimbursement as it is currently vacant. Existing NID customers will not be eligible for reimbursement of NID water charges and will be confirmed through consultation with NID during the design process.</i></p> <p><i>Proof of satisfaction of this measure shall be provided to Nevada County Environmental Health Department for each property identified in the Well Mitigation Plan.</i></p>	
<p>4.8-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:</p> <p>i) Result in substantial erosion or siltation on- or off-site?</p> <p>ii) Substantially increase</p>	<p>S</p>	<p>4.8-3 As part of the Improvement Plan submittal process, the applicant shall submit a Final Drainage Report to the Nevada County Planning Department for review and approval. The Final Drainage Report may require more detail than that provided in the preliminary report, and will be reviewed in concert with the Improvement Plans to confirm conformity. The report shall address the Centennial and Brunswick Industrial Sites, be prepared by a Registered Civil Engineer, and shall, at a minimum, include: narrative describing existing conditions, the effects of the proposed improvements, all appropriate calculations, watershed maps, changes in flows and patterns, and</p>	<p>LS</p>

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<p>the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?</p> <p>iii) Create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?</p> <p>iv) Impede or redirect flood flows?</p>		<p><i>proposed on- and off-site improvements to accommodate flows from this project, including treated mine water discharge and stormwater runoff. The Final Drainage Report shall demonstrate that the on-site storm drain systems are sized such that site runoff (in addition to treated mine discharge for the Brunswick Industrial Site) under the post-development condition will not exceed pre-development levels in the downstream channel(s) during the design storm events.</i></p>	
<p>4.8-5 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.</p>	<p>S</p>	<p>4.8-5 <i>The applicant shall implement the Floodplain Management Plan prepared for the Centennial Industrial Site, as approved in its final form by Nevada County. Specifically, the applicant shall implement the mitigation measures and conditions identified in the Floodplain Management Plan, which include measures designed to mitigate the impact of development on the floodplain. Such measures generally include, but are not limited to, the following and shall be implemented in accordance with their specified timing (e.g., either prior to, during, or after</i></p>	<p>LS</p>

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		<p><i>ground disturbance activities within the 100-foot floodplain buffer):</i></p> <ul style="list-style-type: none"> • <i>Grading and land disturbance within the limits of the SFHA (100-year floodplain) of Wolf Creek shall be avoided.</i> • <i>Prior to commencing construction, the 100-year floodplain boundary shall be delineated by appropriate means on the Centennial Industrial Site to ensure that construction activities remain outside the 100-year floodplain.</i> • <i>As early as practicable once the engineered fill development has begun, the detention basin proposed in the Preliminary Drainage Analysis & Detention Study by Nevada City Engineering, Inc. shall be installed and made operational. During the grading operation, erosion control measures should be maintained in place on the fill pad to avoid silt and runoff from the pad proceeding down the fill slope towards Wolf Creek, and to direct all runoff to the detention basin which is to be constructed at the northwest corner of the fill area. During this time all potential runoff from the engineered fill pad area shall concurrently be directed to this basin for both its detention and de-siltation benefits.</i> 	

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		<ul style="list-style-type: none"> • <i>No significant increase in impermeable surfaces shall occur within 100 feet of the 100-year floodplain. The only added impervious surface shall be approximately 520 lineal feet of concrete V-ditch at the toe of the engineered fill slope. This will have no measurable impact on drainage runoff or flooding.</i> • <i>Areas within 100 feet of the 100-year floodplain, which are disturbed due to construction activity, shall be regraded to a smooth, natural contour resembling their pre-development configuration, with the exception of approximately 0.55-acre of engineered fill located on the northeast corner of the proposed Centennial Industrial Site. Grading shall be done in such a manner as to smoothly convey flows through the property without accelerating their transit to downstream areas. All disturbed areas shall be subject to erosion control measures and protection during and after the engineered fill placement operation in order to stabilize any disturbed soil, thus eliminating the likelihood of increased erosion exiting the site toward downstream properties.</i> • <i>Temporary disturbance of vegetation within 100 feet of the 100-year floodplain due to construction shall be remediated by</i> 	

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		<i>appropriate replacement plantings as recommended by the project biologist and as pursuant to the project Reclamation Plan.</i>	
4.8-6 Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	LS	<i>None required.</i>	N/A
4.8-7 Cumulative impacts related to the violation of water quality standards or waste discharge requirements, groundwater quality, management, and recharge, and impacts resulting from the alteration of existing drainage patterns.	LS	<i>None required.</i>	N/A
4.9 Land Use and Population and Housing			
4.9-1 Physically divide an established community.	LS	<i>None required.</i>	N/A
4.9-2 Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect	LS	<i>None required.</i>	N/A

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4.9-3 Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure).	LS	<i>None required.</i>	N/A
4.9-4 Cause a significant cumulative environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	LS	<i>None required.</i>	N/A
4.9-5 Cumulative unplanned population growth.	LS	<i>None required.</i>	N/A
4.10 Noise and Vibration			
4.10-1 Generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, due to initial construction activities.	S	4.10-1 <i>The following noise reduction measures shall be implemented during construction of the potable water line along East Bennett Road and shall be included on Improvement Plans for installation of the potable water line to the satisfaction of the Nevada County Planning Department.</i> <ul style="list-style-type: none"> • <i>Provide advanced notification of pipeline construction dates and durations to each of the residences located along the construction corridor.</i> 	SU

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		<ul style="list-style-type: none"> • <i>Ensure that all equipment utilizing internal combustion engines are fitted with working mufflers in good repair.</i> • <i>Utilize the quietest equipment capable of performing the required construction.</i> • <i>Locate construction staging areas as far as feasibly possible from existing residences.</i> • <i>If portable generators or air compressors are to be used, locate that equipment as far as feasibly possible from existing residences and, if possible, shield them from view of those residences using intervening topography or vehicles.</i> • <i>All mobile equipment shall be fitted with broad-band “growler” type back-up warning devices rather than the conventional “beeper” devices.</i> 	
<p>4.10-2 Generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, due to fill placement, compaction, off-site traffic, and related activities.</p>	<p>S</p>	<p>4.10-2 <i>Haul truck operators shall be required to operate their trucks in such a manner so as to not require the use of jake brakes along the project haul routes. The project applicant shall post signage at the exits of both the Centennial Industrial Site and Brunswick Industrial Site informing drivers that the use of jake brakes is not permitted. Additionally, drivers directly employed by the project applicant, as well as any contract drivers, shall be required to abstain from use of jake brakes as a company policy. Proof of sign postage (e.g., photographic documentation) and a copy of the company policy language shall be</i></p>	<p>LS</p>

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 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p><i>provided to the Nevada County Planning Department prior to commencement of hauling. In the event that jake brake usage associated with project-related heavy truck traffic is observed, the project applicant shall implement additional measures to educate drivers regarding the safe operation of their vehicles without the use of jake brakes or take disciplinary action, if required, to the satisfaction of the Nevada County Planning Department. In addition, haul trucks shall be fitted with broad-band “growler” type back-up warning devices rather than the conventional “beeper” devices.</i></p>	
<p>4.10-3 Generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.</p>	<p>S</p>	<p>4.10-3</p> <p><i>The following conditions shall be met, subject to review and approval by the Nevada County Planning Department:</i></p> <ol style="list-style-type: none"> <i>1. All on-site mobile equipment shall be fitted with broad-band “growler” type back-up warning devices rather than the conventional “beeper” devices.</i> <i>2. A comprehensive noise monitoring program shall be conducted of each facet of the operation to both verify the modelling assumptions of the project noise analysis (Bollard Acoustical Consultants, Inc. Noise and Vibration Analysis, Idaho Maryland Mine, Nevada County, California BAC Job #2018-203. March 8, 2021) and to ensure that compliance with the applicable Nevada</i> 	<p>LS</p>

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p><i>County noise standards is being achieved at nearby sensitive receptors. The noise monitoring program shall evaluate noise levels at a minimum of five Receptor locations surrounding the Brunswick Industrial Site. The noise monitoring system shall consist of the installation of permanent noise monitors at three to five locations on the Brunswick Industrial Site, and one site at the Centennial Industrial Site, to be determined by a third-party noise consultant under contract with the County, in coordination with the applicant. The permanent monitors shall be provided with a continual power source, and shall include internet connectivity technology, to enable electronic retrieval of noise monitoring data at any time by the County's third-party noise consultant.</i></p> <p><i>a. Within 30 days of installation and operation of mine-related equipment at the Brunswick Industrial Site, the County's third-party noise consultant shall retrieve and evaluate noise monitoring data to evaluate whether mine-related operational noise levels are in compliance with County noise standards at the pre-determined Receptor locations, using noise level data and noise attenuation</i></p>	

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p><i>calculations accounting for distance to the receptor locations. The results shall be submitted to the Nevada County Planning Department within one week from evaluation of the noise data. If the results indicate that the County noise standards are being exceeded either by individual equipment or processes, or cumulative noise generation of the entire facility, operations shall cease until additional engineering controls can be implemented as needed. Such measures could take the form of noise barriers, installation of sound absorbing materials, use of additional silencers, etc. After implementation of any recommended measures, follow-up noise level data evaluation shall be conducted to demonstrate that the resultant operational noise levels comply with the County noise level standards at nearby sensitive receptors.</i></p> <p><i>b. After the initial noise monitoring evaluation described under “a”, the County’s third-party noise consultant shall evaluate permanent noise monitoring data at the pre-determined receptor locations as follows: i) on a</i></p>	

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p><i>quarterly basis during the first five years of project operation; ii) once per year thereafter for the life of the project; and iii) in response to public noise complaints. If the results indicate that the County noise standards are being exceeded, then the actions described in "a" shall be implemented to the satisfaction of the County.</i></p>	
<p>4.10-4 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.</p>	<p>S</p>	<p>4.10-4 The project applicant shall conduct a project-specific Ground Vibration Monitoring Program. As part of the Ground Vibration Monitoring Program, the mine shall employ between eight and ten seismographs during the blasting of levels above the 1,000-foot level. The seismographs shall be placed at the following locations:</p> <ul style="list-style-type: none"> • One at the Brunswick Shaft; • One at each of the four corners of the Mine Property; • One in the Whispering Pines Industrial Park; • Two at nearby residences; and • Two travelling seismographs which can change location depending on the weekly/monthly mining plan. <p>After the mine has stopped blasting at the proposed shaft and above the 1,000-foot level, only five seismographs would be required for the Ground</p>	<p>LS</p>

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p><i>Vibration Monitoring Program. One seismograph shall be located at the Brunswick Shaft and one in each of the four corners of the mine property. The five seismographs would collect relevant data throughout the entire operation to understand how the ground is transmitting vibration in these areas.</i></p> <p><i>Once mining operations commence, the project applicant shall hire a blast consultant to assist with the development of a 95 percent confidence level equation for the site-specific ground vibration. The blast consultant would take the data acquired by the seismographs set-up on the mine, run a linear regression and log-log confidence model to develop an equation that the mine can use to modify blasting, as needed, to ensure vibration levels remain below 0.4 in/s at sensitive receptors.</i></p> <p><i>Results of the Ground Vibration Monitoring Program and the equation for site-specific ground vibration shall be submitted to the Nevada County Planning Department for review.</i></p>	
<p>4.10-5 For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project</p>	<p>LS</p>	<p>None required.</p>	<p>N/A</p>

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**Table 2-1
Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
expose people residing or working in the project area to excessive noise levels?			
4.10-6 Generation of a substantial permanent increase in ambient noise and/or vibration levels associated with the cumulative noise and vibration from all sources of the proposed project.	LCC	<i>None required.</i>	N/A
4.11 Public Services and Utilities			
4.11-1 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for <u>fire protection services</u> .	LS	<i>None required.</i>	N/A
4.11-2 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or	LS	<i>None required.</i>	N/A

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for <u>law enforcement services</u> .			
4.11-3 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or performance objectives for <u>schools</u> .	LS	<i>None required.</i>	N/A
4.11-4 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable	LS	<i>None required.</i>	N/A

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
service ratios, response times, or other performance objectives for parks services.			
4.11-5 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for <u>other public services</u> .	LS	None required.	N/A
4.11-6 Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	LS	None required.	N/A
4.11-7 Have sufficient water supplies available to serve the project	LS	None required.	N/A

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**Table 2-1
Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
and reasonably foreseeable future development during normal, dry, and multiple dry years.			
4.11-8 Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	LS	<i>None required.</i>	N/A
4.11-9 Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals, or conflict with federal, State, and local management and reduction statutes and regulations related to solid waste.	LS	<i>None required.</i>	N/A
4.11-10 Increase in demand for public services associated with the proposed project, in combination with cumulative development.	LS	<i>None required.</i>	N/A

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.11-11 Increase in demand for utilities and service systems associated with the proposed project, in combination with cumulative development.	LS	None required.	N/A
4.12 Transportation			
4.12-1 Conflict with a program, plan, ordinance, or policy addressing study intersections under EPAP Plus Project Conditions.	S	4.12-1(a) <u>Brunswick Road/Idaho Maryland Road</u> – Prior to issuance of building permits, the applicant shall pay the GVTIF to the City of Grass Valley. Proof of payment shall be submitted to the Nevada County Community Development Agency.	LS
		4.12-1(b) <u>SR 174/Brunswick Road</u> – The project applicant shall enter into a Traffic Mitigation Agreement with the County regarding the SR 174/Brunswick Road intersection. The Agreement shall require the applicant to pay the project’s fair share contribution toward the improvements necessary to improve intersection operations to an acceptable level. The Agreement shall include the fair share calculations and total payment amount. Based on the Caltrans methodology to assess fair share, it is estimated that the fair share percentage is 14.9%.	SU
		4.12-1(c) <u>Idaho Maryland Road/Centennial Drive</u> - Prior to issuance of building permits, the applicant shall pay the GVTIF to the City of Grass Valley. Proof of payment shall be submitted to the Nevada County Community Development Agency.	LS

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.12-2 Conflict with a program, plan, ordinance or policy addressing study roadway segments under EPAP Plus Project conditions.	LS	<i>None required.</i>	N/A
4.12-3 Conflict with a program, plan, ordinance or policy addressing intersection queues under the EPAP Plus Project scenario.	LS	<i>None required.</i>	N/A
4.12-4 Conflict with a program, plan, ordinance or policy addressing transit, bicycle, and pedestrian facilities.	LS	<i>None required.</i>	N/A
4.12-5 Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).	LS	<i>None required.</i>	N/A
4.12-6 Substantially increase hazards to vehicle safety due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	S	4.12-6(a) <i>Prior to the commencement of construction and issuance of Encroachment Permits, construction signing and traffic control plans shall be provided to the Nevada County Public Works Department and the City of Grass Valley for review and acceptance. The construction signing and traffic control plan shall include (but not necessarily be limited to) items such as:</i> <ul style="list-style-type: none"> • <i>Guidance on the number and size of trucks per day entering and leaving the project site;</i> • <i>Identification of arrival/departure times that would minimize traffic impacts;</i> 	LS

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • <i>Approved truck circulation patterns;</i> • <i>Locations of staging areas;</i> • <i>Locations of employee parking and methods to encourage carpooling and use of alternative transportation;</i> • <i>Methods for partial/complete street closures (e.g., timing, signage, location and duration restrictions);</i> • <i>Criteria for use of flaggers and other traffic controls;</i> • <i>Preservation of safe and convenient passage for bicyclists and pedestrians through/around construction areas;</i> • <i>Monitoring for roadbed damage and timing for completing repairs;</i> • <i>Limitations on construction activity during peak/holiday weekends and special events;</i> • <i>Preservation of emergency vehicle access;</i> • <i>Coordination of construction activities with construction of other projects that occur concurrently to minimize potential additive construction traffic disruptions, avoid duplicative efforts (e.g., multiple occurrences if similar signage), and maximize effectiveness of traffic mitigation measures (e.g., joint employee alternative transportation programs);</i> • <i>Removing traffic obstructions during emergency evacuation events; and</i> 	

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • <i>Providing a point of contact for residents and guests to obtain construction information, have questions answered, and convey complaints.</i> <p><i>The construction signing and traffic control plan shall be developed such that the following minimum set of performance standards is achieved throughout project construction.</i></p> <ul style="list-style-type: none"> • <i>All construction employees shall park in designated lots owned by the project applicant or on private lots otherwise arranged for by the project applicant.</i> • <i>Roadways shall be maintained clear of debris (e.g., rocks) that could otherwise impede travel and impact public safety.</i> <p>4.12-6(b) <i>Prior to commencement of engineered fill hauling, the project applicant shall enter into separate road maintenance agreements with Nevada County and the City of Grass Valley to provide the project's fair share of funding for maintenance of roadways commensurate with the project's impact to pavement conditions on both Nevada County and Grass Valley roadways, including Brunswick Road between E. Bennett Road and SR 49 and E. Bennett Road between project driveway and Brunswick Road.</i></p>	

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>4.12-6(c) <i>Prior to approval of Encroachment Permit for driveway construction at the intersection of E. Bennett Road/Millsite Road, the Nevada County Public Works Department shall review and approve the improvement plans for the E. Bennett Road/Millsite Road intersection which need to include pavement widening and designation that only right-hand turns are allowed from the project site at this location. Prior to commencement of project operations, the E. Bennett Road/Millsite Road intersection shall be improved to the satisfaction of Nevada County Public Works Department, at the expense of the project applicant.</i></p> <p>4.12-6(d) <i>Prior to the County issuing any permits for work on the Centennial Industrial Site: 1) the project applicant shall submit plans to the Grass Valley Engineering Division and receive approval from the City of Grass Valley for widening of Whispering Pines Lane along the Centennial Industrial Site's frontage for purposes of facilitating adequate truck turn movements into and out of the Site. The plans shall reflect a 12-foot two-way-left-turn-lane (TWLTL), a 12-foot travel lane, and a six-foot bicycle lane; 2) In addition, the applicant shall designate and record a landscape easement to mitigate sight distance concerns. The plans shall be approved by the City of Grass Valley and the project applicant shall be responsible for 100 percent of the cost for this improvement.</i></p>	

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**Table 2-1
Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>4.12-6(e) <i>Prior to commencement of operations, the project applicant shall obtain an encroachment permit from Nevada County and install: 1) W51 "Slow Trucks" road sign along Brunswick Road, about 500 feet north of the E. Bennett Road intersection; 2) A second sign shall be installed at the applicant's expense just south of the crest of the grade, warning truck drivers of the transition in grade and presence of the downgrade Loma Rica Drive intersection.</i></p> <p>4.12-6(f) <i>Prior to the County issuing any permits for work on the Brunswick Site, the project applicant shall remove any landscaping over 2 feet in height inside the sight line from the project driveway to Brunswick Road.</i></p>	
4.12-7 Result in inadequate emergency access.	LS	None required.	N/A
4.12-8 Conflict with a program, plan, ordinance or policy addressing study intersections under Cumulative Plus Project Conditions.	CC	<p>4.12-8(a) <u>SR 174/Brunswick Road</u> – Implement Mitigation Measure 4.12-1(b).</p> <p>4.12-8(b) <i>Sutton Way/Dorsey Drive - Prior to issuance of building permits, the applicant shall pay the GVTIF to the City of Grass Valley. Proof of payment shall be submitted to the Nevada County Community Development Agency.</i></p>	SU LCC
4.12-9 Conflict with a program, plan, ordinance or policy addressing study roadway segments under Cumulative Plus Project Conditions.	LCC	None required.	N/A

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**Table 2-1
Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.12-10 Conflict with a program, plan, ordinance or policy addressing intersection queues under the cumulative scenario.	S	4.12-10 Prior to commencement of project operations, the Brunswick Road/Sutton Way intersection shall be re-timed to the satisfaction of the City of Grass Valley, at the expense of the project applicant. Based on the Caltrans methodology to assess fair share percentage, the fair share is 8.5 percent. Final payment amount shall be determined by the City of Grass Valley, and shall represent the reasonable cost of re-timing the intersection.	SU
4.13. Wildfire			
4.13-1 Substantially impair an adopted emergency response plan or emergency evacuation plan.	LS	None required.	N/A
4.13-2 Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.	S	4.13-2 In conjunction with submittal of Improvement Plans, the applicant shall submit a comprehensive Vegetation Management Plan, inclusive of the Centennial and Brunswick Industrial Sites, for the review and approval by the County Fire Marshall's Office. The applicant shall implement all provisions of the Vegetation Management Plan during the project construction, operations, and reclamation activities. The Vegetation Management Plan shall include but not be limited to: <ul style="list-style-type: none"> • description of existing vegetative fuel sources; • description of vegetation removal during initial construction and inventory of equipment to be used; 	LS

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • requirement that exhausts of all equipment powered by gasoline, diesel, or other hydrocarbon fuel shall be equipped with effective spark arrestors designed to prevent the escape from the exhaust of carbon or other flammable particles over 0.0232 inches. Motor trucks, truck tractors, and passenger vehicles shall not be subject to this provision if their exhaust systems are equipped with mufflers; • requirement that all welding rigs shall be equipped with a minimum of one 20-pound or two 10-pound fire extinguishers; • description of proposed landscape planting types; • description and graphical presentation of defensible space zones; • long-term maintenance schedule and safety practices, addressing at a minimum: <ul style="list-style-type: none"> ○ Removal of fire prone fuels and dead material. ○ Removal of branches beneath large trees. ○ Maintenance of live plants, bushes, shrubs, and trees. ○ Removal of needles and leaves and other combustible debris and litter from roofs and gutters. 	

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 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<ul style="list-style-type: none"> ○ Annual grasses and forbs shall be cut down to a maximum height of four inches within 100 feet of structures and on engineered fill slopes. ○ Trimming of vegetation within specified horizontal distances from roadways and overhead power line(s), the latter of which may be implemented by PG&E as the service provider, consistent with clearance requirements in PRC Sections 4292 and 4293. ○ Seasonal removal of all dead and dying vegetation to reduce vegetation volume and ladder fuels. ○ Coordination with adjacent property owners, as applicable, to maintain tree canopies, vegetation and ladder fuels on an annual basis. ○ Horizontal and vertical spacing among shrubs and trees shall be created using the “Fuel Separation” method, the “Continuous Tree Canopy” method or a combination of both to achieve defensible space clearance requirements. Spacing shall be done in accordance with the State Board of Forestry and Fire Protection’s, “General Guidelines for Creating Defensible Space, February 8, 2006.” 	

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**Table 2-1
 Summary of Impacts and Mitigation Measures**

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.13-3 Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.	LS	<i>None required.</i>	N/A
4.13-4 Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.	LS	<i>None required.</i>	N/A
4.13-5 Increase in wildfire risk attributable to the proposed project, in combination with cumulative development.	LS	<i>None required.</i>	N/A

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3. PROJECT DESCRIPTION

3. PROJECT DESCRIPTION

3.1 INTRODUCTION

The Project Description chapter of the EIR provides a comprehensive description of the Idaho-Maryland Mine Project (proposed project) in accordance with CEQA Guidelines. In addition, section 15125 of the California Environmental Quality Act (CEQA) Guidelines requires an Environmental Impact Report (EIR) to include a description of the physical environmental conditions of the project site and the site vicinity, as they exist at the time the Notice of Preparation is published, from a local and regional perspective. Knowledge of the existing environmental setting is critical to the assessment of environmental impacts. Pursuant to CEQA Guidelines Section 15125, the description of the environmental setting shall not be longer than necessary to understand the potential significant effects of the project. Please note that this chapter provides an overall general description of the existing environmental conditions; however, detailed discussions of the existing setting in compliance with CEQA Guidelines Section 15125, as it relates to each given potential impact area, is included in each technical chapter of this EIR.

3.2 PROJECT LOCATION

The proposed project's surface components would be located on approximately 175.64 acres consisting of the Brunswick Industrial Site, the Centennial Industrial Site, and a 0.30-acre portion of East Bennett Road for off-site improvements associated with a potable water pipeline easement. The project would also involve underground mining within an approximately 2,585-acre mineral rights boundary owned by the applicant. The potable water pipeline easement would be located along East Bennett Road, and would be contained within the existing right-of-way.

The Centennial and Brunswick Industrial Sites are located within unincorporated western Nevada County and are owned by Rise Grass Valley (Rise) (see Figure 3-1 and Figure 3-2). The 119-acre Brunswick Industrial Site (Assessor's Parcel Numbers [APNs] 006-441-003, -004, -005, -034; and 009-630-037, -039) is located southwest of the intersection of East Bennett Road and Brunswick Road, and is accessible from Brunswick Road or East Bennett Road (see Figure 3-3). The 56.41-acre Centennial Industrial Site (APNs 009-550-032, -037, -038, -039, -040; and 009-560-036) is located southwest of the intersection of Idaho Maryland Road and Centennial Drive (see Figure 3-4).

As seen in Table 3-1 and shown in Figure 3-5 and Figure 3-6, the surface components on the Brunswick Industrial Site, Centennial Industrial Site, and East Bennett Road are located in the Nevada County Industrial (IND) land use category. In addition, the Centennial Industrial Site and East Bennett Road ROW are defined as Light Industrial (M1); and the Brunswick Industrial Site is defined as Light Industrial, Site Performance Combining District (M1-SP).

The majority of the project is located on the Brunswick Industrial Site, which is partially located within the City of Grass Valley's long-term sphere of influence. The southern portion of the Brunswick Industrial Site is outside of the City's sphere of influence. The Centennial Industrial Site is located within the City's near-term sphere of influence.



**Table 3-1
Project Site Summary**

Project Site	Assessor Parcel Numbers	Acreage	Existing Zoning	Existing General Plan Designations
Brunswick Industrial Site	009-630-037	21.80	M1-SP ¹	IND ²
	009-630-039	15.07	M1-SP	IND
	006-441-003	15.19	M1-SP	IND
	006-441-004	0.85	M1-SP	IND
	006-441-005	50.01	M1-SP	IND
	006-441-034	16.01	M1-SP	IND
	<i>Brunswick Industrial Site Subtotal:</i>	<i>118.93</i>	--	--
Centennial Industrial Site	009-550-032	0.48	M1 ³	IND
	009-550-037	4.47	M1	IND
	009-550-038	40.1	M1	IND
	009-550-039	0.98	M1	IND
	009-550-040	0.13	M1	IND
	009-560-036	10.25	M1	IND
	<i>Centennial Industrial Site Subtotal:</i>	<i>56.41</i>	--	--
Project Sites Total:		175.34	--	--
Potable Water Pipeline Easement	009-560-045	--	M1	IND
	009-560-016	--	M1	IND
	Off-Site Total:	0.30	--	--
^{1.} M1-SP is defined as Light Industrial with Site Performance Combining District, pursuant to the County's Zoning Code. ^{2.} IND is defined as Industrial, pursuant to the County's General Plan. ^{3.} M1 is defined as Light Industrial, pursuant to the County's Zoning Code.				

3.3 GENERAL PLAN BACKGROUND

The Nevada County General Plan was originally approved by the Board of Supervisors in 1996.¹ The General Plan has been subsequently amended in 2008 (Safety Element), in 2010 (Circulation Element and Housing Element, 4th Revision) and in 2014 (Land Use Element and Housing Element, 5th Revision). More recently the County Board of Supervisors has adopted amendments to the Safety and Noise Elements in October 2014. In addition, the Nevada County General Plan was updated to include updates to the 6th Cycle Housing Element (2019-2027), which was adopted by the Board of Supervisors on June 25, 2019 via Resolution No. 19-362. The Safety Element has been updated as a result of the 2017 update to the Local Hazard Mitigation Plan (adopted in 2018). The Board of Supervisors adopted the Safety Element on February 11, 2020 via Resolution No. 20-044. The Nevada County General Plan is the long-term policy guide for the physical, economic, and environmental future of the County.

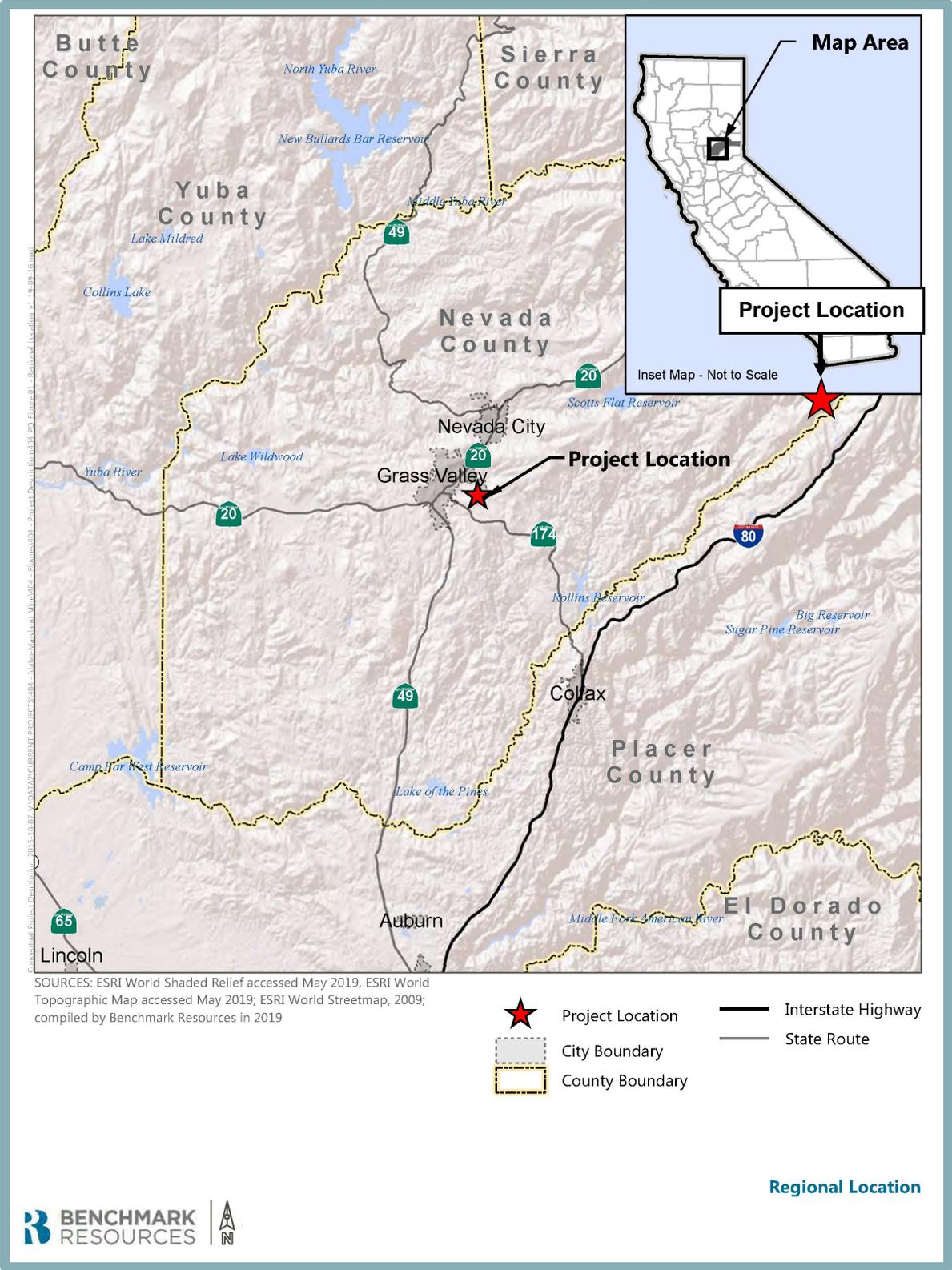
3.4 PROJECT SITE BACKGROUND

The project sites contain the historic Idaho-Maryland Mine underground gold mine. The mine produced 2,414,000 ounces of gold between 1866 and 1956. The mine has been inactive since closure in 1956, and was inactive for several periods during the 1866-1956 production period.

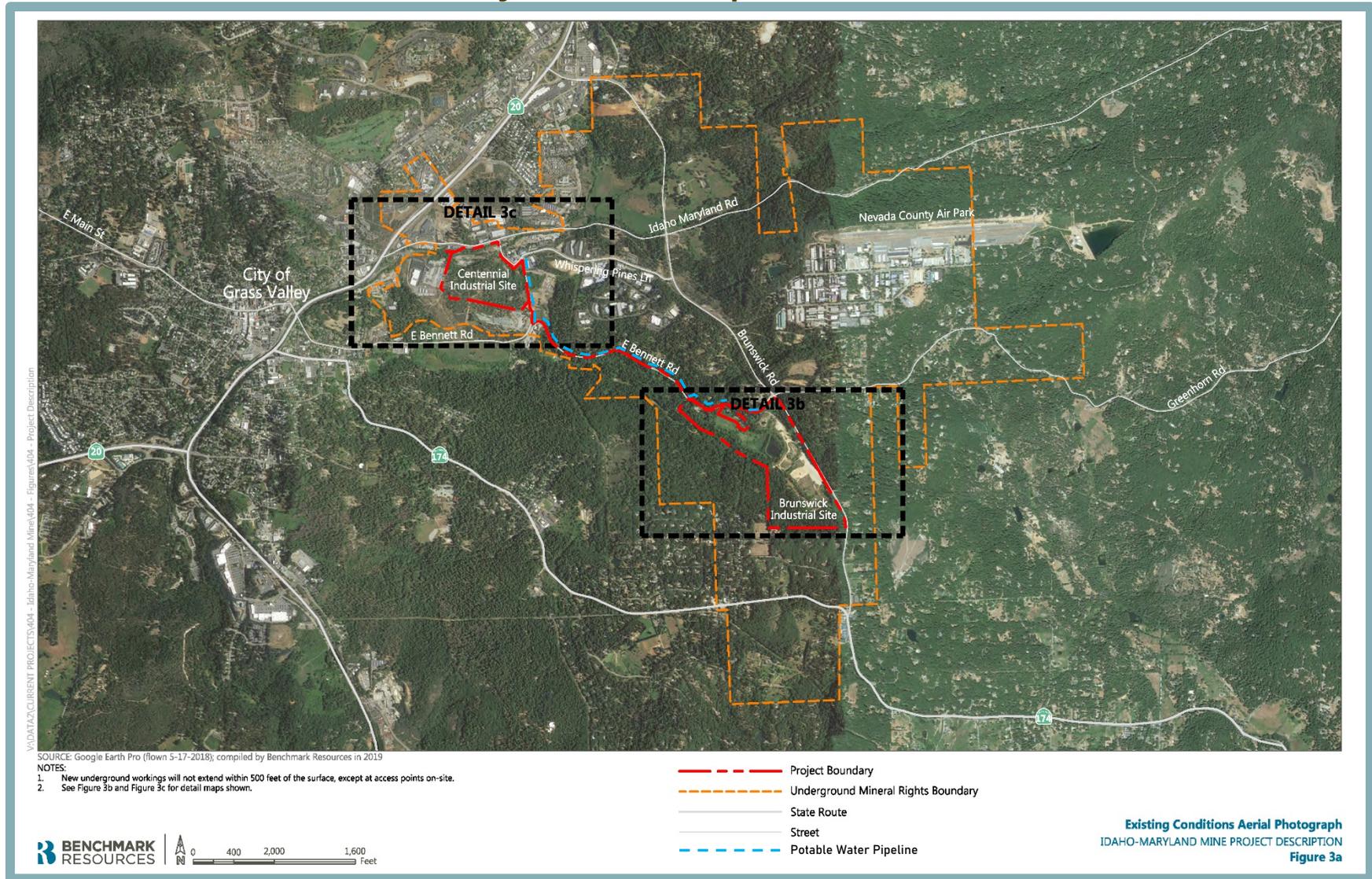
¹ Nevada County. *Nevada County General Plan*. Updated 2014.



**Figure 3-1
 Regional Location Map**



**Figure 3-2
 Project Location Map - Overview**



**Figure 3-3
 Project Location Map – Brunswick Industrial Site**

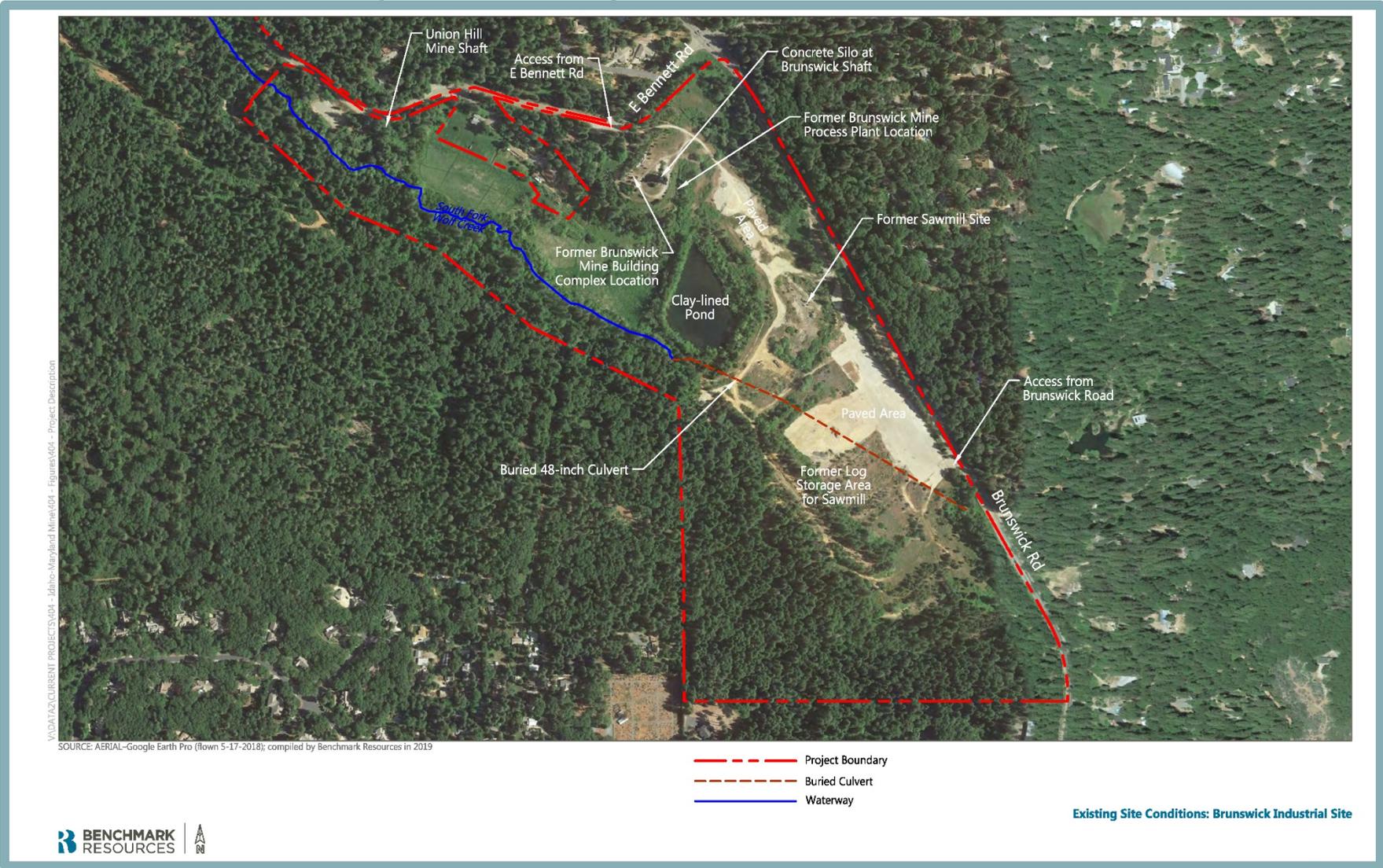
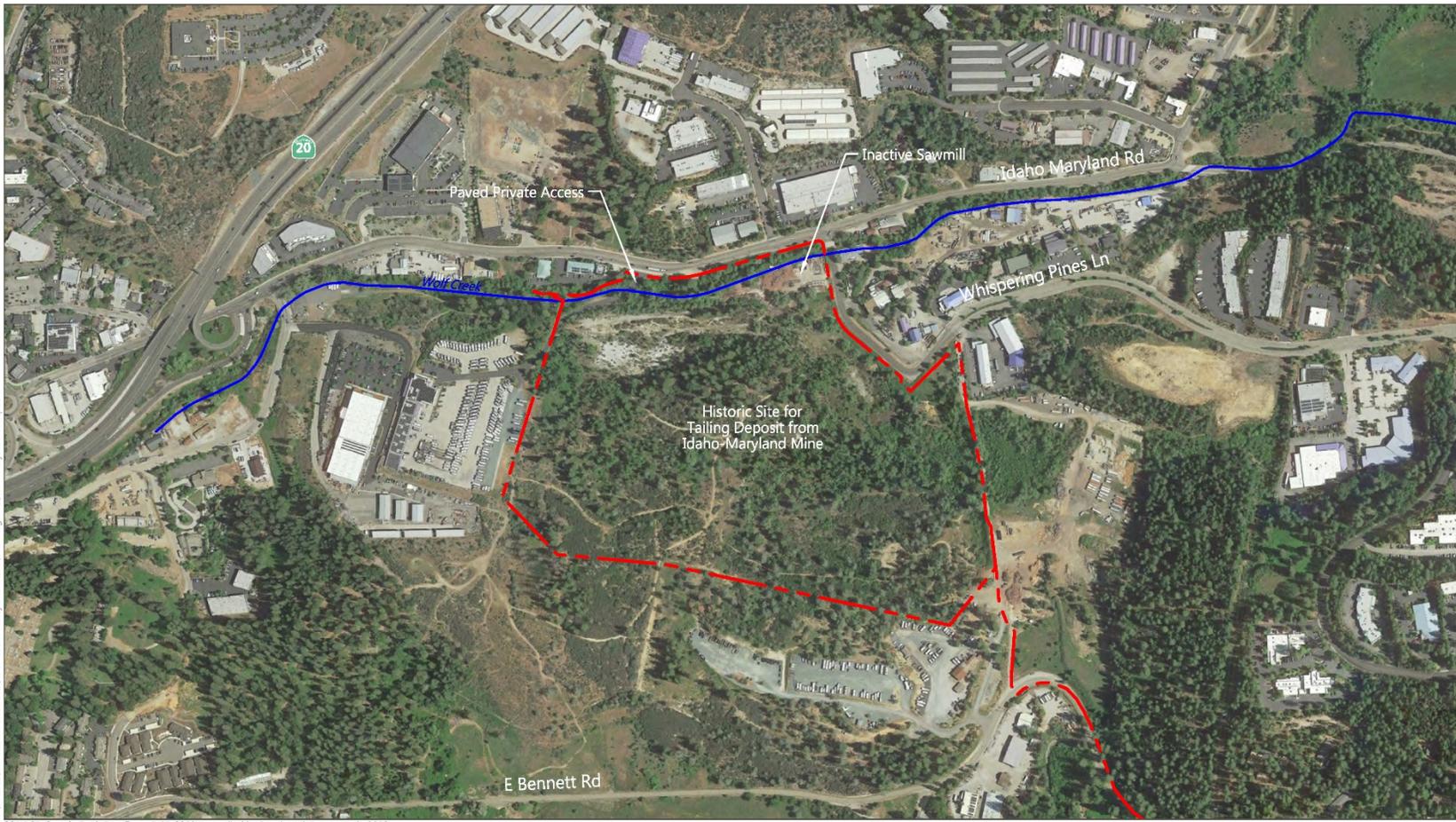


Figure 3-4
Project Location Map – Centennial Industrial Site



\\DATA\CURRENT PROJECTS\04 - Idaho-Maryland Mine\04 - Figures\04 - Project Description

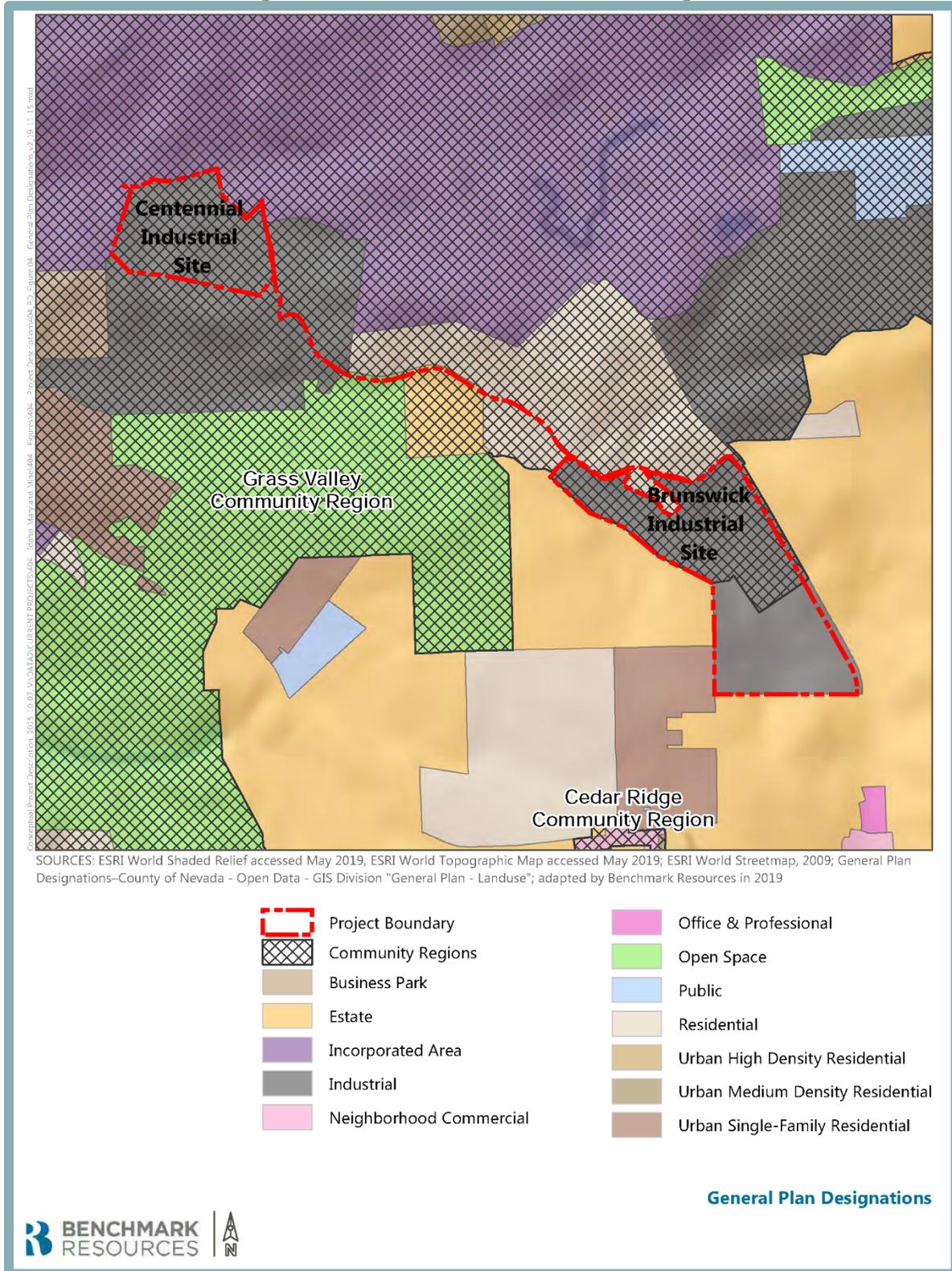
SOURCE: Google Earth Pro (flown 5-17-2018); compiled by Benchmark Resources in 2019

--- Project Boundary
--- Waterway

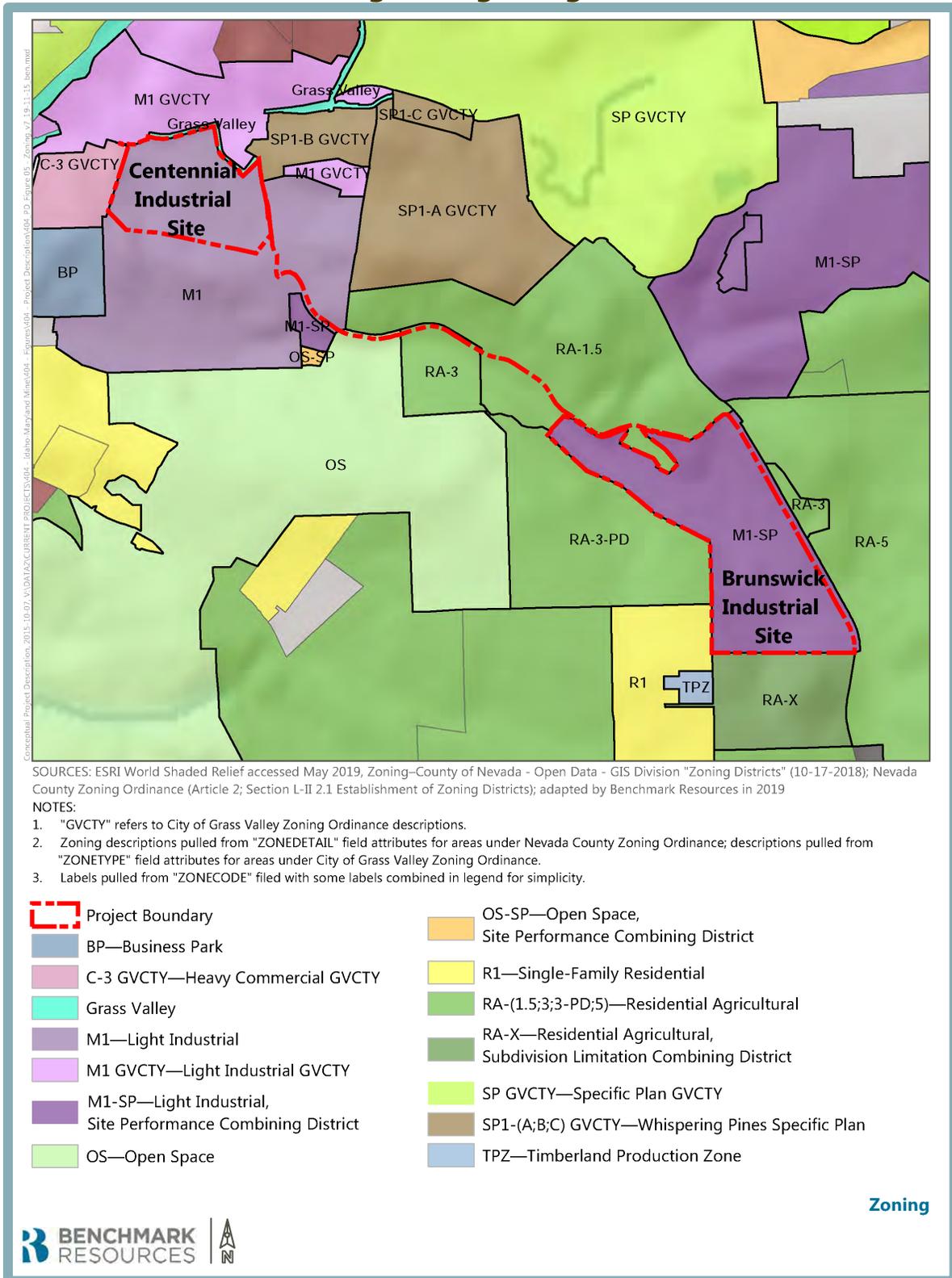
Existing Site Conditions: Centennial Industrial Site



**Figure 3-5
 Existing General Plan Land Use Designations**



**Figure 3-6
 Existing Zoning Designations**



The entire mine was allowed to flood with water in 1901 and was subsequently dewatered in 1904. The mine was again allowed to flood with water in 1904 and was subsequently dewatered in 1919. After its final closure in 1956, the mine was allowed to flood again.

In 1941, the Idaho-Maryland Mine employed approximately 1,000 workers and was California's largest lode gold mine and the second-largest lode gold mine in the U.S., based on annual production. The Idaho-Maryland Mine encompasses an extensive system of approximately 73 miles of underground tunnels, many raises, four inclined shafts, and two vertical shafts. The historic mining operation had extensive surface infrastructure adjacent to the Centennial Industrial Site and at the Brunswick Industrial Site, most of which has been dismantled and removed.

The Idaho-Maryland Mine as it now exists represents the consolidation of a number of important early day producing mines, including Eureka, Idaho, Maryland, Brunswick, and Union Hill Mines. The mines date back to the mid- to late-19th Century. The Eureka, Idaho, and Maryland mines are all located on the same vein, which is referred to as the Idaho #1 Vein. Mineralization was first discovered at an outcrop on the Eureka claim in 1851 and the Eureka Mine was a significant gold producer from 1863-1877. Mining at the adjacent Idaho Mine took place from 1867-1893. In the late 1800s, Maryland Gold Quartz Mining Co., which was formed to mine Maryland Mine, purchased the Idaho Quartz Mining Co. and its Idaho Mine. The name of the mine was changed to Idaho-Maryland Mine. In the early 1900s, the Idaho-Maryland Mines Company was formed and purchased the Union Hill Mine. In the 1920s, Errol MacBoyle and associates formed a holding company, Idaho Maryland Consolidated Mines, Inc., which purchased the Idaho-Maryland Mine. Subsequently, in the early 1930s, Idaho Maryland Consolidated Mines, Inc. acquired the Brunswick Mine from Brunswick Consolidated Gold Mining Company. As terminology can be confusing, it is important to note that after approximately 1926, "Idaho-Maryland Mine" referred to the entire consolidation of mines. However, as used in this EIR, "Idaho-Maryland Mine", when referring to the proposed project and dewatering of the mine, refers to the consolidated and interconnected Eureka, Idaho, and Maryland Mines, as well as the Brunswick Mine. The Idaho-Maryland Mine has three distinct sections (Idaho #1, Idaho #3, and Brunswick Mines), which are connected by underground workings. The Union Hill Mine is a smaller mine that was closed in 1918 and has been flooded with groundwater since then. The Union Hill Mine is not connected to the Idaho-Maryland Mine, but is near the Brunswick portion of the Idaho-Maryland Mine. The gold-quartz veins of the Union Hill Mine are believed to be part of the Brunswick vein system. Rise, which purchased the Idaho-Maryland Mine in 2017, is proposing to dewater the Idaho-Maryland Mine, but not the Union Hill Mine.

In 1993, the Emgold Mining Corporation (formerly known as Emperor Gold Corp.) purchased the Idaho-Maryland Mine property. In 1995, in an effort to reopen the Idaho-Maryland Mine, Emgold Mining Corporation acquired a Use Permit from Nevada County to dewater the mine. This permit was allowed to expire and work was not completed on the dewatering project. In 2005, Emgold submitted an application to the City of Grass Valley to annex to the City and dewater the Idaho-Maryland Mine and restart mining and processing operations.

Between 2005 and 2011, the City of Grass Valley initiated environmental review of the application consistent with CEQA. Emgold subsequently withdrew the annexation and Use Permit application.

A sawmill previously operated on the Brunswick Industrial Site into the early 2000s. All buildings related to the sawmill have been removed. A clay-lined pond, constructed for the sawmill circa 1988, and significant paved areas, remain from the sawmill operation.



The Centennial Industrial Site was historically used by the Idaho-Maryland Mine to deposit mine tailings and waste rock. Such mine tailings were never compacted. Some of the materials used to build the tailings berm and small quantities of mineralized rock contain elevated metals. As a result, under existing conditions, the majority of the Centennial Industrial Site cannot be developed because of unstable soils and/or contamination.

As discussed in the Introduction chapter of this EIR, the project applicant has entered into a Voluntary Cleanup Agreement with the California Department of Toxic Substances Control (DTSC) for the voluntary cleanup of soil contamination on Centennial Industrial Site. A Remedial Action Plan (RAP) has been prepared and is under review by DTSC. Under the plan, the project applicant would excavate soils within the former eastern and western tailing ponds and consolidate contaminated materials on-site, as well as stabilize contaminated materials within a small hot spot area by cement treatment prior to on-site consolidation. The 5.6-acre consolidation area would be located along the eastern boundary of the Centennial Industrial Site and capped with four feet of clean engineered soil, with the end result being an engineered fill pad. The environmental cleanup work at the Centennial Industrial Site will be completed under the DTSC voluntary cleanup program and is not a component of the proposed project. As discussed in Section 1.3 of the Introduction chapter, the baseline condition for the Centennial Industrial Site has been defined for analysis of certain resource subjects in the Draft EIR to reflect the post-remediation condition as discussed in Section 1.3. Additional detail regarding existing contamination issues is provided in Chapter 4.7, Hazards and Hazardous Materials, of this EIR.

3.5 PROJECT SETTING AND SURROUNDING LAND USES

The Brunswick Industrial Site consists primarily of open space, with remnants of the previous gold mining and sawmill operations still located on-site. The terrain of the open space portion of the Brunswick Industrial Site is typical of the lower Sierra Nevada foothills, varying between flat ridges and valleys to gently and moderately sloping hillsides. The Brunswick Site is located adjacent to South Fork Wolf Creek and is dominated by mixed hardwood-conifer forests and developed areas, with smaller areas of wetlands and annual grassland. Vegetation communities present within the site are discussed in further detail in Chapter 4.4, Biological Resources, of this EIR.

The Centennial Industrial Site, under the above-described baseline condition, consists of a 5.6-acre engineered fill pad along its eastern boundary, up to approximately 28 acres of graded, revegetated areas, and the remainder consisting of natural habitats, such as montane hardwood-conifer, chaparral, montane-riparian, and annual grassland.

As discussed in Section 3.4 above, underground gold mining occurred below the majority of the project sites, while aboveground portions of the sites were used for various gold mining and processing activities. Several shaft entrances are located on the Brunswick Industrial Site, including the Brunswick and Union Hill shafts. The shafts are covered to prevent inadvertent access. Other portions of the site include graveled or paved areas from previous land uses. Current operations at the Brunswick Industrial Site include those associated with Gold Country Senior Services, specifically, the cutting, storing, and distribution of firewood to seniors. Recent activities have also included use of the Brunswick Industrial Site by a contractor performing vegetation trimming for PG&E.

Surface drilling on the Brunswick Industrial Site is an allowed use pursuant to the site's M1-SP zoning designation. Exploration drilling is allowed pursuant to Nevada County Land Use and Development Code (LUDC), Section L-II 3.22.D.2 – Surface Mining Permits and Reclamation



Plans. Since 2018, Rise has been conducting exploration drilling to characterize underground resources in anticipation of future mining. Core from the drilling is logged and samples are analyzed off-site.

The project sites are surrounded by undeveloped open space, industrial, low-density residential developments, and commercial uses. Existing land uses surrounding the Centennial Industrial Site include commercial uses and the City of Grass Valley limits to the north, west, and east, and industrial uses to the north, south, and east. Existing land uses surrounding the Brunswick Industrial Site include low-density residences to the north, west, south, and east, industrial uses to the north, open-space to the west and south, and South Fork Wolf Creek to the west. Table 3-2 below provides a summary of the locations of the surrounding land uses and the receptors closest to the project site.

Table 3-2 Surrounding Land Uses and Closest Receptors			
Direction	Land Use	Zoning	Closest Land Use
Brunswick Industrial Site			
North	East Bennett Road, rural residential, industrial	Residential Agriculture (RA-1.5)	Residential
West	Undeveloped land, rural residential, South Fork Wolf Creek	Residential Agriculture (RA-3-PD)	Residential
South	Undeveloped land, rural residential	Single-Family Residential (R-1) and Residential Agriculture (RA-X)	Residential
East	Brunswick Road, Undeveloped land, rural residential	Residential Agriculture (RA-3) and Residential Agriculture (RA-5)	Residential
Centennial Industrial Site			
North	Grass Valley city limits, commercial, industrial, Idaho-Maryland Road	Grass Valley city limits – Commercial/Industrial (M-1 Grass Valley city limits), Grass Valley city limits – Special Districts (SP1-B Grass Valley city limits)	Commercial/Industrial
West	Grass Valley city limits, commercial	Grass Valley city limits – Commercial/Industrial (C-3 Grass Valley city limits) and Business Park (BP)	Commercial
South	Undeveloped land, East Bennett Road, industrial	Light Industrial (M1) and Open Space (OS)	Industrial
East	Grass Valley city limits, Centennial Drive, industrial, commercial	Grass Valley city limits – Special Districts (SPA1-A Grass Valley city limits)	Industrial/Commercial

3.6 PROJECT OBJECTIVES

The following objectives have been developed by the project applicant for the proposed project:

- Construct a commercially viable, financeable, major underground gold mine operation that will produce 1,000 tons per day (365,000 tons per year) of gold mineralization.
- Locate the project on property that Rise Grass Valley, Inc. owns that provides existing access to the underground workings.



- Utilize existing underground access points to limit new aboveground and underground surface disturbance.
- Locate the facilities necessary to support dewatering, mining, and processing on land historically disturbed and zoned for similar industrial type uses.
- Locate the majority of project facilities within a large property holding to provide buffer areas and minimize the potential for adverse environmental effects on neighboring properties.
- Provide property owners along East Bennett Road a reliable and clean potable water source from the NID.
- Provide jobs that provide a fair living wage for educated and skilled workers.
- Increase the usable land area at the Centennial Industrial Site to allow its future use as industrial land.
- Increase the usable land area at the Brunswick Industrial Site to allow its future use as industrial land.
- Minimize impacts to wetlands, vernal pools, and other special-status species habitat located on the Brunswick and Centennial Industrial sites and, to the extent feasible, mitigate any such impacts identified.

3.7 PROJECT COMPONENTS

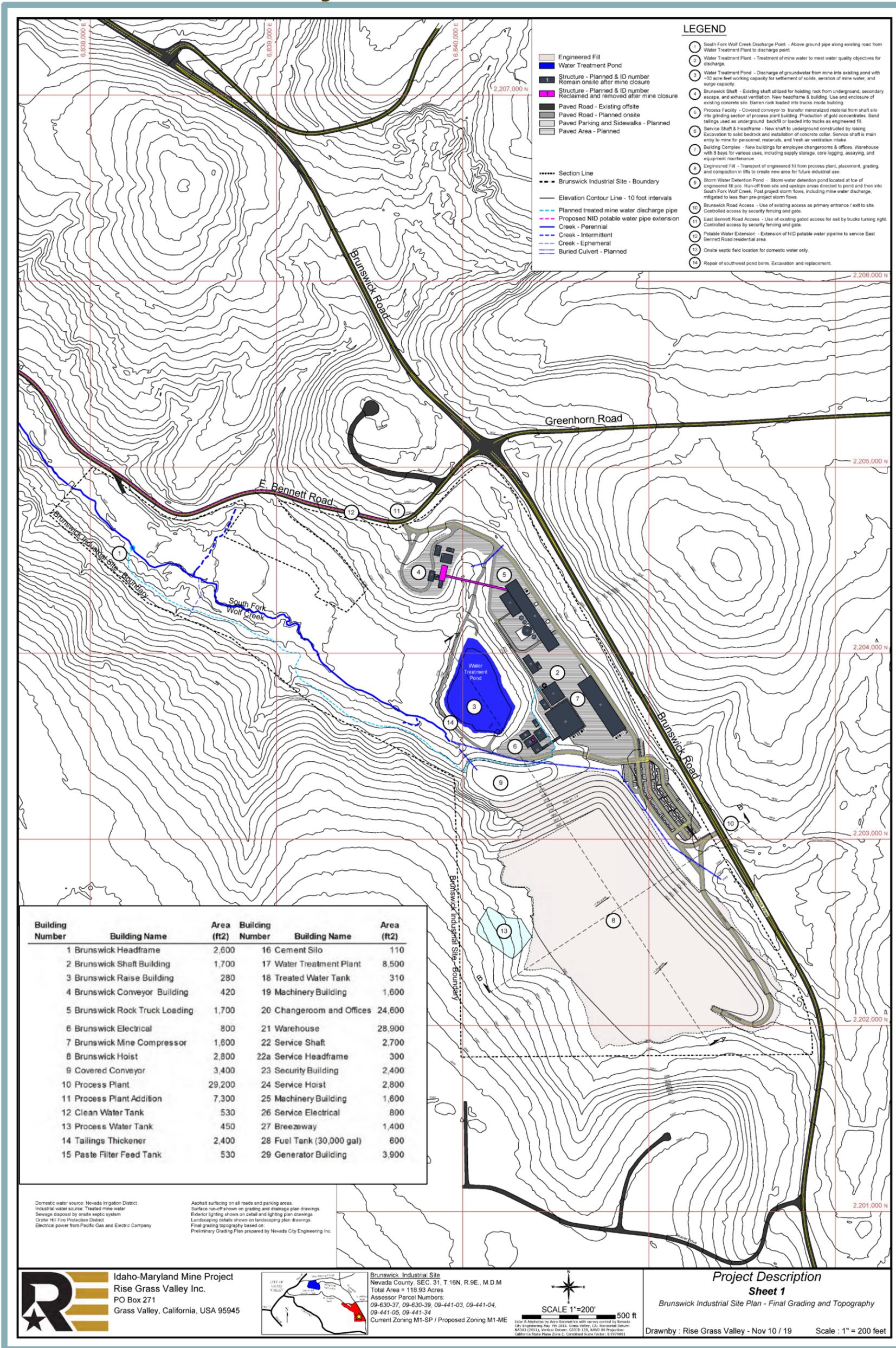
The proposed project would reinstate underground mining and gold mineralization processing for the Idaho-Maryland Mine over an 80-year permit period. Following completion of mining and processing activities, the project sites would be reclaimed to open space and industrial uses. The following sections provide an overview of these general project components:

- Dewatering the underground mine workings;
- Construction and operation of aboveground processing and water treatment facilities at the Brunswick Industrial Site;
- Engineered fill placement for potential future industrial pad development at the Centennial and Brunswick Industrial Sites;
- Installation of a potable water pipeline for residential potable water supply; and
- Reclamation of the project sites in accordance with the proposed Reclamation Plan.

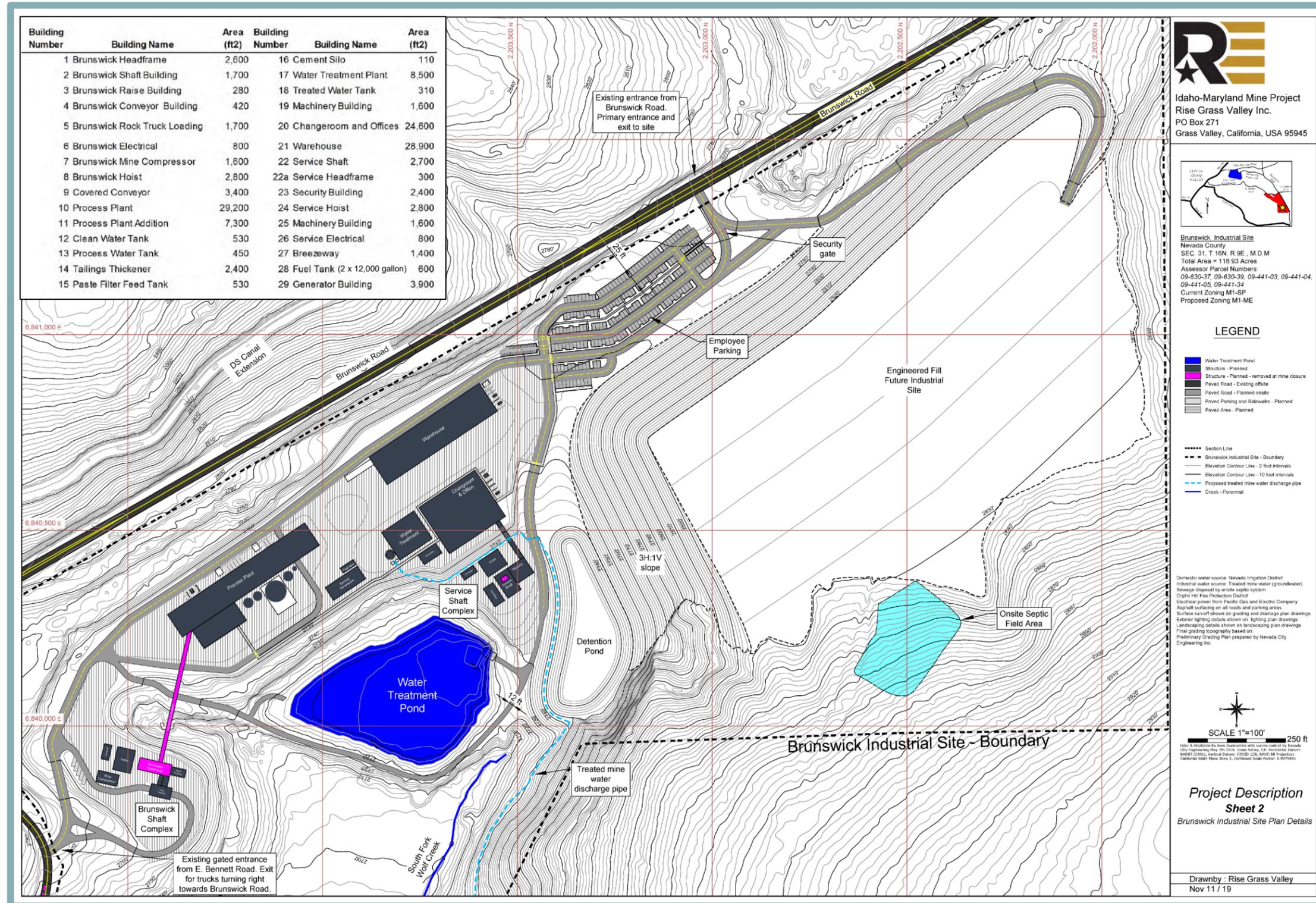
The majority of aboveground facilities, the access to the underground mining, the treated-water outfall structure, and a portion of the engineered fill would be located on the Brunswick Industrial Site. The approximately 29-acre aboveground area would provide all the facilities and infrastructure necessary to support dewatering, water treatment, underground mining, gold mineralization and rock processing, and loading and transport off-site. An aboveground pipe would convey treated water from the water treatment facility along an existing road to the planned discharge point at South Fork Wolf Creek. The pipe and discharge point would be located entirely within the property boundaries. Engineered fill would be placed on approximately 31 acres of the Brunswick Industrial Site to create a level pad of approximately 21 acres for future industrial use. In total, up to approximately 60 acres of the 119-acre Brunswick Industrial Site could be subject to surface disturbance and/or development for the aboveground facilities and fill placement. The remaining 59 acres would remain as open space and would not be subject to surface disturbance or infrastructure improvements. Figure 3-7 and Figure 3-8 provide an overview of the proposed site improvements at the Brunswick Industrial Site.



**Figure 3-7
 Grading Plan – Brunswick Industrial Site**



**Figure 3-8
Site Plan – Brunswick Industrial Site**



Engineered fill would also be placed on the Centennial Industrial Site. Engineered fill would be transported by truck from the Brunswick Industrial Site and placed on approximately 44 acres of the Centennial Industrial Site to create approximately 37 acres for future industrial use. The remaining approximately 12 acres would remain as a private driveway for site access and open space. The open space area will include Wolf Creek, a 100-foot setback for riparian area on Wolf Creek, and an undisturbed zone containing special-status plant species. Figure 3-9 provides an overview of the proposed site improvements at the Centennial Industrial Site.

Of the total 175 acres included in the project sites, approximately 104 acres would be disturbed as a result of construction of the facilities proposed to support dewatering, mining, and processing at the Idaho-Maryland Mine, as well as engineered fill placement.

Dewatering

The Idaho-Maryland Mine would be dewatered using the Brunswick shaft to access the underground workings. The dewatering process and aboveground facilities necessary to support dewatering are explained in the following sections.

Initial Mine Dewatering Process

The existing Brunswick shaft located on the northeast side of the Brunswick Industrial Site will provide access to the underground workings for dewatering. Currently, groundwater has filled the underground workings to approximately 260 feet below ground surface (bgs), measured at the Brunswick Shaft. The groundwater would need to be removed to access the underground workings for mining.

Initial dewatering of the underground workings would be accomplished using submersible and staged centrifugal pumps. The submersible pump gradually pumps water out of the shaft through a pipeline at a rate of approximately 5.6 cubic feet per second (cfs), or 2,500 gallons per minute (gpm). Approximately 2,500 acre-feet of groundwater would be pumped from the underground workings over an approximately six-month period. The groundwater would be pumped through a new pipeline to an existing clay-lined settling pond for water treatment. The clay-lined pond has a total capacity of approximately 40 acre-feet.

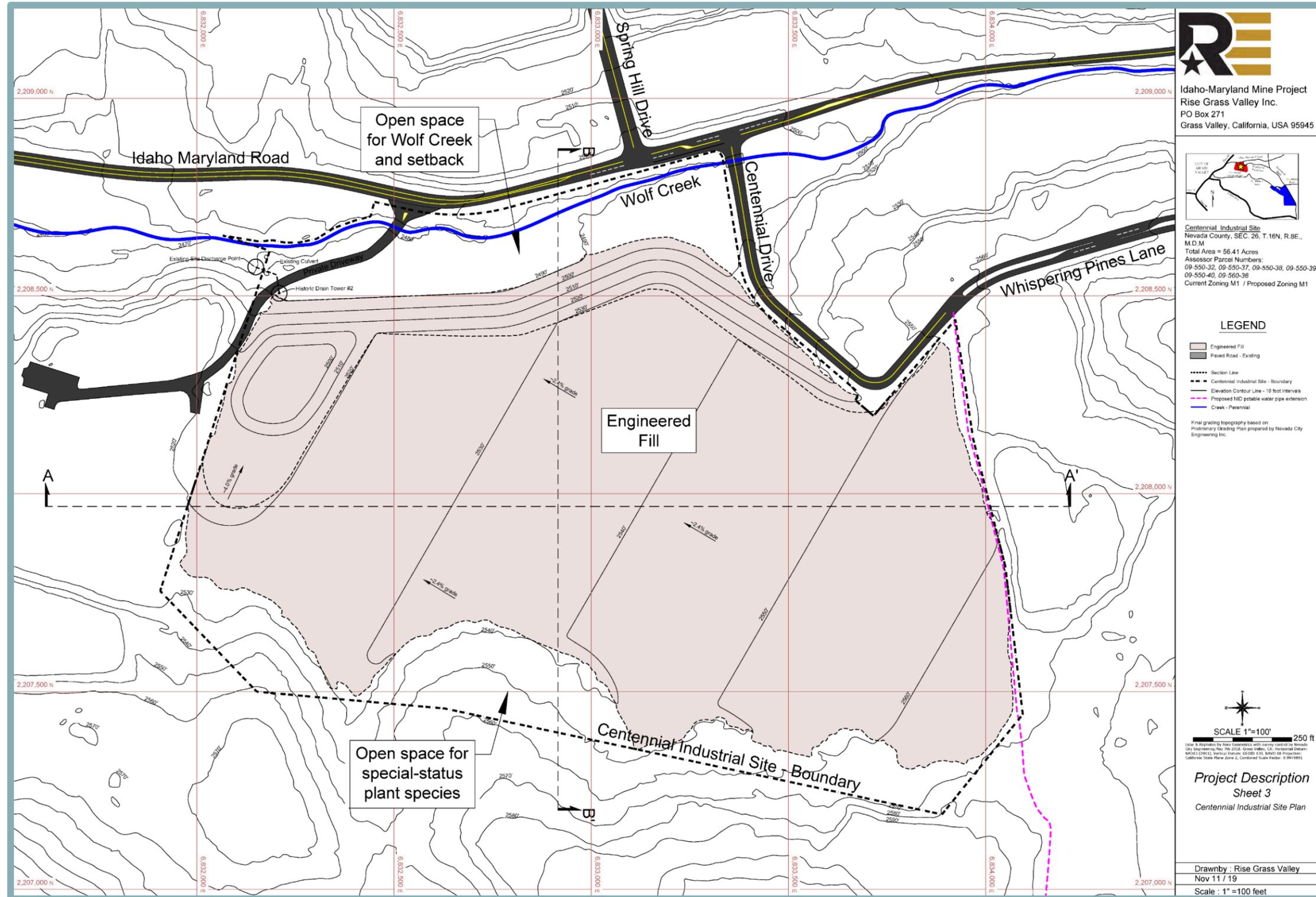
A headframe and hoist at the Brunswick shaft would be installed before initial dewatering begins. Ventilation would be provided by a fan located on the surface and ducting into the Brunswick shaft until the service shaft is complete and the permanent underground ventilation fan can be installed.

Water Treatment

Water produced during dewatering would be treated prior to discharge to South Fork Wolf Creek. It is anticipated that the discharge would occur in compliance with the Central Valley Regional Water Quality Control Board (CVRWQCB) Order No. R5-2016-0076, National Pollutant Discharge Elimination System (NPDES) No. CAG995002, which was adopted on October 14, 2016. This order is a general Waste Discharge Requirements permit for Limited Threat Discharges to Surface Water. The discharge of treated water from the mine would be covered as Tier 3 discharge of hard rock mine wastewater. Under Table 3 of the Limited Threat Discharge Permit, Tier 3 discharges to surface water that are greater than 250,000 gallons per day (gpd) (greater than 175 gpm) and/or that are longer than four months are allowed if the water to be discharged (with or without treatment) meets the applicable screening levels in the permit. To be authorized as a Tier 3 discharge water treatment is required. With the proposed treatment described below, all parameters would meet the screening levels and effluent limitations.



Figure 3-9
Site Plan – Centennial Industrial Site



RE
 Idaho-Maryland Mine Project
 Rise Grass Valley Inc.
 PO Box 271
 Grass Valley, California, USA 95945



Centennial Industrial Site
 Nevada County, SEC. 26, T. 16N, R. 8E.,
 M.D.M.
 Total Area = 56.41 Acres
 Assessor Parcel Numbers:
 09-550-32, 09-550-37, 09-550-38, 09-550-39,
 09-550-40, 09-560-36
 Current Zoning M1 / Proposed Zoning M1

LEGEND

- Engineered Fill
 - Paved Road - Existing
 - Section Line
 - Centennial Industrial Site - Boundary
 - Elevation Contour Line - 10 foot intervals
 - Proposed NID potable water pipe extension
 - Creek - Perennial
- Final grading topography based on:
 Preliminary Grading Plan prepared by Nevada City
 Engineering Inc.



SCALE 1"=100' 250 ft
Used & Reproduced by Rise Grass Valley with survey control by Nevada City Engineering, May 7th 2018, Grass Valley, CA. Horizontal Datum: NAD83 (2011), Vertical Datum: CGVD 570, NAVD83 Projection: California State Plane Zone 2, Combined Scale Factor: 0.9971852

Project Description
 Sheet 3
 Centennial Industrial Site Plan

Drawn by: Rise Grass Valley
 Nov 11 / 19
 Scale: 1"=100 feet



The applicant will be required to file a Notice of Intent (NOI) for coverage under the Limited Threat Discharge permit, which will include a detailed description of the dewatering, treatment, and discharge components of the project. The applicant will need to receive a Notice of Applicability (NOA) from the Water Board before dewatering can begin.

Recent groundwater sampling identified two constituents of concern, iron and manganese, above State Regional Water Quality Board discharge standards. As described above, groundwater will be pumped from existing underground workings to the existing approximately 30-acre-foot (working capacity), clay-lined settling pond. The settling pond would be used for water storage and removal of total suspended solids. An aeration system would be installed in the settling pond to oxygenate the water, which would precipitate (i.e., create a solid from a solution) a significant portion of dissolved iron and manganese. Settled solids and precipitated iron and manganese would be contained in the clay-lined settling pond, which would be removed approximately every 10 years. The solids removed from the pond would be hauled to an appropriate and approved landfill off-site. In addition, the southwest portion of the water treatment pond berm would be excavated and rebuilt before dewatering commences; and the clay liner of the pond will be covered with a geomembrane liner to ensure no seepage from the pond occurs.

Water would then be pumped to the proposed water treatment plant (WTP) and filtered to remove the remaining iron and manganese. While the water is being conveyed to the treatment plant, a small dose of chemical oxidant [sodium hypochlorite (NaOCl) or potassium permanganate (KMnO₄)] will be added to enhance the kinetics of the reaction under all surface conditions, such as seasonal variations. Filtration through natural, mined manganese dioxide (MnO₂) media would be the first step in the WTP. MnO₂ was identified as the preferred, primary form of treatment due to its efficient removal characteristics for iron and manganese, whereby it filters solids that are precipitated during the oxidation process (occurring in the pond), and will also act to catalytically oxidize and adsorb any residual soluble iron and manganese remaining in the “feed” water (i.e., water fed into the WTP for treatment). According to the Water Treatment Plant Design Report, mined MnO₂ will remove the contaminants of concern (iron and manganese) to compliant levels, specified in the CVRWQCB’s NPDES Permit No. CAG995002.² Based on current groundwater quality conditions, this level of treatment is sufficient to meet State discharge standards; however, the WTP design includes secondary treatment using granular activated carbon (GAC) vessels to add robustness in the event that influent water quality worsens during periods of active mining. GAC is an effective barrier for many water pollutants and can be reused.

The treatment process would also reduce the concentrations of arsenic and ammonia, both of which have been detected in low concentrations in surface seeps near the mine. Oxidized arsenic will be adsorbed by precipitated iron and then adsorbed by the MnO₂ filter media. The low concentrations of ammonia (NH₃) will be removed by the aeration process occurring in the pond. As a contingency, sodium hydroxide, commonly used in water quality treatment processes to adjust pH, will be included in the State permitting efforts for the WTP should it become necessary to treat NH₃ in higher concentrations than have been previously detected. This may occur as a result of explosives used during periods of active mining.

Periodic backwashes of the MnO₂ and GAC media vessels, which would release filtered and adsorbed solids, would be directed to a mechanical solids separation process, such as centrifugation, or belt or drum filters, in order to segregate the solids from the pyrolusite media

² Linkan Engineering. *Idaho Maryland Water Treatment Plant Design Report* [pg. 2-6]. February 2021.



backwash stream that will be returned to the clay-lined pond. In this manner, the pond will remain unaffected by the solids generated by backwash events.

The water stored in the finish water tank would provide the final effluent which would be pH adjusted to meet regulatory compliance standards prior to being discharged to the South Fork of Wolf Creek. It is anticipated that this pH adjustment would be performed by adding a small dose of sulfuric acid, commonly used in municipal treatment systems, to the treated effluent if necessary. Only fully treated water, meeting the State's discharge requirements, will be routed to South Fork Wolf Creek for discharge.

Consistent with State NPDES Permit requirements, the WTP will have backup power source (i.e., generators) in the event of electric power failure.

Ongoing monitoring of influent and effluent (i.e., treated water) will be required by the State, in order for the applicant to receive coverage under the State's Limited Threat Discharge Permit (General Order R5-2016-0076; NPDES No. CAG995002). Monitoring of treated water would occur at a location specified by the State prior to the point of discharge at South Fork Wolf Creek. The owner will be required to submit quarterly monitoring reports to the State Regional Water Quality Control Board, demonstrating compliance with the maximum daily effluent limitations specified in the NPDES permit.

Treated Water Pipeline and Outfall

Treated groundwater from the proposed water treatment plant would be pumped through a new aboveground pipeline along an existing access road on the property to a new outfall located adjacent to South Fork Wolf Creek. Figure 3-7 shows the treated water pipeline route and approximate location of the outfall structure. All discharges from the water treatment plant will be discharged into South Fork Wolf Creek pursuant to the requirements of the CVRWQCB, NPDES, Number CAG995002. The water discharged into South Fork Wolf Creek is expected to be at least as good or better quality than the water typically flowing through South Fork Wolf Creek.

The treated water pipeline would cross a Pacific Gas and Electric Company (PG&E) power distribution line and a NID water line easement. At the easement location, the treated water pipeline would be placed in a manner allowing maintenance vehicles to pass over the pipe, and also allow the pipe to be decoupled and moved easily for maintenance.

Operational Dewatering

Groundwater is anticipated to continue to infiltrate the underground workings at a rate of approximately 1.9 cfs (850 gpm) once dewatering is complete. The permitted discharge of 5.6 cfs would provide flexibility to meet the operational requirements for continuous mine dewatering throughout the mine's operation. Operational dewatering during exploration and mining will require the use of centrifugal pumps and sumps at specific elevations during the production life of the mine. Similar to the initial dewatering effort, although at a reduced quantity, groundwater would be pumped to the surface and settling pond through a pipe for water treatment.

Underground Mining

Exploration and mining of the underground workings would begin once dewatering is complete. Exploration and mining would occur 24 hours a day, seven days a week. A detailed description of such activities is provided in the following sections.



Exploration

Underground exploration would take place after mine dewatering is complete and throughout the life of the mine. Exploration would be done primarily with diamond core drilling throughout the mine area. Exploration would produce core samples that would be brought to the surface for analysis to determine future mining areas.

Mine Development (Tunneling)

To provide access to the gold mineralization, an extensive network of tunnels and raises would be constructed throughout the life of the mine. The tunnels would be constructed in the nonmineralized rock which, at the mine, is typically meta-andesite volcanic rock. The tunnels would be constructed in 10-foot advances per blast (a “round”). A number of parallel holes would be drilled into the rock face, loaded with explosives, and then detonated to fragment the rock. The broken rock would be moved to the surface, the tunnel would be supported with rock bolts and screen, and then the process would start again to continue advancing the tunnel. A number of tunnels would be under construction throughout the mine area at all times during the life of the mine. Explosives to be used would include ammonia nitrate fuel oil (ANFO) and packaged or bulk emulsion explosives. Transportation of explosives to the site is discussed below under the section titled, “Haul/Transport Truck Operations”. On-site storage of explosives is discussed further in this section.

New underground tunnels and raises would be created as necessary to access gold-quartz veins or provide the necessary underground infrastructure to transport rock and provide ventilation and escape routes. The location, size, and depth of new underground workings would depend on surface and underground drilling and mineral testing. New underground workings, except for the service shaft and new ventilation raise, would be below 500 feet of the ground surface. All underground workings would remain within the boundaries of the project applicant’s existing underground mineral rights, shown in Figure 3-2.

Mine development in nonmineralized “barren” rock (i.e., non-gold bearing) is expected to result in the production of approximately 500 tons per day (182,500 tons per year) of barren rock. The barren rock would be transported from the tunnel face to the mine shaft (using electric or diesel-powered load/haul/dump vehicles, rail cars, and/or conveyors) to underground rock bins located adjacent to the shaft. The rock would then be loaded into the shaft skips, hoisted to the surface, and dropped into one of the compartments of the concrete silo located on the surface. The barren rock will then be transported by trucks on the surface for use as engineered fill.

Gold Mineralization Production (Tunneling and Production Blasting)

Generally, mining of a block of gold mineralization begins by creating horizontal tunnels along the length of a gold-quartz vein, using similar techniques as described in the previous section. Horizontal tunnels are created through the body of mineralization on vertical spacing of approximately every 50 feet. Once the tunnels are completed, a pattern of drill holes are drilled between the two levels. The long holes are then loaded with explosives and detonated to fragment the mineralized rock so that the rock can be transported to the shaft and then to the surface.

Gold mineralization production through tunneling and long-hole blasting as part of the proposed project is anticipated to produce 1,000 tons per a day (365,000 tons per year) of mineralized material. Approximately 50 percent of the mineralization would be returned to the underground mine as backfill after processing, and the remainder would be used for engineered fill.



Asbestos, Serpentinite, and Ultramafic Rock Management

Rise Grass Valley Inc. has prepared and will implement an Asbestos, Serpentinite, and Ultramafic Rock Management Plan (ASUR Plan), which incorporates measures designed to minimize asbestos in the engineered fill produced by the project, as well as minimize the emission of asbestos-containing dust from the underground mine. The ASUR Plan builds on the provisions of applicable regulations, including the two CARB Airborne Toxic Control Measures (ATCMs) for naturally occurring asbestos (i.e., ATCM for Surfacing Applications [17 California Code of Regulations (CCR) 93106] and ATCM for Construction, Grading, Quarrying and Surface Mining Operations [17 CCR 93105]), and includes additional measures beyond what is required in the ATCMs in order to limit any potential emission of asbestos dust and to protect human health and the environment. The ASUR plan incorporates routine asbestos testing by Transmission Electron Microscopy (TEM) and an Asbestos Inventory to ensure that average mined material and engineered fill contains less than 0.01% asbestos by mass of Phase Contrast Microscopy (PCM) equivalent units.

Explosives Storage and Use

Upon delivery to the project site, explosives and detonators would be immediately transported underground and placed in separate magazines pursuant to 29 Code of Federal Regulations (CFR) 1926.904, subdivision (b), and 8 CCR 5251, subdivision (a). The explosives and detonators would be moved and stored underground in auxiliary facilities - they would not be stored on the surface. The auxiliary facilities would be located in an area of the underground mine suitable for such storage use, and would consist of wooden, box-type containers equipped with covers or doors, or facilities constructed or mined-out to provide equivalent impact resistance and confinement so as to comply with 30 CFR 57.6161, subdivision (a). The auxiliary facilities will be located in such a way so as to ensure that escape routes are not obstructed, and will be located a safe distance from underground workings, tunneling and construction operations, shafts, electrical wiring, and combustible rubbish, as is required by 29 CFR 1926.904, 30 CFR 57.6161 and 8 CCR 5258.

The Hazardous Material Inventory Statement for Brunswick provides that a maximum of 28,000 pounds of explosives will be stored underground. Rise intends to use approximately 0.93 tons of explosives and approximately 257 detonators per day to facilitate Rise's mining operations at the Brunswick Industrial Site. Please refer to Chapter 4.7, Hazards and Hazardous Materials, for additional discussion of explosives.

Backfill

Mining of gold-quartz veins creates voids that will be filled as mining progresses to ensure the stability of the underground workings. Sand tailings produced by mineral processing on the surface will be blended with cement and water and pumped back into the mine to backfill mined voids. Approximately 50 percent of the sand tailings (500 tons per day) would be placed underground as cemented paste fill.

Aboveground Facilities Construction and Operations

To support the proposed dewatering and underground mining, aboveground structures and processing facilities would need to be constructed. As shown in Figure 3-7 and Figure 3-8, approximately 15 acres of previously disturbed land on the northeast side of the Brunswick Industrial Site would be graded to construct the ventilation system, headframe and hoist, water treatment plant, collar replacement, mineral processing plant, service shaft, various buildings, internal roads, and parking areas. Site grading would create a flat pad with a 1- to 2- percent



grading toward a storm drain system and detention pond to collect sheet flow. Areas would be covered with asphalt or concrete as necessary to support facilities construction. The Brunswick Industrial Site currently has approximately nine acres of impervious asphalt paving from previous land uses. Some of the existing asphalt areas would be removed and some would be reused. After completion of construction, the impervious surfaces and buildings would cover a total of approximately 15 acres of the Brunswick Industrial Site. The following sections provide a description of the aboveground facilities to be constructed and their operation.

Brunswick Shaft Entrance Improvements

The following provides a description of improvements associated with the Brunswick shaft entrance.

Collar Replacement and Shaft Refurbishment

The Brunswick shaft is currently covered and would require improvements before installation of ventilation, a headframe and hoist system, and associated infrastructure (e.g., power lines, dewatering pipes, communications) to support underground exploration and mining. The existing concrete collar, which extends through the overburden (soil and weathered rock) from surface to solid bedrock, would be replaced with a new concrete collar to approximately 40 feet bgs. In addition, because groundwater is currently approximately 260 feet bgs, many of the timbers above the groundwater level supporting the shaft are anticipated to have suffered rot and would need to be replaced. Timbers would be replaced with new timbers or similar engineered support structures. As dewatering occurs and additional timbers are exposed, timbers would be replaced as necessary.

Ventilation Raise and Exhaust System

The Brunswick shaft would be used as the return air or exhaust for the mine. To allow sufficient air flow, a second shaft would be constructed adjacent to the Brunswick shaft from the surface to 580 feet deep. This shaft would be constructed by raise boring upward from 580 feet underground, and not by blasting, to ensure the existing shaft is not damaged. A building over the new ventilation raise and the Brunswick shaft would direct exhaust mine ventilation air up through the headframe, where exhaust air would exit at a height of approximately 165 feet aboveground.

The combined shafts would be sized to allow a total mine ventilation capacity of approximately 200,000 cubic feet per minute (cfm). Ventilation is necessary to provide fresh air for underground workers.

Underground Support Systems Infrastructure

As initial dewatering exposes the underground workings, but before underground mining operations begin, a variety of support systems would be installed to ensure safe and consistent underground mining operations. A ventilation system would be installed to provide fresh air from aboveground to workers underground. Aboveground facilities necessary to support pumping of fresh air underground include a primary ventilation fan and duct work. The primary ventilation fan would have housing on its sides and a silencer to reduce noise levels. The front of the ventilation fan would have a vent connected to duct work that would carry air underground. In addition, secondary fans would be installed underground to promote air circulation. The ventilation system would be electric.

Once the service raise is completed and the permanent ventilation system is constructed, the primary ventilation fans would be located underground and the temporary ventilation fan on the



surface at the Brunswick shaft would be removed. In addition, a variety of cables and pipes would be needed to transport electrical power, compressed air, and service water underground. Electrical power would be provided by a line power substation and/or aboveground generator to support underground lighting, electrical mobile equipment, and other infrastructure. Aboveground compressors would supply compressed air, which would power tools and equipment.

Hoist and Headframe

Installation of a new hoist and headframe would be necessary to support the transport of employees, supplies, barren rock, and mineralized rock to the surface once the underground workings have been dewatered. The proposed approximately 165-foot-high headframe would be a structural support that would be constructed out of steel above the Brunswick shaft and enclose the existing concrete silo (see Figure 3-10). The headframe would support the cable(s) that would be connected to the hoist on one end and the mine cage and skips on the other end. The headframe and silo would be enclosed inside a pre-engineered metal building and the hoist would be housed in a separate pre-engineered building.

Rock Bin Conveyors and Barren Rock Loading Area

The existing concrete rock silo would be reused. The rock silo has two small compartments and one large compartment. A chute and conveyor system would transfer barren rock from the silo into trucks for transport as engineered fill. The conveyor system and truck loading area would be inside a small building adjacent to the headframe. A chute and covered conveyor system, approximately 335 feet long, would transfer gold mineralization from the silo to the process plant.

Service Shaft

A new mine shaft would be developed on the Brunswick Industrial Site (see Figure 3-7 and Figure 3-8 above, and Figure 3-11 below). The service shaft may be circular or rectangular, depending on the methods used in its construction. The service shaft would be approximately 1,000 feet southeast of the existing Brunswick shaft and developed to at least 3,280 feet bgs. The service shaft would connect to existing underground workings accessible from the Brunswick shaft. The service shaft would be equipped with a hoist and headframe that is approximately 80 feet high to provide movement of workers and materials underground, fresh air ventilation intake, and various services such as compressed air, electricity, and pipes. Barren or mineralized rock removal would not occur from the proposed service shaft. The service shaft would be sized to ventilate approximately 200,000 cfm of fresh air.

The overburden (i.e., soil and weak rock) would be excavated from the surface and a concrete collar installed from the surface profile to the bedrock. The depth to bedrock is approximately 60 feet. The overburden material would be excavated to allow the shaft and concrete collar to be constructed, and then the overburden would be placed and compacted around the concrete collar to the original ground surface elevation.

The proposed service shaft excavation in rock would be constructed from the underground mine workings upward to the surface through a process called 'raising'. The raise excavation could be completed using either mechanical raise boring or Alimak raising:

- **Raise boring** is carried out using a raise bore machine located on the surface. A drill hole is made from the surface to the underground workings. After a cutting head is attached underground to the end of the drill pipe, the raise bore machine pulls the rotating cutting head upward to create a circular excavation in a continuous process.



**Figure 3-10
 Brunswick Shaft Headframe Building Elevation**

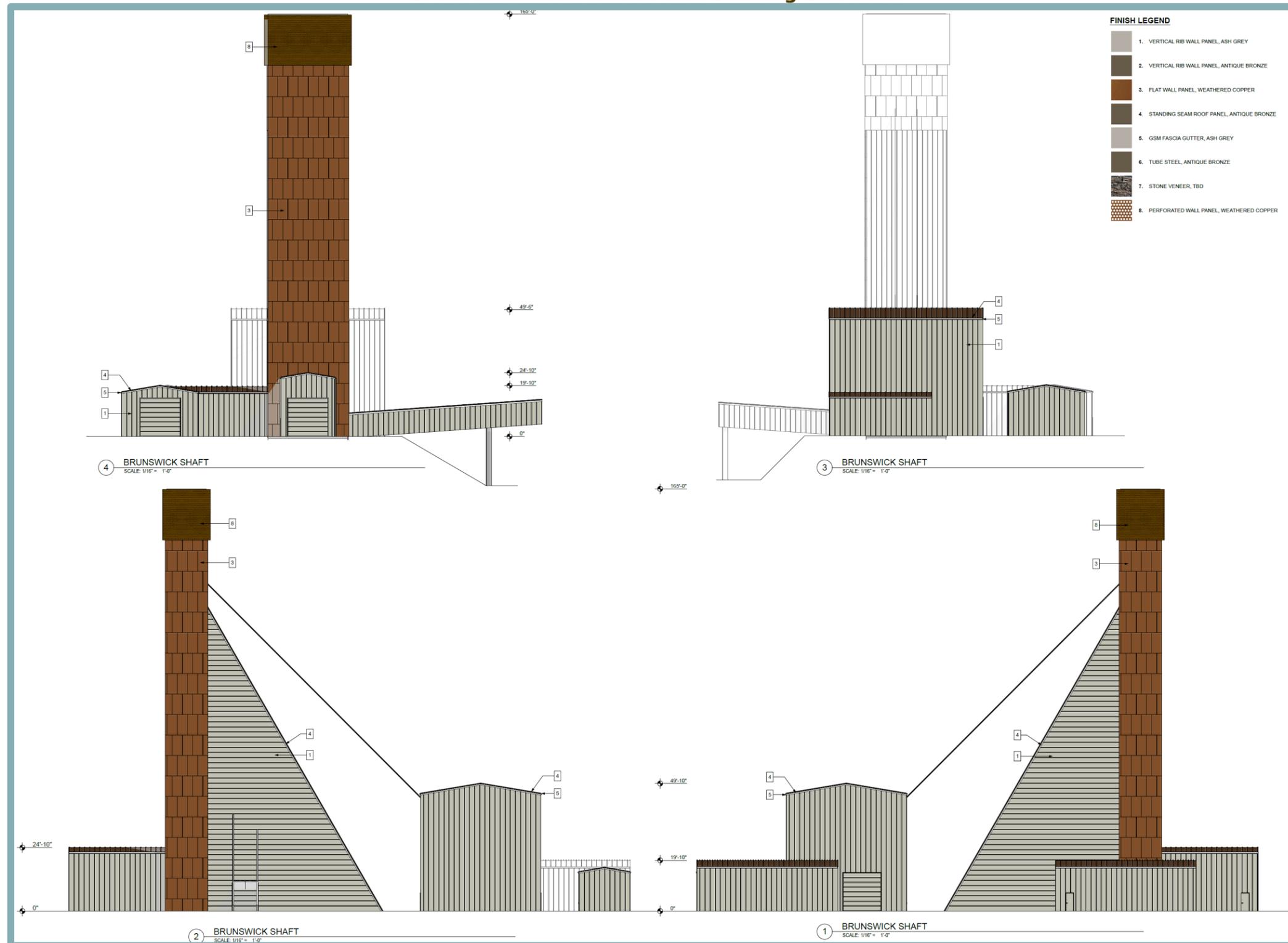
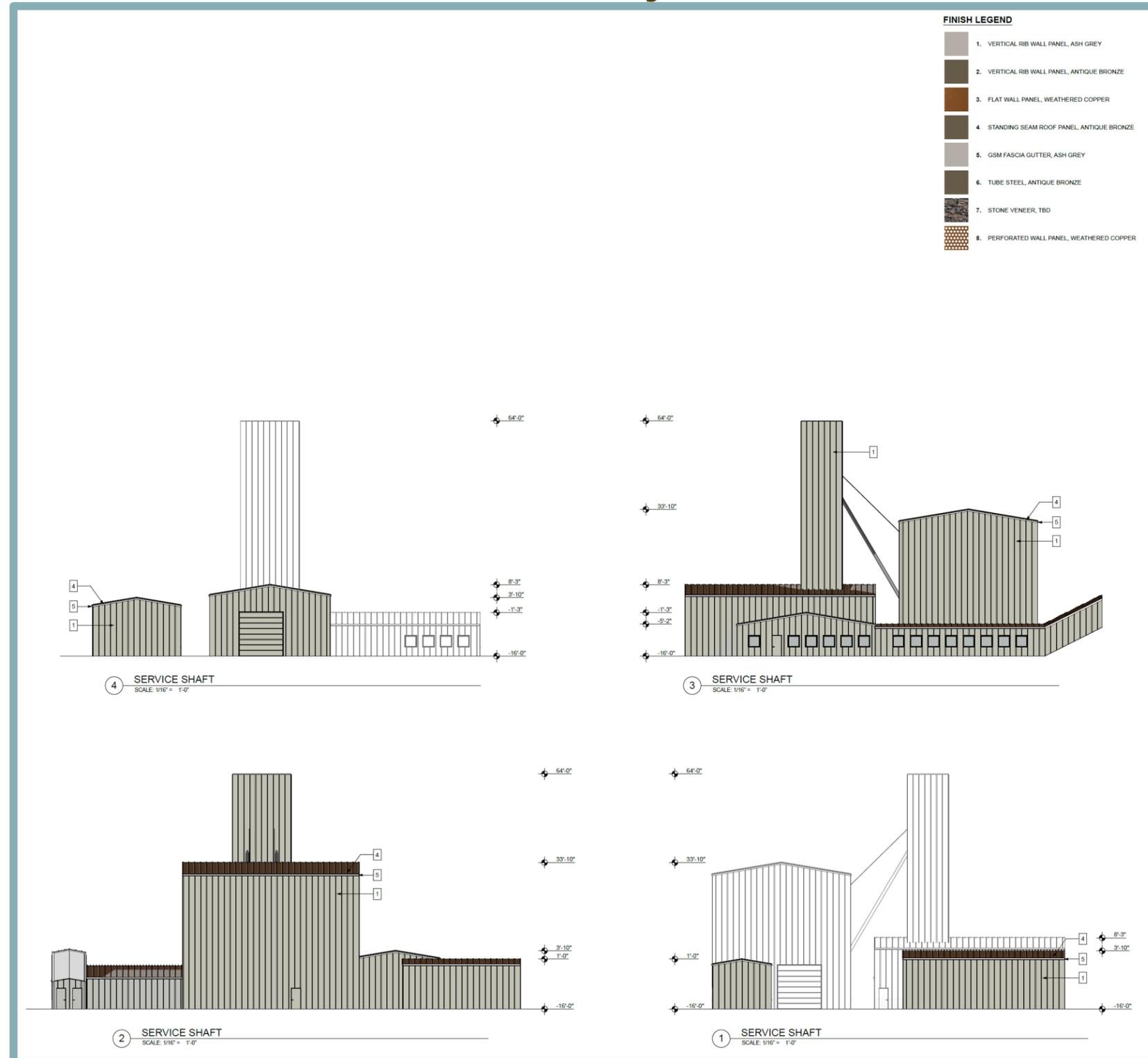


Figure 3-11
Service Shaft Building Elevation



- **Alimak raising** is carried out using drilling and blasting. The raise is blasted from the bottom upward. Rails are attached to the wall of the raise so that an Alimak raise climber can lift the miners to the working face. An Alimak raise is advanced with each blast in segments of approximately 10 feet. The resulting excavation is rectangular.

Process Plant

Gold mineralization hoisted from the Brunswick shaft would be placed in the existing concrete silo located on the Brunswick Industrial Site before processing begins (see Figure 3-7 and Figure 3-8). The rock size may be reduced using an underground jaw crusher before rock is hoisted to the surface.

Gold-bearing material would be transported from the concrete silo using chutes and conveyors to a new fully enclosed process plant by a covered conveyor system, approximately 335 feet in length. Water would be added and the mineralized rock would be ground in grinding mills to size before the gold is recovered.

The water would be treated water sourced from the on-site water treatment plant. Approximately 44,000 gpd would be piped from the water treatment plant to the clean water tank outside the process plant and added to the grinding section of the process plant. The addition of treated water on a daily basis would be needed due to the system losses; these losses are associated with water absorption in the paste backfill, which is permanently retained in the cemented fill or consumed in hydration of cement, as well as retained moisture content in gold concentrates and sand tailings.

A gravity concentrator in the grinding circuit would recover approximately 70 percent of the gold. The slurry of ground mineralized rock and water that results from this process would be pumped to a second gold recovery system, sulfide flotation, where the remaining recoverable gold is captured in a sulfide mineral concentrate. The majority of sulfide minerals would be recovered in the sulfide mineral concentrate for shipment off-site. Each method would remove gold from the mineralized rock into a concentrate. The gold concentrate would be dewatered using thickeners and filter presses before being bagged for off-site shipment. The gravity gold concentrate may be further concentrated on-site using gravity, water, and a small furnace to create gold doré bars. The processing plant would include common reagents such as collectors, promoters, frothers, and flocculants. Mercury or cyanide would not be used in gold mineral processing. Approximately 20 tons of gold concentrate would be produced and bagged on-site per day.

Sand tailings (waste) from the gold recovery process would be dewatered and used for either backfill for the underground mine or stockpiled for transport and use as engineered fill. More specifically, sand tailings would be partially dewatered in the tailings thickener tank, then transferred as a slurry to the paste filter feed tank for temporary storage, and on to the paste backfill plant area within the process plant building, where the sand tailings would be further dewatered to produce sand tailings for use as engineered fill or mixed with cement into a paste. The paste would be pumped back underground and used to backfill mining voids. Sand tailings to be used for engineered fill would be either directly loaded into trucks in the process plant or stockpiled inside the building. Stockpiled sand tailings would be loaded into transport trucks with a front-end loader during daytime hours.

The water that is dewatered from the gold concentrate, sand tailings, and backfill within the process plant would be piped back to the process water tank, adjacent to the process plant



building, for temporary storage, before being piped back to the grinding section of the process plant, as needed. Thus, the process plant operation is a closed loop system.

The process plant would be contained in a single building, with dimensions of approximately 425 by 70 by 65 feet (see Figure 3-12). A thickener tank and paste feed tank, several water tanks, and cement silo would be located outside and behind the plant building and masked from view of Brunswick Road.

Haul/Transport Truck Operations

Table 3-3, Projected Truck Trip Generation Summary, provides a summary of operational and vendor truck trips.

Table 3-3 Projected Truck Trip Generation Summary		
Uses	Average Daily Round Trips	Maximum Daily Round Trips
Haul Trucks with Engineered Fill	50	100
Haul Trucks with Gold Concentrate	1	5
Materials/Supplies/Outside Services	6.3	13
<i>Source: KDAnderson & Associates, Inc.</i>		

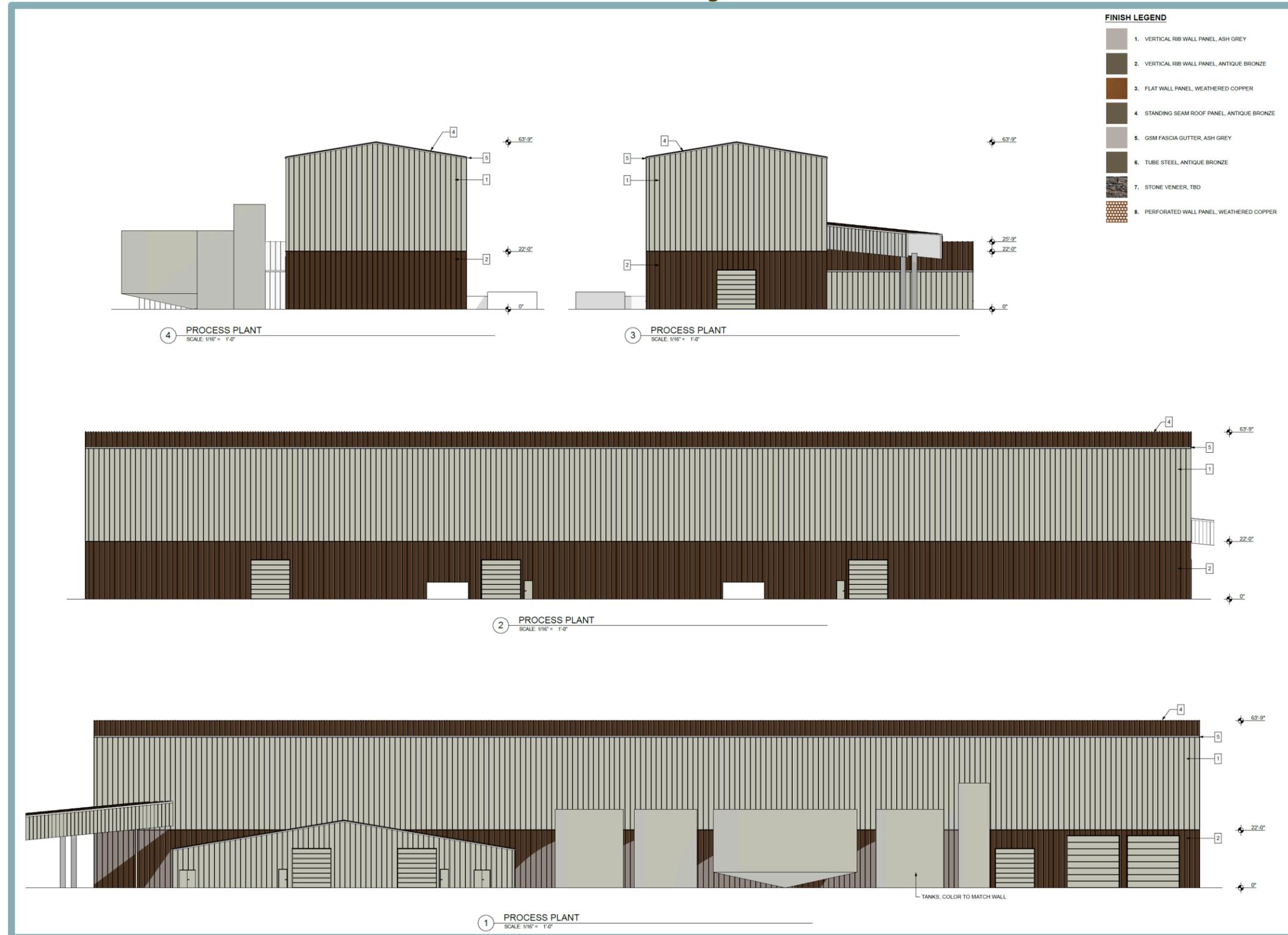
Engineered Fill Transport

Barren rock hoisted from the Brunswick shaft would be placed in the existing concrete silo located on the Brunswick Industrial Site (see Figure 3-7 and Figure 3-8). The barren rock would be transported from the concrete silo using a series of chutes and conveyors to a fully enclosed truck loading building. Sand tailings to be used for engineered fill would be either directly loaded into trucks in the process plant or stockpiled inside the building. Stockpiled sand tailings would be loaded into transport trucks with a front-end loader during daytime hours. Barren rock may be mixed with sand tailings at the placement site to create an engineered fill that meets appropriate geotechnical specifications for construction of the development pad(s).

Trucks would transport barren rock and sand tailings (engineered fill) from the Brunswick Industrial Site to the Centennial Industrial Site or Brunswick Industrial Site engineered fill areas. It is the applicant's intent to prioritize the placement of the engineered fill at the Centennial Industrial Site. Transport of engineered fill to the Centennial Industrial Site is anticipated to occur 16 hours per day, seven days per week. At these rates, it would take approximately five years to fill the approximately 44-acre fill area of the 56-acre Centennial Industrial Site using engineered fill from the Brunswick Industrial Site. Notwithstanding the priority of placing engineered fill at the Centennial Site, the ultimate approach to engineered fill placement will need to remain flexible to address any potential unforeseen circumstances. One such scenario would be if the remediation of the Centennial Industrial Site, currently under DTSC oversight, is not complete upon commencement of mining, in which case engineered fill would be placed at the Brunswick Industrial Site and/or transported off-site to be utilized in local and regional construction markets. Likewise, if the remediation of the Centennial Industrial Site is not complete within the life of the mining permit, engineered fill would be placed at the Brunswick Industrial Site and/or transported off-site to be utilized in local and regional construction markets, and no material from the mine would be placed on the Centennial Industrial Site.



Figure 3-12
Process Plant Building Elevation



With respect to the Brunswick Industrial Site, engineered fill would be transported from the truck-loading area to an approximately 31-acre portion of the Brunswick Industrial Site (see Figure 3-7 and Figure 3-8). Assuming the same rates for the Centennial Industrial Site, it would take approximately six years to fill the Brunswick Industrial Site engineered fill area to the design elevations.

The average transport of engineered fill will be 1,000 tons per day or 365,000 tons per year. A maximum transport rate of up to 2,000 tons of engineered fill per day is required to make up for periodic weather or operational delays. Truck payloads will be approximately 20 tons per truck and therefore will require up to 100 round trips per day and an average of 50 round trips per day. After full placement of fill at the Centennial and Brunswick Industrial sites to the pad design elevations, the need for hauling of engineered fill would continue due to ongoing mining over the use permit term of 80 years, and thus, hauling would shift entirely to local and regional markets, with the maximum truck trips per day remaining at 100, with a daily average of 50.

Gold Concentrate Transport

Off-site haul of gold concentrate will average one truck trip per day, and up to five truck trips per day, using Brunswick Road to State Route (SR) 20/49, over the 80-year term of the use permit.

Other Truck Transport

Diesel fuel consumption would vary between 450 to 850 gpd, depending on the location where engineered fill is trucked. During normal operations, an average of one 7,500-gallon fuel tanker would travel to/from the sites every two weeks, using Brunswick Road to SR 20/49, over the 80-year term of the use permit. During any public safety power shutoffs (PSPS) events, a maximum of two fuel tankers per day would be required due to additional fuel demands associated with backup generators.

Cement would be delivered daily with approximately nine trucks per week and a maximum of two trucks per day. An average of three freight trucks would travel to/from the Brunswick Industrial Site each week, using Brunswick Road to SR 20/49, with a maximum potential of three freight trucks per day, over the 80-year term of the use permit. Freight would include items such as rock bolts and screens, ventilation ducting, electrical cable, processing and water treatment reagents, machinery, and miscellaneous supplies.

Explosives would be transported to the Brunswick Industrial Site a maximum of once a week to a minimum of once every three weeks.

Explosives

The transportation and storage of explosives used in furtherance of the project will at all times comply with applicable federal and state laws. Explosives will be transported directly to the site by licensed explosive suppliers. The suppliers will possess the requisite permits, including a California Highway Patrol hazardous materials transportation license and U.S. Department of Transportation (DOT) hazardous materials permits. Additionally, the explosives supplier will have a sufficient insurance policy.

The suppliers will transport explosives to the project site via semi-trucks driven by licensed drivers. The semi-trucks will also be conspicuously labeled, as is required by 29 CFR 1926.902, subdivisions (f) through (i). The suppliers will take all proper federally mandated precautions while transporting explosives, including driving on designated explosive routes and will inspect tires at



the beginning of each trip and each time the vehicle stops (49 CFR 397.17.). In addition, in compliance with federal regulations the explosives and detonators will be separated during the transportation thereof to ensure the explosives are not detonated (29 CFR 1926.902, subd. (d)).

Haul Routes

Engineered fill from the Brunswick Industrial Site would be hauled to the Centennial Industrial Site via Brunswick Road and Whispering Pines Lane. Engineered fill from the Brunswick Industrial Site to other customers would be hauled using Brunswick Road to SR 20/49 (see Figure 3-13). Off-site haul of gold concentrate will average one truck trip per day using Brunswick Road to SR 20/49. Hauling of fuel and other freight, including explosives, would occur using Brunswick Road to SR 20/49.

Detention Ponds, Storm Drains, and Culvert Replacement

Both the Brunswick and Centennial Industrial Sites would include storm water drainage, storage, and conveyance features meeting County requirements. As shown on Figure 3-8 and Figure 3-9, both the Centennial and Brunswick Industrial Sites would include a detention basin, designed to capture and treat runoff from the developed portions of each site, under the 100-year storm event. The capacity of each detention basin would be sufficiently sized to ensure that post-development flows emanating from the sites are less than pre-development levels. More specifically, the proposed detention basins at each site would be intentionally located at the downstream toe of each fill site. This would be done so that the basins may be constructed and made functional early in the process of the fill operations. Therefore, as the fill areas rise throughout the anticipated duration of this portion of the mining operation, flows would be directed to these facilities via the drainage pipes which proceed downhill from the surface of the fill, allowing the flows to be directed to the detention basins.

These pipes in the proposed 3:1 slope, at any given point in the process of placing fills, would be extended up slope from the detention basins to the then-current surface. Interceptor ditches and catchment sumps would be formed at the surface, and would be replaced periodically as the fill operation progresses and the surface elevation rises. By this strategy, site drainage would continually be positively controlled throughout the process of the engineered fill placement position.

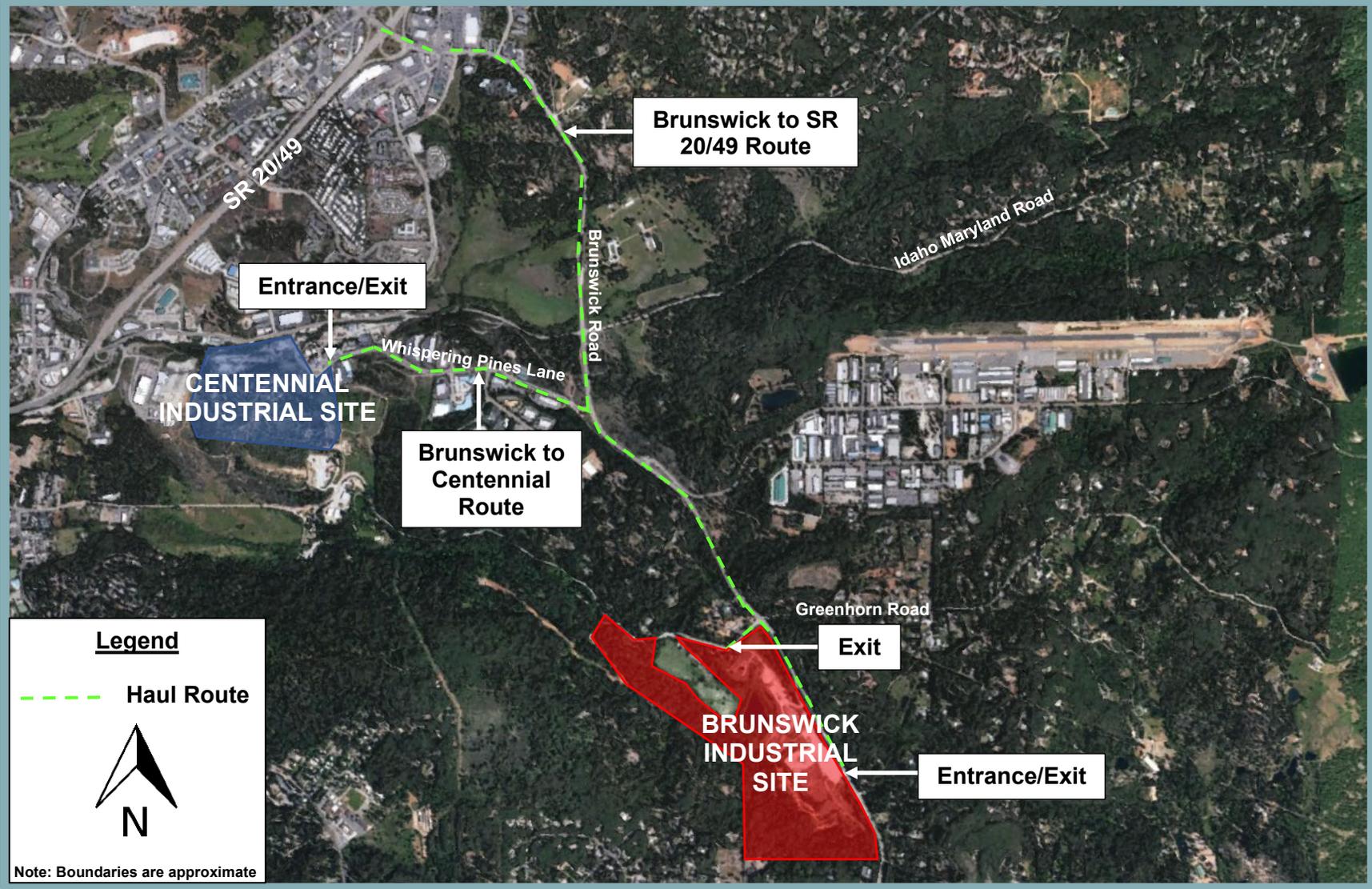
The applicant will be required as part of the project to submit a Report of Waste Discharge (RoWD) and obtain Waste Discharge Requirements (WDRs) from the Regional Water Quality Control Board (RWQCB) for construction of the engineered fill areas, as the engineered fill would be considered a Group C mining waste.³ Percolation of precipitation into the fill areas is expected to be minimal because the engineered fill would be graded and compacted to allow runoff to be conveyed to the detention basins. The WDRs would specify appropriate monitoring and limitations to prevent the discharge of water containing any constituents outside of applicable water quality standards.

The Brunswick Industrial Site detention basin would discharge storm water into South Fork Wolf Creek. The detention basin would meter flows to ensure that a net increase in the rate or amount of runoff entering the Creek does not occur.

³ Mining wastes from Group C are wastes from which any discharge would be in compliance with the applicable water quality control plan, including water quality objectives other than turbidity. See: https://www.waterboards.ca.gov/centralvalley/water_issues/mining/water_board_mining_laws_reg.pdf. Accessed October 29, 2020.



**Figure 3-13
Project Haul Routes**



The Centennial Industrial Site detention basin would discharge storm water into Wolf Creek. Similar to the Brunswick basin, the Centennial detention basin would meter flows to ensure that a net increase in the rate or amount of runoff entering Wolf Creek does not occur.

Currently, a buried 48-inch culvert crosses the Brunswick Industrial Site. The culvert transports off-site surface drainage from Brunswick Road and a portion of the watershed to the east and south of the Brunswick Industrial Site. South Fork Wolf Creek originates from the outlet of this 48-inch culvert. As part of the proposed project, the culvert would be upgraded and replaced to avoid other proposed on-site improvements. The new 48-inch culvert would discharge at the same location as the existing 48-inch culvert.

Proposed Office, Warehouse, Change Room, and Other Structures

Table 3-4 and Table 3-5 provide the description, size, and height of the proposed buildings and structures to be constructed on the Brunswick Industrial Site. In total, approximately 126,000 square feet of industrial buildings would be constructed on the site. Building use for the calculation of required number of parking spaces pursuant to the Nevada County LUDC, Section L-II 4.2.9 can generally be classified as Office (10,100 square feet), General Industrial (50,700 square feet), Manufacturing (51,000 square feet), and Warehouse (14,500 square feet). As shown in Table 3-5, approximately 9,800 square feet of additional structures would be constructed on the Brunswick Industrial Site, including tanks located outside the process and water treatment plants, fuel tanks, a covered conveyor, and a breezeway.

Table 3-4 Building Summary		
Building	Gross Area (square feet)	Maximum Height (feet)
Brunswick Shaft Complex		
Headframe	2,600	165
Shaft building	1,700	25
Conveyor and raise building	700	17
Rock truck loading	1,700	20
Hoist building	2,800	50
Electrical building	800	15
Mine compressor building	1,600	20
Process Plant Area		
Process plant	29,200	64
Process plant addition	7,300	26
Generator building	3,900	20
Warehouse/Office Area		
Warehouse	28,900	27
Changeroom and office building	24,600	30
Water treatment plant	8,500	26
Machinery building	1,600	20
Service Shaft Complex		
Shaft building	2,700	24
Headframe (located in shaft building)	-	80
Hoist building	2,800	50
Electrical building	800	15
Machinery building	1,600	20
Security building	2,400	15



Table 3-5 Other Structures Summary		
Building Height (feet)	Gross Area (square feet)	Maximum Height (feet)
Covered conveyor (Brunswick shaft to process plant)	3,400	35
Breezeway (security building to change room/office)	1,400	11
Process Plant		
Clean water tank	535	30
Process water tank	455	30
Tailings thickener	2,400	34
Paste filter feed tank	535	30
Cement silo	115	40
Water Treatment Plant		
Treated water tank	315	30
Generator Building		
Diesel fuel tanks (two 12,000-gallon tanks)	600	20

Parking

A total of 217 off-street parking spaces would be provided at the Brunswick Industrial Site (Table 3-6). In addition, the proposed project would include bicycle racks with space for a minimum of 44 bicycles at the Brunswick Industrial Site. Landscaping of parking areas would be designed and constructed in compliance with County regulations.

Table 3-6 Parking Summary						
Area	Regular	Compact	Electric Vehicle (EV)	Wheelchair Accessible	Wheelchair Van Accessible	Total
Main parking lot	119	56	13	–	–	188
Office and warehouse	5	–	–	6	1	12
Process plant	10	–	–	1	1	12
Brunswick shaft	5	–	–	–	–	5
Total:	139	56	13	7	2	217

Industrial Pad Development

The following sections provide a summary of the proposed industrial pads to be developed on the Brunswick and Centennial Industrial Sites.

Brunswick Industrial Site

Engineered fill would be transported from the silo and process plant, using haul trucks, to an approximately 31-acre area of the Brunswick Industrial Site for placement (see Figure 3-7 and Figure 3-8). Approximately 2.2 million tons of engineered fill would be placed and compacted over a six-year period. The production and daily transport rate would be the same as described below for the Centennial Industrial Site (up to 100 trips per day and an average of 50 trips per day). Engineered fill would continue to be placed, graded, and compacted in a series of lifts to an elevation ranging between 2,820 and 2,830 mean sea level (msl) (approximately 80 feet to 90 feet above ground surface). Fill slopes would be 3:1 (horizontal to vertical) or flatter. Following completion of fill activities, the fill slopes would be revegetated to control erosion and ensure slope



stability (see Figure 3-14). The final grading would result in approximately 21 acres of flat developable land on property zoned for industrial uses.

Centennial Industrial Site

As noted previously, the majority of the Centennial Industrial Site currently cannot presently be developed due to unstable soils and/or contamination associated with historic deposition of mine tailings on the site. DTSC has developed a plan to consolidate and cap the contaminated soils in a manner consistent with current federal and State regulations, separate from the proposed project, which separate DTSC Clean-Up Project is currently undergoing environmental review.

As discussed in Section 1.3 of this Draft EIR, the separate environmental cleanup work at the Centennial Industrial Site will be completed under the DTSC voluntary cleanup program. After such environmental cleanup work is completed and a No Further Action letter is issued by DTSC, engineered fill from the Brunswick Industrial Site would be placed, graded, and compacted on the Centennial Industrial Site. Such engineered fill would be generated as a waste by-product of the gold mining process described above to fill and grade the Centennial Industrial Site. The fill and grading activities would disturb approximately 44 acres of the 56-acre Centennial Industrial Site. The remaining 12 acres would be avoided, including Wolf Creek and an area of the site containing special-status plant species. Pre-construction activities and grading near the toe of the engineered fill pad on the Centennial Industrial Site may cause temporary impacts to the County-required (Section L-II 4.3.17) 100-foot non-disturbance buffer of Wolf Creek (perennial creek). All construction activities would remain outside the Special Flood Hazard Area as pursuant to FEMA regulations. This is further described in the Watercourse/Wetlands/Riparian Areas Management Plan prepared for the Centennial Industrial Site.

As described above, the engineered fill would be transported from the Brunswick Industrial Site to the Centennial Industrial Site using haul trucks. Approximately 1.6 million tons of engineered fill would be trucked from the Brunswick Industrial Site to the Centennial Industrial Site over a five-year period for placement and compaction. The average transport of engineered fill would be 1,000 tons per day or 365,000 tons per year. A maximum transport rate of up to 2,000 tons of engineered fill per day is required to make up for periodic weather or operational delays. Truck payloads would be approximately 20 tons per truck and, therefore, would require up to 100 trips per day and an average of 50 trips per day.

Engineered fill may be mixed on-site using mobile equipment to ensure uniformity and meet specifications for compaction. Engineered fill would continue to be placed, graded, and compacted in a series of lifts to an elevation ranging between 2,520 and 2,570 means sea level (approximately 30 to 70 feet above ground surface). Fill slopes would be 3:1 (horizontal to vertical) or flatter (see Figure 3-14). Following completion of fill activities, the fill slopes would be revegetated to control erosion and ensure slope stability. The final grading would result in 37 acres of flat developable land on property zoned industrial.

Potable Water Pipeline

A buried potable water pipeline would be constructed as part of the proposed project to provide water to residences along a portion of East Bennett Road, as generally shown in Figure 3-15. Specifically, the existing NID potable water pipeline would be extended on East Bennett Road to provide potable water service to residences currently on wells that may be affected by the project's dewatering of the mine. Project effects related to groundwater are discussed further in Chapter 4.8, Hydrology and Water Quality, of this EIR.



Figure 3-14
Proposed Grading Sections



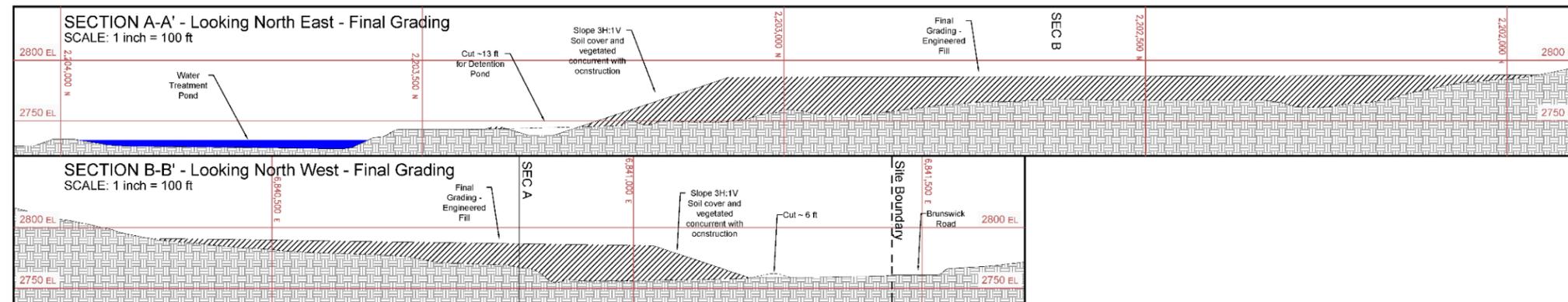
Idaho-Maryland Mine Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945



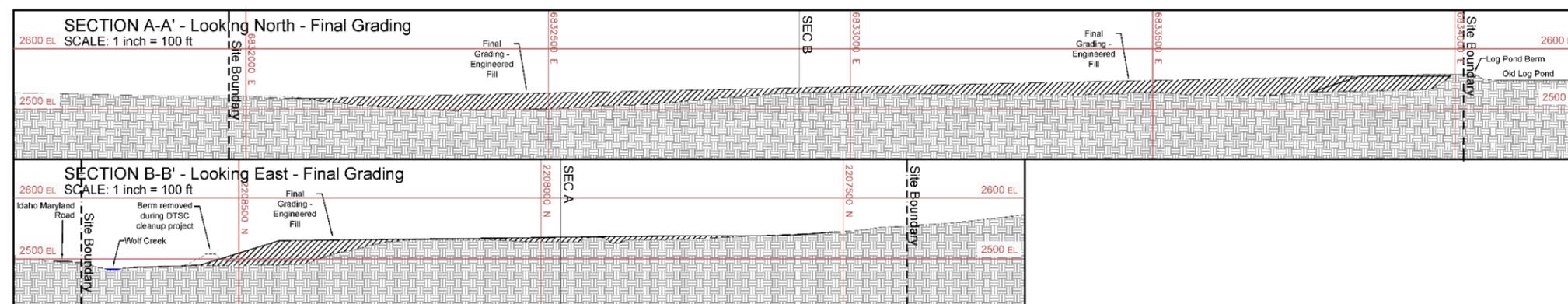
Brunswick Industrial Site
Nevada County
SEC. 31, T.16N, R.9E., M.D.M
Total Area = 118.93 Acres
Assessor Parcel Numbers:
09-630-37, 09-630-39, 09-441-03, 09-441-04,
09-441-05, 09-441-34
Current Zoning M1-SP
Proposed Zoning M1-ME

Centennial Industrial Site
Nevada County, SEC. 26, T.16N, R.8E.,
M.D.M
Total Area = 56.41 Acres
Assessor Parcel Numbers:
09-550-32, 09-550-37, 09-550-38, 09-550-39,
09-550-40, 09-560-36
Current Zoning M1 / Proposed Zoning M1

BRUNSWICK INDUSTRIAL SITE - SECTIONS



CENTENNIAL INDUSTRIAL SITE - SECTIONS



LEGEND

- Area of fill excavation planned
- Undisturbed Ground
- Current / original ground surface
- Property Boundary
- Final Ground Surface

Final grading topography based on:
Preliminary Grading Plan prepared by Nevada City
Engineering Inc.

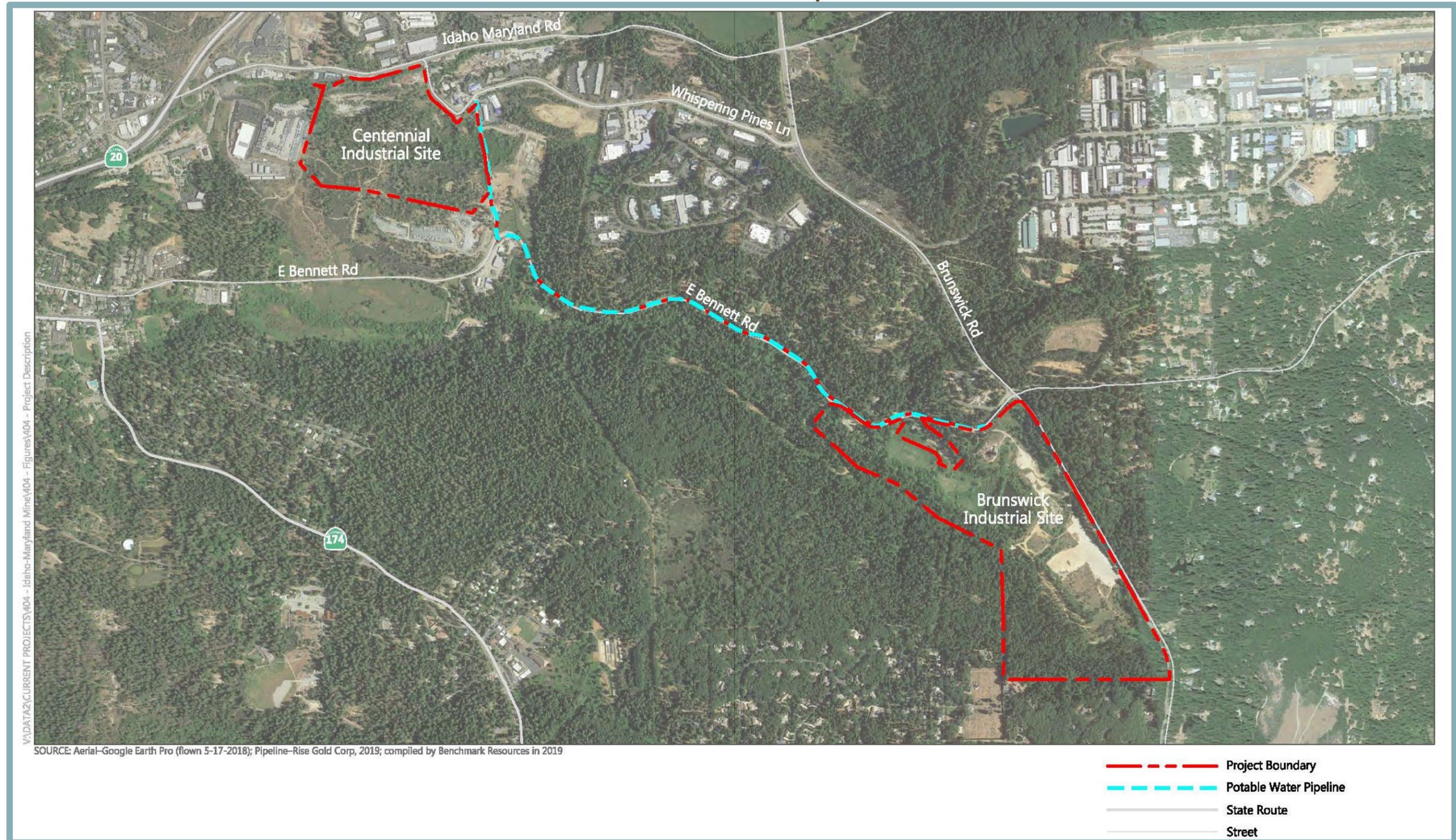


SCALE 1"=100' 250 ft

Used Air Photos by Aero Geometrics with survey control by Nevada City Engineering Inc. May 17th 2018, Grass Valley, CA. Horizontal Datum: NAD83 (2011), Vertical Datum: GEOID 12B, NAD83 Projection: California State Plane, Zone 2, Contained Scale Factor: 0.997891



Figure 3-15
East Bennett Potable Water Pipeline Route



An approximately 1¼-mile-long by two feet-wide (approximately 0.30-acre) stretch of East Bennett Road would be temporarily disturbed to bury the potable water pipeline. Installation of the buried potable water pipeline would generally involve trenching, pipe placement, backfill, and cover replacement. Initially, an approximately 24-inch-wide by 42-inch-deep open trench would be developed. Excavated asphalt would be disposed of consistent with County regulations and overburden would be stockpiled for use as backfill. Upon completion of trenching in a specific section of the route, the eight-inch pipeline would be installed. The pipe would be covered with the stockpiled soil removed during trenching or engineered fill, as required by County guidelines. The backfilled trench within the East Bennett Road ROW would then be paved consistent with County guidelines.

Prior to mine dewatering, the project applicant would offer residences on the streets of Cordell Court, Miskin Court, Amethyst Court, Emerald Court, Diamond Court, and Old Mine Road and several private driveways the opportunity to connect to the new potable water line. Residential connection to the new potable water line would be voluntary, and at the property owner's discretion, but at the cost of the project applicant.

The pipeline would be installed within the ROW in the streets named above and stubbed at the property owner's property boundary, the precise location of which would be included on the Project Improvement plans to be reviewed and approved by the County (or City, where the City owns the applicable right-of-way). If the property owner decides to connect to the potable water line, the project applicant would fund the permitting and construction costs. The potable water pipeline would connect with the main water line on Whispering Pines Lane and Brunswick Road.

Other Operations Details

The following sections provide a summary of the proposed hours of operations and employment; equipment; fuel and equipment maintenance facilities; water supply and other utilities; lighting; access and circulation; site security and fencing; mine rescue and emergency response; and asbestos.

Hours of Operation and Employment

Hours of operation would vary based on the project element. Table 3-7 provides the hours of operation and approximate duration.

During project construction, a workforce of approximately 52 persons is estimated. The project applicant anticipates employing approximately 121 workers to support initial underground mining, increasing to approximately 312 direct employees during full operations. At full operations, approximately 44 employees would work regular eight-hour days, five days per week, and approximately 268 employees would work 12-hour shifts, seven days on and seven days off. Shift changes for 12-hour employees would be 7:00 AM and 7:00 PM. Work shifts for eight-hour employees would be from 7:00 AM to 3:30 PM. Table 3-8 provides the shift and number of employees listed by worker role. Freight deliveries to the Brunswick Industrial Site would be 7:00 AM to 7:00 PM.

Equipment

Expected equipment associated with the proposed underground mining, water treatment, gold mineralization processing, and engineered fill activities is provided in Table 3-9. The type of vehicles used would vary somewhat over time depending on availability and the introduction of new models to suit different conditions.



**Table 3-7
Hours of Operation**

Project Element	Hours of Operation	Duration ¹
Initial dewatering	24 hours a day, 7 days a week	6 months
Aboveground facility outside construction	7:00 AM–7:00 PM, Monday–Saturday	18 months
Aboveground facility inside construction	24 hours a day, 7 days a week	18 months
Aboveground facility operations—gold mineralization processing	24 hours a day, 7 days a week	80 years
Underground exploration/mining	24 hours a day, 7 days a week	80 years
Off-site hauling—gold concentrate	6:00 AM–10:00 PM, 7 days a week	80 years
Off-site hauling—engineered fill	6:00 AM–10:00 PM, 7 days a week	80 years
On-site hauling – engineered fill ²	7:00 AM–7 PM, 7 days a week	6 years
Outside truck loading by loader	7:00 AM–7:00 PM, 7 days a week	80 years
Placement, grading, and compaction of engineered fill at Brunswick Industrial Site	7:00 AM–3:30 PM, Monday–Friday	6 years
Placement, grading, and compaction of engineered fill at Centennial Industrial Site	7:00 AM–3:30 PM, Monday–Friday	5 years

Notes:
¹ Durations are approximate and dependent on factors such as equipment and personnel availability, fluctuations in the economy, and technical details.
² Hours during which engineered fill material would be transported on the Brunswick Industrial Site.

**Table 3-8
Operations Workforce**

Workforce Shift	Shift	Total Employees	Employees per Shift
Management and technical staff	8 hours a day, 5 days a week (dayshift)	36	3 6
Assaying and construction	8 hours a day, 5 days a week (dayshift)	4	4
Underground mine	12 hours a day, 7 days on, 7 days off	202	50
Mineral processing	12 hours a day, 7 days on, 7 days off	64	16
Truck transport of engineered fill	12 hours a day, 7 days on, 7 days off	2	1
Centennial or Brunswick Industrial Site Placement and compaction of engineered fill	8 hours a day, 5 days per week (dayshift)	4	4
TOTAL WORKFORCE		312	111

**Table 3-9
Typical Mining Equipment**

Equipment	Uses
Underground Mining Operations	
Jaw crusher	Primary crushing of gold mineralization and barren rock before hoisting to the surface.
Drills	Drill holes for explosives placement and core drilling. Electric-Hydraulic and pneumatic.
Jumbo drill carriages	Wheeled carriers and hydraulic lifts for jumbo drills.
Load/haul/dump vehicles and rail cars	Load barren and mineralized rock. Move mined barren and mineralized rock to rock bins.

(Continued on next page)



**Table 3-9
Typical Mining Equipment**

Equipment	Uses
Personnel vehicles	Small wheeled vehicles for person transport.
Headframes, hoists, and skips	Hoist barren and mineralized rock to the surface and deposit in concrete silo. Hoist people, materials, and equipment from underground to surface.
Water pumps	Pump water from underground workings to surface for dewatering.
Ventilation fans	Maintain air circulation in the underground workings.
Alimak	Lift for drilling and placing explosives to create raises.
Shotcrete machine	Spray concrete into the walls of the galleries to prevent rockfall.
Explosives loader	Transport and load explosives.
Compressor	Provides compressed air to underground mine.
Water Treatment Plant	
Pressure Vessels	Manganese Dioxide filtration and activated carbon.
Pumps	Transfer of water for treatment and discharge.
Turbine Aerator	Aeration of water in treatment pond.
Mineral Processing Operations	
Conveyor belts	Convey gold mineralization from the concrete storage silo to the gold recovery processing plant. Convey barren rock into truck loading building.
SAG mill (16'x8', 1250hp)	Primary grinding of gold mineralization.
Ball mill (11'x18', 1250hp)	Secondary grinding of gold mineralization.
Gravity gold concentrator	Initial removal of gold from mineralized rock.
Gold Recovery	Shaking tables and doré furnace.
Sulfide flotation cell	Secondary removal of gold from mineralized rock.
Cyclone and screens	Classification of materials by size.
Thickeners	Settling of solids and removal of water.
Filter Presses	Dewatering of concentrate and sand tailings
Paste backfill plant	Dewater fines and combine with cement for backfill in abandoned underground workings
Pumps	Various slurry pumps to transfer material between processes
Compressor	Provides compressed air for process plant
Engineering Fill Operations	
Dozer (CAT D8 or similar)	Move, grade, and compact engineered fill.
Grader (CAT 140H or similar)	
Excavator (CAT 385 or similar)	
Roller compactor	
Haul trucks (20 ton)	Haul and dump engineered fill.
Water truck	Water haul roads and fill areas.
Front-end loader (CAT 980 or similar)	Mix barren rock and sand into engineered fill and load engineered fill into haul trucks for off-site transport.
Mobile auger blending plant	Mobile plant for blending rock and sand.
Mobile tire washing plant	Washing of truck tires leaving non paved sites.
Brunswick Surface Miscellaneous	
Pick-up trucks	Transport materials and people.
Service truck (mechanical)	Service mobile and stationary equipment.
Skid steer/forklift	Move smaller material.
Manlift	Elevate workers.
Grove rough terrain crane	Pick-and-carry operations and off-road and "rough terrain" applications.
Portable generator	Provide mobile electricity for small tools.

(Continued on next page)



Table 3-9 Typical Mining Equipment	
Equipment	Uses
Welder	For repairs to machinery.
Fuel, Chemical, and Explosive Storage	
Aboveground diesel fuel storage tanks (Two 12,000 gallon tanks – Brunswick Industrial Site; and 1,200 gallons – Centennial Industrial Site.)	Storage of fuel for trucks and mobile equipment.
Note: Equipment would be purchased at the time the equipment is needed, and may differ from equipment listed above.	

Fuel and Equipment Maintenance Facilities

Diesel fuel would be stored on-site in aboveground tanks with secondary containment, as required by existing regulations. In addition, a minor amount of petroleum products may be stored on-site for routine maintenance of the aboveground facilities. An approved spill prevention, control, and countermeasures plan would guide reporting, control, and cleanup activities in the event of a spill.

Water Supply and Other Utilities

The Idaho-Maryland Mine would have a surplus of water from the natural groundwater flow into the underground workings. Once dewatering is completed, approximately 1.9 cfs, or 850 gpm (approximately 1,224,000 gpd), are estimated to be pumped to the surface and settling pond. Such water would support all project-related water demand (i.e., mining and processing activities), except for water purchased from NID as noted below. The process plant would run on a closed circuit.

Water consumption would include water vapor in ventilation air, cemented paste backfill, concentrates and engineered fill, and dust control and compaction of engineered fill. The following list provides a description of project elements consuming groundwater:

- Underground mining service water: Such uses include water use for dust suppression in rock drills and blasted rock piles, which is piped into the mine workings. Net consumption of water would not result from such activities, because water in underground workings is pumped to the surface for reuse.
- Water Vapor in Ventilation: Ventilation air flow through the mine working would become saturated with water vapor, consuming approximately 40,000 gpd of water.
- Cemented Paste Backfill: Water is needed to transport and bind the cemented paste backfill underground. Such water is permanently retained in the backfill or used in the hydration of cement. Backfilling would consume approximately 20,000 gpd of water, assuming a 15 percent water content by mass and 500 tons per day of backfill placed.
- Gold Concentrates and Engineered Fill: Concentrates and engineered fill shipped off-site would contain approximately 24,000 gpd of water.
- Dust Control and Compaction: Active fill areas and unpaved surfaces require water to control fugitive dust, and engineered fill placed at the Brunswick and Centennial Industrial Sites would need to be compacted to meet design standards. Such activities would consume up to 42,000 gpd of water.



An average of approximately 5,700 gpd of potable water would be purchased from NID for sinks, toilets, and showers installed in buildings at the Brunswick Industrial Site.

Water needed for compaction and dust suppression during activity at the Centennial Industrial Site would be purchased from NID. Approximately 42,000 gpd of water may be required for dust suppression and compaction over the five-year period of engineered fill placement. Water needed for compaction and dust suppression during activity at the Brunswick Industrial Site would be sourced from dewatered groundwater treated at the on-site WTP, except for a period of approximately nine months prior to the construction of the WTP during which the water would be purchased from NID. Approximately 42,000 gpd may be required for dust suppression and compaction over the six-year period of engineered fill placement. Compacting eight hours per day, five days per week, would require water service of up to 125 gpm. Purchase of water from NID for compaction and dust suppression for the Brunswick Industrial Site (prior to WTP construction) would not overlap temporally with purchase of water from NID at the Centennial Industrial Site for engineered fill placement, as the WTP will have been constructed before engineered fill is placed on the Centennial Industrial Site.

The water used for compaction and dust control in placement of the engineered fill at both Brunswick and Centennial Sites would be for construction purposes. After fill placement, the Brunswick and Centennial Sites fill slopes and pad sites would be revegetated, so dust control is not necessary outside of initial building construction and engineered fill placement.

An on-site septic field system would be built at the Brunswick Industrial Site for the permanent toilets, sinks, and shower facilities planned. The proposed project would include portable chemical toilets and hand-washing stations to employees working underground and at the Centennial Industrial Site.

Electricity for the proposed project would be supplied by PG&E. Total connected load is estimated at approximately 10 megawatts (MW), with a net load of approximately 6 MW. Power would be connected utilizing onsite poles and the construction of a substation. Backup power generation would be provided by four diesel generators with a capacity to provide approximately 6 MW on a continuous basis.

Lighting

The Brunswick Industrial Site would require outdoor and indoor lighting. Indoor lighting will be required for all buildings (see Figure 3-16).

As shown in Figure 3-16, the proposed project would include mounted lighting features on the outside of the proposed buildings and in the parking areas. The outside area would have shielded, downward-facing outdoor lighting for safety and security.

All work at the Centennial Industrial Site would be done between 6:00 AM and 10:00 PM. Hauling and dumping of engineered fill at the Centennial Industrial Site would occur between 6:00 AM – 10:00 PM. Placement, compaction, and grading of the engineered fill would occur between 7:00 AM – 3:30 PM. Lighting during nighttime hauling and dumping of engineered fill would be limited to haul truck headlights.



Landscaping

Landscape plans have been prepared for the Brunswick Industrial Site by a licensed landscape architect. In general, screening trees are proposed in breaks in existing tree canopy along Brunswick Road and south of the intersection of East Bennett Road and Brunswick Road (see Figure 3-17 and Figure 3-18). The plant schedule identifies a range of tree species (15 gallon) to be planted in varying quantities. In addition to plantings along Brunswick Road and its intersection with East Bennett Road, landscaping is proposed along the southernmost buildings, and within the southerly parking lot, of the Brunswick Industrial Site (see Figure 3-19). Parking lot landscaping would meet County spacing and coverage standards.

Access and Circulation

Access to the Brunswick Industrial Site is currently provided by gated entrances on both East Bennett Road and Brunswick Road. The primary entrance/exit for project employees, vendors, and haul trucks would be from the existing Brunswick Road access. The existing East Bennett Road entrance would be used as an exit for haul trucks and large delivery trucks turning right onto East Bennett Road, for emergency personnel and, as necessary, for equipment movement.

Access to the Centennial Industrial Site would be provided from Whispering Pines Lane. To provide access to the Centennial site, widening of the south side of Whispering Pines Lane is proposed. Specifically, Whispering Pines Lane would be widened to provide a 12-foot, two-way-left-turn-lane (TWLTL), a 12-foot travel lane and a 6-foot bicycle lane. This layout will allow haul trucks to queue in the TWLTL, while waiting to enter the site. The traffic assessment (see Chapter 4.12) shows that inbound and outbound trucks can turn simultaneously without interfering with the opposing vehicle.

Site Security and Fencing

All access locations at the project sites are gated and secured. Additional fencing around the aboveground facilities may be installed as part of the proposed project, if deemed necessary for security and safety. Additionally, private security services would be provided by the project applicant.

Mine Rescue and Emergency Response

The proposed project would include fully trained and equipped mine-rescue teams. Mine-rescue teams would be trained in accordance with Mine Safety and Health Administration (MSHA) regulations and would be available to respond to underground and surface fires, accidents, or medical emergencies. The project applicant intends to seek mutual-aid agreements with other mining operations. During project operations, skilled tradesmen would be employed on-site, including electricians and mechanics.

Reclamation Plan

Upon completion of underground mining, access to underground workings would be closed consistent with federal and State regulations. Upon completion of aboveground gold processing and off-site sale of engineered fill, the Brunswick Industrial Site would be reclaimed to open space and industrial uses. A majority of the aboveground facilities and structures would remain to support future post-mining industrial uses on the site. Table 3-10 provides a summary of which project components would remain. All paved surfaces, including access roads, parking areas, and driveways, would remain to facilitate access to the site and buildings. The Brunswick and Centennial Industrial Sites fill slopes would be revegetated with an erosion-control seed mix to reduce erosion and maintain fill slope stability.



**Figure 3-17
Brunswick Industrial Site – Preliminary Landscape Plan (1)**

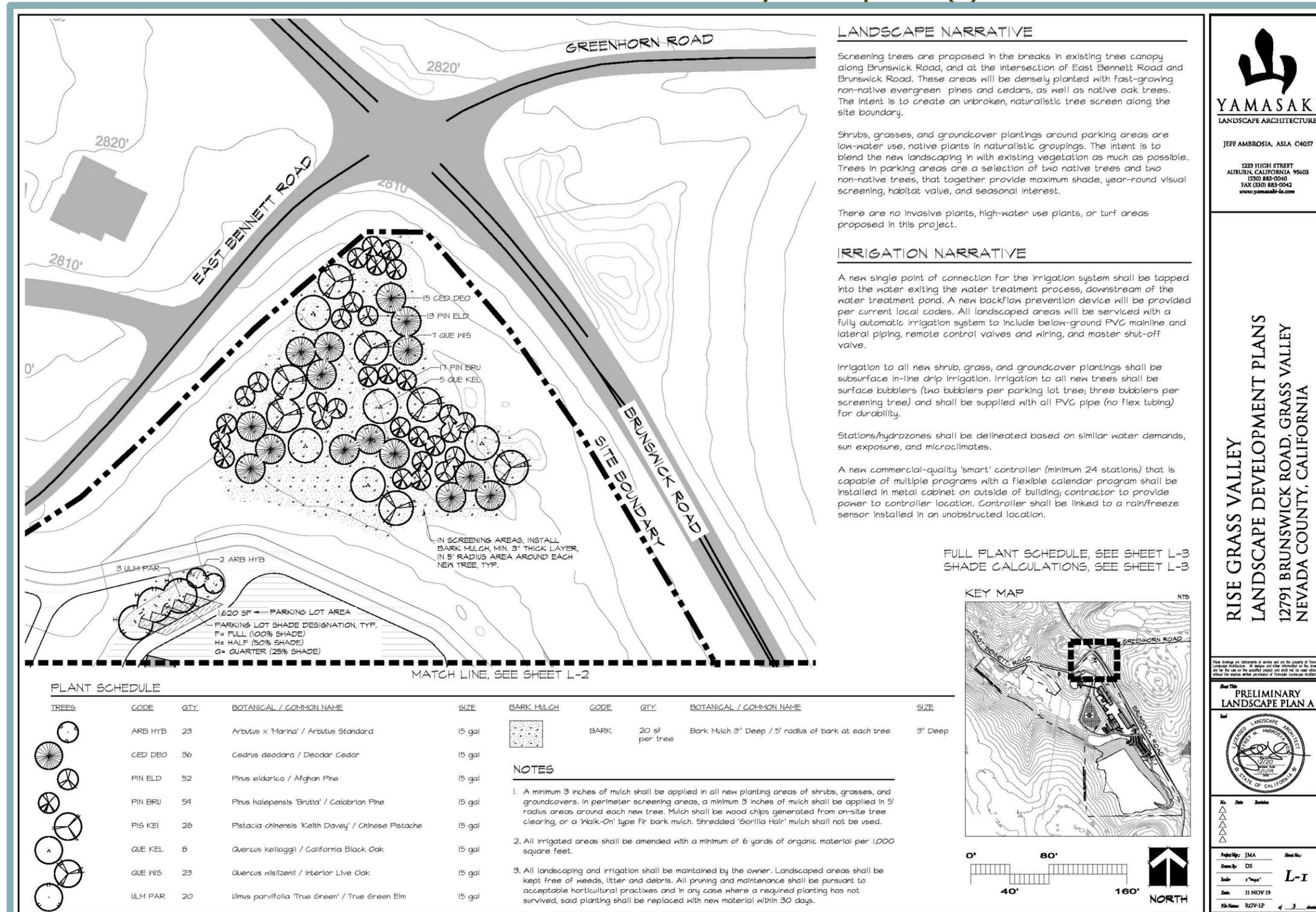


Figure 3-18
Brunswick Industrial Site – Preliminary Landscape Plan (2)

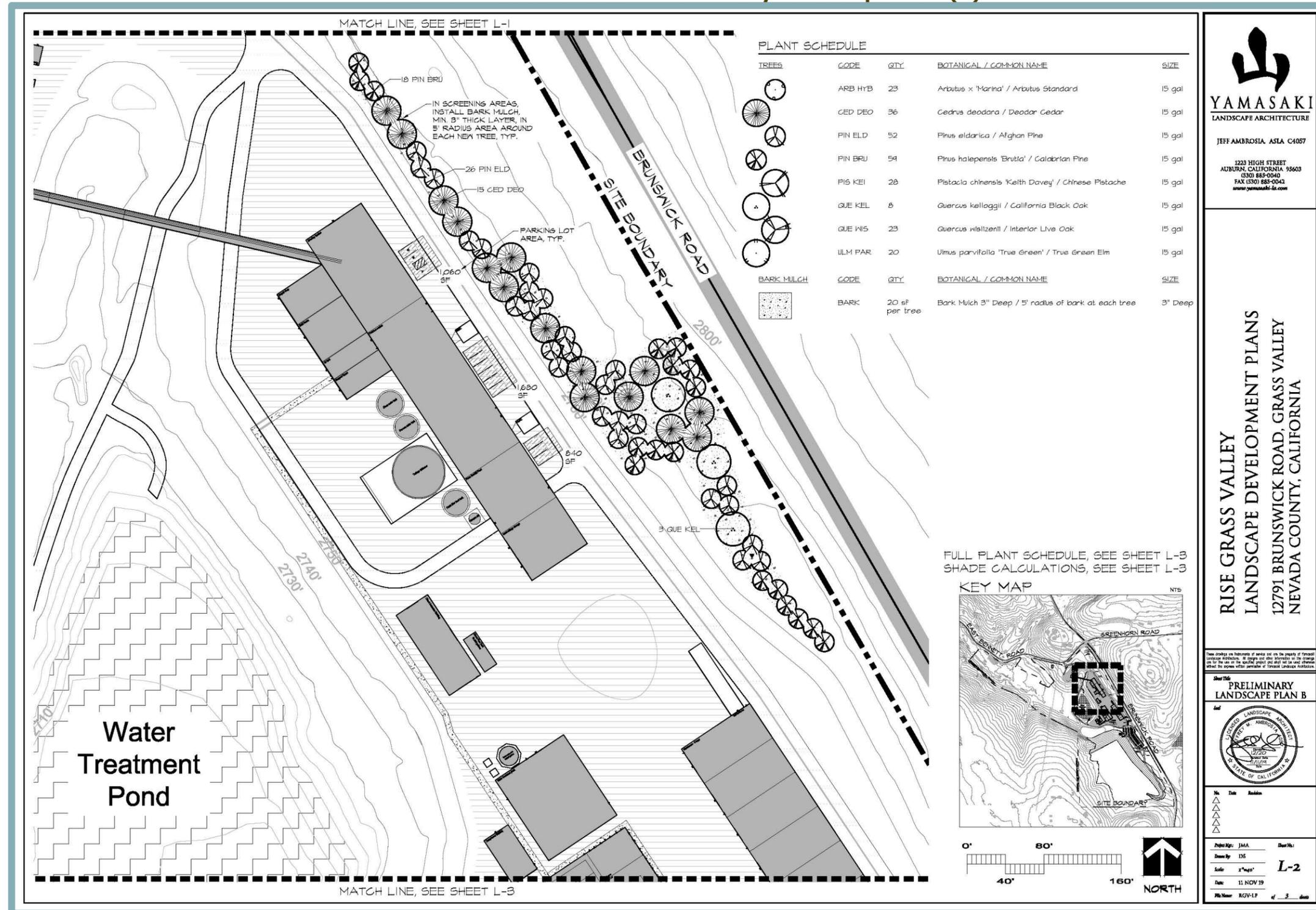
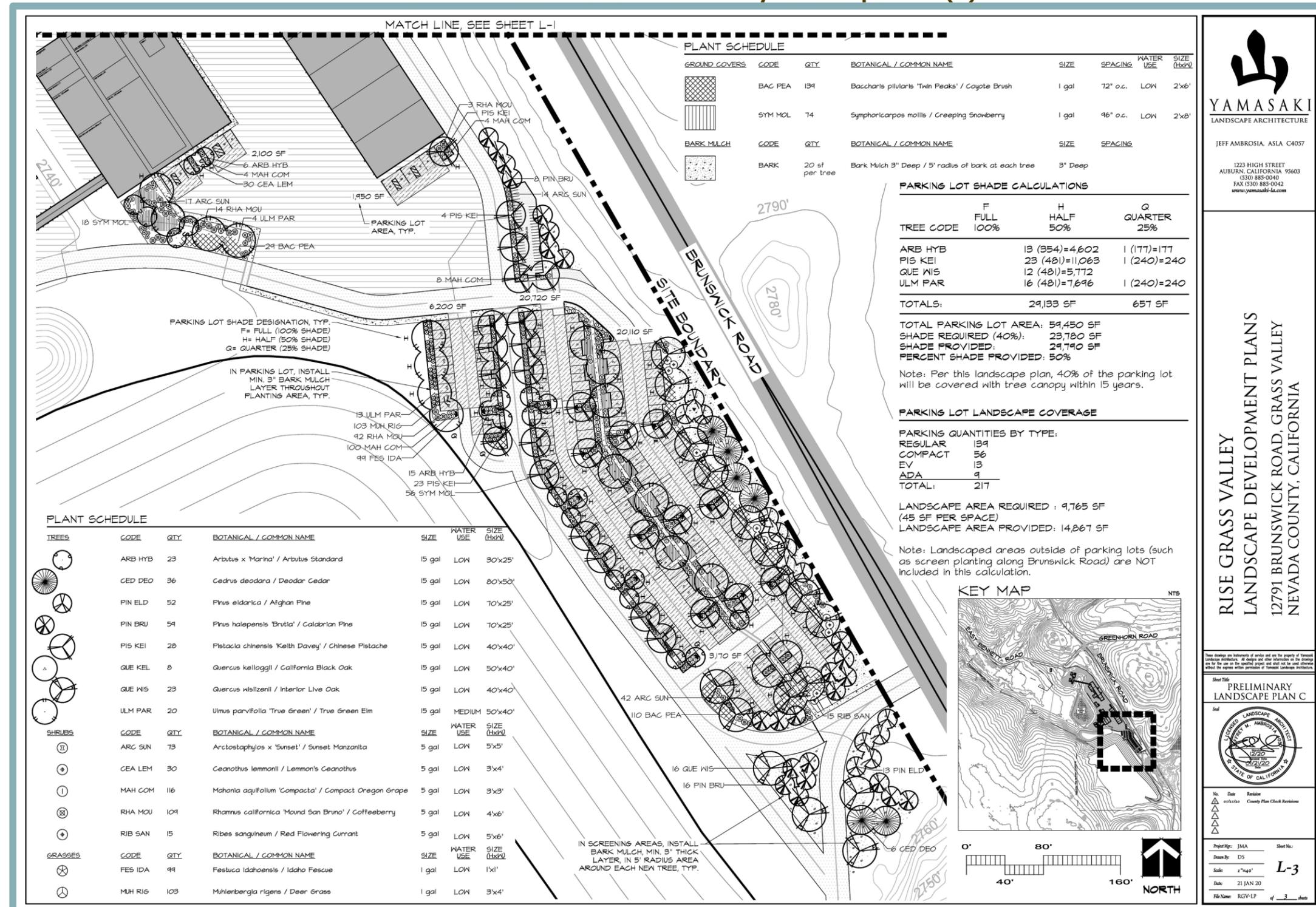


Figure 3-19
Brunswick Industrial Site – Preliminary Landscape Plan (3)



JEFF AMBROSIA, ASLA C4057
1223 HIGH STREET
AUBURN, CALIFORNIA 95603
(530) 885-0040
FAX (530) 885-0042
www.yamasaki-la.com

RISE GRASS VALLEY
LANDSCAPE DEVELOPMENT PLANS
12791 BRUNSWICK ROAD, GRASS VALLEY
NEVADA COUNTY, CALIFORNIA

These drawings are instruments of service and are the property of Yamasaki Landscape Architecture. All drawings are site specific and shall not be used elsewhere without the express written permission of Yamasaki Landscape Architecture.

Sheet Title: PRELIMINARY LANDSCAPE PLAN C



Date: 01/21/20
Revision: County Plan Check Revisions

Project Mgr: JMA
Drawn By: DS

Scale: 1"=40'

Date: 21 JAN 20
File Name: RGV-LP

The fill pads would be maintained until they are used or sold for future industrial purposes. Additional information related to the proposed reclamation activities is provided in the Reclamation Plan for the proposed project, included as Appendix C to this EIR.

Table 3-10 Reclamation Plan Summary for Operational Components	
Site Component	Reclamation Plan
Potable water extension	To remain to service East Bennett residential area.
Brunswick Industrial Site	
Engineered fill	Transported from process plant, Compacted and graded in lifts pursuant to geotechnical report recommendations. Side slopes would be vegetated and the pad would be an area for future industrial use.
Covered conveyor from Brunswick headframe to process plant	To be dismantled and removed.
Brunswick and Service shaft headframes and headframe buildings	To be dismantled and removed.
Brunswick shaft	To be closed pursuant to applicable State and federal regulations.
Service shaft	To be closed pursuant to applicable State and federal regulations.
Buildings (Including Mineral processing plant, change room and office, warehouse, hoist rooms, generator, water treatment plant, etc.)	Contents of buildings to be removed; buildings to remain for future industrial use.
Site drainage facilities	To remain on-site for support of future industrial development.
Diesel fuel tanks (Two 12,000-gallon tanks)	To be emptied and removed.
Process tanks (clean water, process water, tailing thickener, paste filter feed tank, cement silo, finish water tank)	To remain for future industrial use.
Water treatment pond	To remain on-site for future industrial uses.
South Fork Wolf Creek	Outfall pipeline to be removed after mine dewatering activities are no longer needed.
Paved surfaces, access, and roads	To remain.
Centennial Industrial Site	
Engineered fill	Transported from process plant, compacted and graded in lifts pursuant to geotechnical report recommendations. Side slopes would be vegetated and the pad would be reserved for future industrial use.
Site drainage facilities	To remain on-site for support of future industrial development.
Paved surfaces, access, and roads	To remain.

3.8 REQUESTED DISCRETIONARY ACTIONS

Implementation of the proposed project would require the following discretionary actions by the County:

- **Rezone application** to rezone the parcels located at the Brunswick Industrial Site from M1-SP to Light Industrial with Mineral Extraction Combining District (M1-ME) to allow for surface mining facilities related to the underground mining operations, pursuant to the Nevada County LUDC, Section L-II 2.7.3;



- **Use Permit** for uses and facilities over the 80-year permit life consistent with the project as described in this Chapter, including:
 - Operation of pumps and a water treatment facility to dewater the underground mine workings;
 - Construction of a water pipeline to transport treated water to an outfall located in South Fork of Wolf Creek;
 - Construction of the necessary aboveground facilities at the Brunswick Industrial Site (to include but not limited to, headframes and hoists, surface structures, a mineral processing plant) to support underground mining and mineral processing;
 - Underground mining, including drilling, blasting, and gold mineralization removal;
 - Gold mineralization and rock processing at the Brunswick Industrial Site off-site transport of gold concentrate;
 - Transport of engineered fill from the Brunswick Industrial Site and placement at the Centennial Industrial Site;
 - Transport of engineered fill from the Brunswick Industrial Site to off-site construction project;
 - Placement of engineered fill at the Brunswick Industrial Site; and
 - Construction of a potable water pipeline to supply residences along a portion of East Bennet Road.

- **Reclamation Plan and Financial Assurance Cost Estimate** to reclaim project related surface disturbance to a condition suitable for industrial uses as allowed by Nevada County LUDC, Section L-II 2.5 – Industrial Uses, Table L-II 2.5 D – Light Industrial;

- **Variance to the Building Height Limits** to allow for the construction of several structures up to a height of 165 feet, where 45 feet is required, pursuant to the Light Industrial Zoning District (Nevada County LUDC, Section L-II 2.5 – Industrial Uses, Table L-II 2.5.E);

- **Management Plans** in order to accomplish the following:
 - Allow for activities within the required 100-foot setback from the Riparian Area of a Perennial Watercourse, pursuant to the Nevada County LUDC, Section L-II 4.3.17, at the Brunswick and Centennial Industrial Sites;
 - Minimize the direct impact to special-status plant species, pursuant to the Nevada County LUDC, Section L-II 4.3.12, at the Centennial Industrial Site;
 - Allow development within locations of areas of steep slopes that are in excess of 30 percent and high erosion potential at both the Brunswick and Centennial Industrial Sites, pursuant to the Nevada County LUDC, Section L-II 4.3.13;
 - Allow for development within a building setback fault zone at the Brunswick Industrial Site, pursuant to the Nevada County LUDC, Section L-II 4.3.8; and
 - Allows limited grading within the County’s 100-foot buffer from the Wolf Creek 100-year floodplain boundary, subject to mitigations and conditions that must be complied with to ensure that the operations at the Centennial Industrial Site would not result in adverse effects to the 100-year floodplain associated with Wolf Creek.

- **Amendment to the Final Map for Bet Acres** recorded in February 1987 in Book 7 of Subdivision Maps at Page 75 to remove the “200’ Building Setback From Fault”, as shown on Sheet 4 of Final Map #85-7. The amended Final Map is shown in Figure 3-20. The geotechnical support for removing this setback is provided in Chapter 4.6, Geology, Soils, and Mineral Resources.



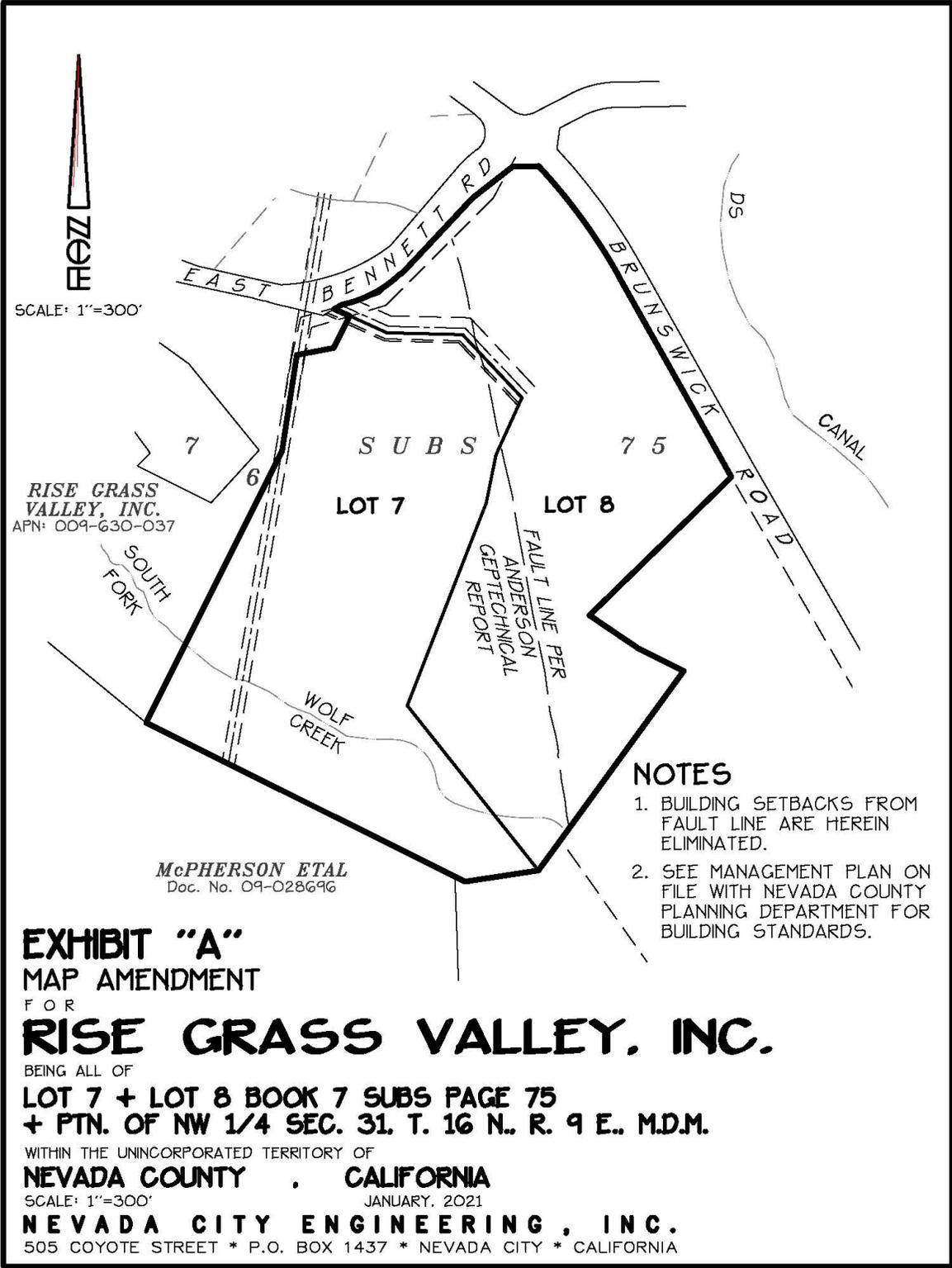
- **Boundary Line Adjustment** to transfer approximately 46.27 acres for three separate parcels (APN: 009-630-039, 006-441-034, 006-441-003) to reconfigure the property lines to resolve an issue of the proposed buildings crossing property lines at the Brunswick Industrial Site (see Figure 3-21).

Other Agency Permits

Implementation of the proposed project would require other agency permits, beyond those required by the lead agency (e.g., Nevada County). Table 3-11 lists the agencies from whom additional permits may be required for project implementation.



**Figure 3-20
Proposed Bet Acres Final Map Amendment**



**Figure 3-21
Proposed Boundary Line Adjustment**

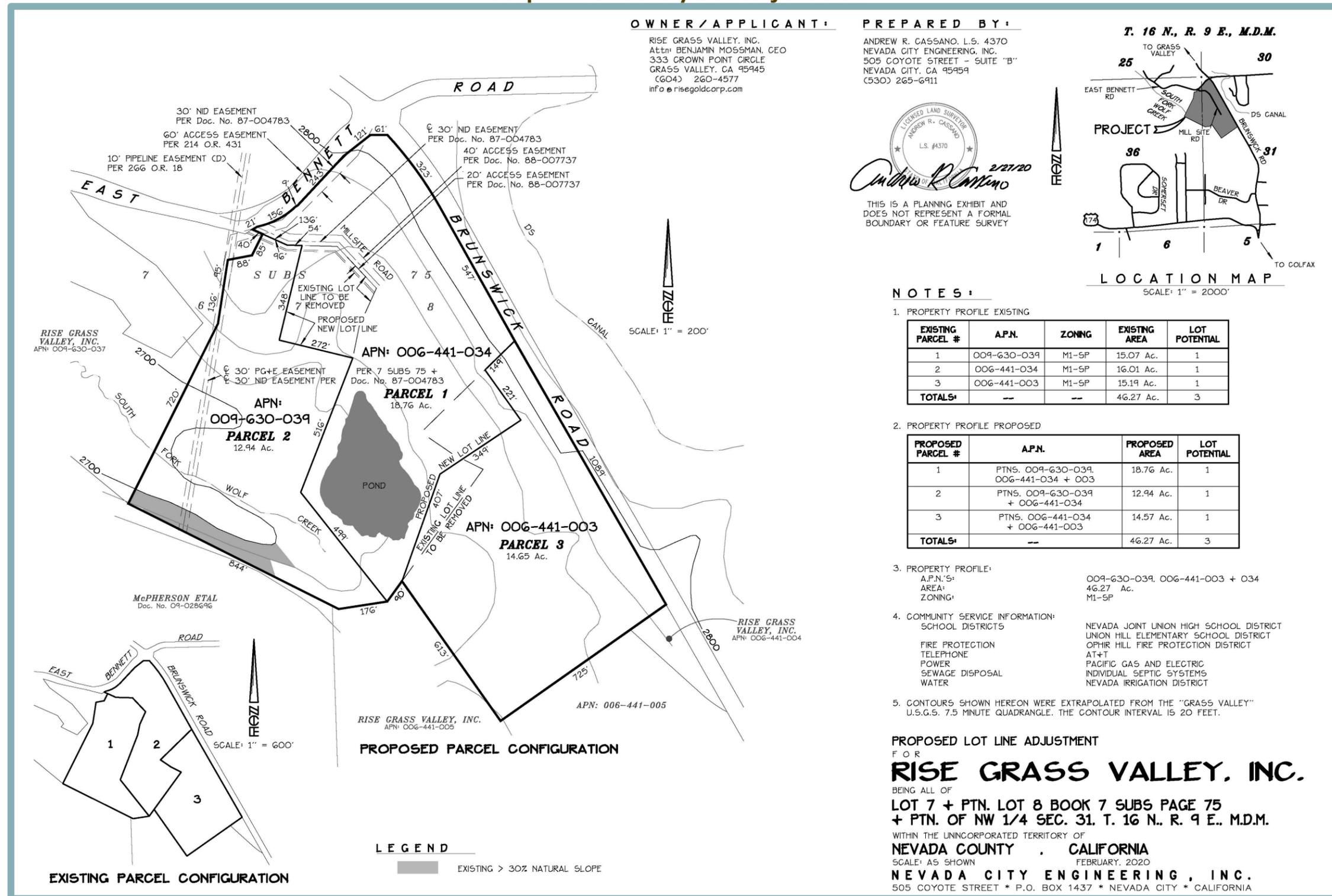


Table 3-11 Potential Permits and Approvals for the Proposed Project		
Agency/Department	Permit/Authorization	Required For
Federal Agencies		
U.S. Army Corps of Engineers	Individual/Nationwide Section 404 Discharge Permit (Clean Water Act, 33 USC 1341)	Dredge/fill into “waters of the US”
U.S. Fish and Wildlife Service	Biological Assessment, Section 7 Consultation, Biological Opinion (Endangered Species Act, 16 USC 1531-1544)	Activity where there may be an effect on federally regulated species
		Activity where incidental take of federally listed species is anticipated
Advisory Council on Historic Preservation	Section 106, (National Historic Preservation Act, 16, USC 470); Designation Survey, determination of effort	Potential impacts to historic, architectural, archeological, or cultural characteristics of properties that qualify to meet National Register Criteria (State Historic Preservation Officer responsible for administration) Note: Also refer to National Natural Landmarks Program (36 CFR 62) and National Historic Landmarks Program (36 CFR 65)
Bureau of Alcohol, Tobacco, and Firearms	Purchase, Storage, or Transportation of Explosives Permit (27 CFR 55)	Purchase and/or transporting explosives across a state line. Storage requirements apply to all persons storing explosives.
Mine Safety and Health Administration	Notice of Commencement of Operations	Notice of the ownership and location of the mine
	Emergency Fire, Evacuation, and Rescue Plan	Potential emergency situation plans required for Surface operation
	Legal Identity Report	Reporting the type of operation, location, and ownership
	Record of Inspection of Self-Propelled Equipment	Records, on self-propelled equipment must be maintained for six months and be available to inspectors
	Record of Testing the Resistance of Electrical Ground System	Recording the test required annually and after installation, repair, or medication of the electrical ground systems
	Miner Training Program	Mine safety training programs educating workers
	MSHA Identification Number	Tracking all mine sites

(Continued on next page)



Table 3-11 Potential Permits and Approvals for the Proposed Project		
Agency/Department	Permit/Authorization	Required For
State Agencies		
Regional Water Quality Control Board	General Construction Activity Stormwater Permit; Notice of Intent (40 CFR Part 122)	Stormwater discharges associated with construction activity
	National Pollutant Discharge Elimination System Permit (33 USC 1251 <i>et seq.</i>)	Discharge of waste into surface waters of California
	Waste Discharge Permit (Water Code 1300 <i>et seq.</i>)	Discharge of wastewater that may affect groundwater quality; Discharge of dredged or fill material to water of the State
State Water Resources Control Board Division of Water Rights	401 (Water Quality) Certification (Clean Water Act, 33 USC 1251: if the project requires Army Corps of Engineers 404 permit)	Discharge into "water of the United States" including wetlands
	General Industrial Activity Stormwater Permit. Notice of Intent (40 CFR Part 122)	Stormwater discharges associated with industrial activity, unless covered by individual NPDES Permit
	Spill Prevention Control and Countermeasures Plan (Health and Safety Code 25270 <i>et seq.</i> ; 40 CFR Part 122)	Underground storage of petroleum of 42,000+ gallons. Above ground storage with 10,000+ gallons; or any spill affecting surface waters, single tank of 600 gallons, or 1,320 total
State Office of Historic Preservation	Section 106, National Historic Preservation Act (16 USC 470; 36 CFR 62; 36 CFR 65).	Avoidance of historic, archaeological, or cultural characteristics of properties that meet National Register Criteria
California Department of Fish and Wildlife	Lake/Streambed Alteration Agreement	Substantial alteration of the bed or bank of river, stream, or lake (includes road or land construction across a natural streambed)
	Incidental Take Permit	For take of any species listed under the California Endangered Species Act ("CESA")
California Occupational Safety and Health Administration (Cal-OSHA)	Annual Permit	Construction/demolition of any structure over three stories
	Construction Permit	Worker safety/health
	Underground Diesel Permit	Underground use of diesel engines
Northern Sierra Air Quality Management District	Authority to Construct (Local district rules, pursuant to Health and Safety Code 42300, <i>et seq.</i>)	Constructing, modifying, or operation of a facility or equipment that may emit pollutants from a stationary source
	Permit to Operation (Local district rules)	Operation equipment that may emit pollutants from a stationary source



4. EXISTING ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

4.0 INTRODUCTION TO THE ANALYSIS

4.0. INTRODUCTION TO THE ANALYSIS

4.0.1 INTRODUCTION

The technical chapters of this EIR include the analysis of the potential impacts of buildout of the proposed project on the full range of environmental issue areas. Chapters 4.1 through 4.13 describe the focus of the analysis, references and other data sources for the analysis, the environmental setting related to each specific issue area, project-specific impacts and mitigation measures, and the cumulative impacts for each issue area. The format of each of the technical chapters is described at the end of this chapter.

4.0.2 ENVIRONMENTAL ISSUES ADDRESSED IN THIS EIR

This EIR provides the analysis necessary to address all technical environmental topics identified in Appendix G of the CEQA Guidelines. Consistent with Appendix G, the following environmental issues are addressed in separate technical chapters of this EIR:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality, Greenhouse Gas Emissions, and Energy;
- Biological Resources;
- Cultural and Tribal Cultural Resources;
- Geology, Soils, and Mineral Resources;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Population and Housing;
- Noise and Vibration;
- Public Services and Utilities
- Transportation; and
- Wildfire

Chapter 5.0 of the EIR presents a discussion and comprehensive list of all significant and unavoidable impacts identified in Chapters 4.1 through 4.13.

4.0.3 ENVIRONMENTAL SETTING

According to the CEQA Guidelines Section 15125(a), “An EIR must include a description of the physical environmental conditions in the vicinity of the project. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.” Notably, the purpose of this requirement, “...is to give the public and decision makers the most accurate and understandable picture practically possible of the project’s likely near-term and long-term impacts.”

The Brunswick Industrial Site environmental baseline is site conditions that exist at the time of the Notice of Preparation. Existing Brunswick Industrial Site environmental conditions include forested slopes, aquatic features such as South Fork Wolf Creek, disturbance and remnants from previous gold mining and sawmill operations, and operations associated with Gold Country Senior



Services, specifically, the cutting, storing, and distribution of firewood to seniors. Recent activities have also included use of the Brunswick Industrial Site by a contractor performing vegetation trimming for PG&E.

As discussed in Section 1.3, the environmental baseline for the Centennial Industrial Site has been adjusted for the evaluation of several resource topics in this Draft EIR to reflect future conditions at the Centennial Industrial Site because of a separately proposed environmental remediation project that would be complete prior to the use of the Centennial Industrial Site by the project for engineered fill placement. The future post-remediation environmental baseline is limited to the Centennial Industrial Site and the following resources:

- Aesthetics
- Agriculture and Forestry
- Biological Resources
- Hazards and Hazardous Materials
- Wildfire

For evaluation of other resource topics, the environmental baseline is existing conditions at the Centennial Industrial Site as those resource evaluations are less dependent on landform/soil disturbance.

4.0.4 DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial or potentially substantial adverse change in the environment (Public Resources Code [PRC] Section 21068). The CEQA Guidelines require that the determination of significance be based on scientific and factual data. The specific criteria for determining the significance of a particular impact are identified within in each technical chapter, and are consistent with significance criteria set forth in the CEQA Guidelines or as based on the professional judgment of the EIR preparers.

Four categories of impacts are used for the project-specific impacts within this EIR: no impact, less than significant, significant, and significant and unavoidable. The description of each determination is as follows:

No Impact. The impact would clearly not cause any physical changes in the existing or projected future environment.

Less than Significant. The impact would not cause significant adverse physical changes in the existing or projected future environment; therefore, mitigation is not required. Or, while some impact may be associated with the project, it is not significant or is acceptable based on the applicable thresholds of significance.

Significant. Under CEQA, a significant impact is defined as a substantial, or potentially substantial, adverse physical change in the environment. CEQA Guidelines Section 15064 states that the determination is to be made by the lead agency based on scientific and factual data, to the extent possible.



Significant and Unavoidable. An impact is considered significant and unavoidable when the result is a substantial effect on the environment for which mitigation has not been identified as feasible to reduce the impact to a less-than-significant level, or mitigation is identified but would not fully mitigate the impact to acceptable levels. Mitigation may be required to reduce the impact as much as possible, even if the impact would remain significant and unavoidable.

A cumulative discussion of the impacts of the proposed project in conjunction with other development in the region is included in each technical chapter of this EIR. Cumulative impacts are determined to be less than significant, less than cumulatively considerable, cumulatively considerable, or significant and unavoidable. When a cumulative impact is determined to be less than significant, this signifies that the proposed project's incremental effect, in combination with the effects of other cumulative development, is not significant. The description of the other cumulative determinations is as follows:

Less than Cumulatively Considerable. The project, in combination with other cumulative development, would generate a significant cumulative impact; however, the project's incremental contribution to the significant cumulative impact is less than cumulatively considerable (see CEQA Guidelines Section 15064(h)(5)).

Cumulatively Considerable. The project, in combination with other cumulative development, would generate a significant cumulative impact; and, the project's incremental contribution to the significant cumulative impact is cumulatively considerable (see CEQA Guidelines Section 15064(h)(1)).

Significant and Unavoidable. Significant and unavoidable cumulative impacts are impacts on the environment that result from the incremental impacts of a proposed project when added to other past, current, and future projects and cannot be alleviated to a less than cumulatively considerable level. Such impacts can result from individually minor but collectively significant actions that occur over time.

All mitigation measures pertinent to each individual impact follow directly after the statement of level of significance of the impact (see below). The effectiveness of identified mitigation measures in reducing impacts is also evaluated.

4.0.5 CHAPTER FORMAT

Each technical chapter addressing a specific environmental issue begins with an **introduction** describing the purpose of the chapter. The introduction is followed by a description of the project's baseline **environmental setting** pertaining to that particular environmental issue. The setting description is followed by the **regulatory context** and the **impacts and mitigation measures** discussion. The discussion contains the **standards of significance**, followed by the **method of analysis**. The **impacts and mitigation measures** discussion includes impact statements prefaced by a number in bold-faced type. An explanation of each impact and an analysis of the impact's significance follow each impact statement (see below), followed by all mitigation measures pertinent to each individual impact. The degree of relief provided by identified mitigation measures is also evaluated. An example of the format is shown below. Note that where needed, separate headers are included for the Centennial Industrial Site, Brunswick Industrial Site, and/or East Bennett Road ROW to differentiate the impact discussion based upon the specific conditions of each respective area.



4.x-1 Statement of Impact

Discussion of impact for the proposed project in paragraph format.

Statement of **level of significance** of impact without implementation of mitigation is included at the end of each impact discussion. The following levels of significance without implementation of mitigation will be utilized in the EIR: no impact, less than significant, and significant. If an impact is determined to be significant, mitigation will be included in order to reduce the specific impact to the maximum extent feasible. Impacts that cannot be reduced to a less-than-significant level with implementation of all feasible mitigation would be considered to remain significant and unavoidable.

Mitigation Measure(s)

Statement of *level of significance* of impact with implementation of mitigation is included immediately preceding the mitigation measures.

4.x-1(a) *Required mitigation measure(s) presented in italics and listed in consecutive order.*

4.x-1(b) *etc., etc.*

The cumulative impacts are similarly presented at the end of each technical chapter in a separate section.



4.1 AESTHETICS

4.1. AESTHETICS

4.1.1 INTRODUCTION

The Aesthetics chapter of the EIR describes existing aesthetic resources in the area of the proposed project and the broader region, and evaluates the potential aesthetic impacts of the project. CEQA describes the concept of aesthetic resources in terms of scenic vistas, scenic resources (such as trees, rock outcroppings, and historic buildings within a State scenic highway), and the existing visual quality of the project area. In addition, pursuant to CEQA Guidelines, this chapter describes potential impacts related to light and glare. The following analysis is based on the Aesthetics Technical Study prepared for the proposed project by Benchmark Resources,¹ site visit by Raney Planning & Management, Inc., as well as information drawn from the Nevada County General Plan,² the Nevada County General Plan EIR,³ and the Western Nevada County Design Guidelines.⁴

It should be noted that according to the court ruling in *Preserve Poway v. City of Poway* (2016) 245 Cal. App.4th 560 [199 Cal.Rptr. 3d 600], community character is separate and apart from aesthetic impacts and, thus, is not a CEQA issue. Rather, the analysis of aesthetics should be limited to tangible, physical evidence that a project is visually inconsistent with the surrounding community (rather than a psychological “feel”). Therefore, the analysis presented within this chapter focuses on potential physical changes to visual composition of the project sites and surrounding area, rather than overall community character.

4.1.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing aesthetic conditions at the Brunswick Industrial Site, and for the Centennial Industrial Site, this section will provide an overview of post-remediation environmental baseline conditions pertaining to aesthetics. As discussed in Section 1.3, “Approach To Centennial Industrial Site Baseline,” of this EIR, for the purposes of this aesthetics analysis, the environmental baseline for the Centennial Industrial Site has been adjusted to be consistent with anticipated site conditions at the completion of the separate Centennial Industrial Site Clean-up Project.

Visual Character of the Region

The project sites are located in the western region of Nevada County, in the western foothills of the Sierra Nevada. The visual character of the project region is a combination of forested landscapes of varied topography, urban development located within the City of Grass Valley, and scattered rural single-family residences. The developed area of the City of Grass Valley to the northwest of the project sites consists primarily of commercial and industrial uses. The topography of the project area includes gently rolling hills, with the developed portions of the City of Grass Valley situated at a slightly higher elevation compared to the project sites.

¹ Benchmark Resources. *Idaho-Maryland Mine, Aesthetics Technical Study, Nevada County, California*. January 2021.

² Nevada County. *Nevada County General Plan*. Updated 2014.

³ Nevada County. *Nevada County General Plan, Final Environmental Impact Report*. March 1995.

⁴ Nevada County. *Western Nevada County Design Guidelines*. March 19, 2002.



State Scenic Highways

According to the California Department of Transportation (Caltrans) Scenic Highway Program, State Route (SR) 20, 49, and 174 within Nevada County are eligible State Scenic Highways. Eligible state scenic highways, while recognized for aesthetic quality, are not officially designated as scenic highways. Only SR 49/SR 20 has views of the project sites. As SR 49 passes through Grass Valley, it is posted as both SR 49 and SR 20. At the north end of Nevada City, SR 49 turns west toward North San Juan, after which the north-south highway turns east and becomes SR 20. The entirety of SR 49 proceeds in a northbound/southbound direction. As the portion through Grass Valley is oriented north-south, it is therefore referred to throughout the remainder of this chapter as SR 49. The Brunswick Industrial Site is approximately two miles from SR 49 and the Centennial Industrial Site is approximately a 0.5-mile from SR 49.

Visual Character of the Project Sites and Surrounding Areas

The project sites are surrounded by undeveloped forested land, industrial, rural residential development, and commercial uses (see Table 3-2 in Chapter 3, Project Description). The portions of the project sites not affected by historic mining and previous industrial uses are typical of the lower Sierra Nevada foothills, varying between flat ridges and valleys to gently and moderately sloping hillsides. The project sites are located between the main stem of Wolf Creek and South Fork Wolf Creek and are dominated by mixed hardwood-conifer forests with smaller areas of riparian woodland and scrub, chaparral, wetlands, and annual grassland. Each site is discussed separately below.

Centennial Industrial Site

The Centennial Industrial Site is accessed from Whispering Pines Lane. The visual character of the site is a combination of past industrial use and undeveloped land with natural habitats. The Centennial Industrial Site includes densely vegetated areas interspersed with past disturbance from historical mining at the site, including industrial structures and wood and metal materials left by the previous owner of the site. Such industrial features are visible from the corner of Idaho Maryland Road and Centennial Drive. The main stem of Wolf Creek, a perennial stream, generally runs parallel to, and immediately south of, Idaho Maryland Road along the northern boundary of the Centennial Industrial Site.

The Centennial Industrial Site was the location of the mine tailings storage area and pond for the previous gold mining operations in the site vicinity. Some of the materials used to build the tailings berm and small quantities of mineralized rock contain elevated metals. As a result, under existing conditions, most of the Centennial Industrial Site cannot currently be developed because of unstable soils and/or contamination. The project applicant is working with the California Department of Toxic Substances Control (DTSC) to develop a plan to consolidate and cap the contaminated soils in a manner consistent with current federal and State regulations, separate from the proposed project. The soil cleanup activity would be completed before implementation of project-related activities at the Centennial Industrial Site, and would result in removing the contaminated surface soils, trees, and other vegetation on a large portion of the property and creating an elevated pad area where the consolidated soil would be collected and capped. Therefore, as discussed in Chapter 1, Introduction, of this EIR, for the purposes of this aesthetics analysis, the existing conditions environmental baseline for the Centennial Industrial Site has been adjusted to be consistent with completion of the DTSC cleanup project.

Following the DTSC cleanup project, approximately half of the Centennial Industrial Site would consist of graded and revegetated areas. An engineered fill pad would be located along the



eastern portion of the site. The remaining areas would consist of varying topography covered with natural vegetation communities and a limited amount of aquatic resources.

Brunswick Industrial Site

The Brunswick Industrial Site is accessed from Brunswick Road or East Bennett Road. Public roads do not exist within the site. The visual character of the site is both industrial and undeveloped land, with the industrial area located closest to Brunswick Road. The remaining areas of the site consist of relatively undisturbed, densely vegetated, and undeveloped land typical of the surrounding area. South Fork Wolf Creek is a perennial stream, originating from surface drainage and road runoff from both the east and west sides of Brunswick Road exiting at a 48-inch culvert within the Brunswick Industrial Site, near the large artificial, clay-lined pond, and flows northwest across the site. Several intermittent and ephemeral streams connect directly to South Fork Wolf Creek within the Brunswick Industrial Site.

The 85-foot-tall silo visible from the corner of Brunswick and East Bennett Roads is a remnant of previous gold mining and industrial uses on-site. The clay-lined pond and significant paved areas remain from a previous sawmill operation.

Viewer Types and Exposures

As part of the Aesthetics Technical Study, public viewer groups and vantage points from the surrounding area were considered to assess how the public would perceive changes in site conditions associated with the proposed project. The vantage points include public views considered to be the most visually sensitive locations. The following viewer groups and public view locations were assessed:

- **Motorists along major roadways:** SR 49;
- **Motorists along minor travel routes (residential neighborhoods, industrial areas):** Idaho Maryland Road, Brunswick Road, East Bennett Road, New Brunswick Court, Spring Hill Drive, and Centennial Drive/Whispering Pines Lane; and
- **Bicyclists:** A portion of Idaho Maryland Road.

It should be noted that CEQA (Public Resources Code [PRC] 21000 et seq.) case law has established that only public views, not private views, are protected under CEQA. For example, in *Association for Protection etc. Values v. City of Ukiah* (1991) 2 Cal.App.4th 720 [3 Cal. Rptr.2d 488] the court determined that “we must differentiate between adverse impacts upon particular persons and adverse impacts upon the environment of persons in general. As recognized by the court in *Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188 [129 Cal.Rptr. 739]: “[A]ll government activity has some direct or indirect adverse effect on some persons. The issue is not whether [the project] will adversely affect particular persons but whether [the project] will adversely affect the environment of persons in general.” Such a conclusion is consistent with the thresholds of significance established in Appendix G of the CEQA Guidelines. Therefore, it is appropriate to focus the aesthetic impact analysis on potential impacts to public views, rather than private views.

For each of the public viewer groups identified in the study area, visual quality and viewer exposure conditions were assessed. Study area reconnaissance was conducted by Benchmark Resources on October 2, 2019. The viewing distance, angle of view, the extent to which views are screened or open, and duration of view were assessed to determine visual quality and



exposure. Visual quality is described based on the type of view from locations in the region such as the following:

- **Distinct:** a unique or uncharacteristic view for the surrounding area or location given the surrounding natural environment and vegetation;
- **Representative:** a view typical of the area that does not provide any defining or unique features or elements to the viewer, including commercial buildings, infrastructure, and other development; and
- **Industrial:** views typical of industrial land use development in the area, including surface disturbance, industrial/commercial buildings, and other highly developed land uses.

Viewing distances are described according to whether the project activities would be viewed within the foreground, middleground, or background. Viewing angle and extent of visibility relate to the location of the viewed feature to the viewer and whether visibility conditions are open or panoramic or limited by intervening vegetation, structures, or terrain.

Duration of view pertains to the amount of time the project sites or proposed facilities typically would be seen from a sensitive viewpoint. In general, duration of view would be less in instances where the project would be seen for short or intermittent periods (such as from major travel routes) and greater in instances where the project would be seen regularly and repeatedly (such as from residential or public use areas). Traffic volumes are classified as high (approximately more than 20,000 vehicle trips per day), moderate (approximately 10,000 to 20,000 vehicle trips per day), and low (approximately less than 10,000 vehicle trips per day).

Table 4.1-1 summarizes the visual quality, viewer exposure, and visual sensitivity for the various viewer categories and view locations assessed in this evaluation.

Based on the viewer groups and public view locations, 11 representative viewpoints were selected within the vicinity of the project sites (see Figure 4.1-1). The methodology used to select the viewpoints is discussed in further detail in the Methods of Analysis section below. The following sections provide additional discussion for each of the viewer categories and view locations, based on the selected representative viewpoints.

SR 49

The Centennial Industrial Site is visible from SR 49, an eligible State Scenic Highway running northeast-southwest in the project area. SR 49 connects the cities of Auburn, Grass Valley, and other rural cities and towns, and is a major link to SR 20 and Interstate 80. Traffic volumes are classified as high (approximately 26,000 to 32,000 vehicle trips per day). The speed limit on the roadway is 60 miles per hour (mph) nearest the project sites, and views of the Centennial Industrial Site are brief and partially obstructed, but from an elevated location. Passengers heading northeast are the most likely viewer to have the opportunity to glimpse a view of the site, considering the drivers must turn their heads at least 90 degrees to see the site.

Directly to the west are foreground views of the rooftops of industrial buildings, including storage buildings and a collision repair shop. Middleground views include a lumber company with a parking lot in front, perched on a leveled hill, and tall pine trees. Background views consist of tree-covered hills. The trees that grow on the Centennial Industrial Site are visible east of the lumber company. However, at the time of implementation of the proposed project, as noted previously, it is reasonably anticipated that the site remediation efforts will have been completed, and the



current vegetation on the majority of the site (except near Wolf Creek and near the southern boundary of the site) will have been removed, leaving an elevated area where the consolidated soil will be collected.

Table 4.1-1 Visual Sensitivity of Assessed View Locations			
Viewer Type/Location	Visual Quality	Viewer Exposure and Volumes	Visual Sensitivity
Motorists on Major Travel Routes			
SR 49 (State highway)	Distinct/ representative	Exposure: Elevated partially to fully obstructed middleground and background views Volume of viewers: High View duration: Short	High
Motorists/Bicyclists on Minor Travel Routes			
Brunswick Road (minor arterial road)	Representative/ Industrial	Exposure: Varies from open foreground views to partially obstructed foreground views Volume of viewers: Moderate to low View duration: Short to moderate	Moderate
East Bennett Road (minor collector road)	Representative	Exposure: Partially to fully obstructed foreground views Volume of viewers: Low View duration: Short	High
New Brunswick Court (local road)	Representative	Exposure: Fully obstructed foreground views Volume of viewers: Low View duration: None	High
Idaho Maryland Road (minor collector road)	Industrial	Exposure: Foreground views Volume of viewers: Low View duration: Short to moderate	Low
Spring Hill Drive (local road)	Industrial	Exposure: Partially obstructed foreground and middleground views Volume of viewers: Low View duration: Short to moderate	Low
Centennial Drive/ Whispering Pines Lane (local road)	Industrial	Exposure: Partially to fully obstructed foreground views Volume of viewers: Low View duration: Moderate	Low

Source: Benchmark Resources, 2020.

Viewpoints 1 and 2 provide existing views looking southwest from a parking lot just above SR 49, at Sierra Nevada Memorial Hospital (Viewpoint 1), and below SR 49, at Caliber Collision (Viewpoint 2). Viewpoint 2 is the most representative view for drivers from SR 49. Viewpoint 1 provides views only to those drivers who park at the western edge of the Sierra Nevada Memorial Hospital parking lot. However, Viewpoint 1 has been included herein to allow for an analysis of the most elevated public view of the Centennial Industrial Site available. Viewer sensitivity is considered high because, while the foreground and middleground views are brief and largely industrial, SR 49 is an eligible State Scenic Highway, and the background views are natural and representative of the forested region. The Brunswick Industrial Site is not visible from Viewpoints 1 and 2.



**Figure 4.1-1
Viewpoint Locations**



Brunswick Road

Brunswick Road borders the eastern boundary of the Brunswick Industrial Site. Brunswick Road is a north-south minor arterial that connects East Main Street/Nevada City Highway in the north to SR 174 in the south. Within the project vicinity, the posted speed limit along Brunswick Road near the project sites is 50 mph and the roadway includes two lanes. The volume of viewers is moderate (approximately 10,000 vehicle trips per day). The road is primarily used by local residents, commuters, and workers (including delivery or construction-related truck drivers), accessing the various residences and industrial, office, and retail businesses in the area.

Viewpoints 6 through 11 are from Brunswick Road and provide brief views of the Brunswick Industrial Site between gaps in the trees that grow along the road. Viewer sensitivity on Brunswick Road, near the project site, is considered moderate; while the visual quality of the area is representative, due to the forested roadsides mixed with industrial activities, the view exposure and the duration of views is short (driving at 50 mph) to moderate (at the four-way stop at the East Bennett Road intersection). The Centennial Industrial Site is not visible from Viewpoints 6 through 11.

East Bennett Road

East Bennett Road is a minor collector road that borders the northern boundary of the Brunswick Industrial Site. The posted speed limit near the project site is 35 mph. The roadway is two lanes and connects SR 49 to Brunswick Road. The road is primarily used by local residents and drivers accessing local businesses and residences on the road, and the volume of drivers using the road is low (less than 2,000 vehicle trips per day). Views near the project site consist of roadways lined with trees with few views of houses or businesses. Views of the Centennial Industrial Site are limited by the elevated topography along the north side of the road, and a view of the Brunswick Industrial Site is available at one break in the vegetation, where an open grassy area is visible, and at the corner of East Bennett and Brunswick Roads, where a silo from past gold mining activities on-site can be viewed from the intersection. Viewer sensitivity along East Bennett Road, near the project site, is considered high; the primary viewer would be traveling at relatively slower speeds on the heavily forested and curvy roadway.

New Brunswick Court

New Brunswick Court is a local road near the Brunswick Industrial Site that primarily provides access for residential uses; thus, the volume of viewers on the roadway is low and the viewer sensitivity is high. However, the Brunswick Industrial Site is not visible from the roadway because of existing tall trees that block views. Viewpoint 5 is included in this analysis because the viewpoint is representative of public views from other nearby residential streets, where the topography, vegetation, or structures prevent a view of the Brunswick Industrial Site. The Centennial Industrial Site is not visible from Viewpoint 5.

Idaho Maryland Road

Idaho Maryland Road is a two-lane minor collector roadway that borders the northern boundary of the Centennial Industrial Site. The roadway connects SR 49 in the west to Brunswick Road. The posted speed limit along Idaho Maryland Road near the project site is 35 mph. The volume of viewers is low (less than 2,000 vehicle trips per day). Viewers consist primarily of commuters and local workers accessing the industrial businesses along the roadway. Views include the local trees that are representative of the forested area in the project vicinity; however, the portion of the roadway near the Centennial Industrial Site is primarily industrial. Viewpoint 3 provides a view of the Centennial Industrial Site from an elevated location on Spring Hill Road, looking south.



Existing views of the Centennial Industrial Site include vegetation in the foreground and industrial uses (e.g., metal structures, wood and other material piled on the ground, old vehicles) in the middleground, visible through the shrubs and trees. However, at the time of implementation of the proposed project, it is reasonably anticipated that the site remediation efforts will have been completed, and the current vegetation on the majority of the Centennial Industrial Site (except near Wolf Creek and near the southern boundary of the site) will have been removed, leaving an elevated area where the consolidated soil will be collected. Viewer sensitivity is considered low because of the level of industrial uses in the area. The Brunswick Industrial Site is not visible from Viewpoint 3.

Spring Hill Road

Spring Hill Road is a local, two-lane road that connects to Idaho Maryland Road and provides access to businesses. The character and representative viewpoint for this roadway is the same as described for the Idaho Maryland Road in the previous section.

Centennial Drive/Whispering Pines Lane

Centennial Drive becomes Whispering Pines Lane after the sharp bend in the road. Centennial Drive connects to Idaho Maryland Road, and Whispering Pines Lane connects to Brunswick Road. The volume of viewers on the two-lane road is low, and the roadway primarily provides access to industrial uses and offices. The roadway borders the northeastern corner of the Centennial Industrial Site, where signs warn drivers to slow to 15 mph, which increases view duration of the site. Views along the roadway are primarily industrial. Viewpoint 4 provides a view of the Centennial Industrial Site from immediately before the sharp corner, looking southwest. Existing views of the Centennial Industrial Site include trees and shrubs when looking southwest at the sharp bend in the road and industrial uses (e.g., metal structures, wood and other material piled on the ground, old vehicles) in the foreground near the corner of Centennial Drive and Idaho Maryland Road. However, at the time of implementation of the proposed project, it is reasonably anticipated that the site remediation efforts will have been completed, and the current vegetation on the majority of the Centennial Industrial Site (except near Wolf Creek and near the southern boundary of the site) will have been removed, leaving an elevated area where the consolidated soil will be collected. Viewer sensitivity is considered low because of the high level of industrial uses in the area. The Brunswick Industrial Site is not visible from Viewpoint 4.

Light Pollution and Glare

Light pollution refers to all forms of unwanted light in the night sky, including glare, light trespass, sky glow, and over-lighting. Views of the night sky can be an important part of the natural environment, particularly in communities surrounded by extensive open space. Excessive light and glare can also be visually disruptive to humans and nocturnal animal species.

Neither of the project sites include existing sources of light or glare. Sources of light in the surrounding area include commercial and industrial development within the City of Grass Valley, residences within the vicinity of the Brunswick Industrial Site, and headlights from vehicles on neighboring roadways.

4.1.3 REGULATORY CONTEXT

Applicable federal laws or regulations pertaining to the aesthetic quality of the project area do not exist. However, the existing State and local laws and regulations applicable to the proposed project are listed below.



State Regulations

The following is an applicable State regulation related to aesthetic resources.

California Scenic Highway Program

The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. Such highways are identified in Section 263 et seq. of the California Streets and Highways Code.

California Building Standards Code

The California Building Standards Code (CBSC) contains various building standards derived and adapted from the International Building Code, authorized by the California Legislature, that address California building issues. The CBSC includes standards for outdoor lighting to improve energy efficiency, minimize light pollution and nighttime glare, and provides design solutions to shield and control outdoor lighting fixtures.

Local Regulations

The following local regulations are applicable to the proposed project.

Nevada County General Plan

The following goals and policies of the Nevada County General Plan are applicable to the proposed project.

Aesthetics Element

Goal 18.2 Protect and preserve important scenic resources.

Policy 18.1 The County shall prepare Community Design Guidelines applicable to the various General Plan Designations and zoning classifications, and adopt such guidelines as part of Comprehensive Site Development Standards, to be used in the project site review of all discretionary and ministerial project permits. The guidelines may include, but not be limited to the following:

- a. Community identity
- b. Preservation of natural landforms
- c. Protection and management of viewsheds
- d. Protection and management of river corridors and other significant streams

These Guidelines shall be the base design standards applicable to all projects. Area-specific Design Guidelines, where adopted by the County pursuant to Policy 18.2, shall be applicable in addition to the base guidelines within the specified area.



- Policy 18.6 Discretionary development in Rural Regions and in Community Regions near the Community Boundary shall, wherever possible, preserve natural landmarks and avoid ridge-line placement of structures.
See: Policy 18.1
- Policy 18.7 Encourage protection of scenic corridors wherever feasible.
- Policy 18.7A The County shall promote a compact development pattern to protect open space buffers between communities and to maintain a geographic distinction between communities.
See: Policy 18.1
- Policy 18.10 New and replacement road system lighting shall utilize fixtures and light sources that minimize night-time light pollution, without compromising traffic safety.
- Policy 18.11 New Commercial, Industrial and Multiple Family development shall utilize fixtures and light sources that minimize night time light pollution.
Also See: Chapter 1: Land Use Policy 1.18
Chapter 2: Economic Development Policy 2.19

Nevada County Land Use and Development Code

The Nevada County Land Use and Development Code (LUDC) provides regulations to classify, restrict, and regulate the uses of land and structures; to regulate and restrict the height and bulk of structures; and to regulate the area of yards, courts, and other open spaces around structures. The Centennial Industrial Site is zoned Light Industrial (M1) and the Brunswick Industrial Site is zoned Light Industrial with a Site Performance Combining District (M1-SP). The proposed project would be subject to the applicable Nevada County LUDC standards for both zoning districts.

Article 4, Comprehensive Site Development Standards, Section L-II, of the Nevada County LUDC includes regulations to guide the design, location, and development of new land uses and the alteration of existing uses. The standards assist in furthering numerous County General Plan goals, objectives, and policies that provide for the preservation and enhancement of Nevada County's rural quality and small-town character. The standards also assist in furthering County General Plan provisions for maintaining the County's high-quality natural landscape and scenic resources, as well as protecting existing historic resources.

Western Nevada County Design Guidelines

The Western Nevada County Design Guidelines, adopted March 19, 2002, are used by County staff during the review of land use permit applications as additional criteria for project review.⁵ Generally, the Guidelines encourage the maintenance of community identity and the preservation of historical and cultural sites, buildings, and features. The Guidelines implement General Plan Policies and supplement the Comprehensive Design Standards contained within the Nevada County LUDC.

⁵ Nevada County. *Western Nevada County Design Guidelines*. March 19, 2002.



The Western Nevada County Design Guidelines are applicable to all Development Permits and Use Permits for all public, commercial, industrial, and multi-family projects in Western Nevada County. For those communities that are subject to an adopted Area or Specific Plan, the Area or Specific Plan Guidelines are also applicable. In addition, projects within either Grass Valley or Nevada City's sphere of influence will be referred for a review of consistency with that city's Design Guidelines.

4.1.4 IMPACTS AND MITIGATION MEASURES

This section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to aesthetics. A discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, an aesthetic impact is considered significant if the proposed project would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway;
- In a non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Method of Analysis

The analysis presented herein uses representative viewpoints and photographic simulations to document anticipated changes in the visual character and quality of the project sites as viewed from off-site locations. The following subsections describe the methodology for visual assessment, selection and locations of representative viewpoints, and the simulation scenarios.

Visual Assessment

The existing visual quality and character of the project sites and surrounding area were assessed in terms of visual quality, viewer exposure, viewer types and volumes, and visual sensitivity, as follows:

- **Visual Quality:** The overall visual impression or attractiveness of an area as determined by the particular landscape characteristics, including landforms, rock forms, water features, and vegetation patterns. The attributes of line, form, and color combine in various ways to create landscape characteristics whose variety, vividness, coherence, uniqueness, and pattern contribute to the overall visual quality of an area. For the purposes of this analysis, visual quality is defined according to three levels:
 - *Indistinctive or industrial:* Generally lacking in natural or cultural visual resource amenities typical of the region.
 - *Representative:* Typical or characteristic of the region's natural and/or cultural visual amenities.
 - *Distinctive:* Unique or exemplary of the region's natural or cultural scenic amenities.



- **Viewer Exposure:** The variables that affect viewing conditions from potentially sensitive areas. Viewer exposure considers the following factors:
 - *Landscape visibility:* The ability to see the landscape.
 - *Viewing distance:* The proximity of viewers to the proposed project elements, described as foreground, middleground, and background.
 - *Viewing angle:* Whether the project sites would be viewed from above (superior), below (inferior) or from a level (normal) line of sight.
 - *Extent of visibility:* Whether the line of sight is open and panoramic to the project sites or restricted by terrain, vegetation, and/or structures.
 - *View duration:* Whether the viewer would be driving at high speeds or sitting and observing a scenic overlook.
- **Viewer Types and Volumes:** The types of use (i.e., public viewers including recreationalist and motorist) and amounts of use (i.e., number of recreational users or motorists) that various land uses receive.
- **Visual Sensitivity:** The consequence of viewer exposure and viewer awareness. People in different visual settings, typically characterized by different land uses surrounding a project site, have varying degrees of sensitivity to changes in visual conditions depending on the overall visual characteristics of the place. In areas of more distinctive visual quality, such as designated scenic highways, designated scenic roads, parks, and recreation and natural areas, visual sensitivity is characteristically more pronounced. In areas of more indistinctive or representative visual quality, sensitivity to change tends to be less pronounced, depending on the level of visual exposure. This analysis of visual sensitivity is based on the combined factors of visual quality, viewer types and volumes, and visual exposure to the project. Visual sensitivity is reflected according to high, moderate, and low visual sensitivity ranges.

When viewing the same landscape, people's responses to that landscape and proposed visual changes may differ. Their responses are based upon their values, familiarity, concern, or expectations for that landscape and its scenic quality. Because each person's attachment to, and value for, a landscape is unique, visual changes to that landscape inherently affect viewers differently. However, generalizations can be made about viewer sensitivity to scenic quality and visual changes. Recreationists, hikers, equestrians, tourists, and people driving for pleasure are expected to have high concern for scenery and landscape character. People who are commuting daily through the same landscape generally have a moderate concern for scenery, while people working at industrial sites within the landscape generally have a lower concern for scenic quality or changes to existing landscape character. The visual sensitivity of a landscape is also affected by the travel speed at which a person is viewing the landscape (e.g., high speeds on a highway, low speeds on a hiking trail, or stationary at a residence). A feature of a project can be perceived differently by people depending on the distance between the observer and the viewed object. When a viewer is closer to a viewed object in the landscape, more detail can be seen and greater potential for influence of the object on visual quality exists because of its form or scale (relative size of the object in relation to the viewer). When the same object is viewed at background distances, details may be imperceptible but overall forms of terrain and vegetation are evident, and the horizon and skyline are dominant.

Representative Viewpoints

Representative viewpoints are used to assess a project's potential for aesthetic impacts to the surrounding area. To determine representative viewpoints of the project site, Benchmark Resources reviewed aerial photographs, topography, site plans, County requirements and



guidance, including the General Plan and Nevada County LUDC, and conducted field reconnaissance, primarily in September and October of 2019. Eleven representative viewpoints were selected at publicly accessible locations that were considered representative of the area or of locations from which a viewer would have the potential to see the proposed project and experience a change in visual character as a result of the project (see Table 4.1-2).

Photographs from each viewpoint were taken from approximately 5.5 feet above ground level, the approximate eye level of an average standing human. The camera lens was adjusted to mimic the perspective of the human eye (approximately 55 millimeters). Panorama photographs were taken to include peripheral elements that a viewer would see and present the view of the project sites in relation to the surrounding area or viewshed.

Photographic Simulations

Benchmark Resources created photographic simulations to show the visibility of the project components for 10 of the 11 viewpoint locations. Table 4.1-2 provides a list of the viewpoints and their attributes as representative viewpoints for this evaluation. A simulation was not provided for Viewpoint 5, “New Brunswick Court, Looking South,” because neither project site is visible from Viewpoint 5. Simulations of the Centennial Industrial Site were prepared to reflect the completion of the cleanup effort but before importation of fill from the Brunswick Industrial Site. The simulations are representative of the post-remediation environmental baseline for the Centennial Industrial Site.

Table 4.1-2 Viewpoints and Representative Attributes		
#	Description	Representative Attributes
Views of Centennial Industrial Site		
1	Sierra Nevada Memorial Hospital Parking Lot, looking southeast	A view from northwest of the site from an elevated vantage point
2	Upper parking lot next to SR 49, looking southeast	Views from SR 49, a major regional travel corridor
3	Halfway up Spring Hill Drive, looking south	A nearby view from north of the site, with high site visibility, from an industrial area
4	Centennial Drive, looking south	A nearby view from east of the site, with high site visibility, from an industrial area
Views of Brunswick Industrial Site		
5	New Brunswick Court, looking south	Views from nearby neighborhoods, which are interspersed with native vegetation (i.e., dense pine trees)
6	Corner of Brunswick Road and East Bennett Road, looking south	A nearby view of the site from an intersection on a regional travel route
7	Brunswick Road (north), looking west	A nearby view of the northern portion of the site from a regional travel route
8	Brunswick Road (south), looking west	A nearby view of the southern portion of the site from a regional travel route
9	Brunswick Road (mid), looking west	A nearby view of the middle portion of the site from a regional travel route
10	Brunswick Road (south), looking west	A nearby view of the southern portion of the site from a regional travel route
11	Brunswick Road (south), looking west	A nearby view of the southern portion of the site from a regional travel route



Photographic simulations were prepared to illustrate conditions at completion of all proposed structures (18 months after construction begins) and at completion of the engineered fill pads with vegetated slopes (five to six years after fill placement begins). Vegetation planted at the time implementation of the project begins would be five to six years old when each engineered fill pad reaches its ultimate size; thus, planted vegetation is represented at five to six years old in the simulations.

Simulations were prepared by first creating a three-dimensional (3D) model of the topography for the project sites and surrounding area, including the topography of the completed project. An image of the model was then created from each viewpoint's location within the model. Each resulting image was aligned with the relevant existing conditions or environmental baseline photograph. Photoshop was then used to add the proposed project elements to the photos, such as buildings, landscaping, and the topography in the 3D model.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to aesthetics is based on implementation of the proposed project in comparison to the environmental baseline and the standards of significance presented above.

4.1-1 Have a substantial adverse effect on a scenic vista. Based on the analysis below, the impact is *less than significant*.

Examples of typical scenic vistas include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. In general, a project's impact to a scenic vista would occur if development of the project would substantially change or remove a scenic vista.

The County General Plan does not identify any scenic vistas in the vicinity of the Centennial or Brunswick Industrial sites. Impacts to views of the project sites from SR 49, which is included within the County's Scenic Corridor Combining District (SC), are discussed under Impact 4.1-2 below. Thus, the proposed project would not have a substantial adverse effect on a scenic vista, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.1-2 Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway; in a non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality. Based on the analysis below, even after



implementation of mitigation, the impact related to substantially degrading the existing visual character or quality of public views is considered *significant and unavoidable*.

Given that the existing development to the south of the Centennial Industrial Site and surrounding the Brunswick Industrial Site is primarily rural in nature, interspersed among forested landscapes, the analysis within this chapter considers the project area to be non-urbanized. Notwithstanding, the areas to the north and west of the Centennial Industrial Site, within the City of Grass Valley, are built out with a variety of commercial and industrial uses. In addition, Centennial Industrial Site has been subject to prior disturbance associated with mining activities. The Brunswick Industrial Site is similarly disturbed, containing an 85-foot-tall silo, a clay-lined pond, and various paved surfaces. North of the project area, around the Brunswick Road and Idaho Maryland Road intersection, Phase 1 of the Loma Rica Ranch Specific Plan is expected to start construction in the year 2021.

As part of the proposed project, engineered fill would be transported by truck from the Brunswick Industrial Site and placed on approximately 44 acres of the Centennial Industrial Site to create approximately 37 acres for potential future industrial use. The remaining approximately 12 acres would remain as a private driveway for site access and preserved habitats. The proposed project features on the Centennial Industrial Site (e.g., engineered fill pad) would be generally consistent with the portions of the site that are currently industrial and disturbed when viewed from public viewpoints located northwest, north, and northeast of the site. The proposed fill pad would be visible by drivers and/or bicyclists on SR 49, Idaho Maryland Road, Spring Hill Drive, and Centennial Drive/Whispering Pines Lane. The proposed project would retain foreground trees, which would help to break up views of the fill pad.

The majority of aboveground facilities and a portion of the engineered fill would be located on the Brunswick Industrial Site. The approximately 29-acre aboveground area would provide all the facilities and infrastructure necessary to support dewatering, underground mining, gold mineralization and rock processing, and loading and transport off-site. An aboveground pipe would convey treated water from the water treatment facility along an existing road to the planned discharge point at South Fork Wolf Creek. The pipe and discharge point would be located entirely within the property boundaries. Engineered fill would be placed on approximately 31 acres of the Brunswick Industrial Site to create a level pad of approximately 21 acres for potential future industrial use. In total, up to approximately 60 acres of the 119-acre site could be subject to surface disturbance and/or development for the aboveground facilities and fill placement. The remaining 59 acres would remain undeveloped and would not be subject to surface disturbance or infrastructure improvements. The proposed project would include a Variance to allow for the construction of several structures on the Brunswick Industrial Site in excess of the 45-foot limit imposed pursuant to Table L-II 2.5E of the Nevada County LUDC. Specifically, the Variance would apply to the proposed 64-foot-tall process plant, the proposed 165-foot-tall headframe for the Brunswick shaft, the proposed 80-foot-tall headframe for the proposed service shaft, and the proposed 50-foot-tall hoist buildings associated with the two mine shafts.



The proposed surface parking on the Brunswick Industrial Site would be consistent with the portions of the site that are currently industrial and disturbed when viewed from public viewpoints located east and northeast of the site. The proposed structures would be generally consistent with historic use of the site as a gold mine and lumber mill, both of which contained above-ground structures. The proposed structures, however, would represent a significant change from the current existing setting at the Brunswick Industrial Site, and in comparison to former on-site structures associated with past mining and lumber operations, some of the proposed on-site structures would be substantially taller. Notwithstanding, the proposed structures on the Brunswick Industrial Site have been conceptually designed to generally comply with the standards set forth in the Western Nevada County Design Guidelines.⁶ For example, the campus is comprised of buildings of various scales and massing. In addition, the primary parking lot has been removed from the building and is separated by landscaping. The office is the first building one approaches from the parking lot, whereas heavier uses and loading bays face the interior of the campus. The warehouse and office buildings are the most prominent when entering the campus from the parking lot and each has a contrasting wainscot and lowered roof structures with stone clad columns that reduce the building to a human scale. Both the warehouse and the processing plant are located adjacent a 40-foot embankment that helps to reduce the visual effect of the buildings from outside the site. Compliance with the Western Nevada County Design Guidelines would help ensure that development associated with the proposed project is designed appropriately.

As part of the proposed project, new trees would be planted along Brunswick Road, which would help to partially screen views of the proposed structures when the trees reach maturity in approximately 30 years. The project features on the Brunswick Industrial Site would increase the existing industrial character of the site where the buildings would be added and the trees would be removed for the fill pad. Such features would be visible by drivers on Brunswick Road, driving at approximately 50 mph; however, viewing times would be relatively short. The increase in industrial character would be partially reduced over time by the growth of the added vegetation between the road and the project features.

As part of the proposed project, an approximately 1¼-mile-long by two feet-wide (approximately 0.30-acre) stretch of East Bennett Road would be temporarily disturbed to bury the potable water pipeline. Installation of the buried potable water pipeline would generally involve trenching, pipe placement, backfill, and cover replacement. The backfilled trench within the East Bennett Road right-of-way would then be paved consistent with County guidelines. Once vegetation regrows within the disturbed area, the visual character and quality of the pipeline alignment would be essentially unchanged from existing conditions. Thus, the proposed water pipeline would not result in any long-term changes to the visual character or quality of the improvement area.

The effects of the proposed project on the quality and character of public views (i.e., views experienced from publicly accessible vantage points) of the project sites are evaluated below for each representative viewpoint. Although the viewpoints are considered representative for this analysis, the majority of roadways in the project area

⁶ Nevada County. *Western Nevada County Design Guidelines*. March 19, 2002.



do not have direct views of the project sites due to intervening features. Figure 4.1-6 through Figure 4.1-20, which are included at the end of this chapter, show photographs of existing conditions and/or environmental baseline compared to simulations of proposed conditions for Viewpoints 1 through 11, respectively. It is important to note that the simulations are a result of modelling efforts, and thus, actual post-project views may differ from those conceptually shown in the simulations.

Viewpoints 1 and 2: Sierra Nevada Memorial Hospital Parking Lot, Looking Southeast and Parking Lot below SR 49, Looking Southeast

The Centennial Industrial Site is visible from SR 49 and a few locations near SR 49. Viewpoint 1 is a view from the Sierra Nevada Memorial Hospital parking lot above SR 49, looking southeast. Viewpoint 2 is a view from a parking lot just below SR 49, looking southeast. As discussed previously, SR 49 is an eligible State Scenic Highway.

At the time of implementation of the proposed project, as previously noted, it is reasonably anticipated that the Centennial Industrial Site remediation efforts will have been completed, and the current vegetation on the majority of the site will have been removed, leaving an elevated area where the consolidated soil will be collected. As shown in Figure 4.1-6 and Figure 4.1-7, the engineered fill placed as part of the proposed project would be visible from SR 49, primarily for passengers in vehicles heading northeast, and less visible from views closer to level with the highway. The proposed aboveground features would be generally similar in character to the industrial features in the existing foreground and middleground views, though much larger in scale, and the majority of on-site trees will have already been removed as part of the DTSC remediation project. Given that the project site is not located in the vicinity of an officially-designated State Scenic Highway, the proposed project would not result in a significant impact related to substantially damaging scenic resources, including trees, rock outcroppings, and historic buildings, within a State Scenic Highway. Furthermore, as noted previously, the majority of on-site trees would be removed prior to initiation of the proposed project, and the site does not contain any rock outcroppings or historic buildings.

The addition of a new engineered fill pad on the site as part of the proposed project would represent a clearly noticeable change. As shown in Figure 4.1-6 and Figure 4.1-7, the site would already be disturbed, including removal of trees and vegetation, by the separate cleanup effort. Furthermore, the proposed improvements would be consistent with the site's zoning for industrial use. Nevertheless, implementation of the proposed project would create a large engineered fill pad (approximately 50 feet tall) that would substantially degrade the visual character and quality of the Centennial Industrial Site and its surroundings, as viewed from Viewpoints 1 and 2, and the impact would be considered significant. It is noted that the Brunswick Industrial Site would not be visible from Viewpoints 1 and 2.

Viewpoint 3: Halfway up Spring Hill Drive, Looking South

The Centennial Industrial Site is visible from Spring Hill Drive. According to Table 4.1-1, the visual sensitivity from Viewpoint 3 was determined to be low. As shown in Figure 4.1-8, the separate remediation efforts would result in the removal of on-site trees and creation of an engineered fill pad visible from this viewpoint. While the foreground trees surrounding Wolf Creek would prevent clear, unbroken views of the engineered fill



pad, the engineered fill placement proposed as part of the project would significantly increase the height of the fill pad (approximately 50 feet). Therefore, implementation of the proposed project would substantially degrade the visual character and quality of the Centennial Industrial Site and its surroundings, as viewed from Viewpoint 3, and the impact would be considered significant. It is noted that the Brunswick Industrial site would not be visible from Viewpoint 3.

Viewpoint 4: Centennial Drive, Looking South

The Centennial Industrial Site is visible from Centennial Drive and Whispering Pines Lane, looking west, southwest, and south. According to Table 4.1-1, the visual sensitivity from Viewpoint 4 was determined to be low. As shown in Figure 4.1-9, the proposed project would change views on the south and west side of the road from a generally level, open area that includes an elevated dirt area to a much larger, leveled elevated fill pad with a grassy slope, which would more sharply contrast with the forested landscape in the background. Therefore, implementation of the proposed project would substantially degrade the visual character and quality of the Centennial Industrial Site and its surroundings, as viewed from Viewpoint 4, and the impact would be considered significant. It is noted that the Brunswick Industrial Site is not visible from Viewpoint 4.

Viewpoint 5: New Brunswick Court, Looking South

As shown in Figure 4.1-10, the proposed improvements on the Brunswick Industrial Site would not be visible from Viewpoint 5, due to the tall, dense trees and hilly topography within the foreground along New Brunswick Court. Therefore, implementation of the proposed project would not substantially degrade the visual character and quality of the Brunswick Industrial Site and its surroundings, as viewed from Viewpoints 1 and 2, and the impact would be less than significant. It is noted that the Centennial Industrial Site is not visible from Viewpoint 5.

Viewpoint 6: Corner of Brunswick Road and East Bennett Road, Looking South

The Brunswick Industrial Site is visible from the corner of Brunswick Road and East Bennett Road, looking south, specifically, when stopped at the four-way intersection heading southeast on Brunswick Road or heading east on East Bennett Road. As shown in Figure 4.1-11, views would change from the existing approximately 85-foot-tall silo from past mining activities, surrounded by trees, to an approximately 165-foot-tall proposed headframe connected to a new covered conveyor. The proposed project is requesting a Variance to allow for the 165-foot-tall headframe in excess of the 45-foot limit imposed pursuant to Table L-II 2.5E of the Nevada County LUDC. As shown in Figure 4.1-11, the proposed headframe would extend above the top of the existing forest canopy and project into the skyline. The remaining elements of the project, such as the proposed fill pad, would not be visible from Viewpoint 6. The Brunswick head frame is the tallest structure on the site and has a facade that is distinct from the rest. The vertical structure would be clad with a weathered copper, perforated at the top, to blur the lines between the structure and the sky. In addition, new trees would be added to the foreground, and would partially screen views of the headframe when reaching maturity at approximately 30 years of growth (see Figure 4.1-12).



Given the prominence of the proposed headframe structure, implementation of the proposed project would substantially degrade the visual character and quality of the Brunswick Industrial Site and its surroundings as viewed from Viewpoint 6, and the impact would be considered significant. It is noted that the Centennial Industrial Site is not visible from Viewpoint 6.

Viewpoint 7: Brunswick Road (North), Looking West

The Brunswick Industrial Site is visible from gaps in the trees along Brunswick Road, looking west. Power lines extend along the horizon in Viewpoint 7. As shown in Figure 4.1-13, views would change from a tree-covered hillside at the far west side of the site to the back of the proposed process plant building, which would be approximately 65 feet tall. As part of the proposed project, new trees would be added to the foreground (see Figure 4.1-14). The visual quality of Viewpoint 7 would be reduced due to the construction of a new aboveground industrial building at a height requiring a Variance. While the duration of views from this location are relatively short (i.e., drivers typically commuting, as opposed to hikers or sightseers), and the process plant building is not anticipated to project above the forest canopy into the skyline, the visual character and quality of the Brunswick Industrial Site and its surroundings, associated with implementation of the proposed project, as viewed from Brunswick Road (north), could nevertheless be considered substantially degraded. It is noted that the Centennial Industrial Site is not visible from Viewpoint 7.

Viewpoint 8: Brunswick Road (South), Looking West

The Brunswick Industrial Site is visible from gaps in the trees along Brunswick Road, looking west. As shown in Figure 4.1-15, the view is characterized by paved areas in the foreground and forested slopes in the middleground and background. As part of the proposed project, the setting would change from a paved lot area and forested setting to a landscaped entranceway with a chain-link fence and security post and gate in the foreground, an entrance roadway and trees in the middleground, and a large fill pad with grassy slopes, beyond which would remain the forested slope, in the background. The fill pad would be approximately 50 to 60 feet tall. Over time, the pad would become less visible as newly planted trees along Brunswick Road (see Figure 4.1-16) reach their full heights, which could range from 40 to 80 feet tall, depending on the species.

The visual quality of Viewpoint 8 would be reduced due to the proposed fill pad in the background. While the duration of views from this location are relatively short (i.e., drivers typically commuting, as opposed to hikers or sightseers), and the engineered fill pad is not anticipated to extend above the forest canopy into the open skyline, the visual character and quality of the Brunswick Industrial Site and its surroundings, as viewed from Brunswick Road (south), would be substantially degraded due to the construction of a substantial fill pad. It is noted that the Centennial Industrial Site is not visible from Viewpoint 8.

Viewpoint 9: Brunswick Road (Mid), Looking West

This viewpoint provides another view of the Brunswick Industrial Site from a gap in the trees along Brunswick Road, looking west. As shown in Figure 4.1-17, the foreground view is characterized primarily by trees along Brunswick Road; middleground views are characterized by disturbed areas of the Brunswick Industrial Site interspersed with



shrub-height vegetation at a lower elevation than Brunswick Road; and background views are characterized by forested slopes. As part of the proposed project, the setting would change from a forested landscape interspersed with disturbed areas that are a result of former mining and lumber operations to a primarily industrial landscape in the foreground and middleground, containing large paved areas with several structures attaining heights up to 40 feet (e.g., cement silo). The background would continue to be dominated by the forested landscape.

The visual quality of Viewpoint 9 would be reduced due to the proposed addition of substantial paving and industrial mine-related structures in the foreground and middleground. While the duration of views from this location are relatively short (i.e., drivers typically commuting, as opposed to hikers or sightseers), and the structures are not anticipated to extend above the forest canopy into the open skyline, the visual character and quality of the Brunswick Industrial Site and its surroundings as viewed from Brunswick Road (mid), could be considered substantially degraded due to the more dominant industrial setting created by the proposed project. It is noted that the Centennial Industrial Site is not visible from Viewpoint 9.

Viewpoint 10: Brunswick Road (South), Looking West

This viewpoint provides another view of the Brunswick Industrial Site from a gap in the trees along Brunswick Road, looking west. As shown in Figure 4.1-18, the foreground view is characterized primarily by trees along Brunswick Road; middleground views are characterized by disturbed areas of the Brunswick Industrial Site interspersed with shrub-height vegetation at a lower elevation than Brunswick Road; and background views are characterized by forested slopes and the open skyline. As part of the proposed project, the setting would change from a forested landscape interspersed with disturbed areas that are a result of former mining and lumber operations to a landscape dominated by the substantial engineered fill pad that would be constructed at the Brunswick Industrial Site. The background would continue to be dominated by the forested landscape.

The visual quality of Viewpoint 10 would be reduced due to the proposed addition of a 50 to 60-foot engineered fill pad. While the duration of views from this location are relatively short (i.e., drivers typically commuting, as opposed to hikers or sightseers), and the fill pad is not anticipated to extend above the forest canopy into the open skyline, the visual character and quality of the Brunswick Industrial Site and its surroundings as viewed from Brunswick Road (mid), would be substantially degraded due to the construction of a substantial fill pad. It is noted that the Centennial Industrial Site is not visible from Viewpoint 10.

Viewpoint 11: Brunswick Road (South), Looking West

This viewpoint provides another view of the Brunswick Industrial Site from a gap in the trees along Brunswick Road, looking northwest. There are two simulations from this viewpoint, the first of which is more representative of the view looking northwest from the Brunswick Road travel lane (Figure 4.1-19), whereas the second view represents a more oblique angle looking northwest from the shoulder of Brunswick Road (Figure 4.1-20). As shown in the figures, the foreground view is characterized primarily by trees along Brunswick Road with a large gap in the vegetation; middleground views are primarily characterized by disturbed areas of the Brunswick Industrial Site, which



have temporary features such as storage devices and stacks of firewood, at an elevation lower than Brunswick Road; and background views are characterized by forested slopes and the open skyline. From the first viewpoint, with implementation of the proposed project, the setting would change from a forested landscape interspersed with disturbed areas that are a result of former mining and lumber operations, and currently used for temporary storage, to a landscape dominated by the substantial engineered fill pad that would be constructed at the Brunswick Industrial Site. The background would continue to be dominated by the forested landscape and open skyline.

From the second viewpoint, with implementation of the proposed project, the setting would similarly change from a forested landscape interspersed with disturbed areas that are a result of former mining and lumber operations, and currently used for temporary storage, to a landscape dominated by the substantial engineered fill pad that would be constructed at the Brunswick Industrial Site. Unlike the first vantage point for Viewpoint 11, from this view, one can see several buildings within the mine complex (see Figure 4.1-20). The background, which can be little seen from this perspective, would continue to be dominated by the forested landscape and open skyline.

The visual quality of Viewpoint 11, as seen from both vantage points, would be reduced due to the proposed addition of a 50 to 60-foot engineered fill pad, and depending upon the view angle, several buildings within the mine complex. While the duration of views from this location are relatively short (i.e., drivers typically commuting, as opposed to hikers or sightseers), and the fill pad and majority of visible structures are not anticipated to extend above the forest canopy into the open skyline, the visual character and quality of the Brunswick Industrial Site and its surroundings as viewed from Brunswick Road (south), would be substantially degraded due to the construction of a substantial fill pad and industrial structures. It is noted that the Centennial Industrial Site is not visible from Viewpoint 10.

Reclamation

During the reclamation phase, the majority of structures would be removed from the Brunswick Industrial Site, including the tallest structures, such as the Brunswick and Service shaft headframes. While removal of such features would eliminate significant visual impacts created by the project from certain viewpoints (e.g., Viewpoint 6), this would occur after the 80-year operational life of the mine. Thus, significant visual effects from these structures would still be considered long-term. In addition, during reclamation, while contents of the Brunswick buildings would be removed, the actual buildings would remain for potential future industrial use.

Conclusion

Given the reasonable expectation that the substantial majority of existing trees on the Centennial Industrial Site will be removed separate from the proposed project, the fact that the site is not located within a State Scenic Highway, and the site does not contain any rock outcroppings or historic buildings, the proposed project would not result in any significant impacts related to substantial damage of trees, rock outcroppings, or historic buildings within a State Scenic Highway.



While the Centennial and Brunswick Industrial Sites are zoned for industrial development and there are existing industrial land uses in the vicinity of the project sites, the proposed project would result in noticeable changes to the existing visual character of the project sites, as viewed from public vantage points in the project vicinity. Landscape trees would be planted at strategic locations to partially screen project elements when the trees reach maturity; however, the proposed structures and engineered fill pads are substantial in height and vegetation screening would not be sufficient to prevent a substantial degradation in visual character or quality of the sites and their surroundings when viewed from public locations. As previously discussed, several of the proposed structures require a building height Variance, subject to review and approval by the County pursuant to Nevada County LUDC Section L-X 2.29.

Based on the above considerations, the project would substantially degrade the existing visual character or quality of public views of the project sites or the site surroundings, or conflict with applicable zoning and other regulations governing scenic quality. Based on the above, a **significant** impact would occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above significant impact by requiring more dense plantings along the project frontages to screen project structures to the maximum extent feasible. However, given the proposed heights of the structures and the permanent alteration of the views, the impact would remain *significant and unavoidable*.

4.1-2 *In conjunction with submittal of Improvement Plans, the applicant shall submit a final Landscape Plan, prepared by a licensed landscape contractor, landscape architect, landscape designer, or horticulturist, for review and approval by the Nevada County Planning Department. The final Landscape Plan shall include the information identified in Nevada County Land Use and Development Code Sec L-II 4.2.7(E), such as:*

- *all details depicted on the Preliminary plans and any modifications or additions included by conditions of approval;*
- *location of all required plant materials, evenly dispersed within each required planting area;*
- *legend listing the type, number, and size of plant materials, indicating both the required number and provided number, of each plant type;*
- *irrigation plan;*
- *if existing landscaping, including native vegetation, is to be retained, a note shall be provided on the plan stating that “any existing landscaping or native vegetation shown on the approved plan for retention, that is damaged or removed during construction, shall be repaired or replaced in kind with equivalent size”;*
- *A Note on the Plan, certified by a Licensed Landscape Architect, Landscape Designer or Horticulturist, that trees are located on the Plan so as to cover 40% of the parking area with tree canopies within 15 years, consistent with Section 4.2.7.2.g of the Nevada County LUDC;*



- Assurance that the property owner will be responsible for the replacement of landscaping that does not survive or that deteriorates due to neglect;
- All required trees shall be a minimum 15-gallon container size, with the trunk diameter no less than 1.5 inches for canopy trees, and 1-1.5 inches for understory trees, with the following exception: trees planting along project frontages for screening purposes shall include a mix of 15-gallon and 24-gallon trees. Shrubs shall be a minimum 5-gallon container size, and live groundcover plants shall cover bare ground.
- Varied tree and plant materials shall be used throughout the parking lot. No one species shall comprise more than 75% of the plantings within each of the following categories: canopy tree, understory tree and shrubs. Native vegetation shall be included in all required plantings unless confirmed by a licensed Landscape Architect that a native species will not satisfy a specific requirement;
- Planting areas within paved parking lots shall be separated from vehicular areas and street right-of-way by a permanently installed concrete or wooden perimeter curb at least 6" high and meet other requirements in Section 4.2.7.2.g.

4.1-3 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Based on the analysis below, the impact is less than significant.

As noted previously, the project sites are primarily characterized by an undeveloped, unlit landscape. Thus, implementation of the proposed project would introduce additional sources of light and/or glare to a site where none currently exist.

All work at the Centennial Industrial Site would be done between 6:00 AM and 10:00 PM. Hauling and dumping of engineered fill at the Centennial Industrial Site would occur between 6:00 AM and 10:00 PM. Placement, compaction, and grading of the engineered fill would occur between 7:00 AM and 3:30 PM. The project would not include the installation of any new lighting elements on the Centennial Industrial Site. Lighting during nighttime hauling and dumping of engineered fill would be limited to haul truck headlights. On-site mobile equipment would not include the addition of substantial reflective surface that would affect the surrounding area. Therefore, the potential for the proposed project to create a new source of substantial light or glare that would adversely affect day or nighttime views in the vicinity of the Centennial Industrial Site would be less than significant.

With regard to the Brunswick Industrial Site, vehicles would be entering and exiting the site mostly during daytime hours, considering shift changes at 7:00 AM, 3:30 PM, and 7:00 PM. While hauling of materials off-site would occur until 10:00 PM, which would add light from vehicle headlights, such lighting sources would not result in substantially increased light pollution relative to existing vehicle traffic on local roadways. Placement, grading, and compaction of engineered fill at Brunswick Industrial Site would not occur during nighttime hours.



All exterior lighting within the Brunswick Industrial Site would comply with Section L-II 4.2.8, Lighting, of the Nevada County LUDC; Section E, Lighting, of the Western Nevada County Design Guidelines.

The Brunswick Industrial Site is anticipated to include approximately 41 pole-mounted LED lights throughout the operational area, including the parking lot, building complex, and internal roads (see Figure 3-13 of Chapter 3, Project Description, which depicts the proposed exterior lighting plan for the Brunswick Industrial Site). The mounting height for the LED lights would be 20 feet. The 41 pole-mounted lights would be Gardco (by Signify) LED lights, which are “dark sky approved” by the International Dark Sky Association (IDA).⁷ IDA’s Fixture Seal of Approval Program certifies outdoor lighting fixtures as being Dark Sky Friendly, meaning that they minimize glare while reducing light trespass and skyglow. All products approved in the program are required to be fully shielded and to minimize the amount of blue light in the nighttime environment.

In addition to the pole-mounted LED lights, the Brunswick Industrial Site would include approximately 69 wall-mounted LED lights on the various structures. According to the manufacturer, these proposed LED lights include full cut-off and meet Dark Sky requirements.⁸

Based on the proposed lighting types and locations discussed above, a Photometric Plan was prepared for the Brunswick industrial Site by a registered professional electrical engineer (M. Niels Engineering, Inc.). Figure 4.1-2 through Figure 4.1-5 present the Photometric Plan and increases in visible light that are estimated to occur following implementation of the proposed exterior lighting plan. Key considerations include effects to the night sky, which are addressed through the lighting types proposed, as discussed above. The other key consideration are the lighting intensities at the property boundaries near locations where existing sensitive receptors are in close proximity.

As shown in the figures, the lighting intensities at the northern property line, near East Bennett Road, are at 0.0 foot-candles⁹, and thus, light spillover is not projected to occur off-site. The nearest proposed pole-mounted LED, which is International Dark Sky Association compliant, would be located approximately 100 feet from East Bennett Road. Thus, the existing sensitive receptor along New Brunswick Court would not be impacted by light spillover from the proposed on-site lighting. Similar conclusions can be made for the remainder of the property boundaries, based on the Photometric Plan; no light spillover is projected to occur at the property boundaries. Furthermore, the proposed buildings would be painted with nonreflective, nonmetallic paint, which would not cause glare. Lighting or reflective surfaces would not be added upon reclamation of the Brunswick Industrial Site, and reclamation activities would not occur at night.

⁷ International Dark Sky Association: Dark Sky Approved Lighting. Available at: <https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/#!/EcoForm-LED-site-and-area-G2-small-ECF-S/p/133073023/category=34046011>. Accessed August 20, 2021.

⁸ Oracle Lighting. *OWP-FC-311-LED. Issued-B1118-Rev. 1.* Available at: <https://media.iuseelite.com/specsheet2/owp-fc-311-led.pdf>. Accessed August 20, 2021.

⁹ One foot-candle is a unit of illumination equal to that given by a source of one candle at a distance of one foot.



Figure 4.1-2
Lighting Photometric - Northern Portion (1)

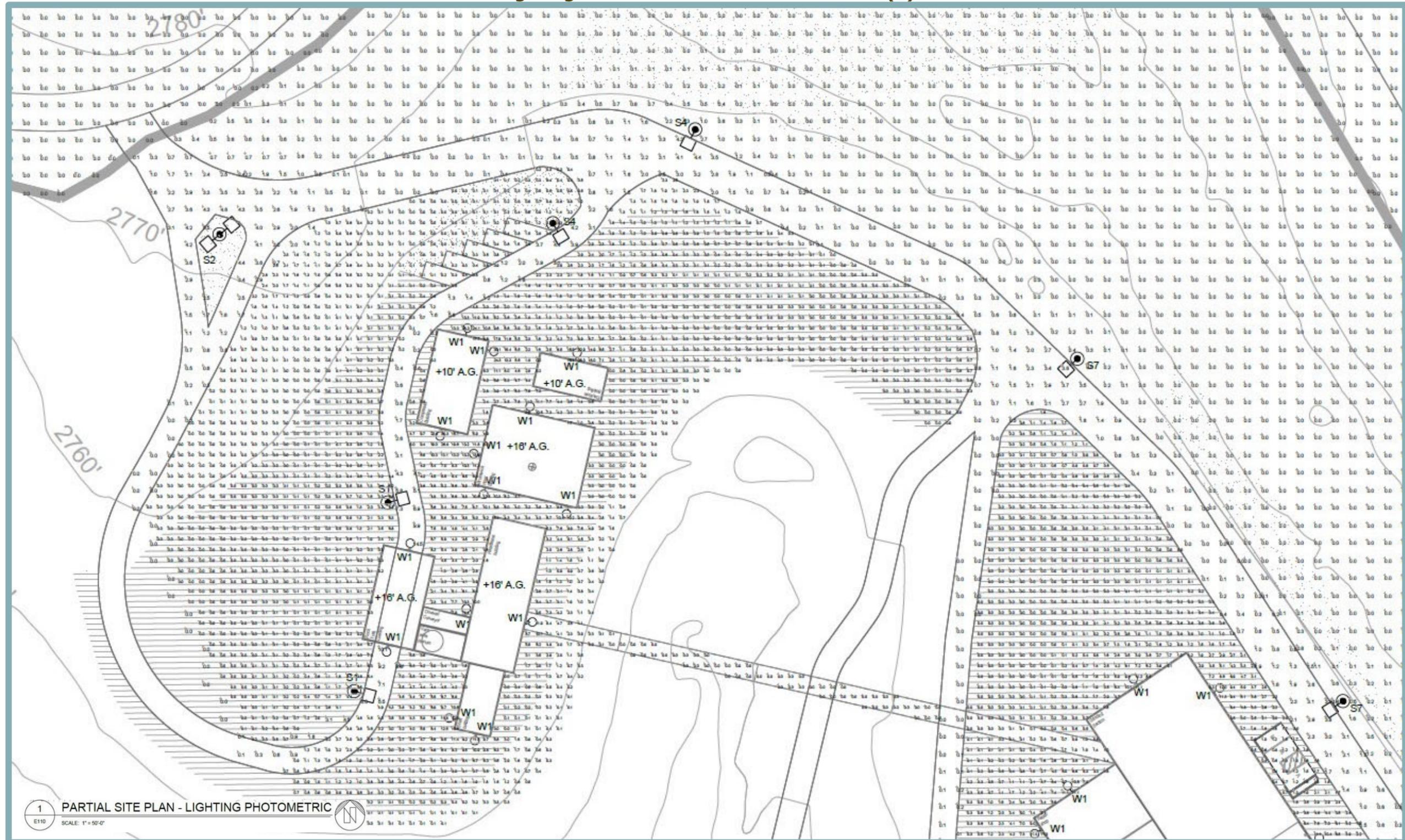


Figure 4.1-3
Lighting Photometric - Northern Portion (2)

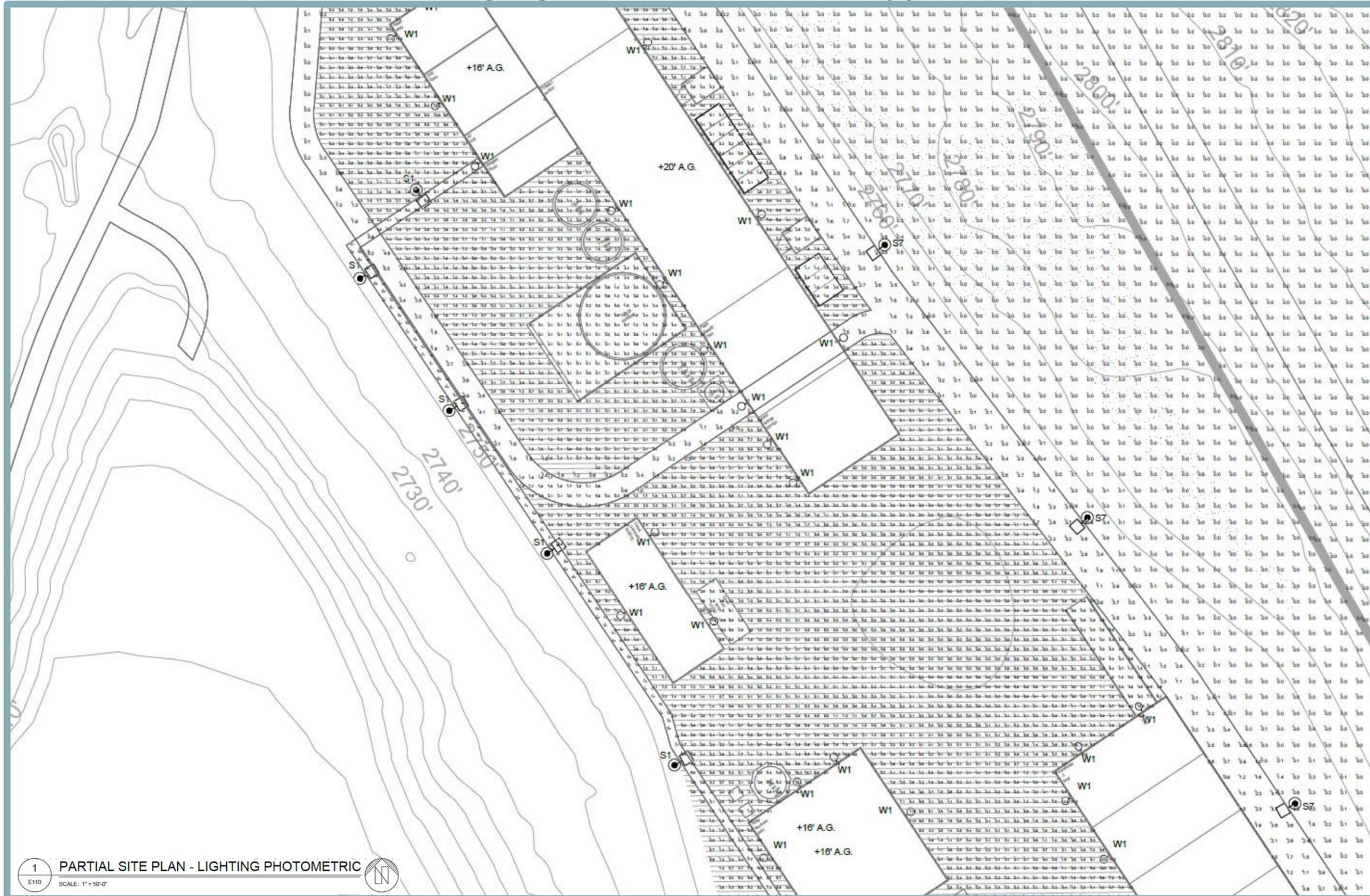
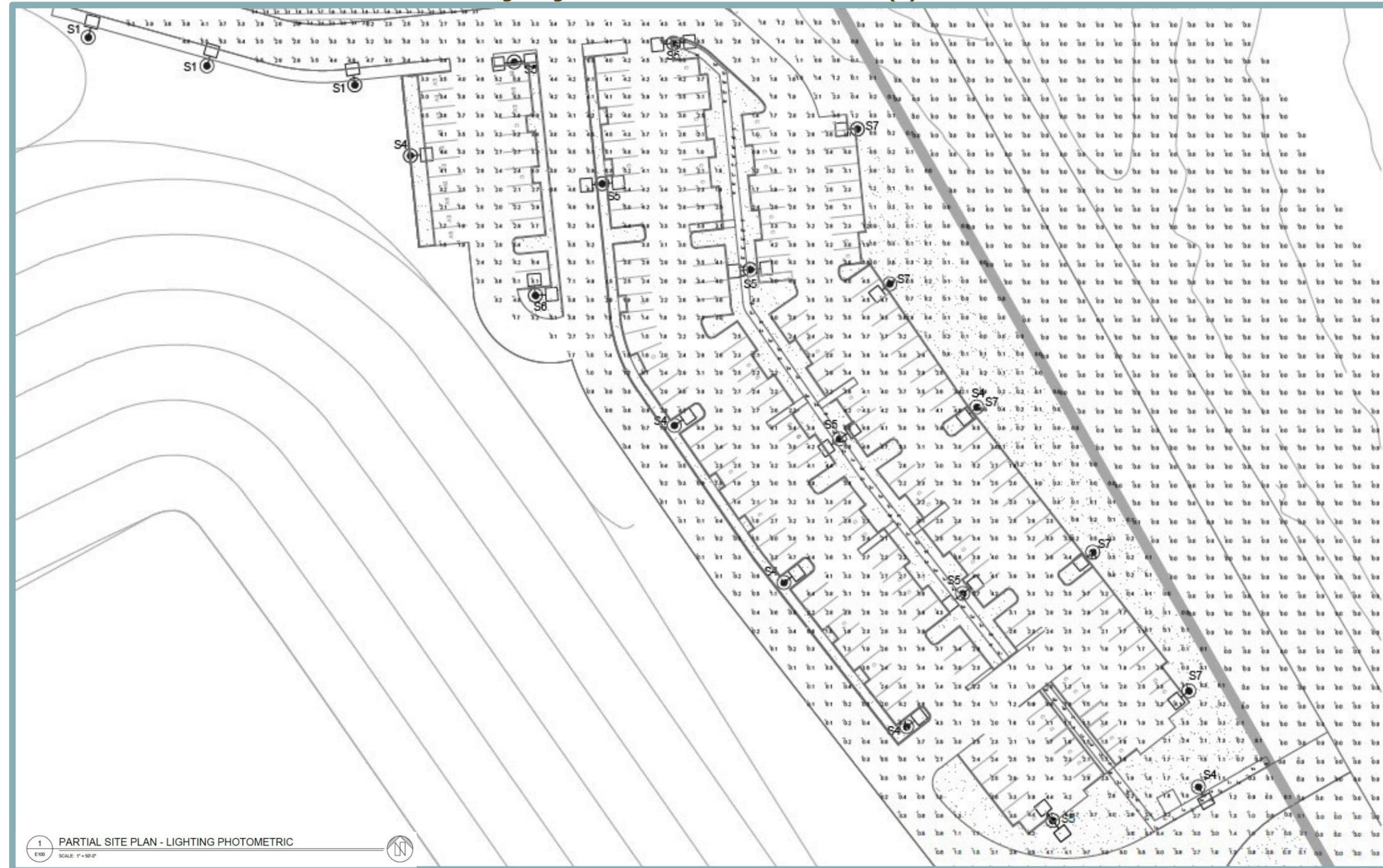


Figure 4.1-4
Lighting Photometric - Southern Portion (1)



Figure 4.1-5
Lighting Photometric - Southern Portion (2)



1 PARTIAL SITE PLAN - LIGHTING PHOTOMETRIC
E100 SCALE: 1"=50'



Based on the above, the proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area, and a **less-than-significant** impact would occur.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or 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 project when added to other closely related past, present, and reasonably foreseeable probable future projects.

Some types of impacts to aesthetic resources are localized and not cumulative in nature. For example, the creation of glare or shadows at one location is not worsened by glare or shadows created at another location. Rather these effects are independent, and the determination as to whether they are adverse is specific to the project and location where they are created. Projects that block a view or affect the visual quality of a site also have localized aesthetic impacts. The impact occurs specific to a site or area and remains independent from another project elsewhere that may block a view or degrade the visual environment of a specific site.

Two types of aesthetic impacts may be additive in nature and thus cumulative, including night sky lighting and overall changes in the visual environment as the result of increasing urbanization of large areas. As development in one area increases and possibly expands over time and meets or connects with development in an adjoining exurban area, the effect of night sky lighting experienced outside of the region may increase in the form of larger and/or more intense nighttime glow in the viewshed.

Similarly, as development in one area changes from rural to urban, and this pattern continues to occur throughout the undeveloped areas of a jurisdiction, the changes in visual character may become additive and cumulatively considerable. The proposed project’s incremental contribution to night sky lighting and changes in visual character are addressed below.

4.1-4 Long-term changes in visual character associated with the proposed project in combination with cumulative development. Based on the analysis below, the project’s incremental contribution to this significant cumulative impact is *cumulatively considerable and significant and unavoidable*.

The geographic setting for analysis of long-term cumulative changes in visual character associated with the proposed project is buildout of the cumulative project sites in conjunction with all other projects within the same viewshed. A complete list of projected development projects was compiled for this EIR to develop a reasonable estimate of the cumulative impacts that would occur within neighboring portions of both the County of Nevada and the City of Grass Valley (see Chapter 5, Statutorily Required Sections, of this EIR for details). Development of the cumulative projects, as well as



the project site, would change the existing visual character of those specific locations from vacant or minimally developed land to more intensively developed areas.

While the proposed project in conjunction with a number of the cumulative projects would generally cumulatively affect public views primarily from SR 49 and Brunswick Road, only the 500 Idaho Maryland Road project (which includes construction of two manufacturing buildings), Dorsey Marketplace (which includes construction of a commercial development, multi-family housing, and a clubhouse), and possibly the 130 Crown Point Circle project (which includes construction of a medical office building) would have the potential to affect any of the same viewpoints analyzed for the proposed project. For example, the 500 Idaho Maryland Road and Dorsey Marketplace projects would be visible from SR 49 looking southwest towards the Centennial Industrial Site, which could combine with the effects of the proposed project from Viewpoints 1 and 2. As concluded under Impact 4.1-2, changes to the visual character and quality of the Centennial Industrial Site associated with implementation of the proposed project, as viewed from Viewpoints 1 and 2, would be considered significant. Thus, the combined changes to the visual character and quality associated with the 500 Idaho Maryland Road and Dorsey Marketplace projects, in conjunction with the Centennial Industrial Site, as viewed from Viewpoints 1 and 2 or any other viewshed, would also be significant.

The 130 Crown Point Circle project may be visible from Whispering Pines Lane. Viewpoint 4 is representative of the section along Centennial Drive/Whispering Pines Lane from which the Centennial Industrial Site is visible. The 130 Crown Point Circle project would not be visible from the same stretch of Centennial Drive/Whispering Pines Lane as the proposed project, but would nevertheless incrementally contribute to the cumulative change in visual character of the area.

Similar to the proposed project, all future development would be subject to existing regulations and guidelines designed to ensure visual compatibility with adjacent land uses. Specifically, such projects would be required to comply with the applicable guidelines and regulations related to visual quality, including the Nevada County LUDC and the Western Nevada County Design Guidelines. Future development projects within Grass Valley would also be subject to the City of Grass Valley Community Design Guidelines. Such standards serve to reduce impacts on visual character.

Nonetheless, cumulative buildout in the geographic area would result in a change in the visual character of the region, which would be considered a significant cumulative impact. As discussed under Impact 4.1-2 above, the proposed project would substantially degrade the character of the Centennial and Brunswick Industrial Sites, though they are zoned for industrial development and there are surrounding industrial land uses in the vicinity of the project sites. Therefore, the project's incremental contribution to the significant cumulative impact would be ***cumulatively considerable and significant and unavoidable***.



Mitigation Measure(s)

Implementation of Mitigation Measure 4.1-2 would reduce the project's incremental contribution to this significant cumulative impact, but not to a level that is less than cumulatively considerable.

4.1-5 Creation of new sources of light or glare associated with the proposed project in combination with cumulative development. Based on the analysis below, the proposed project's incremental contribution to this significant cumulative impact is *less than cumulatively considerable*.

Cumulative effects of lighting are visible over a wide area, due to the potential for lighting from a number of projects to create sky glow. Cumulative development throughout the region, particularly conversion of rural or currently vacant sites to urban uses, would increase the sources of light and glare, which would have the potential to contribute to sky glow in the area. Such sources of light would be typical of existing development in the project area, such as the developed area of the City of Grass Valley to the northwest of the project sites that consists primarily of commercial and industrial uses.

Cumulative development, including the proposed project, would be subject to existing regulations and guidelines related to light and glare. For example, Section L-II 4.2.8, Lighting, of the Nevada County LUDC requires that all outdoor light fixtures are fully shielded to prevent the light source or lens from being visible from adjacent properties and roadways. Lighting in new development would also be required to comply with all applicable lighting standards contained in Section E, Lighting, of the Western Nevada County Design Guidelines, which reads as follows:

Objective: Encourage appropriate lighting that strengthens the character of the built environment and provides safety for pedestrians and automobiles.

Guidelines:

- Street lighting should be consistent with Western Nevada County's small town and rural character. "Acorn" type fixtures and other, well-articulated fixtures are appropriate;
- Street lighting should be designed for pedestrian comfort and safety as well as automobile safety;
- Good lighting uses only the amount of light needed for the intended task, whether it is intended to illuminate a parking lot, pedestrian walkway, signage, for security, or to highlight specific architectural features;
- New lighting should be compatible with the level and style of lighting in the project area;
- Use efficient, high quality light fixtures to control light output and to reduce energy waste; and
- Photovoltaic light fixtures are encouraged and should be utilized where feasible.

New development within Grass Valley would also be required to comply with Section 5.0, Lighting, of the City of Grass Valley Community Design Guidelines, which dictates



specific standards for lighting based on the development type. For example, pursuant to the City of Grass Valley Community Design Guidelines, lighting for commercial projects is intended to improve the appearance of Grass Valley and the security of its citizens by creating livelier, friendlier and safer spaces through the artful illumination of buildings streetscapes, walkways, plazas, landmarks and other highlights.¹⁰

While the effects of the cumulative list of projects evaluated in this EIR may combine to produce a significant increase in new sources of light, it is possible that the “cumulative impact” of multiple projects will be significant, but that the incremental contribution to that impact from a particular project may not itself be “cumulatively considerable.” Thus, CEQA Guidelines section 15064, subdivision (h)(5), states that “[t]he mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable.” Thus, it is not necessarily true that, even where cumulative impacts are significant, any level of incremental contribution must be deemed cumulatively considerable. (*Communities for a Better Environment*, supra, 103 Cal.App.4th at p. 120.) Substantial evidence has been provided in Impact 4-3 above that the proposed lighting types and locations at the Brunswick Industrial Site would prevent light spillover onto adjacent properties and be protective of the night sky.

Based on the above, the proposed project’s incremental contribution to this potentially significant cumulative impact would be ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.

¹⁰ City of Grass Valley. *City of Grass Valley Community Design Guidelines* [pg. 3-19]. February 26, 2002.



Figure 4.1-6
Viewpoint 1: Existing/Environmental Baseline and Proposed

VIEWPOINT 1: SIERRA NEVADA MEMORIAL HOSPITAL PARKING LOT, LOOKING SOUTHEAST



Existing Conditions



Simulated Conditions

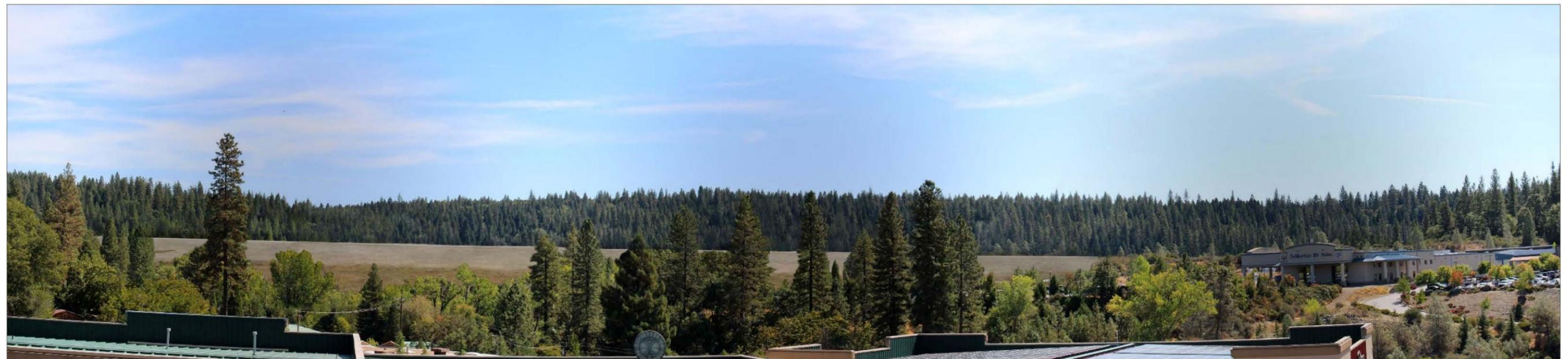


Figure 4.1-7
Viewpoint 2: Existing/Environmental Baseline and Proposed

VIEWPOINT 2: UPPER PARKING LOT NEXT TO STATE ROUTE 20-49, LOOKING SOUTHEAST



Existing Conditions



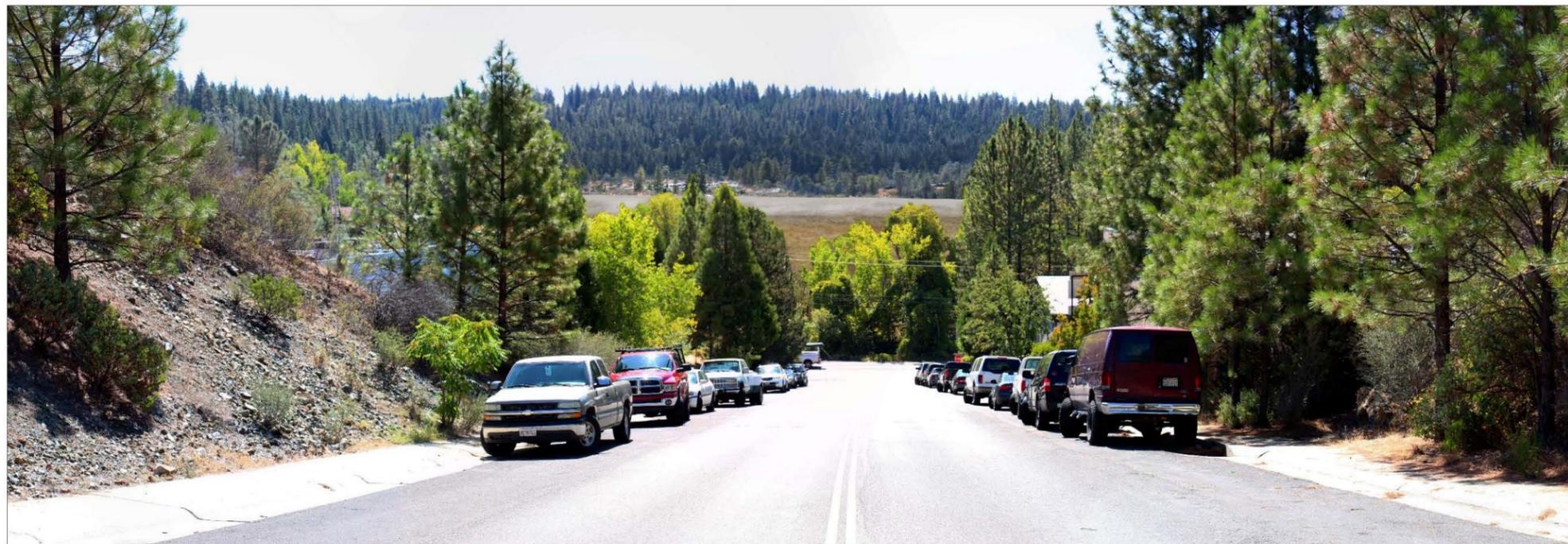
Simulated Conditions

Figure 4.1-8
Viewpoint 3: Existing/Environmental Baseline and Proposed

VIEWPOINT 3: HALFWAY UP SPRING HILL DRIVE, LOOKING SOUTH



Existing Conditions



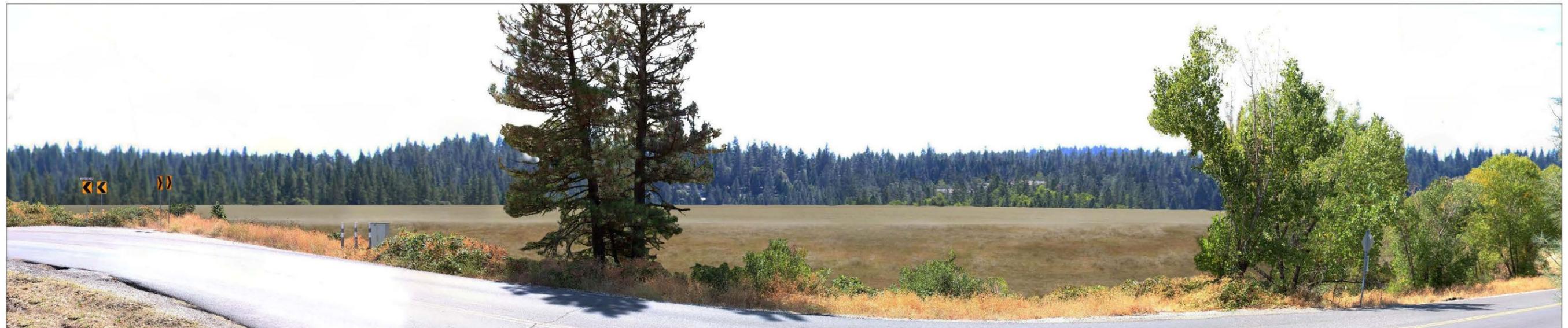
Simulated Conditions

Figure 4.1-9
Viewpoint 4: Existing/Environmental Baseline and Proposed

VIEWPOINT 4: CENTENNIAL DRIVE, LOOKING SOUTH



Existing Conditions



Simulated Conditions

**Figure 4.1-10
Viewpoint 5: Existing and Proposed**

VIEWPOINT 5: NEW BRUNSWICK COURT LOOKING SOUTH



Existing Conditions



Simulated Conditions (No change)

Figure 4.1-11
Viewpoint 6: Existing and Proposed

VIEWPOINT 6: CORNER OF BRUNSWICK ROAD AND EAST BENNETT ROAD, LOOKING SOUTH



Existing Conditions



Simulated Conditions

Figure 4.1-12
Viewpoint 6: Landscape Plan

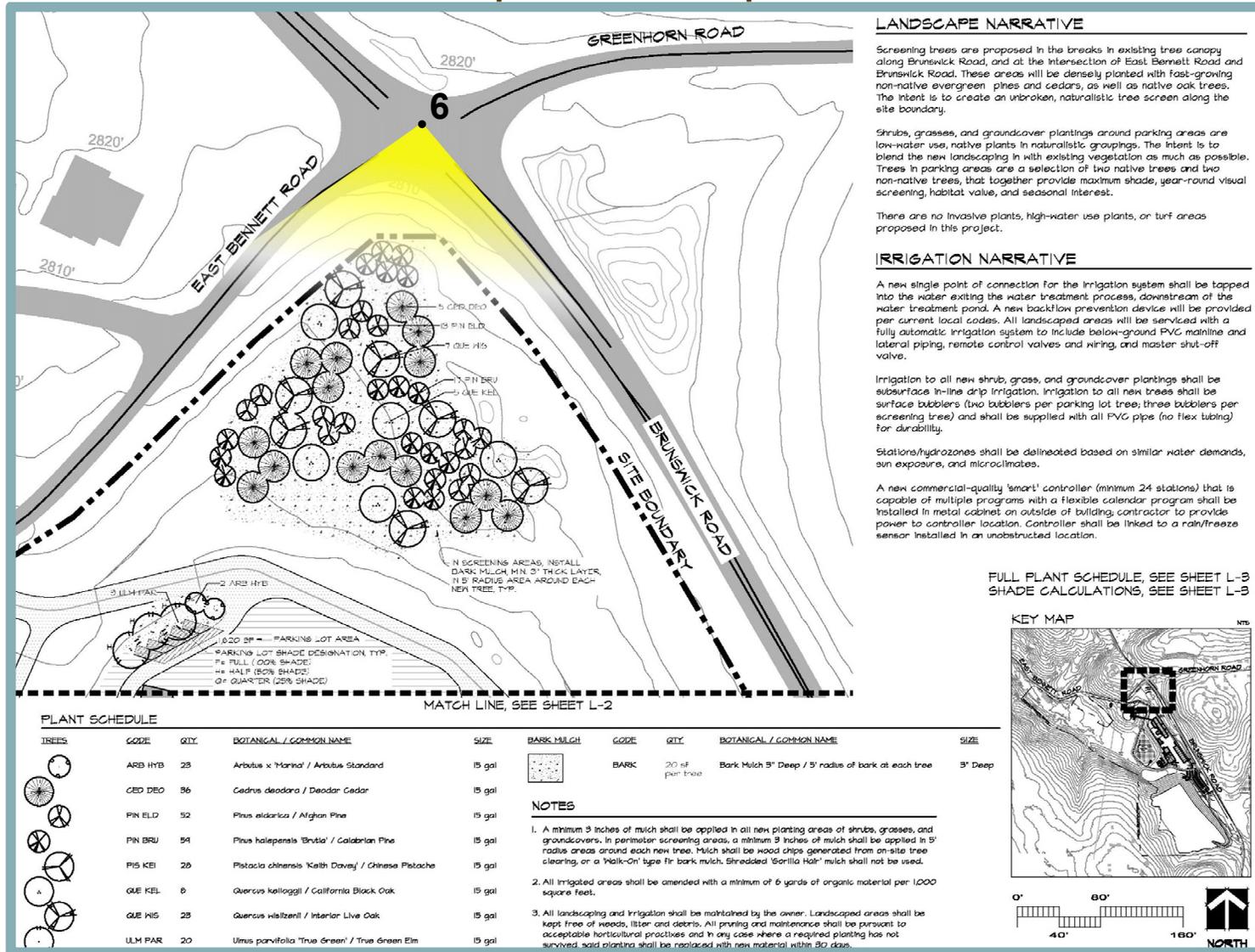


Figure 4.1-13
Viewpoint 7: Existing and Proposed

VIEWPOINT 7: BRUNSWICK ROAD (NORTH), LOOKING WEST

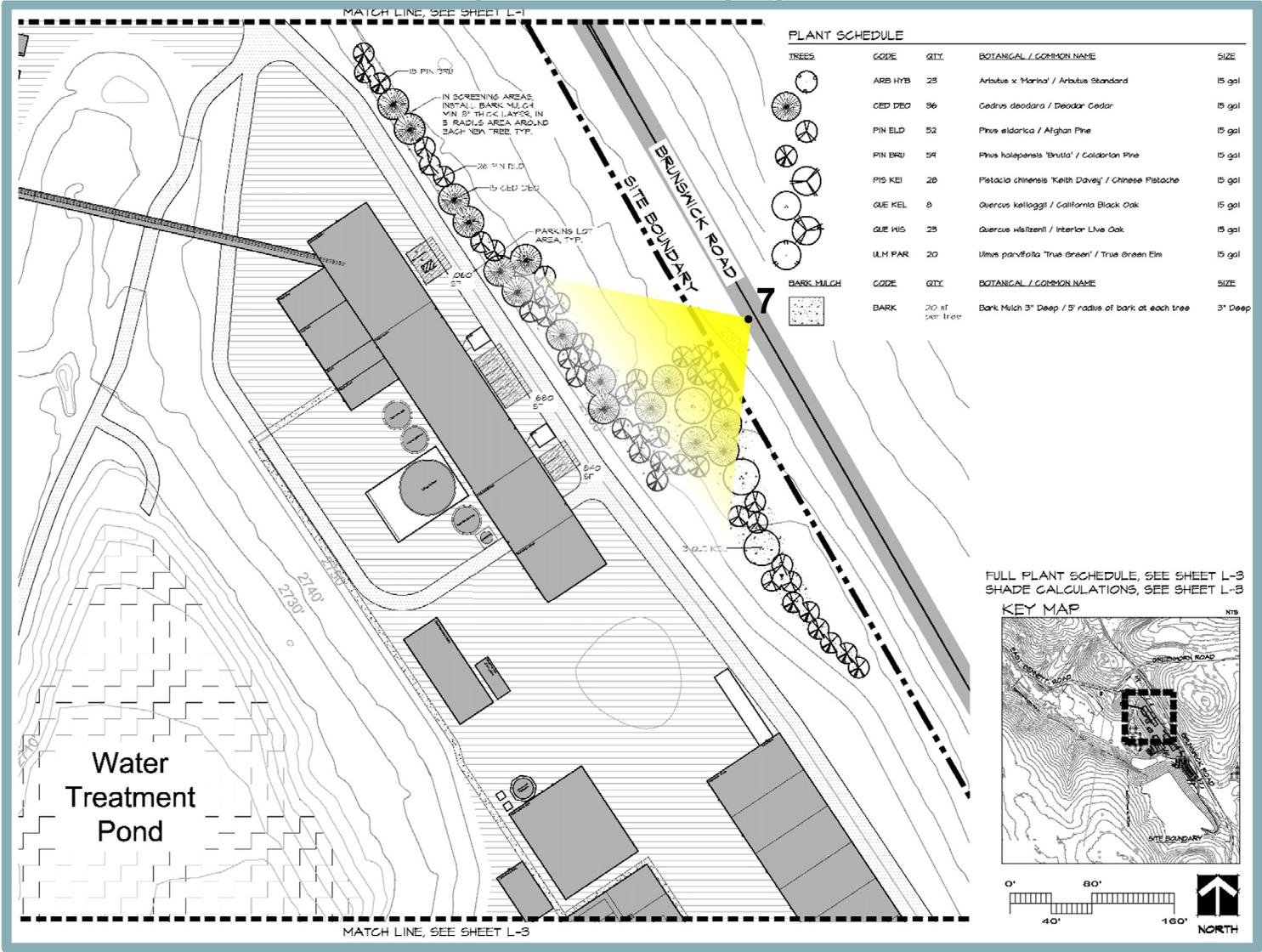


Existing Conditions



Simulated Conditions

**Figure 4.1-14
 Viewpoint 7: Landscaping Plan**



**Figure 4.1-15
Viewpoint 8: Existing and Proposed**

VIEWPOINT 8: BRUNSWICK ROAD (SOUTH), LOOKING WEST



Existing Conditions



Simulated Conditions

**Figure 4.1-16
 Viewpoint 8: Landscape Plan**

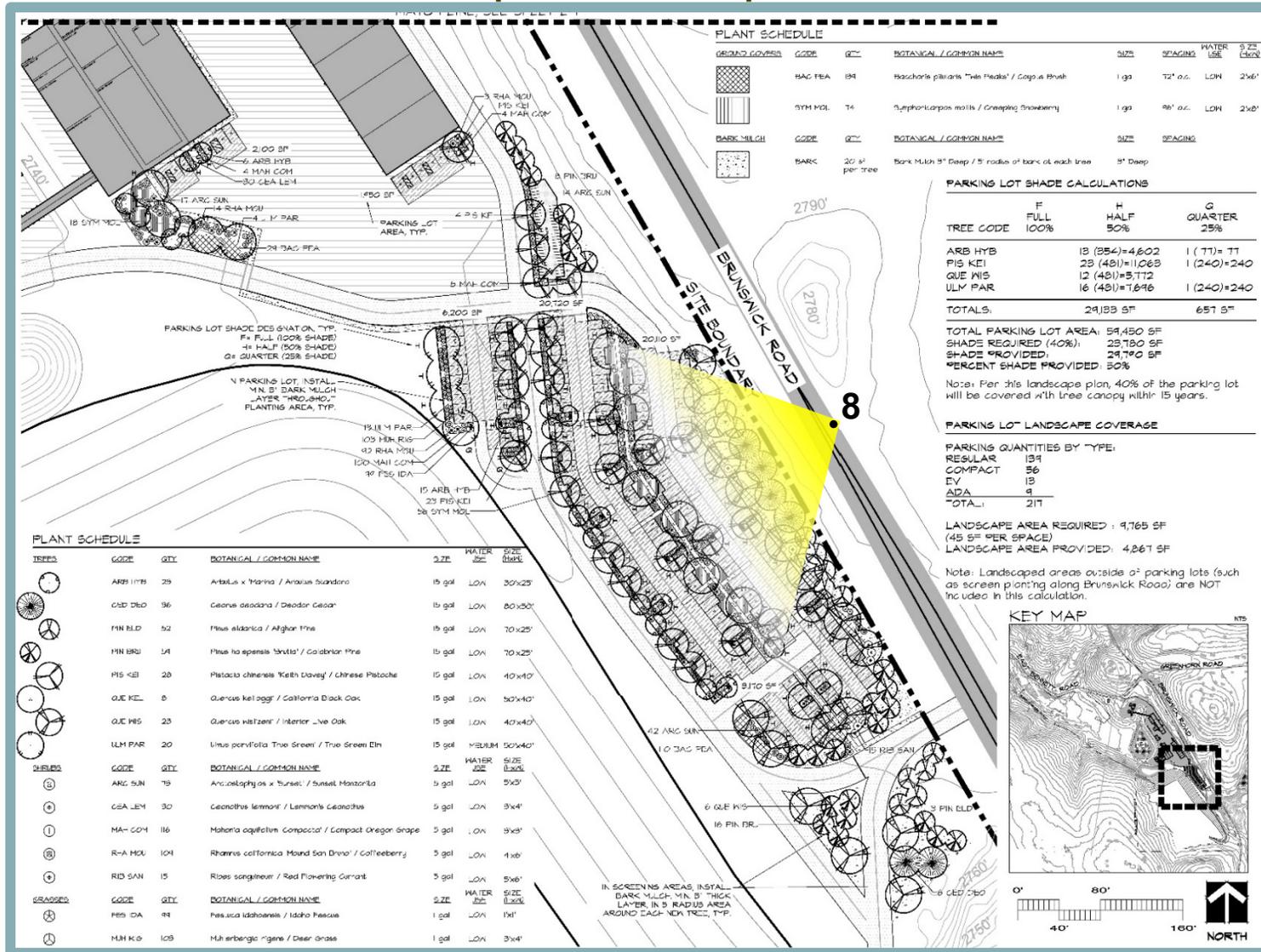


Figure 4.1-17
Viewpoint 9: Existing and Proposed



Existing Conditions



Simulated Conditions

Figure 4.1-18
Viewpoint 10: Existing and Proposed



Existing Conditions



Simulated Conditions

Figure 4.1-19
Viewpoint 11 (1 of 2): Existing and Proposed



Existing Conditions



Simulated Conditions

Figure 4.1-20
Viewpoint 11 (2 of 2): Existing and Proposed



4.2 AGRICULTURE AND FORESTRY RESOURCES

4.2. AGRICULTURE AND FORESTRY RESOURCES

4.2.1 INTRODUCTION

The purpose of the Agriculture and Forestry Resources chapter of the EIR is to examine any existing forestry and timber resources within the boundaries of the Centennial and Brunswick Industrial Sites. In addition, the following analysis provides an evaluation of the loss of timberland locally and regionally relative to applicable policies and regulations. This chapter also includes a discussion regarding impacts related to agricultural resources, as applicable. Documents referenced to prepare this chapter include, but are not limited to, the Nevada County General Plan,¹ the Nevada County General Plan EIR,² the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey,³ and the Nevada County Important Farmland Map 2016.⁴

4.2.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the soil productivity classification systems and the extent and quality of any agricultural and forest resources present on the project sites. As discussed in Section 1.3, "Approach To Centennial Industrial Site Baseline," of this EIR, for the purposes of this agricultural and forestry analysis, the environmental baseline for the Centennial Industrial Site has been adjusted to be consistent with anticipated site conditions at the completion of the separate Centennial Industrial Site Clean-up Project.

Description of Regional Environment

According to the Nevada County General Plan, the soils and climate throughout Nevada County are ideal to sustain many agricultural endeavors. Agriculture in Nevada County is a mosaic of farm land intermingled with other uses in the rural setting which typifies the County. The beginning of major agriculture pursuits began concurrently with the discovery of gold in California. With the sudden influx of miners came a sudden influx of demand for food. One commodity, often not thought of as agriculture, that was harvested extensively in this period was timber. During the initial phase of placer mining, the demand was mainly for construction lumber.

Project Site Characteristics

The overall project site is located in the western region of Nevada County, in the western foothills of the Sierra Nevada.

With completion of the Centennial Industrial Site Clean-Up Project, approximately half of the Centennial Industrial Site will consist of graded and revegetated areas with other areas of the site retaining forested land and other natural habitats that would not be altered by the Clean-Up Project.

¹ Nevada County. *Nevada County General Plan*. Updated 2014.

² Nevada County. *Nevada County General Plan, Final Environmental Impact Report*. March 1995.

³ United States Department of Agriculture, National Resources Conservation Service. *Web Soil Survey*. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed August 2020.

⁴ California Department of Conservation. *Farmland Mapping & Monitoring Program*. Available at: <https://www.conservation.ca.gov/dlrp/fmmp>. Accessed August 2020.



Currently, the Brunswick Industrial Site contains a combination of natural habitats and disturbed portions, primarily due to previous mining and lumber mill operations. Areas not subject to past disturbance within the Brunswick Industrial Site are dominated by native habitat, some of which includes forested land.

Existing On-Site Farmland Classifications

According to the Farmland Mapping & Monitoring Program (FMMP), both the Centennial Industrial Site and the Brunswick Industrial Site are primarily mapped as Other Land, with the exception of small portions of Urban and Built-Up Land. (see Figure 4.2-1).⁵ Other Land is defined as:

Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.⁶

Local Soils

The USDA NRCS uses two systems to determine a soil's agricultural productivity: the Land Capability Classification System and the Storie Index Rating System.

Land Capability Classification System

The Land Capability Classification System takes into consideration soil limitations, the risk of damage when soils are used, and the way in which soils respond to treatment. Capability classes range from Class I soils, which have few limitations for agriculture, to Class VIII soils, which are unsuitable for agriculture. Generally, as the rating of the capability classification system increases, yields and profits are more difficult to obtain. A general description of soil classification, as defined by the NRCS, is provided in Table 4.2-1.

Storie Index Rating System

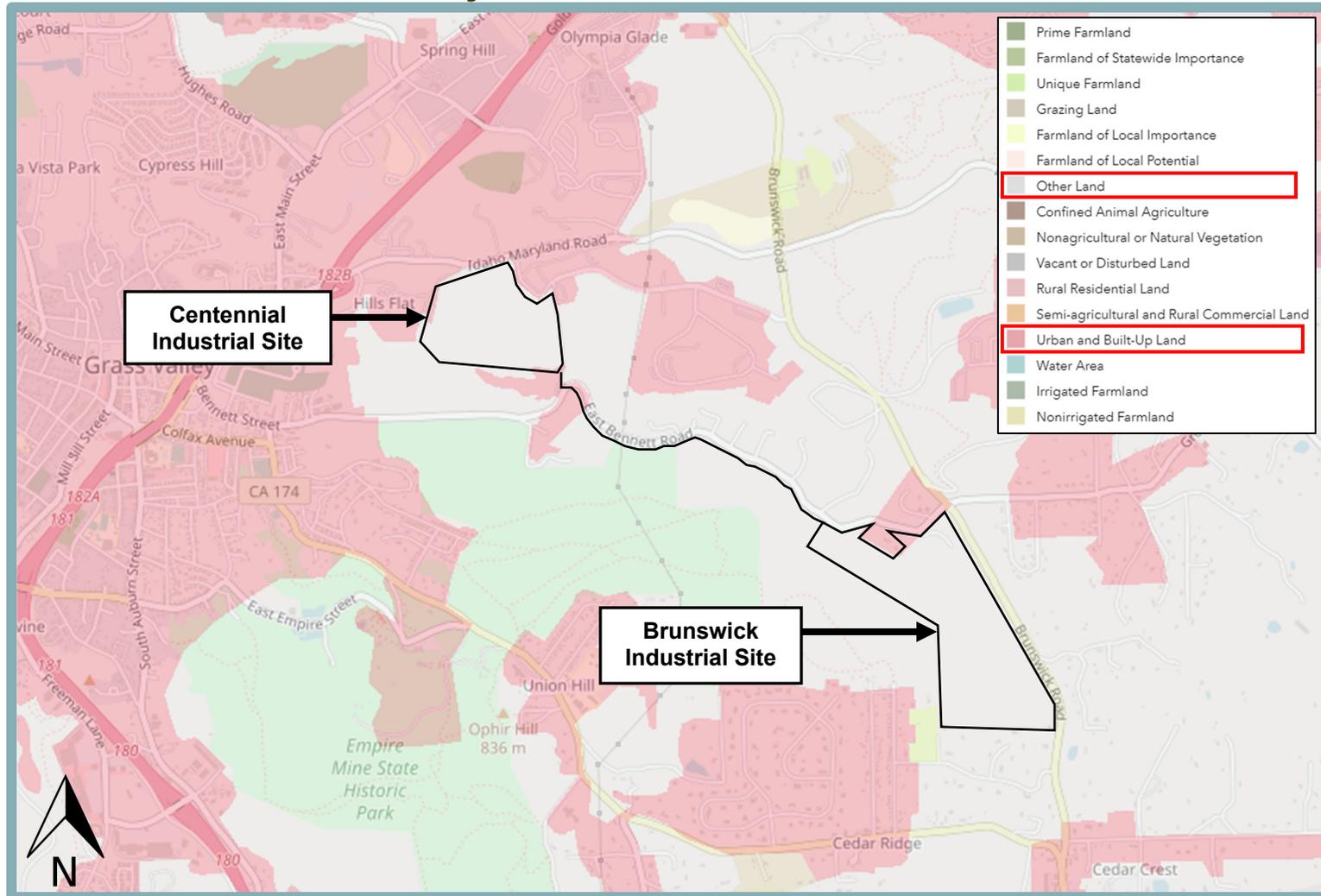
The Storie Index Rating system ranks soil characteristics according to suitability for agriculture from Grade 1 soils (80 to 100 rating), which have few or no limitations for agricultural production, to Grade 6 soils (less than 10 rating), which are not suitable for agriculture. Under the Storie Index Rating system, soils deemed less than prime can function as prime soils when limitations such as poor drainage, slopes, or soil nutrient deficiencies are partially or entirely removed. Unlike the Land Capability Classification outlined above, the Storie Index Rating System does not distinguish between irrigated and non-irrigated soils. The six grades, ranges in index rating, and definition of the grades, as defined by the NRCS, are provided in Table 4.2-2.

⁵ California Department of Conservation. *Farmland Mapping & Monitoring Program*. Available at: <https://www.conservation.ca.gov/dlrp/fmmp>. Accessed August 2020.

⁶ California Department of Conservation. *Important Farmland Categories*. Available at: <https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx>. Accessed February 2021.



**Figure 4.2-1
 Project Site FMMP Classifications**



Note: Site boundaries are approximate.

Source: Department of Conservation, Farmland Mapping and Monitoring Program, 2020.



Table 4.2-1 Land Capability Classification System	
Class	Definition
I	Soils have slight limitations that restrict their use.
II	Soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.
III	Soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.
IV	Soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.
V	Soils are not likely to erode but have other limitations; impractical to remove that limit their use largely to pasture or range, woodland, or wildlife habitat.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat.
VIII	Soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, or water supply or to aesthetic purposes.
Source: USDA, Natural Resources Conservation Service. Available at: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_029470.pdf. Accessed August 2020.	

Table 4.2-2 Storie Index Rating System		
Grade	Index Rating	Definition
1 – Excellent	81 through 100	Few limitations that restrict their use for crops
2 – Good	61 through 80	Suitable for most crops, but have minor limitations that narrow the choice of crops and have a few special management needs
3 – Fair	41 through 60	Suited to a few crops, or special crops, and require special management
4 – Poor	21 through 40	If used for crops, severely limited and require special management
5 – Very Poor	11 through 20	Not suited for cultivated crops, but can be used for pasture/range
6 – Non-Agriculture	Less and 10	Soil and land types generally not suited to farming
Source: USDA, Web Soil Survey, 2019.		

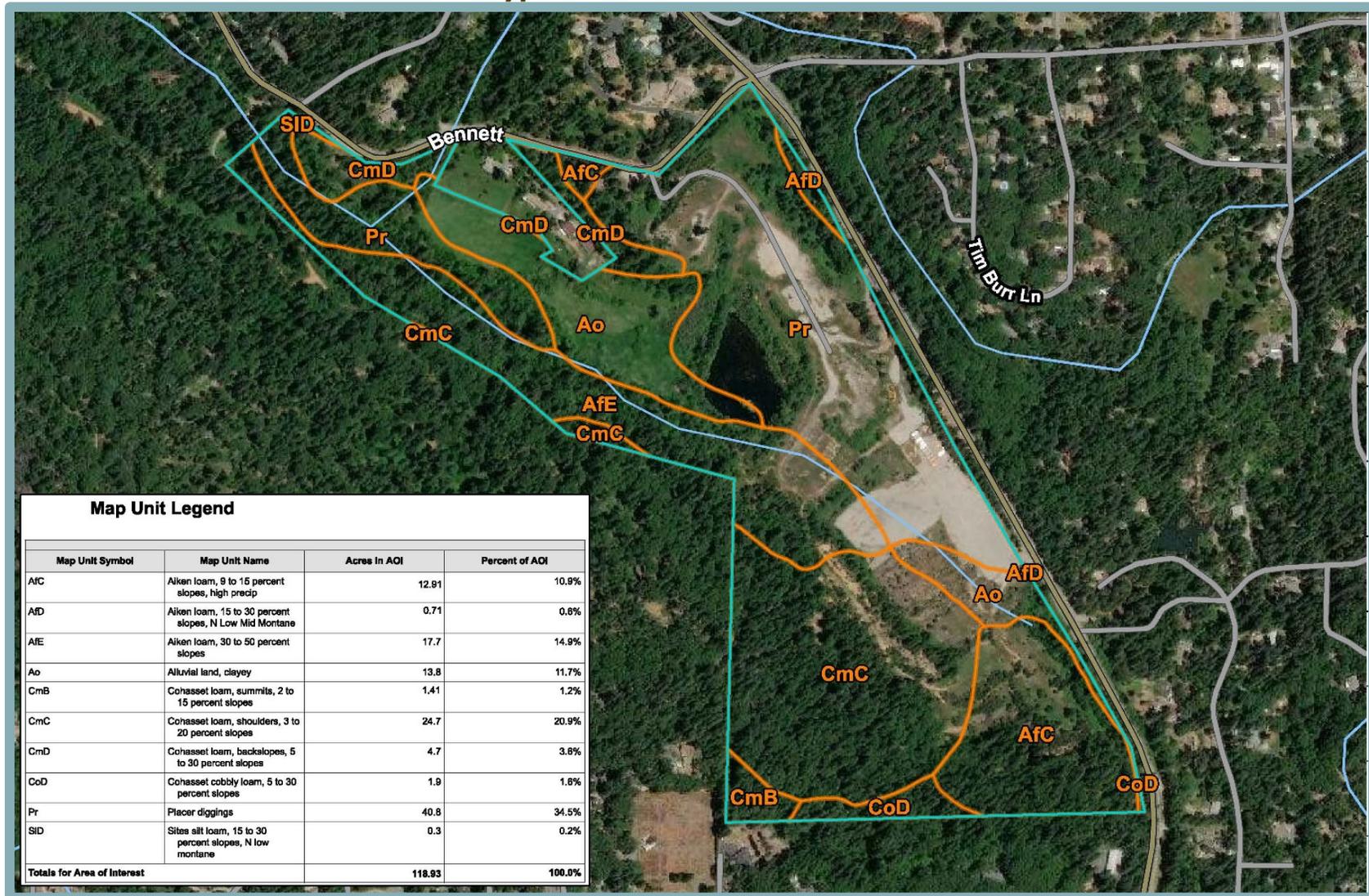
Figure 4.2-2 and Figure 4.2-3 present the soil types and Storie Index of each site. Table 4.2-3 and Table 4.2-4 summarize the existing soil types found within the Centennial Industrial Site and Brunswick Industrial Site, along with the Land Capability Classification and Storie Index Rating for each soil type. As shown in the tables, soils within the sites have Land Capability Classifications of Class II through Class IV, as well as Class VI and Class VII. The Storie Index Ratings of the soils on the project sites range from Grade 1 – Excellent to Grade 5 – Very Poor. Grade 1 soils are considered to be excellent or well-suited to general intensive agriculture. Grade 5 soils are not particularly suited for agricultural activities.



**Figure 4.2-2
 Soil Types: Centennial Industrial Site**



**Figure 4.2-3
 Soil Types: Brunswick Industrial Site**



**Table 4.2-3
Agricultural Ratings of Centennial Industrial Site Soils**

Soil Type	Map Unit Symbol	Land Capability Classification	Storie Index Grade	Percentage of Site (%)
Cut and fill land (not applicable for Storie Index)	Ct	N/A	N/A	2.2
Placer diggings (not applicable for Storie Index)	Pr	N/A	N/A	76.4
Rock outcrop-Dubakella complex, 5 to 50 percent slopes	RrE	VII	Grade 5 – Very Poor	3.1
Secca-Rock outcrop complex, 2 to 50 percent slopes	ScE	VI	Grade 4 – Poor	18.4

Source: USDA, Web Soil Survey, 2020.

**Table 4.2-4
Agricultural Ratings of Brunswick Industrial Site Soils**

Soil Type	Map Unit Symbol	Land Capability Classification	Storie Index Grade	Percentage of Site (%)
Aiken loam, 9 to 15 percent slopes	AfC	III	Grade 1 – Excellent	10.9
Aiken loam, 15 to 30 percent slopes	AfD	IV	Grade 2 – Good	0.8
Aiken Loam, 30 to 50 percent slopes	AfE	VI	Grade 3 – Fair	14.9
Alluvial land (not applicable for Storie Index)	Ao	III	N/A	11.7
Cohasset loam, 2 to 15 percent slopes	CmB	II	Grade 1 – Excellent	1.2
Cohasset loam, 3 to 20 percent slopes	CmC	III	Grade 1 – Excellent	20.9
Cohasset loam, 5 to 30 percent slopes	CmD	IV	Grade 2 – Good	3.6
Cohasset cobbly loam, 5 to 30 percent slopes	CoD	IV	Grade 2 – Good	1.6
Placer diggings (not applicable for Storie Index)	Pr	N/A	N/A	34.5
Sites silt loam, 15 to 30 percent slopes	SID	IV	Grade 2 – Good	0.2

Source: USDA, Web Soil Survey, 2020.

Centennial Industrial Site

According to the Web Soil Survey (USDA NRCS), the Centennial Industrial Site location is mapped predominantly as Placer Diggings, which is described by the soil survey as “hydraulically-mined areas, placer-mined areas along stream channels, and areas of natural deposits along the stream channels.”⁷ (see Figure 4.2-2). The soil survey does not rate the Placer Diggings soil class

⁷ NV5. Idaho-Maryland Mine Project – Centennial Industrial Site: Management Plan for Steep Slopes and High Erosion Potential. December 21, 2020.



for erosion hazard potential. The locations mapped as Placer Diggings are actually comprised of hardrock mine tailings resulting from historical hardrock mining activities. The Site is historically associated with the Idaho Maryland Mine, a former underground hardrock (lode) gold mining operation. Mining and milling structures associated with the former mine were generally located to the east of the Site, and the Site was used primarily for disposal of mine waste (tailings and waste rock) to land.

The majority of the Placer Diggings soils would be disturbed during remediation activities at the Centennial Industrial Site under DTSC oversight pursuant to the Remedial Action Plan (RAP); some portions of the Placer Diggings soil areas would be moved to the encapsulated mine waste area along the Site's eastern boundary, and other portions would be used as borrow areas for the regrading of remediated areas.

Soil conditions near the southern Site boundary are mapped as Secca-Rock outcrop complex, which is described as moderately well-drained soil underlain by metabasic or basic rock. According to the soil survey, weathered rock is typically encountered at a depth of approximately four feet below the ground surface (bgs) in areas mapped as Secca-Rock outcrop complex, and rock outcrop typically comprises 10 to 40 percent of the mapped area.

As demonstrated in Table 4.2-3, the Centennial Industrial Site does not contain any soils with a Storie Index Rating of "Excellent" or "Good", and the Land Capability Classification rating indicating that the soils have severe limitations that make them generally unsuited to cultivation.

Brunswick Industrial Site

According to the Web Soil Survey (USDA NRCS), the soil survey maps four soil types at the Site location as described below and shown in Figure 4.2-3.⁸

1. The central-southwest and southeast portions of the Site and small isolated areas along Brunswick Road are mapped as Aiken loam. The soil survey describes the Aiken Loam as a well-drained soil that forms on the sides of andesitic flows. According to the survey, permeability of the Aiken Loam soil type is moderately slow, and weathered andesite is commonly encountered at about 64 inches bgs.
2. The northern and southwest portions of the Site are mapped as Cohasset loam. The Cohasset series is described as well-drained soil that forms on the sides of andesitic flows. According to the survey, permeability of the Aiken Loam soil type is moderately slow, and weathered andesite is commonly encountered at about 96 inches bgs.
3. Most of the central portion of the Site is mapped as Placer Diggings, which is described by the soil survey as "hydraulically-mined areas, placer-mined areas along stream channels, and areas of natural deposits along the stream channels." The portions of the Site location incorrectly mapped as Placer Diggings by the soil survey are actually the result of historical hardrock mining and lumber milling activities.
4. The central-northwest and central-southeast portions of the Site are mapped as clayey alluvial land, which is described by the soil survey as a miscellaneous land type consisting

⁸ NV5. *Idaho-Maryland Mine Project – Brunswick Industrial Site: Management Plan for Steep Slopes and High Erosion Potential*. December 21, 2020.



of narrow areas of alluvial deposits. These soils are moderately well drained to poorly drained and permeability is moderately slow to very slow.

As shown in Table 4.2-4, approximately 39 percent of the Brunswick Industrial Site soils have a Storie Index Rating of “Excellent” or “Good”, with a Land Capability Classification rating indicating that soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both. The remainder of the Brunswick Industrial Site has poorer rated soils.

Williamson Act Contracts

According to Nevada County’s most recent map of *Parcels Affected by Williamson Act*, the Centennial and Brunswick Industrial Sites are not under a Williamson Act contract.⁹

Forest Resources

Public Resources Code (PRC) Section 12220(g) defines “forest land” as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. According to PRC Section 4526, “timberland” is defined as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees.

California’s forestland comprises 32 million acres, almost a third of the state.¹⁰ Forestland includes 16.6 million acres of timberland, defined by the Forest Service as capable of producing over 20 cubic feet/acre/year of wood with commercial value and not withdrawn from timber utilization by statute or administrative regulation.

The project sites are not zoned for forest land or timberland uses. Rather, the Brunswick Industrial Site is zoned Light Industrial, Site Performance Combining District (M1-SP) and the Centennial Industrial Site is zoned Light Industrial (M1). However, as noted previously, both sites include portions of forested land (as defined in PRC Section 12220[g]) or timberland (as defined by PRC Section 4526).¹¹ As discussed in more detail in Chapter 4.4, Biological Resources, of this Draft EIR, the Brunswick Industrial Site includes approximately 58 acres of forest land or timberland and the Centennial Industrial Site (post-remediation baseline) will include up to 10 acres of forest land.

4.2.3 REGULATORY CONTEXT

Federal laws or regulations pertaining to agricultural and forest resources are not applicable for this analysis. However, the existing State and local laws and regulations are listed below, as applicable.

State Regulations

The following are applicable State regulations related to agricultural and forestry resources.

⁹ Nevada County. *Williamson Act Parcels, Nevada County 2017*. August 22, 2018.

¹⁰ California Department of Forestry and Fire Protection, Fire and Resource Assessment Program. *California’s Forests and Rangelands, 2017 Assessment*. August 2018.

¹¹ California Department of Forestry and Fire Protection. *Idaho Maryland Mine, Rise Grass Valley, File # PLN19-0176 et al.* January 16, 2020.



California Department of Forestry and Fire Protection (CAL FIRE)

The following regulations are enforced by CAL FIRE and are applicable to the proposed project.

State Board of Forestry

The Board of Forestry and Fire Protection is a government-appointed body within CAL FIRE. The Board is responsible for developing the general forest policy of the state, for determining the guidance policies of CAL FIRE and for representing the state's interest in federal forestland in California. Together, the Board and CAL FIRE work to carry out the California Legislature's mandate to protect and enhance the state's unique forest and wildland resources.

The Board is charged with protecting the forest resources of all the wildland areas of California that are not under federal jurisdiction. The forest resources include; major commercial and non-commercial stands of timber, areas reserved for parks and recreation, the woodland, brush-range watersheds, and all such lands in private and state ownership that contribute to California's forest resource wealth. The Board has delegated the authority to approve or deny Timber Conversion Permit requests to CAL FIRE. All Timber Conversion permitting is handled by CAL FIRE under the Forest Practice Rules; however, in the event of a Timber Conversion Permit denial the decision could be appealed to the Board.

Regulations

Under various statutes, the Board is authorized to adopt regulations to implement specified programs. To become effective, the Office of Administrative Law must approve these regulations. They must meet tests of necessity, authority, clarity, consistency, reference, and non-duplication as spelled out in Section 11349.1 of the Government Code. Once adopted, Board regulations are placed in Title 14 of the California Code of Regulations (CCR). The Department then implements these regulations.

Currently, the Board has regulations in the following areas: forest practices (14 CCR 895.1-1111.8), hazardous fire areas and conditions (14 CCR 1200 et seq.), fire protection (14 CCR 1220 et seq.), state forest use and sales (14 CCR 1400 et seq.), forest improvement (14 CCR 1525 et seq.), urban forestry (14 CCR 1550 et seq.), chaparral management (14 CCR 1560 et seq.), Professional Forester Registration (14 CCR 1601 et seq.), and policy for administration of the Department (14 CCR 1655).

Timber Harvest Productivity Act – Division 4, Chapter 8, PRC

In 1982, the State Legislature adopted the California Timberland Productivity Act (TPA). The TPA was intended to protect timberland and ensure that properly conducted timber operations would not be prohibited based on conflicts with surrounding land uses. To accomplish this goal, the TPA directed counties to designate and zone lands for the primary use of timber production.

Forest Practice Rules – Title 14, CCR, Chapter 4

The purpose of the Forest Practice Rules (FPR) is to implement the provisions of the Z'berg-Nejedly Forest Practice Act (FPA) of 1973 in a manner consistent with other laws, including but not limited to, the Timberland Productivity Act of 1982, CEQA of 1970, the Porter Cologne Water Quality Act, and the California Endangered Species Act. The provisions of these rules shall be followed by Registered Professional Foresters (RPFs) in preparing Timber Harvesting Plans, and by the Director in reviewing such plans to



achieve the policies described in sections 4512, 4513, of the Act, 21000, 21001, and 21002 of the PRC, and Sections 51101, 51102 and 51115.1 of the Government Code.

CAL FIRE enforces the Forest Practice Rules, which regulate logging on privately-owned lands in California. In 1973, the State Legislature adopted the FPA regulating the conduct of timber operations. In passing the FPA, the legislature authorized the State Board of Forestry and CAL FIRE to adopt and implement FPRs. The FPRs were established to ensure that logging is done in a manner that will preserve and protect fish, wildlife, forests and streams. Additional rules enacted by the State Board of Forestry and Fire Protection are also enforced to protect these resources.

CAL FIRE ensures that private landowners abide by the FPR when harvesting trees. Although there are specific exemptions in some cases, compliance with the FPA and Board rules apply to all commercial harvesting operations. The following are pertinent sections of the FPR:

Article 7 Conversion of Timberland

1100 Definitions:

(g) "Timberland Conversion":

- (1) Within non-Timberland Production Zone (TPZ) timberland, transforming timberland to a nontimber growing use through timber operations where:
 - (A) Future timber harvests will be prevented or infeasible because of land occupancy and activities thereon; or
 - (B) Stocking requirements of the applicable district forest practice rules will not be met within five years after completion of timber operations; or
 - (C) There is a clear intent to divide timberland into ownerships of less than three acres (1.214 ha.).

(m) "Timberland." timberland as defined in PRC 4526, for land outside a TPZ [...].

4526. Timberland

"Timberland" means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others.

1103 Conversion of Timberland

Any person, firm, corporation, company, partnership or government agency owning timberland for which the timberland owner proposes conversion [...] shall apply to the Director on a form prescribed by him for issuance of a Timberland Conversion Permit (TCP).

1105.2 Director's Determination

The Director shall determine the applicant's bona fide intention to convert in light of the present and predicted economic ability of the applicant to carry out the proposed conversion; the environmental feasibility of the conversion, including, but not limited to,



suitability of soils, slope, aspect, quality and quantity of water, and micro-climate, adequacy and feasibility of possible measures for mitigation of significant adverse environmental impacts; and other foreseeable factors necessary for successful conversion to the proposed land use.

1105.3 Conversion Plan

A conversion plan in a form prescribed by the Director shall become a part of the application. The plan conversion shall set forth in detail information pertaining to present and future use, soils, topography, conversion techniques, conversion time schedule and such other information as may be required and is applicable to the particular future use to which the land will be devoted.

1106 Conversion Permit Issuance

- (a) The Director shall issue a conversion permit if:
- (1) In his judgment the bona fide intent of the applicant to convert is established;
 - (2) He makes the written findings pursuant to PRC 4621.2, when applicable;
 - (3) He makes the written findings pursuant to PRC 21081, if an environmental impact report has been prepared;
 - (4) He finds that necessary and feasible mitigation measures have been incorporated into the proposed conversion; and
- (b) The Board upon appeal shall apply the same standards as the Director in subsection (a) above in determining whether to issue a conversion permit.

1106.2 Timber Harvesting Plan Processing

Prior to the start of Timber Operations, the applicant shall submit to the Director a Timber Harvesting Plan applicable to timber operations set forth in the conversion Plan. The THP may be submitted concurrently with the Timberland Conversion Permit application but the Director may not approve the THP until the Timberland Conversion Permit is issued.

1106.4 Conversion Permit Denial

- (a) The Director shall deny a conversion permit:
- (1) For any of the reasons set forth in PRC 4624;
 - (2) If, in the Director's judgment, the applicant has failed to provide satisfactory proof of his bona fide intent to convert;
 - (3) If the Director cannot make the findings required by PRC 21801, if an environmental impact report has been prepared;
 - (4) If the Director finds that necessary and feasible mitigation measures have not been incorporated into the proposed conversion; or
 - (5) For lands within a TPZ, if PRC 4621.2 applies and the Director finds that other proximate and suitable land not within a TPZ is available for the proposed alternative use.
- (b) The Board upon appeal shall deny a conversion permit for any of the reasons specified in subsection (a) above.

1106.5 Denial, Suspension, Revocation

- (a) Except as provided in subsection (b), the Director may deny, suspend or revoke a conversion permit in accordance with the requirements of Article 9 (commencing with Sec. 4621) of Chapter 8, Part 2, Division 4 of the PRC, provided that all proceedings



- in connection with such action shall be conducted in accordance with the provisions of Chapter 5 (commencing with Sec. 11500) of Part 1, Division 3, Title 2 of the Gov. C.
- (b) The Director may deny a conversion permit pursuant to PRC 4621.2(d) provided that all proceedings in connection with such action shall be conducted in accordance with the provisions of subsection (a) above, except that the applicant must request a hearing before the Board within 15 days of service of the denial. The hearing shall be commenced within 60 days from the filing of the appeal unless a later hearing date is mutually agreed upon by the applicant and the Board.

Policies

Where the Board of Forestry and Fire Protection gives direction to itself or the Department, it may choose to enact policy statements. The Department can also enact informational policies on important issues, such as forest taxation and timber supply. Policies do not have the effect of regulations and hence are not found in the administrative code.

General Policies

The Board of Forestry has established General Board Policies to guide the formulation of policy for California forests. These general goals can be succinctly stated as follows:

- A. Resource Protection – The State must maintain and improve protection of forests and related resources from damage from wildfire and natural enemies, and to resist more effectively the pressures for unwise diversion of forests to nonforest use.
- B. Resource Enhancement – The State must strengthen the incentives which encourage investment in needed enhancements of forest resource productivity.
- C. Research and Information – The State must enlarge and sustain forestry research and information programs, focused on high priority needs, so that a factual basis for resource policy and management decision making can be provided for.
- D. Public Understanding – The State must provide members of the several key audiences that ultimately influence forest use and management with sufficient information about the forest resources problems. This will ensure that they act in the light of accurate broadly based information.

To accomplish these goals, the Board recognizes the need for detailed policies with respect to maintenance of timberland availability, development of optimum management and utilization practices, provision of adequate growing stock, and encouragement of adequately balanced timber size classes and adequate diversity of quality characteristics. Such policies will clearly recognize the Board's differing responsibilities with respect to State forests, the State's interest in Federal land matters pertaining to forestry, and the State's interest in forest resources on private lands, and shall reflect the State's concern that major consideration be given to preventing environmental damage.

The Board recognizes that land-use decisions affecting timber production should be taken in light both of this policy and of review of the public's need for non-timber values derived from forests and forest land, particularly as those needs are recognized by responsible public bodies.



Maintenance of Timber Supply

The following policy information is found within the General Board Policies, under “Maintenance of Timber Supply.”

DEFINITIONS 0334.2 The term “timberland” has historically been defined in a number of ways for the purposes of state policy, regulation, and education. For the purposes of this policy statement, the Board includes two definitions that originate in California’s forest practice regulation and land zoning statutes: the Z’Berg-Nejedly FPA and the TPA. The definition of timberland pursuant to the Z’Berg-Nejedly FPA was presented above, under the FPR – Title 14, CCR, Chapter 4 discussion.

The TPA, Government Code Section 51100, *et seq* established a new zoning designation intended to encourage the growing and harvesting of timber, and compatible uses on California’s private and State-owned lands. Section 51104 of the TPA defines “timberland” as, “...privately owned land, or land acquired for state forest purposes, which is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, and which is capable of growing an average annual volume of wood fiber of at least 15 cubic feet [180 board feet] per acre.” The term “compatible use” is defined in Section 51104(h) of the Act as, “...any use which does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber.” The definition goes on to specify compatible uses including, but not limited to management for watershed; management for fish and wildlife habitat or hunting and fishing; a use integrally related to the growing, harvesting and processing of forest products, including but not limited to roads, log landings, and log storage areas; erection, construction, alteration, or maintenance of gas, electric, water, or communication transmission facilities; grazing; and construction of a residence or other structure necessary for the management of land zoned as timberland production.

LAND AVAILABILITY 0334.3 In order to maintain timber growing land in California as a permanent source of current and future timber supply, the Board has found that it is in the public interest:

- A. To oppose conversion to uses which preclude timber growing and harvesting on such privately owned timberland and other lands which have been classified as TPZ under provisions of the Z'berg-Warren-Keene- Collier Forest Taxation Reform Act of 1976, except where the public values to be achieved by such conversion exceed the public values derivable from timber growing. This policy applies both to conversion proposed by the owner of the land and to proposals for public acquisition of such land that do not include a managed timberland component;
- B. To manage all timberland on State forests to investigate and demonstrate management for optimum long-run timber production. Where such forest lands contain or adjoin areas of high recreation value in State or other ownership, timber growing and harvesting practices may be modified in order to minimize conflicts between other land uses and to demonstrate the costs and effectiveness of such practices;
- C. To support land management plans on federal public lands that are environmentally responsible and support economically sustainable rural communities and infrastructure;



- D. To recognize that conservation easements pursuant to Civil Code 815.1 can be useful planning instruments compatible with the public values associated with timberland and TPZ designations. Such public values include, but are not limited to preservation of watershed integrity, and floral and faunal habitat.

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act, better known as the Williamson Act, has been the State's premier agricultural land protection program since the act's enactment in 1965. The California legislature passed the Williamson Act in 1965 to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. The Williamson Act creates an arrangement whereby private landowners contract with counties and cities to voluntarily restrict land to agricultural and open space uses. The vehicle for these agreements is a rolling term 10-year contract (i.e., unless either party files a "notice of non-renewal," the contract is automatically renewed annually for an additional year). In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value. The project site is not under a Williamson Act contract.

Local Regulations

The following are the local regulations and standards relevant to the CEQA review process with respect to agricultural and forest resources.

Nevada County General Plan

The Agriculture Element of the General Plan does not include any policies that are relevant to the proposed project. The following goals and policies from the Forest Element of the Nevada County General Plan are applicable to the proposed project.

Forest Element

Goal 15.1 Identify and maintain timber lands and resources.

Policy 15.4 The Forest and Open Space land use designations are the major timber producing land use designations; however, other land uses also provide opportunities for timber management and production.

Policy 15.5 Encourage and provide for use of the Timberland Production Zone (TPZ) provisions of the County zoning regulations in the Estate, Rural and Forest land use designations, for those lands which have significant commercial timber value.

Land Use Element

The Nevada County General Plan has established the Forest (FOR) land use designation, which is intended to provide for production and management (including timber harvesting and related operations) of timber resources, and compatible recreational and low-density residential uses. Within the FOR designation, the minimum parcel size should be 40+ acres, in order to provide for preservation of the timber resource and protection of resource management needs and opportunities.

Nevada County Land Use and Development Code

The Nevada County Land Use and Development Code (LUDC) includes a Timberland Preserve (TPZ) zoning district. The TPZ District provides for prudent and responsible forest resource



management and the continued use of timberlands for the production of timber products and compatible uses. The TPZ District is intended to be a district where the land is devoted to the growing and harvesting of timber and for such compatible uses that do not significantly detract from the use of the land for the growing and harvesting of timber.

In addition, Nevada County has established a Forest (FR) zoning district. The FR District provides areas for the protection, production and management of timber, timber support uses, including but not limited to equipment storage and temporary offices, low intensity recreational uses, and open space.

The Nevada County LUDC includes Division 4.3, Resource Standards, of Chapter II, Zoning Regulations. The primary purpose of site development resource standards is to avoid the impact of development projects on sensitive environmental resources and natural site constraints. Pursuant to the Nevada County LUDC, such standards shall ensure protection of the County's unique character, environmentally sensitive resources, and important agricultural, mineral, and timber resources. With regard to important timber resources, Section L-II 4.3.14 reads as follows:

- A. **Purpose.** To protect important timber resources, and to ensure that development does not adversely impact timber resource management.
- B. **Definitions**—Important Timber Resources. Parcels that are 40 acres or larger, and mapped within the Forest designation, that have ideal soil characteristics for timber production, identified as those soils having a high site class or index by the Soil Surveys of Nevada County, prepared by the Soil Conservation Service and the Tahoe National Forest.
- C. **Standards.**
 1. Projects shall be approved only when they are not within the defined area, unless a Management Plan is prepared consistent with paragraph 2 below.
 2. If the above standard effectively precludes development of the project, or adversely affects another environmentally-sensitive resource, a Management Plan shall be prepared by a registered forester, a certified arborist, or a qualified botanist or biologist, that avoids or minimizes impacts to the defined area. If the entire site is within or adjacent to such an area, the plan shall provide for the development of the project on that portion of the site determined to have the least impact on the long-term management of the timber resource

4.2.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to agricultural and forest resources. A discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, a significant impact would occur if the proposed project would result in any of the following:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;



- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use; and
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

Method of Analysis

Evaluation of potential impacts of the proposed project on agricultural and forest resources was based on the proposed project's potential changes to or loss of existing local agricultural and forest/timber resources in comparison to the standards of significance listed above. For the purposes of determining impact significance associated with the loss of forest/timber resources, a significant impact would occur if the loss of forest/timber land area due to the project would be substantial in consideration of the amount of forest/timber land area statewide in California.

Soil data from the USDA NRCS was used to characterize the amount of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance within the project site boundaries.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to agriculture and forest resources is based on implementation of the proposed project in comparison to the baseline conditions and the standards of significance presented above.

4.2-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use, or involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. Based on the analysis below, *no impact* would occur.

PRC Section 21060.1 defines "Agricultural land" as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. As noted previously, according to the FMMP, the Brunswick Industrial Site is mapped as both Urban Built-Up Land and Other Land. The Centennial Industrial Site is primarily mapped as Other Land, with the exception of a small portion of the western boundary of the site, which is mapped as Urban Built-Up Land (see Figure 4.2-1).¹² Thus, implementation of the project would not occur on any land designated as Farmland and would not convert Farmland to non-agricultural use.

Based on the above, the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps

¹² California Department of Conservation. *Farmland Mapping & Monitoring Program*. Available at: <https://www.conservation.ca.gov/dlrp/fmmp>. Accessed August 2020.



prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use, or involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. Thus, **no impact** would occur.

Mitigation Measure(s)

None required.

4.2-2 Conflict with existing zoning for agricultural use, or a Williamson Act contract. Based on the analysis below, no impact would occur.

As noted previously, according to Nevada County's *Parcels Affected by Williamson Act*, the project sites are not under a Williamson Act contract.¹³ The nearest Williamson Act parcel is located over five miles southwest of the project site, on the west side of State Route 49.

In addition, the overall project site is not zoned for agricultural use. The Brunswick Industrial Site is currently zoned as M1-SP. The proposed project includes a request to rezone the Brunswick Industrial Site from M1-SP to Light Industrial with Mineral Extraction Combining District (M1-ME). The Centennial Industrial Site is currently zoned as M1. As such, the County has previously anticipated development of the site with non-agricultural uses. Furthermore, the project site is not currently used for agricultural purposes.

Based on the above, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and **no impact** would occur.

Mitigation Measure(s)

None required.

4.2-3 Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)), or result in the loss of forest land or conversion of forest land to non-forest use. Based on the analysis below, the impact is less than significant.

As noted above, the Brunswick Industrial Site and the Centennial Industrial Site both include timberland.¹⁴ While the Centennial and Brunswick Industrial Sites contain timberland, the Sites are not zoned TPZ, and as such, are not specifically "...devoted to the growing and harvesting of timber and for such compatible uses that do not

¹³ Nevada County. *Williamson Act Parcels*, Nevada County 2017. August 22, 2018.

¹⁴ California Department of Forestry and Fire Protection. *Idaho Maryland Mine, Rise Grass Valley, File # PLN19-0176 et al.* January 16, 2020.



significantly detract from the use of the land for the growing and harvesting of timber.”¹⁵ It is only on TPZ lands where the Board of Forestry opposes conversion to uses which preclude timber growing and harvesting. Policy 15.5 of the Forestry Resources Chapter of the General Plan states the following:

Encourage and provide for use of the Timberland Production Zone (TPZ) provisions of the County zoning regulations in the Estate, Rural and Forest land use designations, for those lands which have significant commercial timber value.

Nevada County has zoned approximately 92,360 acres of timberlands under the TPZ zoning designation. In addition to TPZ-zoned lands, Nevada County contains approximately 241,800 acres of land zoned Forest. According to Section L-II 2.3(B)(3), the purpose of the Forest zoning district is to provide “...areas for the protection, production and management of timber...” and timber support uses. No portion of the Centennial and Brunswick Industrial Sites is zoned Forest.

In addition to zoning certain lands for the production and management of timber, the Nevada County LUDC defines “Important Timber Resources”. These are parcels that are 40 acres or larger, and mapped within the Forest designation. As the Forest designation is not applied to any portion of the Centennial or Brunswick Industrial Sites, the Sites are not considered Important Timber Resources pursuant to the Nevada County LUDC. As noted in the Land Use Element of the Nevada County General Plan, approximately 55 percent of Nevada County’s area, or approximately 346,240 acres, is designated as Forest.¹⁶

While not designated for timberland growth and production, the proposed project would nevertheless result in the loss of up to approximately 6.5 acres of the approximately 10 acres of forest/timberland on the Centennial Industrial Site under baseline conditions and the project would result in the loss of approximately 18.5 acres of the approximately 58 acres of forest/timberland on the Brunswick Industrial Site. Overall, implementation of the proposed project would result in the loss of up to approximately 25 acres of forest land. This is a relatively small amount considering Nevada County’s and the State’s overall timberland resources and the growth in timberland in recent years. For comparison, according to the USDA, approximately 17 million acres within California can be considered timberland.¹⁷ Furthermore, according to the CAL FIRE’s 2017 Assessment:¹⁸

- On forest industry timberlands, the most actively managed lands, growth exceeded harvest and mortality by an average of 22 ft³/acre/year over the re-measurement period (2001–2006 to 2011–2016).
- On nonindustrial timberlands, a portion of which are actively managed, growth exceeded harvest and mortality by an average of over 85 ft³ /acre/year over the re-measurement period (2001–2006 to 2011–2016).

¹⁵ See Nevada County Land Use and Development Code, Sec. L-II 2.3(B)(4) regarding purpose of the TPZ.

¹⁶ Nevada County. *Nevada County General Plan: Land Use Element* [pg. 1-2]. 2016.

¹⁷ U.S. Department of Agriculture. *California’s Forest Resources: Forest Inventory and Analysis, 2001-2010* [pg. 24]. February 2016.

¹⁸ California Department of Forestry and Fire Protection, Fire and Resource Assessment Program. *California’s Forests and Rangelands, 2017 Assessment* [pg. 54]. August 2018.



- On Forest Service timberlands, which are managed for multiple objectives including ecosystem services, growth exceeded harvest and mortality by an average of over 33 ft³/acre/year over the re-measurement period (2001–2006 to 2011–2016).

In addition, there has been a steady significant decline in total acres harvested over the 1997–2015 period. Harvested acres in 2015 was about half of 1997 harvest acres.¹⁹

Based on the above, timber harvesting has decreased substantially since the late 1990s. As such, inventories of timber are increasing. The potential loss of up to 25 acres of forest/timberland associated with the proposed project would equate to an approximately 0.0001 percent decrease in statewide timberland resources. This very small relative amount of forest/timberland loss that would result from the project is not substantial in terms of the overall resources in the state and is therefore considered less than significant for the purposes of this analysis.

With respect to harvesting the timber on the Centennial and Brunswick Industrial Sites, pursuant to Article 7 of the FPR, the project applicant will be required to prepare a THP and TCP application for submittal to CAL FIRE. A THP is similar to a CEQA document in that a THP includes an analysis of environmental impacts related to timber harvesting. In addition, a THP includes mitigation measures in order to protect on-site resources and downstream water quality. For example, in conformance with the FPR, heavy equipment would be excluded from all established Watercourse and Lake Protection Zones (WLPZs) identified on the overall project site. The WLPZs would function as buffers surrounding the watercourses, and would be of adequate width to ensure that any sediment eroded during the timberland conversion process would not reach such watercourses. In order to protect the integrity of the WLPZs, trees marked for harvest and directly adjacent to any WLPZ would be felled away from the creek so as to protect the integrity of the adjacent watercourses during yarding operations.

Environmental effects associated with the loss of forest/timberland (e.g., impacts on special-status species, water resources, air quality) attributable to the project are fully addressed in other resource chapters of this Draft EIR.

Based on the above, the proposed project would have a **less-than-significant** impact with respect to conflicting with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)), or resulting in the loss of forest land or conversion of forest land to non-forest use.

Mitigation Measure(s)

None required.

¹⁹ California Department of Forestry and Fire Protection, Fire and Resource Assessment Program. *California's Forests and Rangelands, 2017 Assessment* [pg. 54]. August 2018.



Cumulative Impacts and Mitigation Measures

Detail regarding the cumulative setting is included in Chapter 5, Statutorily Required Sections, of this EIR.

As noted above, implementation of the proposed project would not occur on any land designated as Farmland and would not convert Farmland to non-agricultural use. In addition, the project sites are not zoned for agricultural use nor under a Williamson Act contract. As such, cumulative impacts related to such would not occur.

4.2-4 Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)), or result in the cumulative loss of forest land or conversion of forest land to non-forest use. Based on the analysis below, the cumulative impact is *less than significant*.

As described in Chapter 5, Statutorily Required Sections, a list of 20 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 City of Grass Valley.

None of the eight cumulative projects within unincorporated Nevada County are located on sites with TPZ or Forest zoning. As such, the cumulative project sites within unincorporated Nevada County are not specifically devoted to the growing and harvesting of timber and for such compatible uses that do not significantly detract from the use of the land for the growing and harvesting of timber. Similarly, none of the cumulative project sites have a Forest General Plan land use designation, and as such, are not considered “Important Timber Resources”, pursuant to the Nevada County LUDC. Notwithstanding, several of the cumulative project sites contain forest/timberland. It is roughly estimated that around 100 acres of forest/timberland could be converted if all cumulative projects within unincorporated Nevada County are developed.

The City of Grass Valley does not have any TPZ or Forest Zoning aimed at specifically setting aside certain property for growing and harvesting of timber. Several of the cumulative project sites within the City of Grass Valley contain forested portions. A rough estimate of potential forest/timberland loss associated with the cumulative projects in the City of Grass Valley is around 90-105 acres.

While this analysis is only roughly approximate, cumulative impact analyses do not need to be as detailed as project-level impact analysis (CEQA Guidelines Section 15130(b)). In addition, even if the estimate of cumulative forest/timberland loss resulting from the cumulative list of projects were higher, it would not be substantially so, and it can be reasonably concluded that a cumulative loss of around 200 acres would not be considered significant given the above-noted trends in the timber harvest industry (i.e., decline in harvesting) and the increased growth in timber stock over the



past several years. In addition, as previously discussed, Nevada County has zoned approximately 92,360 acres of timberlands under the TPZ zoning designation. In addition to TPZ-zoned lands, Nevada County contains approximately 241,800 acres of land zoned Forest. With approximately 32 million acres of forestland in California, 200 acres equates to roughly 0.00062 percent, and the project's incremental contribution only represents up to approximately 0.00007 percent.

The combination of all other projects plus the proposed project would not result in a ***less-than-significant*** cumulative impact related to the loss of forest land or timberland.

Mitigation Measure(s)

None required.



4.3 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

4.3 AIR QUALITY, GREENHOUSE GAS EMISSIONS, AND ENERGY

4.3.1 INTRODUCTION

The Air Quality, Greenhouse Gas Emissions, and Energy chapter of the EIR describes the potential impacts of the proposed project on local and regional air quality emissions, potential impacts related to greenhouse gas (GHG) emissions and climate change, and potential impacts related to energy. The chapter includes a discussion of the existing air quality, GHG, and energy setting, the existing regulatory setting, as well as potential air quality, GHG, and energy impacts resulting from implementation of the project.

Potential direct and indirect impacts from project-related activities are considered on both a local and regional scale, and mitigation measures warranted to reduce or eliminate any identified significant impacts are discussed within the chapter. This chapter is based on the information, guidance, and analysis protocol provided by the Northern Sierra Air Quality Management District's (NSAQMD's) *Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects*,¹ as well as the *Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Idaho Maryland Mine Project Nevada County, California*² and the *Health Risk Assessment Report for the Idaho-Maryland Mine Project, Nevada County, California*³ which were prepared by Dudek for the proposed project and are included as Appendix E.1 to the EIR. In addition, this chapter uses information obtained from the Nevada County General Plan⁴ and associated EIR.⁵

4.3.2 EXISTING ENVIRONMENTAL SETTING

The following information provides an overview of the existing environmental setting in relation to air quality within the proposed project area. Air basin characteristics, ambient air quality standards (AAQS), attainment status and regional air quality plans, local air quality monitoring, odors, and sensitive receptors are discussed. In addition to the information pertaining to air quality, information related to climate change, GHGs, and energy is provided as well.

Air Basin Characteristics

The proposed project is located in the western portion of Nevada County, which is within the Mountain Counties Air Basin (MCAB). The MCAB includes portions of Amador, Calaveras, El Dorado, Mariposa, Nevada, Placer, Plumas, Sierra, and Tuolumne Counties and is composed of seven air districts. The project sites, along with the remainder of Nevada County, as well as Plumas and Sierra County, are within the jurisdictional boundaries of the NSAQMD.

The Air Quality Element of the Nevada County General Plan describes the meteorological and topographical characteristics of Nevada County as follows:

- ¹ Northern Sierra Air Quality Management District. *Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects*. Draft Revised March 2021.
- ² Dudek. *Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Idaho Maryland Mine Project Nevada County, California*. November 2021.
- ³ Dudek. *Health Risk Assessment Report for the Idaho-Maryland Mine Project, Nevada County, California*. November 2021.
- ⁴ Nevada County. *Nevada County General Plan*. Updated 2014.
- ⁵ Nevada County. *Nevada County General Plan, Final Environmental Impact Report*. March 1995.



Nevada County exhibits large variations in terrain and consequently exhibits large variations in climate, both of which affect air quality. The western portions of the County slope relatively gradually with deep river canyons running from southwest to northeast towards the crest of the Sierra Nevada Range. East of the divide, the slope of the Sierra is steeper, but river canyons are relatively shallow. The warmest areas within the County are found at the lower elevations along the west side of the County, while the coldest average temperatures are found at the highest elevations.

The prevailing wind direction over the County is westerly. However, the terrain of the area has a great influence on local winds, so that 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 lower 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 these pollutants near the ground, representing the worst conditions for local air pollution occurring in the County.⁶

Air quality in the project vicinity is influenced by both local and distant emission sources. Air pollutant sources in the project area include emissions from vehicle traffic on nearby paved and unpaved roadways, emissions from planes operating at the Nevada County Airport, stationary sources such as generators or industrial processes, and fireplaces/wood stoves. In addition, local air quality is also influenced by the transportation of emissions from the Sacramento metropolitan area to the mountainous areas north and east of the Sacramento area.

Ambient Air Quality Standards

Both the U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. The federal standards are divided into primary standards, which are designed to protect the public health, and secondary standards, which are designed to protect the public welfare. The AAQS for each contaminant represent safe levels that avoid specific adverse health effects. Pollutants for which AAQS have been established are called “criteria” pollutants. Table 4.3-1 identifies the major pollutants, characteristics, health effects and typical sources. The federal and California AAQS (NAAQS and CAAQS, respectively) are summarized in Table 4.3-2.

The NAAQS and CAAQS were developed independently with differing purposes and methods. As a result, the federal and State standards differ in some cases. In general, the State of California standards are more stringent than the federal standards, particularly for ozone and particulate matter (PM). A description of each criteria pollutant and its potential health effects is provided in the following section.

Ozone

Ozone is a reactive gas consisting of three oxygen atoms. In the troposphere, ozone is a product of the photochemical process involving the sun's energy, and is a secondary pollutant formed as a result of a complex chemical reaction between reactive organic gases (ROG) and oxides of nitrogen (NO_x) emissions in the presence of sunlight. As such, unlike other pollutants, ozone is not released directly into the atmosphere from any sources. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation.

⁶ Nevada County. *Nevada County General Plan* [pg. 14-1]. Updated 2014.



**Table 4.3-1
Summary of Criteria Pollutants**

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive gas produced by the photochemical process involving a chemical reaction between the sun's energy and other pollutant emissions. Often called photochemical smog.	<ul style="list-style-type: none"> • Eye irritation • Wheezing, chest pain, dry throat, headache, or nausea • Aggravated respiratory disease such as emphysema, bronchitis, and asthma 	Combustion sources such as factories, automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	An odorless, colorless, highly toxic gas that is formed by the incomplete combustion of fuels.	<ul style="list-style-type: none"> • Impairment of oxygen transport in the bloodstream • Impaired vision, reduced alertness, chest pain, and headaches • Can be fatal in the case of very high concentrations 	Automobile exhaust, combustion of fuels, and combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	A reddish-brown gas that discolors the air and is formed during combustion of fossil fuels under high temperature and pressure.	<ul style="list-style-type: none"> • Lung irritation and damage • Increased risk of acute and chronic respiratory disease 	Automobile and diesel truck exhaust, industrial processes, and fossil-fueled power plants.
Sulfur Dioxide	A colorless, irritating gas with a rotten egg odor formed by combustion of sulfur-containing fossil fuels.	<ul style="list-style-type: none"> • Aggravation of chronic obstruction lung disease • Increased risk of acute and chronic respiratory disease 	Diesel vehicle exhaust, oil-powered power plants, and industrial processes.
Particulate Matter (PM ₁₀ and PM _{2.5})	A complex mixture of extremely small particles and liquid droplets that can easily pass through the throat and nose and enter the lungs.	<ul style="list-style-type: none"> • Aggravation of chronic respiratory disease • Heart and lung disease • Coughing • Bronchitis • Chronic respiratory disease in children • Irregular heartbeat • Nonfatal heart attacks 	Combustion sources such as automobiles, power generation, industrial processes, and wood burning. Also from unpaved roads, farming activities, and fugitive windblown dust.
Lead	A metal found naturally in the environment as well as in manufactured products.	<ul style="list-style-type: none"> • Loss of appetite, weakness, apathy, and miscarriage • Lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract 	Industrial sources and combustion of leaded aviation gasoline.

Sources:

- **California Air Resources Board. California Ambient Air Quality Standards (CAAQS). Available at: <http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm>. Accessed November 2020.**
- **Sacramento Metropolitan, El Dorado, Feather River, Placer, and Yolo-Solano Air Districts, Spare the Air website. Air Quality Information for the Sacramento Region. Available at: <http://www.sparetheair.com/health.cfm?page=healthoverall>. Accessed November 2020.**
- **California Air Resources Board. Glossary of Air Pollution Terms. Available at: <http://www.arb.ca.gov/html/gloss.htm>. Accessed May 2019.**



**Table 4.3-2
Ambient Air Quality Standards**

Pollutant	Averaging Time	CAAQS	NAAQS	
			Primary	Secondary
Ozone	1 Hour	0.09 ppm	-	Same as primary
	8 Hour	0.070 ppm	0.070 ppm	
Carbon Monoxide	8 Hour	9 ppm	9 ppm	None
	1 Hour	20 ppm	35 ppm	
Nitrogen Dioxide	Annual Mean	0.030 ppm	53 ppb	Same as primary
	1 Hour	0.18 ppm	100 ppb	
Sulfur Dioxide	24 Hour	0.04 ppm	-	-
	3 Hour	-	-	0.5 ppm
	1 Hour	0.25 ppm	75 ppb	-
Respirable Particulate Matter (PM ₁₀)	Annual Mean	20 ug/m ³	-	Same as primary
	24 Hour	50 ug/m ³	150 ug/m ³	
Fine Particulate Matter (PM _{2.5})	Annual Mean	12 ug/m ³	12 ug/m ³	15 ug/m ³
	24 Hour	-	35 ug/m ³	Same as primary
Lead	30 Day Average	1.5 ug/m ³	-	-
	Calendar Quarter	-	1.5 ug/m ³	Same as primary
	Rolling 3-month Average	-	0.15 ug/m ³	
Sulfates	24 Hour	25 ug/m ³	-	-
Hydrogen Sulfide	1 Hour	0.03 ppm	-	-
Vinyl Chloride	24 Hour	0.010 ppm	-	-
Visibility Reducing Particles	8 Hour	see note below	-	-

ppm = parts per million
ppb = parts per billion
ug/m³ = micrograms per cubic meter

Note: Statewide Visibility Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Source: California Air Resources Board. Ambient Air Quality Standards. May 4, 2016. Available at: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>. Accessed November 2020.

The primary source of ozone precursors is mobile sources, including cars, trucks, buses, construction equipment, and agricultural equipment. Ground-level ozone reaches the highest level during the afternoon and early evening hours. High levels occur most often during the summer months. Ground-level ozone is a strong irritant that could cause constriction of the airways, forcing the respiratory system to work harder in order to provide oxygen. Ozone at the Earth's surface causes numerous adverse health effects and is a major component of smog. High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments.

Reactive Organic Gas

ROG is a reactive chemical gas composed of hydrocarbon compounds typically found in paints and solvents that contributes to the formation of smog and ozone by involvement in atmospheric



chemical reactions. A separate health standard does not exist for ROG. However, some compounds that make up ROG are toxic, such as the carcinogen benzene.

Oxides of Nitrogen

NO_x are a family of gaseous nitrogen compounds and are precursors to the formation of ozone and particulate matter. The major component of NO_x, nitrogen dioxide (NO₂), is a reddish-brown gas that discolors the air and is toxic at high concentrations. NO_x results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of NO_x. NO_x reacts with ROG to form smog, which could result in adverse impacts to human health, damage the environment, and cause poor visibility. Additionally, NO_x emissions are a major component of acid rain. Health effects related to NO_x include lung irritation and lung damage and can cause increased risk of acute and chronic respiratory disease.

Nitrogen Dioxide

A particular oxide of nitrogen that is of concern to human health is nitrogen dioxide (NO₂). NO₂ is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO₂ in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas.

A large body of health science literature indicates that exposure to NO₂ can induce adverse health effects. The strongest health evidence, and the health basis for the AAQS for NO₂, results from controlled human exposure studies that show that NO₂ exposure can intensify responses to allergens in allergic asthmatics. In addition, several epidemiological studies have demonstrated associations between NO₂ exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to NO₂ than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration. Several studies have shown that long-term NO₂ exposure during childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher compared to lower levels of exposure. In addition, children with asthma have a greater degree of airway responsiveness compared with adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, poisonous gas produced by incomplete burning of carbon-based fuels such as gasoline, oil, and wood. When CO enters the body, the CO combines with chemicals in the body, which prevents blood from carrying oxygen to cells, tissues, and organs. Symptoms of exposure to CO can include problems with vision, reduced alertness, and general reduction in mental and physical functions. Exposure to CO can result in chest pain, headaches, reduced mental alertness, and death at high concentrations.

Sulfur Dioxide

Sulfur dioxide (SO₂) is a colorless, irritating gas with a rotten egg odor formed primarily by the combustion of sulfur-containing fossil fuels from mobile sources, such as locomotives, ships, and off-road diesel equipment. SO₂ is also emitted from several industrial processes, such as petroleum refining and metal processing. Similar to airborne NO_x, suspended sulfur oxide



particles contribute to poor visibility. Sulfur oxide particles are also a component of PM₁₀ (discussed below).

Sulfates

Sulfates are the fully oxidized ionic form of sulfur and are colorless gases. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. The sulfur is oxidized to SO₂ during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO₂ to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The sulfates standard established by CARB is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, because they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide

Hydrogen sulfide (H₂S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide is extremely hazardous in high concentrations, especially in enclosed spaces (800 parts per million [ppm] can cause death).

Particulate Matter

Particulate matter, also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of several components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health impacts. The USEPA is concerned about particles that are 10 micrometers in diameter or smaller (PM₁₀) because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, the particles could affect the heart and lungs and cause serious health effects. USEPA groups particle pollution into three categories based on their size and where they are deposited:

- "Inhalable coarse particles (PM_{2.5-10})," which are found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. PM_{2.5-10} is deposited in the thoracic⁷ region of the lungs.
- "Fine particles (PM_{2.5})," which are found in smoke and haze, are 2.5 micrometers in diameter and smaller. PM_{2.5} particles could be directly emitted from sources such as forest fires, or could form when gases emitted from power plants, industries, and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- "Ultrafine particles (UFP)," are very, very small particles (less than 0.1 micrometers in diameter) largely resulting from the combustion of fossil fuels, meat, wood, and other hydrocarbons. While UFP mass is a small portion of PM_{2.5}, their high surface area, deep lung penetration, and transfer into the bloodstream could result in disproportionate health impacts relative to their mass. UFP is not currently regulated separately but is analyzed as part of PM_{2.5}.

⁷ The thoracic region of the lungs includes the trachea and main bronchi.



PM₁₀, PM_{2.5}, and UFP include primary pollutants, which are emitted directly to the atmosphere and secondary pollutants, which are formed in the atmosphere by chemical reactions among precursors. Generally speaking, PM_{2.5} and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM₁₀ sources include the same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust. Long-term PM pollution, especially fine particles, could result in significant health problems including, but not limited to, the following: increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing; decreased lung function; aggravated asthma; development of chronic respiratory disease in children; development of chronic bronchitis or obstructive lung disease; irregular heartbeat; heart attacks; and increased blood pressure.

Lead

Lead is a relatively soft and chemically resistant metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, and, thus, essentially persists forever. Lead forms compounds with both organic and inorganic substances. As an air pollutant, lead is present in small particles. Sources of lead emissions in California include a variety of industrial activities. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically. However, because lead was emitted in large amounts from vehicles when leaded gasoline was used, lead is present in many soils (especially urban soils) as a result of airborne dispersion and could become re-suspended into the air.

Because lead is only slowly excreted by the human body, exposures to small amounts of lead from a variety of sources could accumulate to harmful levels. Effects from inhalation of lead above the level of the ambient air quality standard may include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms could include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children. Lead also causes cancer.

Vinyl Chloride

Vinyl chloride (C₂H₃Cl, also known as VCM) is a colorless gas that does not occur naturally, but is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Visibility Reducing Particles

Visibility Reducing Particles are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are also a category of environmental concern. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a



TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics “Hot Spots” Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over five years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a variety of sources, including stationary sources, such as dry cleaners, gas stations, diesel back-up generators, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) basis.

Diesel Particulate Matter

Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90 percent of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of PM_{2.5}. DPM is typically composed of carbon particles (“soot,” also called black carbon) and numerous organic compounds, including more than 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. CARB classified “particulate emissions from diesel-fueled engines” (i.e., DPM; 17 California Code of Regulations [CCR] 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, cars, and off-road diesel engines, including locomotives, marine vessels, heavy-duty construction equipment, stationary diesel back-up generators, among others. Approximately 70 percent of all airborne cancer risk in California is associated with DPM. To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000. Because DPM is a part of PM_{2.5}, DPM also contributes to the same noncancer health effects as PM_{2.5} exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies. Those most vulnerable to noncancer health effects are children, whose lungs are still developing, and older adults, who often have chronic health problems.

Asbestos

Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers, with principal forms including chrysotile, crocidolite, amosite, tremolite, actinolite, and anthophyllite. Naturally occurring asbestos is found in some areas throughout California, most commonly where ultramafic rock or serpentinite rock is present. When construction activities occur in areas with naturally occurring asbestos in the soils or rock, the asbestos fibers can become airborne and may be inhaled, which can cause



chronic local inflammation and disrupt orderly cell division, both of which can facilitate the development of asbestosis (a noncancerous lung disease involving fibrotic scarring of the lungs) and cancer.

Crystalline Silica

In February 2005, the California Office of Environmental Health Hazard Assessment (OEHHA) added a chronic reference exposure level for crystalline silica (quartz, cristobalite, tridymite) of respirable size (defined as 4 micrometer particle aerodynamic diameter). Crystalline silica is a hazardous substance when inhaled, and the airborne dust particles that are formed when the material containing the silica is broken, crushed, or sawn pose potential risks. Silicosis results from chronic exposure; silicosis is characterized by the presence of histologically unique silicotic nodules and by fibrotic scarring of the lung. Chronic exposure to respirable silica dust is also associated with the development of tuberculosis/silicotuberculosis, chronic bronchitis, small airways disease, emphysema, and has been implicated in some autoimmune disorders and kidney disease.

Attainment Status and Regional Air Quality Plans

Pursuant to the 1990 federal Clean Air Act amendments, EPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as “attainment” for that pollutant. If an area exceeds the standard, the area is classified as “nonattainment” for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as “unclassified” or “unclassifiable.” The designation of “unclassifiable/attainment” means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as “attainment” or “nonattainment,” but based on CAAQS rather than the NAAQS.

The NSAQMD prepared and submitted the Ozone Attainment Plan Western Nevada County – State Implementation Plan for the 2008 Primary Federal 8-Hour Ozone Standard of 0.075 ppm (Ozone Attainment Plan) (NSAQMD 2018) to the EPA to request voluntary reclassification as a “Serious” nonattainment area, and revise the attainment date to December 31, 2021. On August 23, 2019, the EPA re-designated the western portion of Nevada County from “Moderate” nonattainment to “Serious” nonattainment for the federal 8-hour O₃ standard. Additionally, CARB has designated Nevada County as a nonattainment area for the state O₃ (with a finding of overwhelming transport from the Sacramento area and, to a lesser extent, the Bay Area)) and PM10 standards (CARB 2019g). The County is designated as unclassified or attainment by the EPA and CARB for all other criteria air pollutants. Table 4.3-3 presents a summary of the attainment status designations in Nevada County.

Local Air Quality Monitoring

Air quality is monitored by CARB at various locations to determine which air quality standards are being violated, and to direct emission reduction efforts, such as developing attainment plans and rules, incentive programs, etc. The number of days exceeding the ambient air quality standards from 2016 to 2018 are presented in Table 4.3-4.



**Table 4.3-3
Nevada County Attainment Status Designations**

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone	1 Hour	Nonattainment	Revoked in 2005
	8 Hour	Nonattainment	Serious Nonattainment
Carbon Monoxide	8 Hour	Unclassified	Unclassified/Attainment
	1 Hour	Unclassified	Unclassified/Attainment
Nitrogen Dioxide	Annual Mean	Attainment	Unclassified/Attainment
	1 Hour	Attainment	Unclassified/Attainment
Sulfur Dioxide	Annual Mean	Attainment	Unclassified/Attainment
	24 Hour	Attainment	Unclassified/Attainment
	3 Hour	Attainment	Unclassified/Attainment
	1 Hour	Attainment	Unclassified/Attainment
Respirable Particulate Matter (PM ₁₀)	Annual Mean	Nonattainment	-
	24 Hour	Nonattainment	Unclassified
Fine Particulate Matter (PM _{2.5})	Annual Mean	Attainment (with the exception of the Portola Valley)	Attainment (with the exception of the Portola Valley)
	24 Hour	-	Nonattainment
Lead	30 Day Average	Attainment	Unclassified/Attainment
	Calendar Quarter	Attainment	Unclassified/Attainment
	Rolling 3-Month Average	Attainment	Unclassified/Attainment
Sulfates	24 Hour	Attainment	-
Hydrogen Sulfide	1 Hour	Unclassified	-
Visibility Reducing Particles	8 Hour	Unclassified	-

Source: California Air Resources Board. Maps of State and Federal Area Designations. Available at: <https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations>. Accessed November 2020.

**Table 4.3-4
Air Quality Data Summary (2016-2018)**

Pollutant	Monitoring Station	Standard	Days Standard Was Exceeded		
			2016	2017	2018
1-Hour Ozone	Grass Valley	State	6	13	5
8-Hour Ozone		State	46	85	28
		Federal	39	78	22
24-Hour PM _{2.5}	Grass Valley	Federal	0	3	12.1
24-Hour PM ₁₀	Yuba City	State	1	19.3	ND
		Federal	0	0	8
1-Hour Nitrogen Dioxide	Yuba City	State	0	0	0
		Federal	0	0	0

Note: ND = insufficient data available to determine value.

Source: Dudek, 2021.

The Grass Valley monitoring station, located at 200 Litton Drive, Suite 230, Grass Valley, CA 95945, is the nearest air quality monitoring station to the project sites, located approximately one-mile northwest of the Centennial Industrial Site. However, because the Grass Valley station only monitors ozone (O₃) and PM_{2.5}, additional measurements were taken from the Yuba City



monitoring station (773 Almond Street, Yuba City, CA 95991), approximately 31 miles west of the project sites. The data collected at these stations are considered generally representative of the air quality experienced in the project vicinity.

Odors

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. 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.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Children, pregnant women, older adults, and people with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses where sensitive-receptor population groups are likely to be located such as hospitals, schools, childcare centers, residences, and retirement homes, are considered especially vulnerable.

Residential sensitive receptors are interspersed around the project sites. At the Brunswick Industrial Site, rural residences are located to the north, west, east, and south. The nearest residence is north of East Bennett Road, approximately 100 feet from the Brunswick Industrial Site boundary. Residences are also located in proximity to the proposed Nevada Irrigation District (NID) potable water pipeline along East Bennett Road. Additional rural residences are located north of the Centennial Industrial Site, the nearest of which is along Idaho Maryland Road, approximately 500 feet away. Finally, the nearest hospitals and schools to the project sites are the Sierra Nevada Memorial Hospital on Glasson Way (approximately 1,800 feet north of the Centennial Industrial Site) and the Montessori House of Children on The Burma Road (approximately 2,500 feet south of the Brunswick Industrial Site boundary).

GHG Emissions and Climate Change

The following sections provide an overview of the topic of climate change, information regarding specific GHGs, the global warming potential (GWP) of GHGs, and the potential effects of climate change.

Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period (decades or longer). The Earth's climate depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the Sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere.



The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process: short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit the long-wave radiation into space and back toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a livable environment on Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of long-wave radiation that gets absorbed by the atmosphere before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of Earth's climate shows that the climate system varies naturally over a wide range of time scales, and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is virtually certain that human activities have been the dominant cause of that warming since the mid-twentieth century, and that human activities are the most significant driver of observed climate change. Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system. The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions, and secondarily from emissions associated with land use changes, such as deforestation and urban development. Continued emissions of GHGs will cause further warming and changes in all components of the climate system. Potential effects are discussed in further depth below.

GHGs

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g), for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO₂), methane (CH₄), N₂O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃) (see also 14 CCR 15364.5).⁸ Some GHGs, such as CO₂, CH₄, and N₂O, are emitted into the atmosphere through natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Manufactured GHGs have a much greater heat-absorption potential than CO₂ and include fluorinated gases, such as HFCs, PFCs, and SF₆, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.⁹

Carbon Dioxide

CO₂ is a naturally occurring gas and a by-product of human activities; CO₂ is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO₂ include respiration of bacteria, plants, animals, and fungi; evaporation from oceans; volcanic out-gassing;

⁸ Climate-forcing substances include GHGs and other substances, such as black carbon and aerosols. This discussion focuses on the seven GHGs identified in California Health and Safety Code Section 38505.

⁹ The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change's Fourth Assessment Report (2007), CARB's "Glossary of Terms Used in GHG Inventories" (2018), and the USEPA's "Climate Change" (2017).



and decomposition of dead organic matter. Human activities that generate CO₂ are the combustion of fuels such as coal, oil, natural gas, and wood, and changes in land use.

Methane

CH₄ is produced through both natural and human activities. CH₄ is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide

N₂O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N₂O. Sources of N₂O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N₂O as a propellant (such as in rockets, racecars, and aerosol sprays).

Fluorinated Gases

Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric O₃-depleting substances (e.g., CFCs, HCFCs, and halons). The most prevalent fluorinated gases include the following:

- Hydrofluorocarbons: HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to O₃-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- Perfluorocarbons: PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to O₃-depleting substances. The two main sources of PFCs are aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, HFCs have long lifetimes, ranging between 10,000 and 50,000 years.
- Sulfur Hexafluoride: SF₆ is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF₆ is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- Nitrogen Trifluoride: NF₃ is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Chlorofluorocarbons

Chlorofluorocarbons (CFCs) are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. Although CFCs are chemically unreactive in the lower atmosphere (troposphere), the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O₃.



Hydrochlorofluorocarbons

Hydrochlorofluorocarbons (HCFCs) are a large group of compounds, with a similar structure to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, the use of HCFCs in general is being phased out.

Black Carbon

Black carbon is a component of PM_{2.5}, which has been identified as a leading environmental risk factor for premature death. Black carbon is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influencing cloud formation, and darkening the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived substance that varies spatially, which makes the GWP of the substance difficult to classify. Diesel exhaust emissions are a major source of black carbon, because DPM is considered a TAC, DPM has been regulated and controlled in California for several decades to protect public health. In relation to declining DPM as a result of CARB's regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have been reduced by 70 percent between 1990 and 2010, with 95 percent control expected by 2020.

Water Vapor

The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere, and maintains a climate necessary for life.

Ozone

Tropospheric O₃, which is created by photochemical reactions involving gases from both natural sources and human activities acts as a GHG. Stratospheric O₃, which is created by the interaction between solar ultraviolet radiation and molecular oxygen, plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O₃ due to chemical reactions that may be enhanced by climate change results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols

Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

GWP

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo). The Intergovernmental Panel on Climate Change developed the GWP concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of one kilogram of a trace substance relative to that of one kilogram of a reference gas. The reference gas used is CO₂;



therefore, GWP-weighted emissions are measured in metric tons (MT) of CO₂ equivalent (CO₂e) and MT CO₂e is used as a common unit for measuring GHG emissions.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 Intergovernmental Panel on Climate Change Synthesis Report indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, rising sea levels, and ocean acidification.

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. Reflecting the long-term warming trend since pre-industrial times, observed global mean surface temperature for the decade 2006–2015 was 0.87 degree Celsius (°C) (likely between 0.75°C and 0.99°C) higher than the average over the 1850–1900 period. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Human activities are estimated to have caused approximately 1.0°C (1.8 degree Fahrenheit [°F]) of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C (1.4°F to 2.2°F). Global warming is likely to reach 1.5°C (2.7°F) between 2030 and 2052 if it continues to increase at the current rate.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The OEHHA identified various indicators of climate change in California, which are scientifically based measurements that track trends in various aspects of climate change. Many indicators reveal discernable evidence that climate change is occurring in California and is having significant, measurable impacts in the state. Changes in the state's climate have been observed, including an increase in annual average air temperature with record warmth from 2012 to 2016, more frequent extreme heat events, more extreme drought, a decline in winter chill, and an increase in variability of statewide precipitation.

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers and snowpack—upon which the state depends. Winter snowpack and spring snowmelt runoff from the Sierra Nevada and southern Cascade Mountains provide approximately one-third of the state's annual water supply. Impacts of climate on physical systems have been observed, such as high variability of snow-water content (i.e., amount of water stored in snowpack), decrease in snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters.

Impacts of climate change on biological systems, including humans, wildlife, and vegetation, have also been observed, including climate change impacts on terrestrial, marine, and freshwater ecosystems. As with global observations, species responses include those consistent with warming: elevational or latitudinal shifts in range, changes in the timing of key plant and animal life cycle events, and changes in the abundance of species and in community composition.



Humans are better able to adapt to a changing climate than plants and animals in natural ecosystems. Nevertheless, climate change poses a threat to public health as warming temperatures and changes in precipitation can affect vector-borne pathogen transmission and disease patterns in California, as well as the variability of heat-related deaths and illnesses. In addition, since 1950, the area burned by wildfires each year has been generally increasing.

The California Natural Resource Agency has released four California Climate Change Assessments (2006, 2009, 2012, and 2018), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming. To address local and regional governments need for information to support action in their communities, the Fourth Assessment (2018) includes reports for nine regions of the state, including the Sierra Nevada region, where the project is located. Key projected climate changes for the Sierra Nevada region include the following:

- Climate change is already underway in the Sierra Nevada region, affecting heat and precipitation extremes, with long-term warming trends, declining snowpacks, and changes in streamflow timing. The observed and ongoing trends foreshadow larger changes to come. By the end of the twenty-first century, temperatures in the Sierra Nevada are projected to warm by 6 to 9°F on average, enough to raise the transition from rain to snow during a storm by about 1,500 to 3,000 feet. In contrast, future precipitation is predicted to vary less than temperature; long-term changes may be no more than ±10-15 percent of current totals. However, precipitation extremes (both as deluge and drought) are expected to increase markedly under climate change. Such climatic changes will depend on and reflect many factors, including elevation within the mountain range, with quicker warming trends and precipitation changes at highest elevations.
- As a result of projected warming, Sierra Nevada snowpacks will likely be eradicated below about 6,000 feet elevation and will be much reduced by more than 60 percent across nearly all of the range.
- The loss of snowpack will combine to dry soils 15 to 40 percent below historical norms, depending on elevations. The result will be reduced soil and vegetation moisture; changes in rivers and lakes; and ultimately stresses on flora and fauna. Loss of snowpack and overall drying will lead to increased winter streamflows and floods, and to (largely compensating) reductions in spring and summer streamflows.

The Fourth Climate Change Assessment for the Sierra Nevada Region also provides a framework for adaptation that considers several major vulnerabilities and arenas for climate-change adaptation in the Sierra Nevada Region. Principally, a recommended strategy for developing adaptation options includes (1) understanding historical trends, (2) identifying vulnerabilities, (3) developing strategies, and (4) monitoring results. The three main categories of focus are ecosystems and wildlife, water resources, and human communities. Not all strategies seek to completely avoid climate-change impacts. Four categories of adaptation, in order of increasing intervention, are efforts to support resistance (trying to ward off climate-change impacts), resilience (increasing the capacity of systems to absorb and bounce back from climate changes), orderly response (assisting transitions to avoid at least the most undesired outcomes), and realignment (facilitating major transitions to the most desirable new conditions) to the new climate-changed environment that is coming.



Existing Emissions

The project sites contain the historic Idaho-Maryland Mine; however, as noted in Chapter 3, Project Description of this EIR, the sites are mostly unused, with the exception of wood donation activities occurring at the Brunswick Industrial Site. Thus, activities that result in substantial amounts of criteria pollutant emissions or emissions of GHGs at the project sites currently do not exist. Although the sites are not considered a substantial source of emissions, it should be noted that portions of both sites contain vegetation including trees. Trees and vegetation take in CO₂ through photosynthesis, which results in a process known as carbon sequestration. Carbon sequestration is the process by which CO₂ is removed from the atmosphere and deposited into a carbon reservoir (e.g., vegetation). For the purposes of this analysis, the carbon sequestration occurring in 18.7 acres of forested area within the Brunswick Industrial Site and 5.3 acres within the Centennial Industrial Site was quantified. Forested areas may exist on additional portions of the project sites, but the quantification presented herein is focused on those areas of the project sites that would be affected by implementation of the project. Based on standardized default values for carbon sequestration in forest vegetation, the 24 acres of forestland is assumed to sequester approximately 2,664 MT CO₂e in total over 80 years.¹⁰

Energy

California is one of the highest energy demanding states within the nation. Activities such as heating and cooling structures, lighting, the movement of goods, agricultural production, and countless other facets of daily life consume a variety of energy sources. Energy within the state is provided primarily by the combustion of fossil fuels such as natural gas, motor gasoline, diesel, jet fuel, and, to a lesser extent, coal. In addition to the fossil fuel-based energy sources, the state is ranked second in the nation in renewable energy generation, which includes solar, geothermal, wind, and biomass resources. In fact, California leads the nation in solar thermal electricity capacity, with 73 percent of the nation's total solar thermal capacity installed within the state.¹¹

Figure 4.3-1 presents energy consumption within California for the most recent year for which data is available, 2018. As shown in Figure 4.3-1, transportation-related activity consumes the largest single share of energy within the State. Within the transportation sector, motor gasoline is the dominate form of energy, with jet fuel, diesel, natural gas, and electricity supplying the remaining portions of California's transportation sector energy demand. However, when considered together, energy demand from the built-environment including the residential, commercial, and industrial sectors, represents the greatest share of total state-wide energy demand.

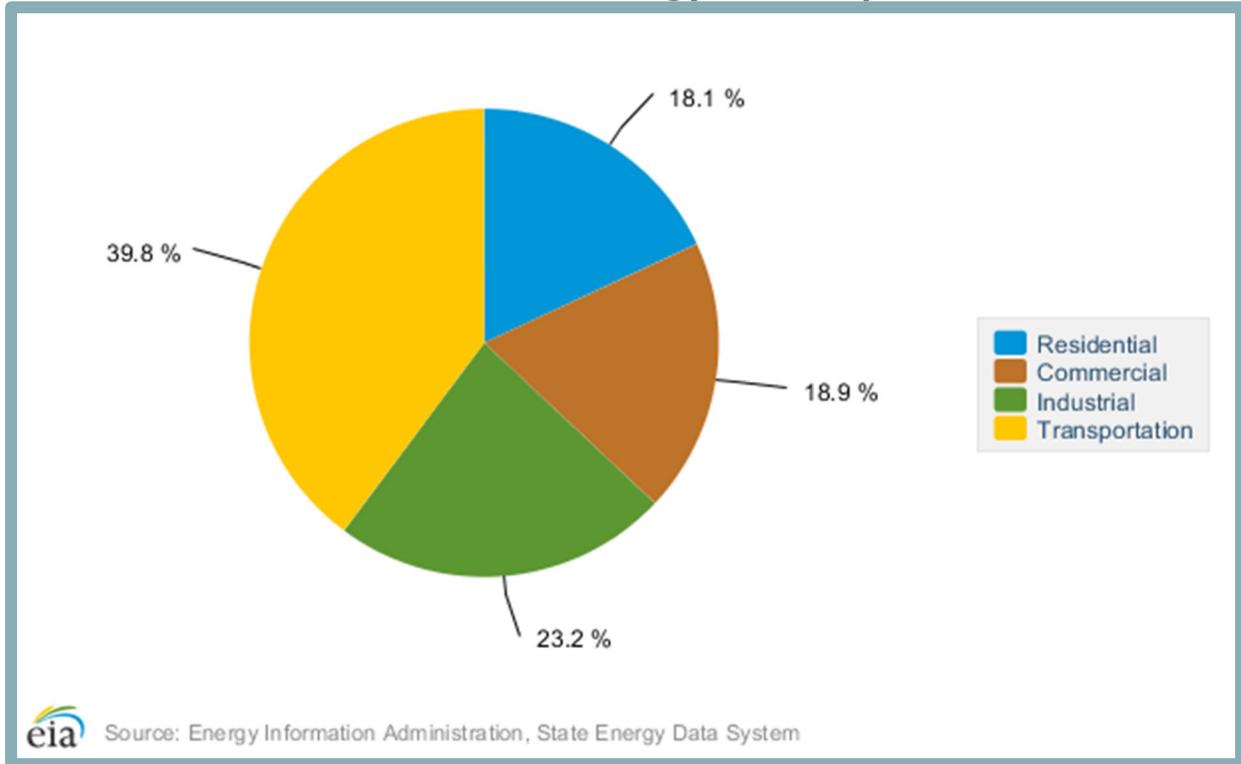
Electricity is provided to California consumers through a mix of sources including natural gas, hydroelectric, non-hydroelectric renewable sources, nuclear, coal, and petroleum. Of the foregoing sources of electricity, natural gas provided the greatest amount of electricity at approximately 45 percent of California's statewide supply in 2018. Meanwhile, non-hydroelectric based sources of renewable energy provided an additional 35 percent of the state's energy, with hydroelectric and nuclear providing nine and 11 percent, respectively. Coal contributed less than 0.2 percent of the State's total electricity supply.

¹⁰ California Air Pollution Control Officers Association. *Appendix A: Calculation Details for CalEEMod* [pg 59]. October 2017.

¹¹ U.S. Energy Information Administration. *California: State Profile and Energy Estimates*. Available at: <https://www.eia.gov/state/index.php?sid=CA>. Accessed December 2020.



**Figure 4.3-1
2018 California Energy Consumption**



Source: U.S. Energy Information Administration. *California: State Profile and Energy Estimates*. Accessible at: <https://www.eia.gov/state/index.php?sid=CA>. Accessed December 2020.

The foregoing sources of electricity supply provided for the consumption of a statewide total of 13,103 gigawatt hours (GWh) in the year 2018.¹² Of the total electricity supplied to the State in 2018, Nevada County consumed approximately 713.89 GWh, which constitutes approximately 5.4 percent of the total energy consumed within the State.¹³

California residents and businesses consume petroleum products for various purposes including on-road vehicles, off-road equipment, and air travel. In 2018, 49 percent of all petroleum products consumed within California consisted of motor gasoline. The second largest demand on petroleum products is jet fuel, which represents 19 percent of the petroleum products consumed, while distillate fuel oils, which includes diesel fuel, represents 16 percent of the total petroleum products demanded within the state.¹⁴

Energy Consumption at the Project Sites

During previous periods of mining at the project sites, energy would have been demanded by off-road equipment, lighting, facilities, ore processing, material transport, and transportation of employees. Types of energy demanded during past activities would have included gasoline and

¹² U.S. Energy Information Administration. *California Net Electricity Generation by Source*. Available at: <https://www.eia.gov/state/index.php?sid=CA#tabs-4>. Accessed December 2020.

¹³ California Energy Commission. *Electricity Consumption by County*. Available at: <http://ecdms.energy.ca.gov/electbycounty.aspx>. Accessed December 2020.

¹⁴ U.S. Energy Information Administration. *California: State Profile and Energy Estimates*. Available at: <https://www.eia.gov/state/index.php?sid=CA>. Accessed December 2020.



diesel fuel for on- and off-road vehicles and off-road equipment, as well as electricity for lighting and facilities. Demand for energy at the sites ceased with cessation of mining and dewatering activities, except for the period of time during which the Bohemia Mill operated on the Brunswick Industrial Site. Consequently, the sites do not currently result in energy demand.

4.3.3 REGULATORY CONTEXT

Air quality, GHG emissions, and energy are monitored and regulated through the efforts of various international, federal, State, and local government agencies. Agencies work jointly and individually to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for regulating and improving the air quality within the project area, monitoring or reducing GHG emissions, and monitoring or reducing energy consumption are discussed below. Although significant overlap exists within the regulatory environment for air quality, GHG emissions, and energy, the following discussion presents regulations primarily focused on air quality, GHG, and energy separately to the extent feasible.

Federal Regulations Related to Air Quality

The following are the federal regulations relevant to air quality.

Criteria Pollutants

The FCAA, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The USEPA is responsible for implementing most aspects of the FCAA, including setting NAAQS for major air pollutants; setting hazardous air pollutant standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O₃ protection measures, and enforcement provisions. Under the FCAA, NAAQS are established for the following criteria pollutants: O₃, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O₃, NO₂, SO₂, PM₁₀, PM_{2.5}, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O₃, NO₂, SO₂, PM₁₀, PM_{2.5} are based on statistical calculations over one- to three-year periods, depending on the pollutant. The FCAA requires the USEPA to reassess the NAAQS at least every five years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State implementation plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

The USEPA has established New Source Performance Standards (NSPS) for specific stationary sources in order to limit the emissions of criteria air pollutants. The project would be required to comply with all applicable NSPS, which may include:

- **Metallic Mineral Processing Plants (40 Code of Federal Regulations [CFR] Part 60 Subpart LL):** This NSPS specifies stack emission limits and compliance requirements to limit particulate matter. The provisions of this subpart are applicable to the following affected facilities in metallic mineral processing plants: Each crusher and screen in open-pit mines; each crusher, screen, bucket elevator, conveyor belt transfer point, thermal dryer, product packaging station, storage bin, enclosed storage area, truck loading station, truck unloading station, railcar loading station, and railcar unloading station at the mill or



concentrator with the following exceptions. All facilities located in underground mines are exempted from the provisions of this subpart.

- Nonmetallic Mineral Processing Plants (40 CFR Part 60 Subpart OOO): The provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart. The provisions of this subpart do not apply to the following operations: all facilities located in underground mines; plants without crushers or grinding mills above ground; and wet material processing operations. This NSPS specifies stack emission limits and compliance requirements to limit particulate matter.
- Calciners and Dryers in Mineral Industries (40 CFR Part 60 Subpart UUU): The affected facility to which the provisions of this subpart apply is each calciner and dryer at a mineral processing plant. Feed and product conveyors are not considered part of the affected facility. Notably, an affected facility that is subject to the provisions of subpart LL, Metallic Mineral Processing Plants, is not subject to the provisions of this subpart. This NSPS also specifies stack emission limits and compliance requirements to limit particulate matter.
- Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart IIII): The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE). This NSPS establishes criteria air pollutant exhaust limits for CI and ICE based on the model year and power of the engine.

Hazardous Air Pollutants

The 1977 FCAA amendments required the USEPA to identify national emission standards for hazardous air pollutants to protect public health and welfare. Hazardous air pollutants include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 FCAA Amendments, which expanded the control program for hazardous air pollutants, 189 substances and chemical families were identified as hazardous air pollutants.

Asbestos was one of the first hazardous air pollutants regulated under the air toxics program. Of particular importance for the project, the Mine Safety and Health Administration (MSHA) established asbestos regulations that specify exposure limits, engineering controls, and respiratory protection measures for workers in underground mines (30 CFR Part 56, Subpart D). For example, the permissible exposure limits (PELs) include 1) full-shift limit – a miner’s personal exposure to asbestos shall not exceed an eight-hour time-weighted average full-shift airborne concentration of 0.1 fiber per cubic centimeter of air; and 2) excursion limit – no miner shall be exposed at any time to airborne concentrations of asbestos in excess of one fiber per cubic centimeter of air as averaged over a sampling period of 30 minutes.

Federal Regulations Related to GHGs

The following are the federal regulations relevant to GHGs.

Federal Vehicle Standards

In 2007, in response to the *Massachusetts v. EPA* U.S. Supreme Court ruling, the Bush Administration issued Executive Order (EO) 13432 directing the USEPA, the Department of



Transportation (DOT), and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Transportation Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the USEPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016 (75 FR 25324–25728).

In 2010, President Obama issued a memorandum directing the DOT, Department of Energy, USEPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the USEPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards were projected to achieve emission rates as low as 163 grams per mile of CO₂ by model year 2025 on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if the foregoing emissions level was achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021 (77 FR 62624–63200), and NHTSA intended to set standards for model years 2022–2025 in future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the USEPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO₂ emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the USEPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by six to 23 percent over the 2010 baselines (76 FR 57106–57513).

In August 2016, the USEPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program would have applied to vehicles with model years 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types of sizes of buses and work trucks. The final standards were expected to lower CO₂ emissions by approximately 1.1 billion MT, and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program.

In August 2018, the USEPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new, less-stringent standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards that were previously in place, the 2018 proposal would increase U.S. fuel consumption by approximately 0.5 million barrels per day (two-three percent of total daily consumption, according to the Energy Information Administration), and would impact the global climate by 3/1000th of 1°C by 2100. California and other states stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures, and committed to cooperating with other countries to implement global climate change initiatives.

On September 27, 2019, the USEPA and NHTSA published the “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program” (84 FR 51,310), which became effective November 26, 2019. The Part One Rule revokes California’s authority to set its own GHG emissions standards and set zero-emission-vehicle mandates in California. On March 31, 2020, the USEPA and NHTSA issued the Part Two Rule, which sets CO₂ emissions standards and corporate average fuel economy standards for passenger vehicles and light-duty trucks for model



years 2021 through 2026. On January 20, 2021, President Joe Biden issued an Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, which includes review of Part One Rule by April 2021 and review of the Part Two Rule by July 2021. Implementation of both rules will be determined by the results of these reviews.

Federal Regulations Related to Energy

The following are the federal regulations relevant to energy.

Energy Policy and Conservation Act

The Energy Policy and Conservation Act was originally enacted in 1975 with the intention of ensuring that all vehicles sold in the U.S. meet established fuel economy standards. Following congressional establishment of the original set of fuel economy standards the U.S. DOT was tasked with establishing additional on-road vehicle standards and making revisions to standards as necessary. Compliance with established standards is based on manufacturer fleet average fuel economy, which originally applied to both passenger cars and light trucks but did not apply to heavy-duty vehicles exceeding 8,500 pounds in gross vehicle weight. The fuel economy program implemented under the Energy Policy and Conservation Act is known as the Corporate Average Fuel Economy (CAFE) Standards. Updates to the CAFE standards since original implementation have increased fuel economy requirements and begun regulation of medium- and heavy-duty vehicles.

Energy Policy Act of 2005

The Energy Policy Act of 2005 addressed energy production in the U.S. from various sources. In particular, the Energy Policy Act of 2005 included tax credits, loans, and grants for the implementation of energy systems that would reduce GHG emissions related to energy production.

State Regulations Related to Air Quality

The following are applicable State regulations related to air quality. Only the most prominent and applicable California air quality-related legislation is included below; however, an exhaustive list and extensive details of California air quality legislation can be found at the CARB website (<http://www.arb.ca.gov/html/lawsregs.htm>).

Criteria Air Pollutants

The FCAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the CCAA of 1988, responding to the FCAA, and regulating emissions from motor vehicles and consumer products.

CARB has established CAAQS, which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered “in attainment” if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O₃, CO, SO₂ (one-hour and 24-hour), NO₂, PM₁₀, PM_{2.5}, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 4.3-2.



TACs

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner), and involved definition of a list of TACs. The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) Hazardous Air Pollutants. In 1987, the Legislature enacted the Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over five years. TAC emissions from individual facilities are quantified and prioritized. “High-priority” facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

Air Quality and Land Use Handbook

CARB’s *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB Handbook) addresses the importance of considering health risk issues when siting sensitive land uses, including residential development, in the vicinity of intensive air pollutant emission sources including freeways or high-traffic roads, distribution centers, ports, petroleum refineries, chrome plating operations, dry cleaners, and gasoline dispensing facilities.¹⁵ The CARB Handbook draws upon studies evaluating the health effects of traffic traveling on major interstate highways in metropolitan California centers within Los Angeles (Interstate-405 and Interstate-710), the San Francisco Bay, and San Diego areas. The recommendations identified by CARB, including siting residential uses a minimum distance of 500 feet from freeways or other high-traffic roadways, are consistent with those adopted by the State of California for location of new schools. Specifically, the CARB Handbook recommends, “Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day”.¹⁶

Importantly, the Introduction chapter of the CARB Handbook clarifies that the guidelines are strictly advisory, recognizing that: “[I]and use decisions are a local government responsibility. The Air Resources Board Handbook is advisory and these recommendations do not establish regulatory standards of any kind.” CARB recognizes that there may be land use objectives as well as meteorological and other site-specific conditions that need to be considered by a governmental jurisdiction relative to the general recommended setbacks, specifically stating, “[t]hese recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues”.¹⁷

DPM

In 2000, CARB approved a comprehensive diesel risk reduction plan to reduce diesel emissions from new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80 percent decrease in statewide diesel health risk by 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy

¹⁵ California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

¹⁶ *Ibid.*

¹⁷ *Ibid.*



Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. The aforementioned regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Several Airborne Toxic Control Measures (ATCMs) exist that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

Asbestos

Asbestos is strictly regulated due to the serious adverse health effects resulting from exposure, including asbestosis and lung cancer, and based on the natural widespread occurrence of asbestos and the use of asbestos as a building material. CARB has established two ATCMs for naturally occurring asbestos. The first asbestos ATCM applies to Surfacing Applications (i.e., restricts the content of asbestos material used in surfacing applications, such as unpaved roads and parking lots), and the second asbestos ATCM is for Construction, Grading, Quarrying and Surface Mining Operations (i.e., requires implementation of mitigation measures to minimize asbestos-laden dust during the namesake activities). The ATCMs are presented within 17 CCR 93105 for construction, grading, quarrying and surface mining, and 17 CCR 93106 for surfacing applications.

Pursuant to the ATCM for Surfacing Applications, unless one of the exemptions detailed in the ATCM applies, no person shall use, apply, sell, supply, or offer for sale or supply any restricted material for surfacing, unless the material has been tested using an approved asbestos bulk test method and determined to have an asbestos content that is less than 0.25 percent. As defined in this ATCM, “restricted material” means any of the following:

1. Aggregate material extracted from property where any portion of the property is located in a geographic ultramafic rock unit;
2. Aggregate material extracted from property that is NOT located in a geographic ultramafic rock unit if the material has been:
 - a. Evaluated at the request of the Air Pollution Control Officer and determined to be ultramafic rock or serpentine;
 - b. Tested at the request of the Air Pollution Control Officer and determined to have an asbestos content of 0.25 percent or greater; or
 - c. Determined by the owner/operator of a facility to be ultramafic rock, serpentine, or aggregate material that has an asbestos content of 0.25 percent or greater; and
3. Any mixture of aggregate material that contains 10 percent or more of any of the materials listed above, or any combination thereof, shall also be considered “restricted material.”

Pursuant to the ATCM for Construction, Grading, Quarrying and Surface Mining Operations, an Asbestos Dust Mitigation Plan (ADMP) is required for any project with greater than one acre of surface disturbance if any portion of the area to be disturbed is mapped as having serpentine or ultramafic rock, or if any portion of the area to be disturbed has naturally occurring asbestos as determined by the owner/operator or the Air Pollution Control Officer. The ADMP, which must include dust mitigation practices that are sufficient to ensure that equipment and/or operation do not emit dust that is visible crossing the property line, would be required to be submitted to and approved by the local air district before any clearing, grading, or construction begins.



California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that a person must not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. Section 41700 also applies to sources of objectionable odors.

Heavy-Duty Vehicle Idling Emission Reduction Program

On October 20, 2005, CARB approved a regulatory measure to reduce emissions of toxics and criteria pollutants by limiting idling of new and in-use sleeper berth equipped diesel trucks.¹⁸ The regulation established new engine and in-use truck requirements and emission performance requirements for technologies used as alternatives to idling the truck's main engine. For example, the regulation requires 2008 and newer model year heavy-duty diesel engines to be equipped with a non-programmable engine shutdown system that automatically shuts down the engine after five minutes of idling, or optionally meet a stringent NO_x emission standard. The regulation also requires operators of both in-state and out-of-state registered sleeper berth equipped trucks to manually shut down their engine when idling more than five minutes at any location within California. Emission producing alternative technologies such as diesel-fueled auxiliary power systems and fuel-fired heaters are also required to meet emission performance requirements that ensure emissions are not exceeding the emissions of a truck engine operating at idle.

In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, CARB adopted a regulation to reduce DPM and NO_x emissions from in-use (existing), off-road, heavy-duty diesel vehicles in California.¹⁹ Such vehicles are used in construction, mining, and industrial operations. The regulation is designed to reduce harmful emissions from vehicles by subjecting fleet owners to retrofit or accelerated replacement/repower requirements, imposing idling limitations on owners, operators, renters, or lessees of off-road diesel vehicles. The idling limits require operators of applicable off-road vehicles (self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on-road) to limit idling to less than five minutes. The idling requirements are specified in Title 13 of the CCR.

State Regulations Related to GHGs

The statewide GHG emissions regulatory framework is summarized below. The following text describes executive orders, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

California has taken a number of actions to address climate change. These include executive orders, legislation, and CARB plans and requirements, which are summarized below.

¹⁸ California Air Resources Board. *Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling*. October 24, 2013. Available at: <http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm>. Accessed December 2020.

¹⁹ California Air Resources Board. *In-Use Off-Road Diesel Vehicle Regulation*. December 10, 2014. Available at: <http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm>. Accessed December 2020.



EO S-3-05

EO S-3-05 (June 2005) established California's GHG emissions reduction targets and laid out responsibilities among the state agencies for implementing the EO and for reporting on progress toward the targets. The EO established the following targets:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

EO S-3-05 also directed the California EPA to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued reports from 2006 to 2010.

AB 32

In furtherance of the goals established in EO S-3-05, the Legislature enacted AB 32 (Núñez and Pavley). The bill is referred to as the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 provided initial direction on creating a comprehensive, multiyear program to limit California's GHG emissions at 1990 levels by 2020, and initiate the transformations required to achieve the state's long-range climate objectives.

EO B-18-12

EO B-18-12 (April 2012) directed state agencies, departments, and other entities under the governor's executive authority to take action to reduce entity-wide GHG emissions by at least 10 percent by 2015 and 20 percent by 2020, as measured against a 2010 baseline. EO B-18-12 also established goals for existing state buildings for reducing grid-based energy purchases and water use.

EO B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80 percent below 1990 levels by 2050 as set forth in EO S-3-05. To facilitate achieving this goal, EO B-30-15 called for an update to the CARB's Climate Change Scoping Plan: A Framework for Change (Scoping Plan) to express the 2030 target in terms of million metric tons (MMT) CO₂e. The EO called for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets.

Senate Bill (SB) 32 and AB 197

SB 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to the Board as nonvoting members; requires CARB to make available and update (at least annually via the CARB's website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and



requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

CARB's 2007 Statewide Limit on GHG Emissions

In 2007, in accordance with California Health and Safety Code Section 38550, CARB approved a statewide limit on GHG emissions by 2020, consistent with the determined 1990 baseline (427 MMT CO_{2e}).

CARB's Climate Change Scoping Plan

One specific requirement of AB 32 is for CARB to prepare a “scoping plan” for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (Health and Safety Code Section 38561[a]), and to update the Scoping Plan at least once every five years. In 2008, CARB approved the first Scoping Plan. The Climate Change Scoping Plan: A Framework for Change (Scoping Plan) included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state’s long-range climate objectives. The key elements of the Scoping Plan include the following:

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
2. Achieving a statewide renewable energy mix of 33 percent;
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California’s GHG emissions;
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
5. Adopting and implementing measures pursuant to existing state laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard (LCFS) (17 CCR, Section 95480 et seq.); and
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California’s long-term commitment to AB 32 implementation.

The Scoping Plan also identified local governments as essential partners in achieving California’s goals to reduce GHG emissions because they have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Specifically, the Scoping Plan encouraged local governments to adopt a reduction goal for municipal operations and for community emissions to reduce GHGs by approximately 15 percent from then levels (2008) by 2020. Many local governments developed community-scale local GHG reduction plans based on this Scoping Plan recommendation.

In 2014, CARB approved the first update to the Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (First Update) defined the state’s GHG emission reduction priorities for the next five years and laid the groundwork to start the transition to the post-2020 goals set forth in EO S-3-05 and EO B-16-2012. The First Update concluded that California is on track to meet the 2020 target but recommended a 2030 mid-term GHG reduction target be established to ensure a continuation of action to reduce emissions. The First



Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050, including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent GWPs identified by the Intergovernmental Panel on Climate Change, from 427 MMT CO₂e to 431 MMT CO₂e.

In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030 target of 40 percent below 1990 levels by 2030 to keep California on a trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80 percent below 1990 levels by 2050, as set forth in EO S-3-05. Governor Jerry Brown called on California to pursue a new and ambitious set of strategies, in line with the five climate change pillars from his inaugural address, to reduce GHG emissions and prepare for the unavoidable impacts of climate change. In summer 2016, the Legislature affirmed the importance of addressing climate change through passage of SB 32 (Pavley, Chapter 249, Statutes of 2016).

In December 2017, CARB adopted California's 2017 Climate Change Scoping Plan (2017 Scoping Plan) for public review and comment. The 2017 Scoping Plan builds on the successful framework established in the initial Scoping Plan and First Update while identifying new, technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target as established by SB 32 and define the state's climate change priorities to 2030 and beyond. Strategies within the 2017 Scoping Plan include implementing renewable energy and energy efficiency measures (including the mandates of SB 350), increased stringency of the LCFS, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant (SLCP) Plan, and increased stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, the 2017 Scoping Plan recommends continuing the Cap-and-Trade Program and a measure to reduce GHGs from refineries by 20 percent.

For local governments, the 2017 Scoping Plan replaced the initial Scoping Plan's 15 percent reduction goal with a recommendation to aim for a community-wide goal of no more than six MT CO₂e per capita by 2030, and no more than two MT CO₂e per capita by 2050, which are consistent with the State's long-term goals. Such goals are also consistent with the Under 2 Memorandum of Understanding (Under 2 Coalition 2019) and the Paris Agreement, which were developed around the scientifically based levels necessary to limit global warming to below an increase of 2°C. The 2017 Scoping Plan recognized the benefits of local government GHG planning (e.g., through Climate Action Plans [CAPs]) and provide more information regarding tools CARB is working on to support those efforts. The 2017 Scoping Plan also recognizes the CEQA streamlining provisions for project-level review where there is a legally adequate CAP.²⁰

When discussing project-level GHG emissions reduction actions and thresholds in the context of CEQA, the 2017 Scoping Plan states that "achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development" for project-level CEQA analysis, but also recognizes that such a standard may not

²⁰ *Sierra Club v. County of Napa* (2004) 121 Cal.App.4th 1490; *San Francisco Tomorrow et al. v. City and County of San Francisco* (2015) 229 Cal.App.4th 498; *San Franciscans Upholding the Downtown Specific Plan v. City & County of San Francisco* (2002) 102 Cal.App.4th 656; *Sequoyah Hills Homeowners Assn. V. City of Oakland* (1993) 23 Cal.App.4th 704, 719.



be appropriate or feasible for every development project. The 2017 Scoping Plan further provides that “the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA.”

CARB’s Regulations for the Mandatory Reporting of GHG Emissions

CARB’s Regulation for the Mandatory Reporting of GHG Emissions (17 CCR 95100–95157) incorporated by reference certain requirements that the USEPA promulgated in its Final Rule on Mandatory Reporting of GHGs (40 CFR Part 98). Specifically, Section 95100(c) of the Mandatory Reporting Regulation incorporated those requirements that the USEPA promulgated in the Federal Register on October 30, 2009; July 12, 2010; September 22, 2010; October 28, 2010; November 30, 2010; December 17, 2010; and April 25, 2011. In general, entities subject to the Mandatory Reporting Regulation that emit more than 10,000 MT CO₂e per year are required to report annual GHGs through the California Electronic GHG Reporting Tool. Certain sectors, such as refineries and cement plants, are required to report regardless of emission levels. Entities that emit more than the 25,000 MT CO₂e per year threshold are required to have their GHG emission report verified by a CARB-accredited third party.

SB 605 and SB 1383

SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of SLCPs in the state, and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40 percent below 2013 levels by 2030 for CH₄ and HFCs, and 50 percent below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, CARB adopted its SLCP Reduction Strategy in March 2017. The SLCP Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, CH₄, and fluorinated gases.

EO B-55-18

EO B-55-18 (September 2018) establishes a statewide policy for California to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net-negative emissions thereafter. The goal is an addition to the existing statewide targets of reducing the state’s GHG emissions. CARB will work with relevant state agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

Mobile Sources

The following regulations relate to the control of emissions from mobile sources. Mobile sources include both on-road vehicles and off-road equipment.

AB 1493

AB 1493 (Pavley) (July 2002) was enacted in response to the transportation sector accounting for more than half of California’s CO₂ emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards would result in a reduction of approximately 22 percent of GHG emissions compared to the emissions from the 2002 fleet, and the mid-term (2013–2016) standards would result in a reduction of approximately 30 percent. However, as



described within the Federal Vehicle Regulations section above, the USEPA's SAFE Vehicles Rule Part One, adopted in November 2019, revokes California's authority to set GHG emissions standards. As the EPA rule is the subject of pending legal challenges and President Biden issued an EO to review Part One and Part Two, the analysis within this EIR uses the best available information at this time, as set forth in CARB's EMFAC.

Heavy-Duty Diesel Truck and Bus Regulation

CARB adopted the final Heavy-Duty Truck and Bus Regulation, Title 13, Division 3, Chapter 1, Section 2025, on December 31, 2014, to reduce DPM (black carbon) and NO_x emissions from heavy-duty diesel vehicles. The rule requires DPM filters be applied to newer heavier trucks and buses by January 1, 2012, with older vehicles required to comply by January 1, 2015. The rule requires nearly all diesel trucks and buses to be compliant with the 2010 model year engine requirement by January 1, 2023. CARB also adopted an ATCM to limit idling of diesel-fueled commercial vehicles on December 12, 2013. This rule requires diesel-fueled vehicles with gross vehicle weights greater than 10,000 pounds to idle no more than five minutes at any location (13 CCR 2485).

EO S-1-07

EO S-1-07 (January 2007, implementing regulation adopted in April 2009) set a declining LCFS for GHG emissions measured in CO₂e grams per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020 (17 CCR 95480 et seq.). Carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered.

SB 375

SB 375 (Steinberg) (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035, and to update those targets every eight years. SB 375 requires the state's 18 regional metropolitan planning organizations to prepare a sustainable communities strategy as part of their Regional Transportation Plans that will achieve the GHG reduction targets set by CARB. If a metropolitan planning organization is unable to devise a sustainable communities strategy to achieve the GHG reduction target, the metropolitan planning organization must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to California Government Code Section 65080(b)(2)(K), a sustainable communities strategy does not (1) regulate the use of land, (2) supersede the land use authority of cities and counties, or (3) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with the sustainable community strategy. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

Advanced Clean Cars Program and Zero-Emissions Vehicle Program

The Advanced Clean Cars program (January 2012) is an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing



pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. By 2025, implementation of the rule is anticipated to reduce emissions of smog-forming pollution from cars by 75 percent compared to the average new car sold in 2015. To reduce GHG emissions, CARB, in conjunction with the USEPA and NHTSA, adopted GHG standards for model year 2017 to 2025 vehicles; the standards were estimated to reduce GHG emissions by 34 percent by 2025. The zero-emissions vehicle program acts as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of zero-emissions vehicles and plug-in hybrid electric vehicles in the 2018 to 2025 model years. However, implementation of the Advanced Clean Cars program is contingent upon the outcome of the on-going SAFE Vehicles Rule litigation.

EO B-16-12

EO B-16-12 (March 2012) required that state entities under the governor's direction and control support and facilitate the rapid commercialization of zero-emissions vehicles. The order directed CARB, California Energy Commission (CEC), California Public Utilities Commission (CPUC), and other relevant agencies to work with the Plug-In Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 established a target reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare.

AB 1236

AB 1236 (October 2015) (Chiu) required a city, county, or city and county to approve an application for the installation of electric-vehicle charging stations, as defined, through the issuance of specified permits unless the city or county makes specified written findings based on substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provided for appeal of that decision to the planning commission, as specified. AB 1236 required electric-vehicle charging stations to meet specified standards. The bill required a city, county, or city and county with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that created an expedited and streamlined permitting process for electric-vehicle charging stations. The bill also required a city, county, or city and county with a population of less than 200,000 residents to adopt this ordinance by September 30, 2017.

Advanced Clean Trucks Regulation

The Advanced Clean Trucks (ACT) Regulation was approved by CARB in 2020. The purpose of the ACT Regulation is to accelerate the market for zero-emission vehicles in the medium- and heavy-duty truck sector and to reduce air pollutant emissions generated from on-road mobile sources (CARB 2021). The regulation has two components including (1) a manufacturer sales requirement and (2) a reporting requirement:

1. Zero-emission truck sales: Manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines will be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-



emission truck/chassis sales would need to be 55 percent of Class 2b – 3 truck sales, 75 percent of Class 4 – 8 straight truck sales, and 40 percent of truck tractor sales.

2. Company and fleet reporting: Large employers including retailers, manufacturers, brokers and others will be required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, will be required to report about their existing fleet operations. This information will help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

EO N-79-20

EO N-79-20 (September 2020) establishes a Statewide goal that 100 percent of in-state vehicle sales of new passenger cars and trucks shall be zero-emission by the year 2035. The order directed the CARB to develop and propose passenger vehicle and truck regulations requiring increasing volumes of new zero-emission vehicles sold in the State in order to achieve the goal by 2035. In addition, the order required that a Zero-Emissions Vehicle Market Development Strategy be created and updated to ensure coordinated and expeditious implementation of the EO.

Water

The following regulations relate to the conservation of water, which reduces GHG emissions related to electricity demands from the treatment and transportation of water.

EO B-29-15

In response to a drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives subsequently became permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency, and broadens the applicability of the ordinance to include new development projects with smaller landscape areas.

EO B-37-16

Issued in May 2016, EO B-37-16 directed the State Water Resources Control Board (SWRCB) to adjust emergency water conservation regulations through the end of January 2017 to reflect differing water supply conditions across the state. The SWRCB also developed a proposal to achieve a mandatory reduction of potable urban water usage that builds off the mandatory 25 percent reduction called for in EO B-29-15. The SWRCB and Department of Water Resources were directed to develop new, permanent water use targets that build upon the existing state law requirements that the state achieve 20 percent reduction in urban water usage by 2020. EO B-37-16 also specifies that the SWRCB permanently prohibit water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; using non-recirculated water in a fountain or other decorative water feature; watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and irrigating ornamental turf on public street medians.



EO B-40-17

EO B-40-17 (April 2017) lifted the drought emergency in all California counties except Fresno, Kings, Tulare, and Tuolumne. It also rescinded EO B-29-15, but expressly stated that EO B-37-16 remains in effect and directed the SWRCB to continue development of permanent prohibitions on wasteful water use.

Solid Waste

The following regulations relate to the generation of solid waste and means to reduce GHG emissions from solid waste produced within the state.

AB 939, AB 341, and AB 1826

In 1989, AB 939, known as the Integrated Waste Management Act (PRC Sections 40000 et seq.), was passed because of the observed increase in waste stream and the decrease in landfill capacity. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25 percent by 1995 and 50 percent by the year 2000.

AB 341 (Chapter 476, Statutes of 2011 [Chesbro]) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. AB 1826 (Chapter 727, Statutes of 2014, effective 2016) requires businesses to recycle their organic waste (i.e., food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste) depending on the amount of waste they generate per week.

Other State Actions

The following regulations relate to regulations of GHG emissions broadly.

SB 97

SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Governor's Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities. The advisory further recommended that the lead agency determine the significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The California Natural Resource Agency (CRNA) adopted the CEQA Guidelines amendments in December 2009, and the amended CEQA Guidelines became effective in March 2010.

Under the amended CEQA Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis, or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4[a]). The CEQA Guidelines require a lead agency to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, instead



allowing a lead agency to develop, adopt, and apply the lead agency's own thresholds of significance or those developed by other agencies or experts. CNRA acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions.

With respect to GHG emissions, the CEQA Guidelines state that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions (14 CCR 15064.4[a]). The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance based standards" (14 CCR 15064.4[a]). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent to which a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]).

EO S-13-08

EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009, and an update, *Safeguarding California: Reducing Climate Risk*, followed in July 2014. To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. Issuance of the *Safeguarding California: Implementation Action Plans* followed in March 2016. In January 2018, the CNRA released the *Safeguarding California Plan: 2018 Update*, which communicates current and needed actions that state government should take to build climate change resiliency.

State Regulations Related to Energy

The state has adopted various pieces of regulation aimed at reducing energy consumption, increasing energy efficiency, and mandating sourcing requirements for electricity production.

Building Energy

The following regulations relate to energy efficiency and energy use reductions in the built environment.

Title 24, Part 6

Title 24 of the CCR was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed periodically, and revised if necessary, by the Building Standards Commission and CEC (California Public Resources Code [PRC] Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (PRC Section 25402). The regulations are scrutinized and analyzed for



technological and economic feasibility (PRC Section 25402[d]) and cost effectiveness (PRC Sections 25402[b][2] and [b][3]). As a result, the standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2019 Title 24 standards are the currently applicable building energy efficiency standards and became effective on January 1, 2020. The 2019 Title 24 Building Energy Efficiency Standards reduced energy used and associated GHG emissions compared to the previous 2016 Title 24 standards. In general, single-family residences built to the 2019 standards are anticipated to use approximately seven percent less energy due to energy efficiency measures than those built to the 2016 standards; once rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards use approximately 53 percent less energy than those under the 2016 standards. Nonresidential buildings built to the 2019 standards use an estimated 30 percent less energy than those built to the 2016 standards.

Title 24, Part 11

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The 2019 CALGreen standards are the current applicable standards. For nonresidential projects, some of the key mandatory CALGreen 2019 standards involve requirements related to bicycle parking, designated parking for clean air vehicles, electric vehicle (EV) charging stations, shade trees, water conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, recycled water supply systems, construction waste management, excavated soil and land clearing debris, and commissioning (24 CCR Part 11).

Title 20

Title 20 of the CCR requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low-voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

SB 1

SB 1 (Murray) (August 2006) established a \$3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the California PRC, including Chapter 8.8 (California Solar



Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry. The goals included establishing solar energy systems as a viable mainstream option for homes and businesses within 10 years of adoption, and placing solar energy systems on 50 percent of new homes within 13 years of adoption. SB 1, also termed “Go Solar California,” was previously titled “Million Solar Roofs.”

AB 1470

AB 1470 established the Solar Water Heating and Efficiency Act of 2007. The bill made findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. AB 1470 required the CEC to evaluate the data available from a specified pilot program, and, if the CEC made a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

AB 1109

Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting to reduce electricity consumption by 50 percent for indoor residential lighting and by 25 percent for indoor commercial lighting.

Renewable Energy and Energy Procurement

The following regulations relate to the source of electricity provided to consumers within the State, as well as standards related to the generation of electricity within the State.

Renewable Portfolio Standard (RPS) and SB 100

Established in 2002 under SB 1078 (which added Section 387, 390.1, and 399.25 to the Public Utilities Code and added Article 16 to Chapter 2.3 of Part 1 Division 1 of the Public Utilities Code), accelerated in 2006 under SB 107 (which amended Sections 25620.1, 25740, 25741, 25742, 25743, 25746, and 25751 of, added Sections 25470.5 and 25744.5, and repealed Sections 25745 and 25749 of, the PRC, as well as amending Sections 87, 399.11, 399.12, 399.13, 399.14, and 399.15 of the Public Utilities Code, adding Article 9 to Chapter 3 of Part 1 of Division 1 of the Public Utilities Code, and to repeal and add Section 399.16 of the Public Utilities Code), and expanded in 2011 under SB 2 (which amended Sections 5740, 25740.5, 25741, 25742, 25746, 25747, and 25751 of the PRC, added Section 25519.5 to the PRC, to add and repeal Section 25741.5 of, the PRC, and to amend Sections 399.11, 399.12, 399.20, and 454.5 of, to amend, renumber, and add Sections 399.13 and 399.16 of, to add Sections 399.18, 399.19, 399.26, 399.30, 399.31, and 1005.1, to add Article 11 (commencing with Section 910) to Chapter 4 of Part 1 of Division 1 of, to repeal Section 387 of, and to repeal and add Sections 399.14, 399.15, and 399.17 of, the Public Utilities Code), California's RPS is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020.

Since the inception of the RPS program, the program has been extended and enhanced multiple times. In 2015, SB 350 (An act to add Section 44258.5 to the Health and Safety Code, to amend Section 1720 of the Labor Code, to amend Sections 25310 and 25943 of, and to add Sections 25302.2 and 25327 to, the PRC, and to amend Sections 359, 399.4, 399.11, 399.12, 399.13, 399.15, 399.16, 399.18, 399.21, 399.30, 454.55, 454.56, 701.1, 740.8, 9505, and 9620 of, to



amend and repeal Sections 337 and 352 of, to add Sections 237.5, 365.2, 366.3, 454.51, 454.52, 740.12, 9621, and 9622 to, to add Article 17 (commencing with Section 400) to Chapter 2.3 of Part 1 of Division 1 of, to add and repeal Article 5.5 (commencing with Section 359.5) of Chapter 2.3 of Part 1 of Division 1 of, and to repeal Article 5 (commencing with Section 359) of Chapter 2.3 of Part 1 of Division 1 of, the Public Utilities Code) extended the State's RPS program by requiring that publicly owned utilities procure 50 percent of their electricity from renewable energy sources by 2030. The requirements of SB 350 were expanded and intensified in 2018 through the adoption of SB 100 (An act to amend Sections 399.11, 399.15, and 399.30 of, and to add Section 454.53 to, the Public Utilities Code), which mandated that all electricity generated within the State by publicly owned utilities be generated through carbon-free sources by 2045. In addition, SB 100 increased the previous renewable energy requirement for the year 2030 by 10 percent; thus, requiring that 60 percent of electricity generated by publicly owned utilities originate from renewable sources by the year 2030.

CEC

The CEC is the State's primary energy policy and planning agency. Created by the Legislature in 1974, the CEC has seven major responsibilities: forecasting future energy needs; promoting energy efficiency and conservation by setting the State's appliance and building energy efficiency standards; supporting energy research that advances energy science and technology through research, development, and demonstration projects; developing renewable energy resources; advancing alternative and renewable transportation fuels and technologies; certifying thermal power plants 50 MW and larger; and planning for and directing State response to energy emergencies.²¹

CPUC

The CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. The CPUC is responsible for ensuring that customers have safe, reliable utility service and infrastructure at reasonable rates, regulating utility services, stimulating innovation, and promoting competitive markets.²²

Local Regulations Related to Air Quality, GHGs, and Energy

The most prominent local regulations related to air quality, GHG emissions, and energy are established by the NSAQMD, the Nevada County Transportation Commission (NCTC), and the County of Nevada.

NSAQMD

With regard to air quality, the NSAQMD is the primary agency responsible for planning to meet NAAQS and CAAQS in Nevada, Plumas, and Sierra Counties. The NSAQMD develops rules and regulations for stationary sources and equipment, prepares emissions inventories and air quality management planning documents, and conducts source testing and inspections. NSAQMD rules and regulations applicable to the project include the following:

- Rule 205, Nuisance, prohibits discharge of air contaminants or other material from any source that cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or that endanger the comfort, repose, health, or safety of any

²¹ California Energy Commission. *About the California Energy Commission*. Available at: <http://www.energy.ca.gov/commission/index.html>. Accessed December 2020.

²² California Public Utilities Commission. *California Public Utilities Commission*. Available at: <http://www.cpuc.ca.gov/puc/>. Accessed December 2020.



such persons, or the public, or that have the natural tendency to cause injury or damage to business or property.

- Rule 207, Particulate Matter, prohibits the release or discharge of particulate matter emissions in excess of 0.1 grains per cubic foot of dry exhaust gas as standards conditions into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only.
- Rule 227, Cutback and Emulsified Asphalt Paving Materials, restricts the discharge of VOCs caused by the use or manufacture of Cutback or Emulsified asphalts for paving, road construction, or road maintenance, unless such manufacture or use complies with the provisions of the rule.
- Rule 904, Asbestos Airborne Toxic Control Measure Asbestos-Containing-Serpentine, incorporates by reference Title 17, Section 93106, of the CCR in its entirety.

Air districts typically act in an advisory capacity to local governments in establishing the framework for environmental review of air pollution impacts under CEQA. Such an advisory role may include recommendations regarding significance thresholds, analytical tools to estimate emissions and assess impacts, and mitigation for potentially significant impacts. The NSAQMD has not adopted specific guidance or thresholds applicable to the analysis of a project's contribution to GHG emissions or associated climate change effects.

Air Quality Attainment Plan

The NSAQMD has prepared several SIPs for areas within the MCAB. Because the Portola Valley area is designated as nonattainment for the PM_{2.5} NAAQS, the NSAQMD adopted the *2017 Portola PM_{2.5} State Implementation Plan*, which was approved by the CARB in 2017. To address CAA contingency measure requirements, the NSAQMD prepared the *Proposed Portola PM_{2.5} Plan Contingency Measure SIP Submittal*. At the time of preparation of this EIR, the CARB had not yet approved the 2020 Contingency Measure SIP Submittal. The project sites are outside of the Portola Valley, and, as such, the project is not subject to the requirements of the foregoing plans.

Western Nevada County is in nonattainment for the federal and state ozone standards. Consequently, the NSAQMD prepared the *2018 Western Nevada County Planning Area Ozone Attainment Plan* as well as the *2018 Reasonably Available Control Technology SIP for Western Nevada County*. The CARB adopted the 2018 Attainment Plan in 2018 and the Reasonably Available Control Technology SIP was submitted to the USEPA in 2018, following adoption by the NSAQMD. Under the ozone plans, Nevada County is required to reduce ozone precursor emissions by at least three percent per year. Most of the required reductions are expected to result from Statewide measures and from improvements in mobile source efficiency (e.g., improved passenger vehicle emissions fuel efficiency and proliferation of zero emissions vehicles).

NCTC

At the regional level, the NCTC adopted the 2015-2035 Nevada County RTP to establish the short-term (2016 to 2026) and long-term (2026 to 2036) regional transportation needs in Nevada County and to facilitate the efficient development and implementation of projects while maintaining public health and environmental quality. Although the 2015-2035 RTP does not regulate land use or supersede the exercise of land use authority by NCTC's member jurisdictions (i.e., Nevada County or cities therein), the 2015-2035 RTP is a relevant regional reference document for purposes of evaluating the intersection of land use and transportation patterns, and



seeks to reduce air quality and GHG issues associated with future growth by increasing the efficiency of the transportation system and increasing alternative transportation options.

Nevada County General Plan

The County General Plan's Air Quality Element (Nevada County 1995) and Circulation Element describe the following goals and policies that pertain to the project:

Air Quality Element

Goal 14.1 Attain, maintain, and ensure high air quality.

Policy 14.1: Cooperate with the NSAQMD during review of development proposals. As part of the site plan review process, require applicants of all subdivisions, multi-family, commercial and industrial development projects to address cumulative and long-term air quality impacts, and request the NSAQMD enforce appropriate land use regulations to reduce air pollution.

Policy 14.3: Where it is determined necessary to reduce short-term and long-term cumulative impact, the County shall require all new discretionary projects to offset any pollutant increases. Wherever possible, such offsets shall benefit lower-income housing.

Policy 14.4: Encourage and cooperate with the NSAQMD, or any successor agency, to:

- d. Develop a program to regulate and control fugitive dust emissions from construction projects.

Policy 14.5: Encourage and cooperate with the NSAQMD, or any successor agency, to develop and implement a long term monitoring program to quantify air quality in the County. The County shall work with the District to identify areas for monitoring and to develop an implementation program to begin on-site monitoring upon project application where a proposal will result in an increase of more than 25 tons per year of nonattainment pollutants (or precursors). The County will also cooperate with the District in developing a monitoring program for CO emissions at key intersections as a basis for consideration of short- to long-term air quality in the preparation of the County Road Improvement Program.

Policy 14.6: For new construction, the County shall prohibit the installation of non-EPA certified and non-EPA exempt solid fuel burning devices.

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.



Policy 14.7B: The County shall, as part of its Road Improvement Program, consider the benefits to air quality from the paving of unpaved roads.

Circulation Element

Goal RD-1: Reduce dependence on the automobile.

Goal RD-2: Increase the availability of alternative modes of transportation.

Goal RD-3: Decrease vehicle miles traveled (VMT) while encouraging increased transit ridership and vehicle occupancy.

Goal EP-4.3: To the extent feasible, encourage the reduction of GHG emissions during the design phase of construction projects.

Goal EP-4.4: To the extent feasible, encourage the development of energy efficient circulation patterns.

Nevada County Energy Action Plan

Nevada County adopted the Nevada County Energy Action Plan (EAP) in February 2019, which provides an analysis of the energy use within unincorporated areas of the County and County operated facilities, as well as strategies for accelerating energy efficiency, water efficiency, and renewable energy efforts already underway in Nevada County. One of the central goals of the EAP is to reduce the projected annual grid supplied electricity use in 2035 by 51 percent, and annual natural gas use by 30 percent compared to a baseline from the year 2005. Notably, the actions within the EAP are voluntary and do not require the County or community to meet the reduction goals; however, savings may only be realized if the recommended actions are taken.

4.3.4 IMPACTS AND MITIGATION MEASURES

The standards of significance and methodology used to analyze and determine the potential project-specific impacts related to air quality, GHG emissions, and energy are described below. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment. For the purposes of this EIR, an impact is considered significant if the proposed project would:

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



- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs;
- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Criteria Pollutant Emissions and TAC Emissions

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to determine whether the project would have a significant impact on air quality.

The NSAQMD has developed a tiered approach to significance levels. The tiered thresholds for Levels A, B, and C are given in Table 4.3-5 for a project’s estimated emissions of criteria pollutants in pounds per day. A project with emissions qualifying it for Level A thresholds (i.e., all projects with emissions greater than zero) requires the most basic mitigation. Projects that qualify for Level B require more extensive mitigation, and projects that qualify for Level C require the most extensive application of mitigation. The emissions-based thresholds for O₃ precursors are intended to serve as a surrogate for an “O₃ significance threshold” (i.e., the potential for adverse O₃ impacts to occur). Thresholds for O₃ precursors are used instead of thresholds restricting the direct emission of O₃ because O₃ is not emitted directly (see the discussion of O₃ and sources of O₃ in the Existing Environmental Setting portion of this Chapter).

Table 4.3-5			
NSAQMD Thresholds of Significance (lbs/day)			
Threshold Level	ROG	NO_x	PM₁₀
Level A Threshold	<24	<24	<79
Level B Threshold	24-136	24-136	79-136
Level C Threshold	>136	>136	>136

Source: NSAQMD. Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects. Draft Revised March 2021

If unmitigated emissions of ROG, NO_x, and/or PM₁₀ exceed 136 pounds per day (Level C), then there is a potentially significant impact and mitigation is required; if mitigated emissions of ROG, NO_x, and/or PM₁₀ still exceed 136 pounds per day (Level C) after implementation of mitigation, then a significant and unavoidable impact would occur. Unmitigated emissions below Level C would result in an impact that is potentially significant and mitigation is required; following implementation of mitigation (as specified separately for Level A and Level B by NSAQMD), emissions would be less than significant. The NSAQMD guidelines recommend that projects with higher emissions (Level C Thresholds) should automatically mitigate more emissions than a lower-impact project (Level A). According to the NSAQMD guidelines, if a new project is unable to provide adequate on-site mitigation of its long-term air quality impacts, an off-site mitigation program may be necessary.

The NSAQMD established thresholds of significance for CEQA purposes to achieve and maintain the NAAQS and CAAQS. Because an AAQS is based on maximum pollutant levels in outdoor air that would not harm the public’s health, and air district thresholds pertain to attainment of the AAQS, a project that complies with the thresholds established by a local air district, such as the



NSAQMD, would not result in adverse effects to human health related to criteria pollutant emissions.

For mobile source emissions of CO, the one-hour (20 ppm) and eight-hour (nine ppm) CAAQS for CO are used to determine significance for receptors proximate to intersections affected by project traffic that would fall at level of service (LOS) D or higher (i.e., LOS E or F), under the project and cumulative scenarios.

The NSAQMD’s cancer and noncancer thresholds to assess health risk significance for CEQA are consistent with what are used for the AB 2588 risk assessment procedures. The NSAQMD’s current health risk thresholds are presented in Table 4.3-6.

Table 4.3-6 NSAQMD Thresholds of Significance for Health Risks	
Risk Factor	Threshold
Cancer	Increased cancer risk of >10.0 cases per million persons
Non-Cancer	Increased non-cancer risk of >1.0 Hazard Index (Chronic or Acute)
<i>Source: Longmire, S. NSAQMD. Personal communication [email] with M. Morales, Dudek. February 19, 2021.</i>	

GHG Emissions and Other Cumulative Emissions

At this time, neither the NSAQMD nor the County has adopted numerical thresholds of significance for GHG emissions that would apply to the project. The NSAQMD, however, recommends that all projects subject to CEQA review be considered in the context of GHG emissions and climate change impacts, and that CEQA documents include a quantification of GHG emissions from all project sources, as well as including measures to minimize and mitigate GHG emissions as feasible. The project would generate GHG emissions through short-term construction activities, long-term operational activities, and reclamation.

Considering the lack of established GHG emissions thresholds that would apply to the project, CEQA allows lead agencies to identify thresholds of significance applicable to a project that are supported by substantial evidence. Substantial evidence is defined in the CEQA statute to mean “facts, reasonable assumptions predicated on facts, and expert opinion supported by facts” (14 CCR 15384[b]).²³ Substantial evidence can be in the form of technical studies, agency staff reports or opinions, expert opinions supported by facts, and prior CEQA assessments and planning documents. Therefore, to establish additional context in which to consider the order of magnitude of the project’s GHG emissions, this analysis accounts for the following considerations by other government agencies and associations about what levels of GHG emissions constitute a cumulatively considerable incremental contribution to climate change:

- The Sacramento Metropolitan Air Quality Management District (SMAQMD) established thresholds, including 1,100 MT CO_{2e} per year for the construction or operational phase of

²³ 14 CCR 15384 provides the following discussion: "Substantial evidence" as used in the Guidelines is the same as the standard of review used by courts in reviewing agency decisions. Some cases suggest that a higher standard, the so called "fair argument standard" applies when a court is reviewing an agency's decision whether or not to prepare an EIR. Public Resources Code section 21082.2 was amended in 1993 (Chapter 1131) to provide that substantial evidence shall include "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." The statute further provides that "argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly inaccurate or erroneous, or evidence of social or economic impacts which do not contribute to, or are not caused by, physical impacts on the environment, is not substantial evidence."



land use development projects, or 10,000 direct MT CO₂e per year from stationary source projects.

- The Placer County Air Pollution Control District (PCAPCD) recommends a tiered approach to determine if a project's GHG emissions would result in a significant impact. First, project GHG emissions are compared to the de minimis level of 1,100 MT CO₂e per year. If a project does not exceed this threshold, the project does not have significant GHG emissions. If the project exceeds the de minimis level and does not exceed the 10,000 MT CO₂e per year bright line threshold, then the project's GHG emissions can be compared to the efficiency thresholds. The efficiency thresholds are 4.5 MT CO₂e per-capita for residential projects in an urban area, and 5.5 MT CO₂e per-capita for residential projects in a rural area. For nonresidential development, the efficiency thresholds are 26.5 MT CO₂e per 1,000 square feet for projects in urban areas, and 27.3 MT CO₂e per 1,000 square feet for projects in rural areas. The PCAPCD bright-line GHG threshold of 10,000 MT CO₂e per year is also applied to land use projects' construction and operational phases as well as stationary source projects' construction and operational phases. Generally, GHG emissions from a project that exceed 10,000 MT CO₂e per year would be deemed to have a cumulatively considerable contribution to global climate change.
- The Bay Area Air Quality Management District (BAAQMD) has adopted 1,100 MT CO₂e per year as a project-level bright-line GHG significance threshold that would apply to operational emissions from mixed land-use development projects, a threshold of 10,000 MT CO₂e per year as the significance threshold for operational GHG emissions from stationary-source projects, and an efficiency threshold of 4.6 MT CO₂e per service population per year.
- The South Coast Air Quality Management District (SCAQMD) formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. In December 2008, the SCAQMD adopted an interim 10,000 MT CO₂e per-year screening level threshold for stationary source/industrial projects for which the SCAQMD is the lead agency.

For a conservative evaluation, the SMAQMD 1,100 MT CO₂e per year construction GHG threshold has been applied to project construction. For operations, because the project is an industrial project that includes stationary sources (i.e., diesel generators used for emergency power), the project's GHG emissions were compared to the 10,000 MT CO₂e per year quantitative threshold, which, as described above, is used by SMAQMD, PCAPCD, BAAQMD, and SCAQMD for industrial and/or stationary source emissions of GHGs. The substantial evidence for this GHG emissions threshold is based on the expert opinion of various California air districts, which have applied the 10,000 MT CO₂e per year threshold in numerous CEQA documents where those air districts are the lead agency.

Energy

Quantitative thresholds for the analysis of potential impacts related to energy consumption have not been adopted by any local, regional, or statewide entities. Consequently, potential impacts of the project related to energy will be determined based on whether the project would result in wasteful, inefficient, or unnecessary use of energy. In addition, the potential for the project to conflict with or obstruct a state or local plan for renewable energy generation or energy efficiency will be considered. The analysis of energy consumption will include consideration of energy demand during project construction, operations, and reclamation.



Method of Analysis

The information and analysis presented within this Chapter is primarily based on the Air Quality and Greenhouse Gas Emissions Analysis Technical Report and Health Risk Assessment Report, prepared for the proposed project. In general, construction was anticipated to occur over approximately 12 months, operations were anticipated to begin immediately following the construction period and operations would continue for approximately 80 years, and reclamation would occur over approximately three-months following the cessation of operations.

Detailed information regarding the method of analysis for construction, operations, and reclamation are provided in the following sections. In addition, all of the analysis, emissions estimation, and energy demand calculations, are available in Appendix E.1 of this EIR.

Construction Emissions and Energy Demand

Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by Rise Grass Valley Inc., the project applicant. Construction is assumed to take place from January 2021 through December 2021. A construction start date of January 2021 was selected at the start of the environmental review process and, while that date has now passed, use of January 2021 provides a conservative approach to the emissions analysis. The approach is considered conservative because existing regulations will ensure that emissions from construction equipment and vehicles during future years will be less intense than identical activities undertaken at the present time. Likewise, the construction scenario assessed herein is the worst-case, because if the same construction activities were to be spread over a longer period (i.e., a period in excess of 12 months), the amount of overlap of equipment usage would be reduced, which would result in reduced max daily and annual emissions. Lengthening the construction period would also push out the operational and reclamation phases by the same amount of time. The actual construction period would depend on numerous factors including permitting timelines and economic conditions. Emissions from construction activities would originate from several principal sources including, off-road equipment, on-road vehicles, the application of architectural coating, paving, and ground disturbance. To analyze emissions and energy demand from off-road equipment and on-road vehicles, Rise Grass Valley Inc. provided an estimate of the phases of construction as well as the number and types of off-road equipment that would be used during each phase. Information pertaining to off-road equipment is presented in Table 4.3-7. In addition, information related to on-road vehicle usage during construction is provided in Table 4.3-8 and Table 4.3-9.

The criteria air pollutant and TAC emissions inventory was developed based on the assumptions in Table 4.3-7, Table 4.3-8, and Table 4.3-9. Sources of air pollutant emissions during construction would include exhaust from off-road equipment and on-road vehicles (i.e., trucks and worker vehicles); fugitive dust associated with vehicle travel over unpaved roads and compaction areas, material handling, bulldozer spreading, soil compaction, and wind erosion; ROG off-gassing from architectural coatings, and ROG off-gassing during asphalt paving. Emission factors for these sources were incorporated into a spreadsheet model that includes the CARB OFFROAD2011 model for diesel-fueled off-road equipment; the CARB Mobile Source Emissions Inventory Model (EMFAC, version 2017) for on-road vehicles, factors from EPA's AP-42 for fugitive dust and factors from the California Emissions Estimator Model (CalEEMod) for architectural coatings and asphalt paving.



**Table 4.3-7
Construction Off-Road Equipment Assumptions**

Construction Phase	Schedule (Month/Year)	Equipment				
		Equipment Type	Fuel	Quantity	Usage Hours Per Day	Days Per Week
Project Management, Engineers, Surveyors	1/2021 – 12/2021	N/A	N/A	N/A	N/A	6
Foundation and Concrete Contractor	1/2021 – 12/2021	Walk Behind Compactor	Diesel	1	1	6
		Concrete Saw	Diesel	1	2	6
Grading and Paving Contractor	1/2021 – 12/2021	Dozer	Diesel	1	4	6
		Grader	Diesel	1	4	6
		Excavator	Diesel	1	4	6
		Front-End Loader	Diesel	1	4	6
		Roller Compactor	Diesel	1	4	6
		Paving Equipment	Diesel	1	2	6
Building Contractor	1/2021 – 12/2021	Skid Steer / Forklift	Diesel	3	6	6
		Manlift	Diesel	1	6	6
		Portable Generator / Welder	Diesel	3	6	6
		Forklift	Diesel	2	4	6
		Crane	Diesel	1	4	6
Ironworkers (Headframes)	2/2021 – 3/2021 & 11/2021 – 12/2021	Forklift	Diesel	2	4	6
		Crane	Diesel	1	4	6
Electrical and Mechanical Contractors	1/2021 – 12/2021	Skid Steer / Forklift	Diesel	3	6	6
		Manlift	Diesel	1	6	6
		Portable Generator / Welder	Diesel	3	6	6
		Forklift	Diesel	2	4	6
		Crane	Diesel	1	2	6
Potable Water Installation	2/2021 – 5/2021	Portable Generator / Welder	Diesel	3	6	6
		Forklift	Diesel	2	4	6
		Excavator	Diesel	1	8	6
		Concrete Saw	Diesel	1	4	6
		Front-End Loader	Diesel	1	4	6

(Continued on next page)



**Table 4.3-7
Construction Off-Road Equipment Assumptions**

Construction Phase	Schedule (Month/Year)	Equipment				
		Equipment Type	Fuel	Quantity	Usage Hours Per Day	Days Per Week
		Roller Compactor	Diesel	1	4	6
		Paving Equipment	Diesel	1	4	6
PG&E Power Line Work	7/2021 – 9/2021	Forklift	Diesel	2	4	6
		Manlift	Diesel	1	6	6
		Crane	Diesel	1	4	6
Underground Shaft Contractors	4/2021 – 12/2021	LHD Units	Diesel	2	20	7
		Personnel All-Terrain Vehicles	Diesel	2	12	7
Raise Bore Contractor	8/2021 – 9/2021	Raise Bore Machine	Electric	1	18	7
Underground Construction	9/2021 – 12/2021	Mine Air Compressor	Electric	1	10	7
		Locomotives	Electric	2	12	7
		Main Ventilation Fans	Electric	1	24	7
		Booster Ventilation Fans	Electric	2	24	7
		Auxiliary Ventilation Fans	Electric	3	24	7
		Brunswick Shaft Hoist	Electric	1	8	7
Mine Dewatering	6/2021 – 11/2021	Main Pump 1300 L	Electric	2	24	7
		Main Pump 2300 L	Electric	2	24	7
		Main Pump 3280 L	Electric	2	24	7
		Face Pumps	Electric	3	16	7
		Water Treatment Plant	Electric	1	24	7

Note: PG&E = Pacific Gas & Electric, Company.

Source: Dudek, 2021.



**Table 4.3-8
Construction On-Road Off-Site Vehicle Trip Assumptions**

Project Vehicle	Trip Length (miles)	Maximum Daily Trips (trips/day)	Maximum Daily VMT (VMT/day)	Annual Trips (trips/year)	Annual VMT (VMT/year)
Project management, engineers, surveyors, and fuel					
Workers	16.8	12	202	3,744	62,899
Fuel Trucks	3.5	2	7	208	728
Pickup Trucks	15	8	120	2,496	37,440
Foundation and concrete contractor					
Workers	16.8	16	269	4,992	83,866
Pickup Trucks	15	8	120	2,496	37,440
Concrete Trucks	5	2	10	624	3,120
Grading and paving contractor					
Workers	16.8	12	202	3,744	62,899
Haul Trucks	5	2	10	624	3,120
Building contractor					
Workers	16.8	20	336	6,240	104,832
Pickup Trucks	15	8	120	2,496	37,440
Ironworkers (headframes)					
Workers	16.8	16	269	800	13,440
Pickup Trucks	15	8	120	400	6,000
Electrical and mechanical contractors					
Workers	16.8	20	336	6,240	104,832
Pickup Trucks	15	8	120	2,496	37,440
Potable water installation					
Workers	16.8	12	202	1,224	20,563
Haul Trucks	20	2	40	204	4,080
PG&E power line work					
Workers	16.8	10	168	780	13,104
Haul Trucks	20	2	40	156	3,120
Underground shaft contractors					
Workers	16.8	10	168	2,740	46,032
Raise bore contractor					
Workers	16.8	8	134	480	8,064
Underground construction					
Workers	16.8	10	168	1,210	20,328
Mine Dewatering					
Workers	N/A	N/A	N/A	N/A	N/A

Notes: N/A = not applicable; VMT = vehicle miles traveled.
Concrete and asphalt haul truck trip distance of 5 miles is based on purchasing the materials locally.

Source: Dudek, 2021.



**Table 4.3-9
Construction On-Road On-Site Vehicle Trip Assumptions**

Project Vehicle	Trip Length (miles)	Maximum Daily Trips (trips/day)	Maximum Daily VMT (VMT/day)	Annual Trips (trips/year)	Annual VMT (VMT/year)
Project management, engineers, surveyors, and fuel					
Workers	0.12	12	1	3,744	449
Fuel Trucks	0.26	2	1	208	54
Pickup Trucks	0.26	8	2	2,496	649
Foundation and concrete contractor					
Workers	0.12	16	2	4,992	599
Pickup Trucks	0.26	8	2	2,496	649
Concrete Trucks	0.26	2	1	624	162
Grading and paving contractor					
Workers	0.12	12	1	3,744	449
Water Trucks	0.44	8	4	624	275
Haul Trucks	0.26	2	1	624	162
Haul Trucks – Import Fill	0.26	78	20	1,550	403
Building contractor					
Workers	0.12	20	2	6,240	749
Pickup Trucks	0.26	8	2	2,496	649
Ironworkers (headframes)					
Workers	0.12	16	2	800	96
Pickup Trucks	0.26	8	2	400	104
Electrical and mechanical contractors					
Workers	0.12	20	2	6,240	749
Pickup Trucks	0.26	8	2	2,496	649
Potable water installation					
Workers	0.12	12	1	1,224	147
Water Trucks	0.44	8	4	204	90
Haul Trucks	0.26	2	1	204	53
PG&E power line work					
Workers	0.12	10	1	780	94
Haul Trucks	0.26	2	1	156	41
Underground shaft contractors					
Workers	0.12	10	1	2,740	329
Raise bore contractor					
Workers	0.12	8	1	480	58
Underground construction					
Workers	0.12	10	1	1,210	145
Mine Dewatering					
Workers	N/A	N/A	N/A	N/A	N/A

Notes: N/A = not applicable; VMT = vehicle miles traveled.

Source: Dudek, 2021.



Entrained or fugitive dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, primarily during the grading phase, resulting in PM₁₀ and PM_{2.5} emissions. The project would include implementation of Surface Fugitive Dust Controls, which would limit fugitive dust (PM₁₀ and PM_{2.5}) that may be generated during grading and construction activities through activities such as limiting vehicle speeds on unpaved roads, watering exposed surfaces periodically, and covering material stockpiles, among other strategies to reduce fugitive dust. To account for dust control measures in the calculations, the assumption was made that active work sites would be watered at least two times daily, resulting in an approximately 55 percent reduction of particulate matter. In addition, chemical stabilizers would be applied to any unpaved roads on-site, which would result in an approximately 80 percent reduction of particulate matter.

The modeling assumes that, during construction, NID-supplied water would be required for dust suppression. The NID-supplied water would result in associated indirect GHG emissions. For the assessment, it was assumed that about 11 million gallons total would be required for construction dust suppression. PG&E would provide the electricity for NID, with utility GHG emission factors based on the same assumptions described above for “Electricity Use.” Once the proposed Brunswick water treatment plant is operational, treated groundwater from the mine would be used for dust suppression associated with compaction of engineered fill on the Brunswick Industrial Site.

For a worst-case day, the conservative assumption was made that two diesel emergency generators (2,655 horsepower [hp] each) would undergo routine testing and maintenance of up to two hours each on the same day, one time per month.²⁴ For annual emissions, the aforementioned emergency generators were assumed to undergo testing and maintenance for up to 100 hours, based on CARB’s ATCM for Stationary Compression Ignition Engines. Emission data sheets for the representative Cummins model QSK60-G17, which are Tier 4 Final engines, were incorporated into the modeling. Detailed assumptions and emission factors are included in Appendix A of Dudek’s Air Quality and Greenhouse Gas Emissions Analysis, which is included as Appendix E.1 of this EIR.

Notably, electrically powered equipment would not contribute to criteria air pollutants or TACs at the project sites but would demand energy and would result in GHG emissions associated with electricity generation. Specific processes that would require electricity include underground mining equipment, water treatment, and raise boring during construction. Anticipated annual electricity consumption during construction (year 2021) would be approximately 16,513 megawatt-hours (MWh). Emission factors (in pounds per MWh) for CO₂, CH₄, and N₂O are from CalEEMod for PG&E.

As discussed in the Existing Environmental Setting section, different GHGs have differing GWPs. For this analysis the GWPs from the current version of CalEEMod (Version 2020.4.0) were used. CalEEMod assumes that the GWP for CH₄ is 25 (so emissions of one MT of CH₄ are equivalent to emissions of 25 MT of CO₂), and the GWP for N₂O is 298, based on the Intergovernmental Panel on Climate Change’s Fourth Assessment Report. The GWP values identified in CalEEMod were applied to the analysis of emissions from construction, operations, and reclamation.

²⁴ Two hours of routine testing and maintenance per month is conservative, based on National Fire Protection Association (NFPA) 110. Typical monthly testing is anticipated to be from 0.5 to one hour per generator.



Operational Emissions and Energy Demand

Various operational activities would result in the emission of air pollutants and/or GHGs, as well as consuming energy. Sources of air pollutant emissions during project operations would include off-road equipment (surface and underground), on-road vehicles, underground blasting and crushing, ore processing, reagent storage, fuel tank storage, earthwork and material handling, architectural coatings for repainting, and worker consumer products. Sources of GHG emissions would include off-road equipment (surface and underground), on-road equipment, electricity consumption in proposed facilities, provision of potable water supplies, operation of septic systems, generation of solid waste, and tree removal. Energy would be demanded in the form of gasoline or diesel fuel through the use of off-road equipment as well as on-road vehicles, and various other sources of electricity consumption such as ore processing, earthwork and material handling, the provision of potable water supplies, and general operation of facilities. Each source of air pollutant emissions, GHG emissions, and energy demand will be discussed in further depth below.

Prior to describing the sources of emissions and energy demand, it is important to clarify the operational conditions causing such emissions and energy demand. The principal variation in operational activities over the lifetime of the project is the fate of non-gold bearing mined material that would be used as fill material. With regard to long-term operations, engineered fill would be used for one of three purposes during the lifetime of the project. First, fill would be trucked to the Centennial Industrial Site; after the need for fill at the Centennial Industrial Site is met, fill would then be trucked to a pad at the Brunswick Industrial Site. When the need for fill at the Brunswick Industrial Site is met, fill would be trucked off-site to support local construction projects. Logging and chipping of trees would also occur intermittently at the Centennial and Brunswick Industrial sites, as engineered fill is placed. Although the following sequence could change, for purposes of this air quality analysis and to present a reasonable and conservative evaluation, three different periods were assessed based on assumptions of where and when the engineered fill would be routed:

- Years 2022–2026: Fill placement at the Centennial Industrial Site;
- Years 2027–2032: Fill placement at the Brunswick Industrial Site; and
- Years 2033–2102: Fill placement at off-site locations.

The scenarios presented above affect the trip length of haul trucks, as well as the localized generation of exhaust and fugitive dust from off-road equipment and material handling. Assumptions dependent upon the destination of fill were incorporated in the modeling, are summarized in the On-Road Vehicles section below, and are based on project information provided by Rise Grass Valley Inc.

Off-Road Equipment

Operational equipment is summarized in Table 4.3-10. Emission factors for these sources were incorporated into a spreadsheet model that includes the CARB OFFROAD2011 model for diesel-fueled off-road equipment (see Appendix A of the Dudek Analysis, included as Appendix E.1 to this EIR). Notably, all diesel equipment owned by Rise Grass Valley Inc. would be equipped with Tier 4 Final engines, which feature the highest standard of emissions control technology. As with construction, the electrically powered equipment would not contribute to criteria air pollutants or TACs at the project sites but would result in GHGs associated with electricity generation. All underground equipment would be electrically powered.



**Table 4.3-10
Operational Off-Road Equipment Assumptions**

Location	Equipment				
	Equipment Type	Fuel	Quantity	Usage Hours Per Day	Days Per Week
Brunswick Industrial Site (Underground)	Jumbo drill carrier	Electric	3	4	7
	LHD units	Electric	6	20	7
	Personnel all-terrain vehicles	Electric	10	12	7
	Longhole drill	Electric	3	18	7
	Diamond core drills	Electric	4	20	7
	Locomotives	Electric	10	12	7
	Main pump 1300 L	Electric	1	24	7
	Main pump 2300 L	Electric	1	24	7
	Main pump 3280 L	Electric	1	24	7
	Face pumps	Electric	10	16	7
	Booster ventilation fans	Electric	2	24	7
	Auxiliary ventilation fans	Electric	10	24	7
	Jaw crusher	Electric	3	8	7
	Lighting	Electric	100	24	7
Brunswick Industrial Site (Surface)	Skid steer / forklift	Diesel	3	12	7
	Front-end loader	Diesel	1	4	7
	Manlift	Diesel	1	6	7
	Rough-terrain crane (50-ton)	Diesel	1	12	7
	Portable generator / welder	Diesel	3	8	7
	Mine air compressor	Electric	1	24	7
	Main ventilation fans	Electric	3	24	7
	Service shaft hoist	Electric	1	14	7
	Brunswick shaft hoist	Electric	1	8	7
	Water treatment plant	Electric	1	24	7
Engineered Fill Placement at the Centennial Industrial Site and Brunswick Industrial Site (Surface)	Dozer	Diesel	1	4	5
	Excavator	Diesel	1	4	5
	Front-end loader	Diesel	1	4	5
	Mobile tire pressure washer	Diesel	1	3	5
	Mobile auger blending plant	Diesel	1	4	5

Source: Dudek, 2021.

On-Road Vehicles

The project would generate criteria air pollutant emissions from mobile sources (vehicular traffic) as a result of the employee passenger vehicles (workers) and truck traffic associated with operation of the mine. Emissions from mobile sources during operation of the project were estimated using a spreadsheet-based model and emission factors from the CARB EMFAC2017 and USEPA AP-42 factors for paved and unpaved road dust generation. Emission calculation equations and assumptions were primarily derived from CalEEMod and EPA AP-42. The key factors in the mobile source emission calculations were number of trips, trip lengths, vehicle categorization, and emissions factors for each vehicle, which are described further below.



Trips were estimated for each type of project vehicle and for each operational scenario (beginning in 2022, 2027, and 2033) based on information provided by the applicant. Each employee and truck were assumed to generate two one-way trips. Employees are anticipated to be on site 365 days per year; however, estimated daily employees during the week is 178, and estimated weekend employees is 134. As such, 178 employees were assumed to estimate maximum daily emissions, and the annual emissions were estimated based on the estimated weekdays and weekend days in one year and the respective employee estimate. For haul trucks, estimated maximum daily trips were multiplied by 365 days to estimate annual trips. For all other trucks, daily emissions were estimated based on the anticipated maximum daily truck trips, and annual emissions were estimated based on anticipated average trips per week multiplied by 52 weeks per year. Trip lengths were also based on information provided by the applicant.

Off-site and on-site vehicle activity was estimated separately. The anticipated average trip length, trips per day, VMT per day, trips per year, and VMT per year by project vehicle category in 2022, 2027, and 2033 and separated by off-site and on-site travel are shown in Table 4.3-11 and Table 4.3-12.

Vehicle emissions of air pollutants occur during startup, operation (running), idling, and from evaporative losses when the engines are resting. GHG emissions, on the other hand, are more directly tied to VMT, and do not occur from sources such as evaporative loss. The emissions factors for trucks and passenger vehicles were determined using EMFAC2017, which generates emissions factors, expressed in grams per mile, grams per trip, and grams per vehicle per day, for the fleet in a class of motor vehicles within a county for a particular study year. For this analysis, NSAQMD was selected for the region and calendar years 2022, 2027, and 2033 were selected in EMFAC2017 to represent the different operational scenarios based on engineered fill destination. For each vehicle emissions factor, aggregated values for model year and speed were assumed.

A composite, or weighted-average, emissions factor was developed for project vehicle types if more than one vehicle category in EMFAC2017 is anticipated to be representative of the project vehicle. The composite emission factors are weighted by VMT, population, or trips depending on the physical mechanism that results in the emissions of a pollutant. For employee vehicles, the composite emission factor represents the weighted average emission rate for passenger vehicles (light-duty automobiles), light-duty trucks (LDT1, 0–3,750 pounds), light-duty trucks (LDT2, 3,751–5,750 pounds), and a composite mix of gasoline- and diesel-fueled and electric vehicles. All haul trucks (including on-site-only soil haul trucks), freight trucks, explosive trucks, and concentrate trucks were assumed to be heavy-heavy-duty trucks that are diesel-fueled. The fuel trucks, cement delivery trucks, and on-site-only water trucks were assumed to be medium-heavy-duty trucks that are diesel-fueled. The outside services light vehicles were assumed to be a composite of light-duty vehicles and trucks (LDT1, LDT2, LHDT1 [8,501–10,000 pounds], and LHDT2), and a composite mix of gasoline- and diesel-fueled and electric. On-site-only light-duty trucks were assumed to be light-heavy duty trucks (LHDT2) and diesel-fueled.



**Table 4.3-11
Operations Off-Site On-Road Vehicle Trip Assumptions**

Project Vehicle	Trip Length (miles)	Maximum Daily Trips (trips/day)	Maximum Daily VMT (VMT/day)	Annual Trips (trips/year)	Annual VMT (VMT/year)
Year 2022 to Year 2026 – Engineered Fill to Centennial Site					
Engineered Fill Haul Trucks	1.8	200	360	36,500	65,700
Freight Trucks	60	6	360	312	18,720
Concentrate Trucks	145	10	1,450	728	105,560
Fuel Trucks	3.5	6	21	108	378
Cement Trucks	60	4	240	936	56,160
Explosives Trucks	60	2	120	104	6,240
Outside Services (light vehicles)	5	8	40	2,184	10,920
Employees	14.7	356	5,233	120,788	1,775,584
Year 2027 to Year 2032 – Engineered Fill to Brunswick Site					
Freight Trucks	60	6	360	312	18,720
Concentrate Trucks	145	10	1,450	728	105,560
Fuel Trucks	3.5	6	21	108	378
Cement Trucks	60	4	240	936	56,160
Explosives Trucks	60	2	120	104	6,240
Outside Services (light vehicles)	5	8	40	2,184	10,920
Employees	14.7	356	5,233	120,788	1,775,584
Year 2033 to Year 2102 – Engineered Fill to Other Customers					
Engineered Fill Haul Trucks	60	200	12,000	36,500	2,190,000
Freight Trucks	60	6	360	312	18,720
Concentrate Trucks	145	10	1,450	728	105,560
Fuel Trucks	3.5	6	21	108	378
Cement Trucks	60	4	240	936	56,160
Explosives Trucks	60	2	120	104	6,240
Outside Services (light vehicles)	5	8	40	2,184	10,920
Employees	14.7	356	5,233	120,788	1,775,584

Notes: VMT = vehicle miles traveled

- For 2022, a haul truck trip length of 1.8 miles was assumed based on the estimated distance from the Brunswick Industrial Site to Centennial Industrial Site.
- For 2027, the haul truck trips were assumed to occur on-site only and thus, are included in the on-site trip estimate only.
- For 2033, haul truck trip length of 60 miles was assumed based on the estimated distance from the Brunswick Industrial Site to various other customers in the region.
- Fuel assumed to be trucked from Robinson Fuels Cardlock a distance of approximately 3.5 miles from the Brunswick Site.
- Freight, cement, and explosives trucks were assumed to have an average 60-mile distance assuming that these materials would come from distribution facilities in Sacramento California.
- Outside Services expected to be within a 5-mile driving distance from site which includes Grass Valley, Nevada City, and Nevada County Airport Industrial Area.
- Concentrate truck trip distance of 145 miles is based on the distance between the project site and the Port of Oakland.
- The average employee trip length of 14.7 miles is based on the CalEEMod default rural trip length for NSAQMD, which the applicant determined was consistent with the anticipated trip length for employees.

Source: Dudek, 2021.



**Table 4.3-12
Operations On-Site On-Road Vehicle Trip Assumptions**

Project Vehicle	Trip Length (miles)	Maximum Daily Trips (trips/day)	Maximum Daily VMT (VMT/day)	Annual Trips (trips/year)	Annual VMT (VMT/year)
Year 2022 to Year 2026 – Engineered Fill to Centennial Site					
Engineered Fill Haul Trucks	0.52	200	104	36,500	18,980
On-site-Only Soil Haul Trucks	0.10	24	2.28	8,760	832
Freight Trucks	0.26	6	2	312	81
Concentrate Trucks	0.26	10	3	728	189
Fuel Trucks	0.26	6	2	108	28
Cement Trucks	0.26	4	1	936	243
Explosives Trucks	0.26	2	1	104	27
On-site-Only Water Trucks	0.44	8	3.52	2,920	1,285
Outside Services (light vehicles)	0.26	8	2	2,184	568
On-site-Only Light-Duty Trucks	0.19	24	5	8,760	1,664
Employees	0.12	356	43	120,788	14,495
Year 2027 to Year 2032 – Engineered Fill to Brunswick Site					
Engineered Fill Haul Trucks	0.64	200	127	36,500	23,178
On-site-Only Soil Haul Trucks	0.10	24	2.28	8,760	832
Freight Trucks	0.26	6	2	312	81
Concentrate Trucks	0.26	10	3	728	189
Fuel Trucks	0.26	6	2	108	28
Cement Trucks	0.26	4	1	936	243
Explosives Trucks	0.26	2	1	104	27
On-site-Only Water Trucks	0.44	8	3.52	2,920	1,285
Outside Services (light vehicles)	0.26	8	2	2,184	568
On-site-Only Light-Duty Trucks	0.19	24	5	8,760	1,664
Employees	0.12	356	43	120,788	14,495
Year 2033 to Year 2102 – Engineered Fill to Other Customers					
Engineered Fill Haul Trucks	0.52	200	104	36,500	18,980
On-site-Only Soil Haul Trucks	0.10	24	2.28	8,760	832
Freight Trucks	0.26	6	2	312	81
Concentrate Trucks	0.26	10	3	728	189
Fuel Trucks	0.26	6	2	108	28
Cement Trucks	0.26	4	1	936	243
Explosives Trucks	0.26	2	1	104	27
On-site-Only Water Trucks	0.44	8	3.52	2,920	1,285
Outside Services (light vehicles)	0.26	8	2	2,184	568
On-site-Only Light-Duty Trucks	0.19	24	5	8,760	1,664
Employees	0.12	356	43	120,788	14,495

Notes: VMT = vehicle miles traveled See Appendix A for complete details.
All trip lengths were provided by Rise based on anticipated vehicle travel routes on-site.

Source: Dudek, 2021.



Running Exhaust, Tire Wear, and Brake Wear

To estimate emissions associated with vehicle travel to and from the project sites, running exhaust,²⁵ tire wear,²⁶ and brake wear²⁷ emission factors for each respective pollutant were developed for trucks and passenger vehicles in grams per mile and then multiplied by the average daily VMT. Running exhaust emissions were estimated for all pollutants, and tire wear and brake wear emissions were specific to PM₁₀ and PM_{2.5}.

Starting Exhaust, Hot Soak, Running Loss Evaporative, Resting Loss Evaporation, and Diurnal Loss Evaporation

Starting exhaust tailpipe²⁸ emissions were estimated for all pollutants. Hot soak evaporative²⁹ emissions, running loss evaporative³⁰ emissions, resting loss evaporative³¹ emissions, and diurnal evaporative³² emissions are specific to ROG emissions. For starting, hot soak, and running loss emissions, emission factors for trucks and passenger vehicles were developed per trip, consistent with the EMFAC2017 output. For resting loss and diurnal emissions, emission factors in grams per vehicle per day from EMFAC2017 were converted to grams per trip using the equation provided in CalEEMod 2020.4.0 User's Guide to yield uniform emission factor units. The respective grams per trip emission factors by pollutant were then multiplied by the average daily vehicle trips to estimate emissions associated with vehicle starting and ROG evaporative emissions.

Idling

Truck idling³³ was estimated using EMFAC2017 emission factors that were converted from grams per vehicle per day to grams per minute of idling per vehicle based on EMFAC2017-provided idle duration per truck category. The idling emissions were calculated by multiplying the per-minute emission factors for each respective pollutant by the estimated idle duration of 10 minutes per truck trip, representing up to two idling events of a maximum of 5 minutes of idling each instance. For vehicles traveling on- and off-site, one idling event was assumed to occur off-site and one idling event was assumed to occur on-site; for vehicles that are on-site only, both idling events were assumed to occur on-site.

²⁵ Running exhaust emissions come out of the vehicle tailpipe while traveling on the road.

²⁶ Tire wear particulate matter emissions originate from tires as a result of wear.

²⁷ Brake wear particulate matter emissions originate from brake usage.

²⁸ Start exhaust tailpipe emissions occur when starting a vehicle. These emissions are independent of running exhaust emissions and represent the emissions occurring during the initial period when a vehicle is warming up. The magnitude of these emissions is dependent on how long the vehicle has been sitting prior to starting. Starting exhaust is defined differently for heavy-duty diesel trucks than for other vehicles.

²⁹ Hot soak evaporative hydrocarbon emissions occur immediately after a trip due to fuel heating, since an engine remains hot for up to 35 minutes after being switched off.

³⁰ Running loss evaporative hydrocarbon emissions occur as a result of hot fuel vapors that escape from the fuel system or overwhelm the carbon canister while the vehicle is operating.

³¹ Resting loss evaporative hydrocarbon emissions occur while the vehicle is sitting and are caused by fuel permeation through rubber and plastic components. Emissions are counted as resting loss emissions if the vehicle has not been operated for 35 minutes and has been stationary, while the ambient temperature is either constant or decreasing.

³² Diurnal evaporative hydrocarbon emissions occur when rising ambient temperatures cause fuel evaporation from vehicles sitting throughout the day. These losses are from leaks in the fuel system, fuel hoses, connectors, and as a result of the breakthrough of vapors from the carbon canister. If a vehicle is sitting for a period of time, emissions from the first 35 minutes are considered as hot soak, and emissions from the remaining period are considered as diurnal emissions, provided that the ambient temperature is increasing during the remaining period of time.

³³ Idle exhaust emissions come out of the vehicle tailpipe while the vehicle is operating, but not traveling any substantial distance. This process captures emissions from heavy-duty vehicles that idle for extended periods of time while loading or unloading goods. Idle exhaust is calculated only for heavy-duty trucks.



Paved Road Dust

Vehicles that drive on paved roads generate fugitive dust by dispersing the silt from the roads. Paved road dust PM₁₀ and PM_{2.5} emission factors were developed pursuant to the CalEEMod 2020.4.0 road dust equation and based on road surface silt loading factors from CalEEMod and particle size multipliers from the USEPA's AP-42 Section 13.2.1 Paved Roads. Emissions were calculated by multiplying the paved road dust emission factors by the VMT. Different paved road emission factors were applied for off-site and on-site vehicle travel to account for anticipated project-specific values for on-site paved roads.

Logging and Chipping

Removal of trees and vegetation located at the engineered fill placement pads on the Centennial and Brunswick Industrial Sites would occur concurrently with fill placement. As such, the entire 24 acres would not be cleared at once but would rather occur over very brief periods (potentially one day per year) for a period of approximately 11 years. For the criteria air pollutant analysis, a worst-case day was assumed. For the TACs and GHGs, the total emissions for logging and chipping the 24 acres were amortized over 11 years to determine an annual average. The off-road equipment and on-road vehicle assumptions for this activity are presented in Table 4.3-13 and Table 4.3-14.

Emergency Generator Routine Testing and Maintenance

During operations, four diesel emergency generators (2,655 hp each) would undergo routine testing and maintenance. Emission data sheets for the representative Cummins model QSK60-G17 were incorporated into the modeling. For a worst-case day, it was conservatively assumed that all four generators would undergo routine testing and maintenance of up to two hours each on the same day, one time per month. For annual emissions, these emergency generators were assumed to undergo testing and maintenance for up to 100 hours, based on CARB's ATCM for Stationary Compression Ignition Engines (Part 17 CCR, Subsection 93115).

Underground Blasting and Crushing

Ore production through tunneling and long-hole blasting is anticipated to produce 1,000 tons per a day (365,000 tons per year) of ore. The ore may be reduced in size using an underground jaw crusher before hoisting the material to the surface. For the project, it was assumed that approximately 0.93 tons of ammonium nitrate fuel oil (ANFO) and 257 detonators would be used daily and that all ore would be crushed underground. Emission factors from the USEPA's AP-42: Compilation of Air Emission Factors were used to estimate emissions for rock blasting (AP-42 Chapter 11.9 – Western Surface Coal Mining) (EPA 1998), ANFO (AP-42 Chapter 13.3 – Explosives Detonation), detonators (AP-42 Chapter 15.9 – Blasting Caps, Demolition Charges, and Detonators), and crushing (AP-42 Chapter 11.19.2 – Crushed Stone Processing and Pulverized Mineral Processing). According to the safety data sheet for the detonators being used, no TACs would be emitted with OEHHA approved reference exposure levels and therefore the detonators being used would not impact the health risk calculations assessed within this EIR (see Appendix E.1 to this EIR). Nevertheless, emission factors for the generation of criteria air pollutants and GHGs from detonator combustion were incorporated in the criteria air pollutant and GHG emissions modeling prepared for the project.



Location	Equipment				
	Equipment Type	Fuel	Quantity	Usage Hours Per Day	Total Days
Logging and Chipping at the Centennial Industrial Site and Brunswick Industrial Site	Chainsaw	Diesel	4	6	10
	Grapple loader	Diesel	1	6	10
	Front-end loader	Diesel	1	6	10
	Skidder	Diesel	1	6	10
	Grinder	Diesel	1	4	5
	Excavator	Diesel	2	4	5

Notes: "Total Days" represents the anticipated duration to complete the entire logging and chipping of the 24 acres to be cleared.

Source: Dudek, 2021.

Project Vehicle	Trip Length (miles)	Maximum Daily Trips (trips/day)	Maximum Daily VMT (VMT/day)	Total Trips	Total VMT
Lumber Haul Trucks	145	22	3,190	220	31,900
Chip Trucks	60	6	360	30	1,800
Low Bed Trucks	60	2	120	10	600
Crew/ Service Trucks	14.7	8	118	80	1,176

Notes: VMT = vehicle miles traveled

- "Total Trips" and "Total VMT" represents the anticipated trips and miles needed to complete the entire logging and chipping of the 24 acres to be cleared.
- Lumber haul truck trip length of 145 miles was assumed based on distance to lumber sawmills in Redding.
- Chip and low bed truck trip lengths of 60 miles were assumed based on the estimated distance from the Centennial and Brunswick Industrial Sites to various other customers in the region.
- Crew vehicle trip length of 14.7 miles is based on the CalEEMod default employee rural trip length for NSAQMD.

Source: Dudek, 2021.

Ore Processing

Ore hoisted from the Brunswick shaft would be placed in the existing concrete silo located on the Brunswick property and then transported using chutes and enclosed conveyor to a fully enclosed ore processing plant. Ore would be conveyed from the silo to inside the processing plant and grinding mill where water would be added and the ore would be ground to size before the gold would be recovered. A gravity concentrator would be located in the grinding circuit to recover approximately 70 percent of the gold. The slurry of ore and water that results from the foregoing process would be pumped to a second gold recovery system, sulfide flotation, where the remaining recoverable gold would be captured in a sulfide mineral concentrate. Each method would remove gold from the ore into a concentrate. The gold concentrate would be dewatered using thickeners and filter presses before the gold would be bagged for off-site shipment. The gravity gold concentrate may be further concentrated on site using gravity and water to create gold doré bars. Approximately 20 tons of gold concentrate would be produced and bagged on site per day. Sand tailings (waste) from the gold recovery process would be dewatered and used for either backfill for the underground mine or stockpiled for transport and used as engineered fill.



Emission factors from the USEPA's AP-42: Compilation of Air Emission Factors were used to estimate emissions of PM₁₀ and PM_{2.5} for conveyance/transfer of the ore to the processing building (AP-42 Chapter 11.19.2 – Crushed Stone Processing and Pulverized Mineral Processing), material handling and transfer (AP-42 Chapter 11.24 – Metallic Minerals Processing) (EPA 1982), and cement loading (AP-42 Chapter 11.12 – Concrete Batching) (EPA 2006a). Once inside the processing building, all processes are considered wet and would not generate fugitive dust.

Reagent Storage

Various reagents would be used for ore processing (i.e., for collection, promotion, frothing, flocculation, descaling). According to the reagent-specific Material Safety Data Sheets, the reagents selected would not result in ROG emissions.

Fuel Tank Storage

ROG emissions from breathing and working losses associated with the aboveground diesel storage tanks were estimated using the EPA TANKS model (Version 4.09d). It was assumed that a 30,000-gallon tank and 1,200-gallon tank would be located at the Brunswick and Centennial Industrial Sites, respectively.

Earthwork and Material Handling

Barren rock hoisted from the Brunswick shaft would be placed in the existing concrete silo located at the Brunswick Industrial Site. The barren rock would be transported from the concrete silo using a series of chutes and conveyors to a fully enclosed truck loading building. Barren rock may be mixed with sands from the ore processing plant to create an engineered fill that meets appropriate geotechnical specifications for construction of development pads. Engineered fill would be transported from the ore processing facility to a receiving site. During the operational periods when fill is transported to either the Brunswick or Centennial Industrial Sites the fill would be spread using a dozer. Fugitive dust emissions associated with the earthwork activities were estimated using equations and assumptions from EPA AP-42 based on 1,000-ton-per-day material transfer. Emission factors from EPA's AP-42: Compilation of Air Emission Factors were used to estimate emissions for material handling (AP-42 Chapter 13.2.4 – Aggregate Handling and Storage Piles) (EPA 2006b), bulldozer spreading and fill compaction (AP-42 Chapter 11.9 – Western Surface Coal Mining) (EPA 1998), and wind erosion (AP-42 Chapter 11.9 – Western Surface Coal Mining) (EPA 1998). Notably, for fill transported to off-site locations (for year 2033 and beyond), emissions associated with fill placement were not included since the assumption was made that the other facilities are already receiving, or would receive, fill from other sources, and, thus, only the hauling of material from the project sites is a result of the proposed project.

Architectural Coating

ROG off-gassing emissions result from evaporation of solvents contained in surface coatings, such as in paints and primers used during building maintenance. Default assumptions from CalEEMod were applied in the analysis, which calculates the ROG evaporative emissions from application of nonresidential surface coatings based on the ROG emissions factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The model default reapplication rate of 10 percent of area per year was assumed.

Consumer Products

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics;



personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Consumer product ROG emissions were estimated using default assumptions from CalEEMod based on the floor area of nonresidential buildings and on the default factor of pounds of ROG per building square foot per day. For parking lot land uses, CalEEMod estimates ROG emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of ROG per square foot per day.

Electricity for Facilities

Electricity consumption for facility operations accounts for electrically powered underground mine equipment, the ore processing facility, water treatment, and surface building operations. For the three different periods assessed (based on where the engineered fill would be routed), it was assumed that the electricity consumption would remain the same, estimated at approximately 49,613 megawatt-hours per year. Additionally, the same GHG emission factors (pounds per megawatt-hour) for CO₂, CH₄, and N₂O used for the construction phase were used for all future years of operation. This assumption is conservative because, as discussed within Regulatory Setting above, the RPS standard schedule will result in reduced GHGs from electricity generation overtime.

NID-Supplied Potable Water

Supply, conveyance, treatment, and distribution of water for the project would require the use of electricity, which would result in associated indirect GHG emissions. For the purposes of modeling, it was assumed that up to 26 residences would be switched from well water to the new NID potable water line, with indoor and outdoor water use (total demand of approximately 2.8 million gallons per year) based on default water use factors included in CalEEMod for single-family homes. Potable water use at the Brunswick Industrial Site was estimated to be approximately 1.4 million gallons per year.

Septic System

A septic field system would be used to treat wastewater from the Brunswick Industrial Site facilities. Approximately 3,952 gallons of potable water would be used per day, which would flow into the septic field. Emissions of CH₄ and N₂O from septic wastewater treatment for the project were based on default equations and emission factors from CalEEMod.

Solid Waste

Annual solid waste generated by project employees would be approximately 205 tons, which would result in GHG emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation and emission factors were used to estimate GHG emissions associated with solid waste.

Tree Removal

Carbon sequestration is the process by which CO₂ is removed from the atmosphere and deposited into a carbon reservoir (e.g., vegetation). Trees and vegetation take in CO₂ from the atmosphere during photosynthesis, break down the CO₂, store the carbon within plant parts, and release the oxygen back into the atmosphere. On the Brunswick Industrial Site, approximately 18.7 acres of forested areas (Montane Hardwood-Conifer, Montane Hardwood, Ponderosa Pine, and Sierran Mixed Conifer vegetation communities) would be disturbed and trees would require removal. On the Centennial Industrial Site, up to approximately 5.3 acres of forested areas (Montane Hardwood-Conifer and Montane Hardwood vegetation communities) would be disturbed and trees would require removal. The removal of approximately 24 acres of trees would



be required as a result of the proposed project, thereby removing stored carbon from the Sites.³⁴ To evaluate the loss of stored carbon associated with removal of vegetation, the calculation methodology and default values provided in CalEEMod for the “forest land – trees” category were used. To calculate potential CO₂ emissions associated with the one time change in carbon sequestration capacity of a vegetation land use type, CalEEMod utilizes data and formulas based on the Intergovernmental Panel on Climate Change (IPCC) reports. The estimated CO₂ loss was then amortized over 80 years based on the anticipated project life.

Reclamation Emissions and Energy Demand

Upon completion of underground mining, access to underground workings would be closed, consistent with federal and state regulations. Upon completion of aboveground ore processing and off-site sale of engineered fill, the Brunswick Industrial Site would be reclaimed, with the majority of the aboveground facilities and structures remaining to support the site’s potential post-mining industrial land use. All paved surfaces, including access roads, parking areas, and driveways, would remain to facilitate access to the site and buildings. The reclamation phase was assumed to occur in the year 2103 over a period of approximately three-months, based on the assumptions provided by Rise Grass Valley Inc., which are summarized in Table 4.3-15 and Table 4.3-16.

Table 4.3-15 Reclamation Off-Road Equipment Assumptions						
Phase	Schedule	Equipment				
		Equipment Type	Fuel	Quantity	Usage Hours Per Day	Days Per Week
Reclamation	1/2103 – 3/2103	Forklift	Diesel	2	4	6
		Crane	Diesel	1	4	6

Source: Dudek, 2021.

Table 4.3-16 Reclamation On-Road Vehicle Trip Assumptions					
Project Vehicle	Trip Length (miles)	Maximum Daily Trips (trips / day)	Maximum Daily VMT (VMT / Day)	Annual Trips (trips / year)	Annual VMT (VMT / year)
Workers	16.8	16	269	1,216	20,429
Pickup Trucks	15	8	120	608	9,120

Notes: Pickup trucks would be used on-site, with a conservative trip length of 15 miles. Worker trip lengths are based on the CalEEMod default rural trip lengths for NSAQMD.

Source: Dudek, 2021.

³⁴ It is noted that the estimated area of forested land presented herein differs by up to 1.2 acres as compared to the figures presented in Chapter 4.2, Agricultural and Forestry Resources, and Chapter 4.4, Biological Resources, of this EIR. Such differences can be attributed to refinements to the Biological Resources Assessments prepared for the proposed project. Pursuant to Dudek’s Air Quality and Greenhouse Gas Emissions Analysis, one acre of forested land sequesters approximately 60 MT CO₂. For the operational GHG analysis in this EIR, the potential loss of carbon sequestration was amortized over the 80-year project lifetime. Therefore, the potential 1.2-acre differential in forested land could result in an additional (approximately) 0.90 MT CO₂/yr, which would be negligible compared to the numbers presented in Impact 4.3-7 of this EIR.



Health Risk Assessment

In addition to the analysis of criteria air pollutant and GHG emissions, a Health Risk Assessment (HRA) was prepared to determine whether the proposed project would result in short- and/or long-term health impacts to nearby receptors. The HRA is included in Appendix E.1 to this EIR, and information regarding the method of analysis used in the HRA is summarized below.

The HRA prepared for the project included consideration of health risks related to construction, operations, and reclamation of the project. Details regarding construction, operation, and reclamation of the project are presented above. In addition to the foregoing information, it should be noted that 2,655 hp diesel generators could be required as emergency backup sources of electricity. During construction, up to two generators could be required, while operations could require up to four generators. For purposes of the HRA, the emergency generators were assumed to operate for up to 100 hours per year in accordance with CARB's ATCM for Stationary Compression Ignition Engines. Emissions for the generators were estimated based on the exhaust emission data sheets for the representative Cummins model QSK60-G17, which are Tier 4 Final engines.

The TAC emissions associated with blasting and crushing, ore processing, and earthwork and material handling would include asbestos and silica emitted from the fugitive dust produced. The applicant estimates that the ore processed would be quartz veins hosted primarily within andesite rock and an assumed 60 percent silica content. The applicant has prepared an Asbestos, Serpentinite, and Ultramafic Rock Management Plan (ASUR Plan) which is designed to exclude asbestos containing material, serpentinite, or ultramafic rock from the engineered fill produced as part of the project (see Appendix E.2).³⁵ Additionally, the ASUR Plan is designed to minimize asbestos content in the engineered fill produced by the project and from rock mined and processed. Potential asbestos fiber concentration shall be determined by phase contrast microscopy (PCM). The ASUR Plan requires testing of all mined materials to ensure that the average content of naturally occurring asbestos does not exceed 0.01 percent by mass of PCM equivalent units. The ASUR Plan also ensures that no engineered fill with detectable asbestos, determined by Polarized Light Microscopy (PLM), would be used for surfacing applications. The ASUR plan includes asbestos testing by Transmission Electron Microscopy (TEM) to ensure the average content of naturally occurring asbestos does not exceed 0.01 percent by mass of PCM equivalent units. TEM is the preferred analytical method for outdoor asbestos samples because of its ability to detect small fibers (greater than or equal to 0.0002 microns in diameter) and to distinguish between asbestos fibers and non-asbestos fibers. The term "TEM structures" is often used to describe asbestos fibers detected by this method. TEM is the method recommended by the OEHHA. However, TEM measurements cannot be directly related to the cancer potency factors because the studies upon which OEHHA's risk assessment was based used PCM analysis. Thus, the TEM measurements must be converted to PCM-equivalent units. A conservative approach for the modelling of TAC emissions is used, with the asbestos content in mined materials assumed at the maximum of 0.01 percent by mass of PCM equivalent units. The average asbestos content of the total mined material is of primary concern given that asbestos does not have established acute noncancer effects. Therefore, only the average asbestos emissions that could be generated over the long-term (per year), and associated long-term health risk, has been evaluated herein. However, it should be noted that mine operations would be required to comply with MSHA PELs that protect underground workers from asbestos fiber

³⁵ Rise Grass Valley, Inc. *Idaho-Maryland Mine Project – Asbestos, Serpentinite, and Ultramafic Rock (ASUR) Management Plan*. November 2021.



exposure during short-term shifts. The protections sufficient to meet the MSHA PELs would result in limiting the potential emissions of asbestos aboveground from the shaft in general.

Blasting and crushing would also result in emissions of heavy metal TACs including arsenic, beryllium, cadmium, copper, lead, manganese, mercury, nickel, selenium, and vanadium. These metals are naturally occurring within the rock found at the project sites. Concentrations of each heavy metal within the barren rock was taken from Table 4-7 of the *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project*.³⁶ Based on the PM₁₀ emissions estimated, emissions of asbestos, silica, and heavy metals were estimated for purposes of the health risk modeling.

As previously noted, according to the safety data sheet for the detonators being used, no TACs would be emitted with OEHHA approved reference exposure levels and therefore would not impact the health risk calculations assessed herein.

Once the sources of TAC emissions were identified and the quantity of TAC emissions quantified, dispersion modeling was conducted to determine the concentration of pollutants and the exposure of nearby receptors to project-generated TACs. The following discussion summarizes the dispersion modeling and HRA methodology. Further information is provided in the HRA included as part of Appendix E.1 to this EIR.

In order to assess the health risk impacts of the project's construction and operational activities on proximate off-site sensitive receptors, a dispersion modeling analysis was conducted for the HRA of DPM emitted from diesel vehicles and off-road equipment, blasting emissions, and TACs from fugitive dust sources on the project sites. A full list of emission sources and the parameters used to model each source may be found in the HRA included within Appendix E.1 to this EIR. The dispersion modeling was performed using AERMOD Version 21112, which is the model that the USEPA approved and NSAQMD recommends for atmospheric dispersion of emissions. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and simple and complex terrain. A detailed description of modeling inputs for the HRA are available in Appendix E.1 to this EIR.

The HRA evaluates the risk to existing sensitive receptors (including residential receptors) located in proximity to the project sites. For the purposes of this analysis, and pursuant to guidance from NSAQMD, sensitive receptors were considered to be land uses where sensitive-receptor population groups are likely to be located such as hospitals, schools, playgrounds, day care centers, and senior centers. Residences were considered to be sensitive receptors as well. Residences currently exist in all directions from the project sites, with the nearest located north of East Bennett Road, approximately 100 feet from the site boundary. The nearest hospitals and schools to the project sites are the Sierra Nevada Memorial Hospital on Glasson Way (approximately 1,800 feet north of the Centennial Industrial Site) and the Montessori House of Children on The Burma Road (approximately 2,500 feet south of the Brunswick Industrial Site boundary). Discrete cartesian receptors were placed at residents proximate to the project sites. A uniform Cartesian grid of 4,426 by 3,299 meters was centered over the project sites to capture the maximum point of impact and extent of the plume isopleth. In so doing, the HRA considers

³⁶ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project*. March 2020.



health risks at the exact locations of nearby receptors, as well as health risks over the general area.

Plot files generated in AERMOD were then imported into CARB's Hotspots Analysis and Reporting Program Version 2 (HARP2), with ground level concentrations determined by multiplication of emission rates and X/Q (dispersion factor) values for each individual source of emissions. HARP2 was then used to assess resulting cancer and noncancer risk at the existing receptors from exposure to project-related TAC emissions. For health risks at nearby residences, the HRA was based on the assumption that exposure to project-related TAC emissions would start in the 3rd trimester of pregnancy, and extend for a duration of 30 years,³⁷ in accordance with the OEHHA's Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments. Because the equipment used and emission profiles during construction, operation, and reclamation are very similar for mining projects (including the proposed project), the HRA included both short-term construction and long-term operations in the analysis.

The foregoing methodology allowed for the quantification of health risks to nearby receptors. Once health risks were quantified, the health risks were compared to NSAQMD's thresholds of significance.

Localized CO Impact Assessment

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Recent improvements to vehicle emissions controls and operating systems have generally reduced CO emissions from on-road vehicles. Nevertheless, projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To determine whether the project would cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted.

A traffic impact analysis (KD Anderson & Associates, Inc. 2020) evaluated the LOS (i.e., increased congestion) impacts at intersections affected by the project. The potential for CO hotspots was evaluated based on the results of the traffic impact analysis. The NSAQMD indicates that if a traffic study is performed for a project, the traffic study should identify any intersection(s) that would fall at LOS D, E, or F under the project alone or cumulative development scenarios, and a CO analysis should be prepared using the California Department of Transportation (Caltrans) and University of California, Davis, Institute of Transportation Studies CO Protocol or California LINE Source Dispersion Model (CALINE4), as appropriate. Pursuant to NSAQMD guidance, the CALINE4 model was used to assess potential CO hotspots.

The project's traffic impact analysis evaluated 24 intersections and 11 roadway segments based on existing traffic volumes and current street geometry. As shown in Appendix D of the Air Quality and GHG Report prepared by Dudek (included as Appendix E.1 to this EIR), three of the traffic study intersections operate at LOS D or worse in the Near-Term Existing Plus Project scenario:

³⁷ OEHHA describes cancer risk evaluations for 9-, 30-, and 70-year exposure durations in the 2015 Risk Assessment Guidelines Manual, and identifies that the 9- and 30-year durations correspond to the average and high-end of residency time recommended by the US EPA, with the 30-year exposure duration recommended for use as the basis for estimating cancer risk at the maximally exposed individual resident in all HRAs investigating long-term health risks.



1. Brunswick Road/Idaho Maryland Road (LOS F in PM);
2. Brunswick Road/State Route (SR) 174 (LOS E in PM); and
3. Idaho Maryland Road/Centennial Drive (LOS F in PM).

The remaining intersections operate at an acceptable LOS during the AM and PM peak hours in the scenarios evaluated.

As shown in Appendix D of the Air Quality and GHG Report prepared by Dudek, one of the study intersections operates at an LOS D or worse in the Year 2035 Plus Project scenario:

1. Sutton Way/Dorsey Drive (LOS F in PM)

The remaining intersections operate at an acceptable LOS during the AM and PM peak hours in the Year 2035 Plus Project scenario evaluated.

For each scenario (Near-Term Existing Plus Project conditions and Year 2035 Plus Project), the CO screening evaluation presents LOS and whether a quantitative CO hotspots analysis may be required. According to the CO Protocol, there is a cap on the number of intersections that need to be analyzed for any one project. For a single project with multiple intersections, only the three intersections representing the worst LOS ratings of the project, and, to the extent they are different intersections, the three intersections representing the highest traffic volumes, need to be analyzed. For each intersection failing a screening test as described in this protocol, an additional intersection should be analyzed. The potential impact of the project on local CO levels was assessed at these intersections with the Caltrans CL4 interface based on CALINE4, which allows microscale CO concentrations to be estimated along each roadway corridor or near intersections.

The emissions factor represents the weighted average emissions rate of the local County vehicle fleet expressed in grams per mile per vehicle. Emissions factors for the Near-Term Existing Plus Project conditions and Year 2035 Plus Project were predicted by EMFAC2017 based on a five-mile-per hour (mph) average speed for all of the intersections for approach and departure segments. The hourly traffic volume anticipated to travel on each link, in units of vehicles per hour, was based on information provided by the traffic consultant. Modeling assumptions are outlined in Appendix D of the Air Quality and GHG Report prepared by Dudek (included as Appendix E.1 to this EIR).

Consistent with the CO Protocol, four receptor locations at each intersection were modeled to determine CO ambient concentrations. A receptor was assumed on the sidewalk at each corner of the modeled intersections, for a total of four receptors adjacent to the intersection, to represent the future possibility of extended outdoor exposure. CO concentrations were modeled at these locations to assess the maximum potential CO exposure that could occur. A receptor height of 5.9 feet (1.8 meters) was used in accordance with Caltrans recommendations for all receptor locations.

The maximum CO concentration measured at the nearest monitoring station over the last three years was 8.8 ppm, which was measured in 2018. This maximum one-hour concentration value is used as the background concentration when evaluating the addition of the vehicle-generated CO emissions. To estimate an eight-hour average CO concentration, a persistence factor of 0.6, as calculated based on Caltrans guidance, was applied to the output values of predicted concentrations in ppm at each of the receptor locations.



Applicant Proposed Emissions Reduction Measures

The following measures have been proposed by the applicant and are relevant to the analysis presented below. The analysis presented within this chapter assumes that all of the applicant proposed measures (APMs) presented below would be implemented.

APM-AQ-1: Exhaust Emission Controls

The following measures shall be implemented during construction, operation, and reclamation to reduce exhaust emissions:

- All off-road diesel-fueled equipment and emergency generators owned by Rise Grass Valley Inc. shall be equipped with Tier 4 Final engines.
- Unnecessary construction vehicle idling time shall be minimized. The ability to limit construction vehicle idling time is dependent on the sequence of activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for immediate use. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project shall apply a “common sense” approach to vehicle use such that idling is reduced as much as possible below the maximum of 5 consecutive minutes required by regulation (13 CCR 2449 and 2485). If a vehicle is not required for use immediately or continuously for activities or for other safety-related reasons, its engine shall be shut off.
- All off-road equipment shall be maintained in accordance with manufacturer’s specifications. All equipment shall be checked by a qualified mechanic, and equipment shall be confirmed that it is in proper condition prior to operation.

APM-AQ-2: Surface Fugitive Dust Controls

The following measures shall be implemented to reduce surface fugitive dust emissions:

- During construction, operation, and reclamation, all exposed soil surfaces (e.g., unpaved disturbed areas, unpaved parking areas, and unpaved staging areas, and soil piles) shall be adequately wetted to ensure that no visible dust crosses the property boundary, except when rains are occurring. As an alternative to watering, inactive soil piles shall be covered to minimize wind erosion.
- During construction, all on-site roadways shall be paved as soon as possible after grading and any unpaved gravel roads shall be treated with chemical stabilizers in order to control fugitive dust.

APM-AQ-3: ASUR Plan

Rise Grass Valley Inc. shall implement the ASUR Plan, which incorporates measures designed to minimize asbestos in engineered fill produced by the project, as well as minimize the emission of asbestos-containing dust from the underground mine (see Appendix E.2). The ASUR Plan builds on the provisions of applicable regulations, including the two CARB ATCMs for naturally occurring asbestos (i.e., ATCM for Surfacing Applications [17 CCR 93106] and ATCM for Construction, Grading, Quarrying and Surface Mining Operations [17 CCR 93105]), and includes additional measures beyond what is required in the ATCMs in order to limit any potential emission of asbestos dust and to protect human health and the environment. The ASUR Plan incorporates routine asbestos testing by TEM and an Asbestos Inventory to ensure that average mined material and engineered fill contains less than 0.01 percent asbestos by mass of PCM equivalent units.



Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on implementation of the proposed project in comparison with the standards of significance identified above. It should be noted that GHG emissions are inherently cumulative; thus, the discussion of impacts associated with GHG emissions is included under the Cumulative Impacts and Mitigation Measures section below.

4.3-1 Conflict with or obstruct implementation of the applicable air quality plan. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

An area is designated as “in attainment” when the area is in compliance with the NAAQS and CAAQS. The NAAQS and CAAQS are set by the USEPA or CARB, respectively, for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or public welfare with a margin of safety. As discussed in the Existing Environmental Setting section above, western Nevada County, which includes the project sites, is designated as nonattainment for the federal and state O₃ standards. The County is also designated as nonattainment for the state PM₁₀ standard. As a nonattainment area, the NSAQMD submitted the *2018 Western Nevada County Planning Area Ozone Attainment Plan* as well as the *2018 Reasonably Available Control Technology SIP for Western Nevada County* to the USEPA. The CARB has adopted both aforementioned plans, and the plans are considered enforceable under the CCAA.

The general criteria for determining if a project would conflict or obstruct implementation of an Ozone Attainment Plan are 1) whether the project would exceed the NSAQMD CEQA thresholds of significance for O₃ precursors (ROG and NO_x) and could delay the timely attainment of the ambient air quality standards or interim emission reductions of the Ozone Attainment Plan, and/or 2) whether the project would result in demographic growth that would exceed the forecasts included in the Ozone Attainment Plan.

Criterion 1

To address the criterion of whether the project would exceed the NSAQMD CEQA significance thresholds for O₃ precursors and potentially delay the timely attainment of the ambient air quality standards or interim emission reductions of the Ozone Attainment Plan, an air quality modeling analysis that identified the project’s impact on air quality was performed. The air quality modeling analysis included quantification of emissions during project construction, operations, and reclamation.

As described in the Method of Analysis section above, for the purposes of estimating project emissions, construction of the project is anticipated to occur over 12 months and assumed to take place from January 2021 through December 2021. Sources of air pollutant emissions during construction would include exhaust from off-road equipment and on-road vehicles (i.e., trucks and worker vehicles), emergency generator testing and maintenance, fugitive dust associated with grading and material handling, and ROG off-gassing from architectural coatings and asphalt paving. Many of the operational sources of air pollutant emissions would be similar to construction and would include off-road equipment (surface and underground), on-road vehicles,



emergency generator testing and maintenance, underground blasting and crushing, ore processing, reagent storage, fuel tank storage, earthwork and material handling, architectural coatings for repainting, and worker consumer products. Similarly, emissions during reclamation would be generated by off-road equipment and worker commutes.

Table 4.3-17 presents the estimated maximum daily unmitigated emissions associated with construction, operation, and reclamation of the project. As discussed in Standards of Significance section above, the NSAQMD has established Level A, B, and C thresholds for ROG, NO_x, and PM₁₀. According to the NSAQMD, unmitigated project-generated emissions of ROG NO_x and PM₁₀ that are greater than zero are potentially significant and require mitigation.³⁸ Although numeric thresholds have not been established for CO, SO_x, or PM_{2.5}, emissions are presented for disclosure.

Table 4.3-17						
Maximum Unmitigated Daily Project Emissions (lbs/day)						
Source	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Year 2021 – Construction/Dewatering						
Off-Road Equipment ^a	6.71	53.84	50.83	0.10	2.30	2.15
On-Road Vehicles – Off-Site	1.34	8.79	10.83	0.05	3.54	1.05
On-Road Vehicles – On-Site	0.30	1.70	1.20	0.00	0.70	0.18
Diesel Fuel Tanks – Breathing/ Working	0.12	—	—	—	—	—
Emergency Generator Testing ^b	0.47	9.37	24.35	0.13	0.09	0.09
Fugitive Dust – Unpaved Roads/ Disturbed Areas/ Material Handling/ Wind Erosion ^c	—	—	—	—	8.30	2.95
Architectural Coatings	2.64	—	—	—	—	—
Asphalt Off-Gassing	0.38	—	—	—	—	—
Maximum Total Daily Emissions	11.96	73.69	87.21	0.28	14.93	6.43
<i>NSAQMD Significance Threshold Level^d</i>	<i>Level A (<24)</i>	<i>Level B (24-136)</i>	<i>N/A</i>	<i>N/A</i>	<i>Level A (<79)</i>	<i>N/A</i>
Significant (Yes/No or Potentially)? ^e	Potentially	Potentially	No	No	Potentially	No
Year 2022 to 2026 – Mining, Brunswick Industrial Site Operations, Fill Placement at Centennial Industrial Site						
Off-Road Equipment ^a	0.65	6.67	25.51	0.05	0.06	0.06
On-Road Vehicles – Off-Site	1.27	21.65	4.22	0.05	7.20	2.08
On-Road Vehicles – On-Site	0.69	3.57	2.81	0.00	1.86	0.47

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³⁸ Following implementation of NSAQMD-recommended mitigation measures (as specified separately for Level A, B, and C) only emissions that exceed Level C thresholds are considered significant and unavoidable.



**Table 4.3-17
Maximum Unmitigated Daily Project Emissions (lbs/day)**

Source	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Logging/ Chipping – Off-Road Equipment	1.88	12.80	10.41	0.04	0.41	0.40
Logging/ Chipping – On-Road Vehicles – Off-Site	0.58	27.89	3.15	0.02	3.60	1.19
Logging/ Chipping – On-Road Vehicles – On-Site	0.03	0.32	0.21	0.00	0.13	0.03
Emergency Generator Testing ^b	0.94	18.73	48.70	0.26	0.19	0.19
Underground Blasting/Mining ^f	0.00	15.85	62.40	1.86	1.61	0.53
Ore Processing	—	—	—	—	0.29	0.21
Reagent Off-Gassing	0.00	—	—	—	—	—
Diesel Fuel Tanks – Breathing/ Working	0.12	—	—	—	—	—
Fugitive Dust – Unpaved Roads/ Disturbed Areas/ Material Handling/ Wind Erosion ^c	—	—	—	—	39.05	5.82
Architectural Coatings	0.26	—	—	—	—	—
Consumer Products	2.65	—	—	—	—	—
Maximum Total Daily Emissions	9.07	107.49	157.41	2.27	54.40	10.97
<i>NSAQMD Significance Threshold Level^d</i>	<i>Level A (<24)</i>	<i>Level B (24-136)</i>	<i>N/A</i>	<i>N/A</i>	<i>Level A (<79)</i>	<i>N/A</i>
Significant (Yes/No or Potentially)? ^e	Potentially	Potentially	No	No	Potentially	No
Year 2027 to 2032 – Mining, Brunswick Industrial Site Operations, Fill Placement at Brunswick Industrial Site						
Off-Road Equipment ^a	0.65	6.67	25.51	0.05	0.06	0.06
On-Road Vehicles – Off-Site	0.67	13.15	2.29	0.09	6.19	1.76
On-Road Vehicles – On-Site	0.60	4.77	3.70	0.01	2.75	0.69
Logging/ Chipping – Off-Road Equipment	1.88	12.80	10.41	0.04	0.41	0.40
Logging/ Chipping – On-Road Vehicles – Off-Site	0.58	27.89	3.15	0.02	3.60	1.19
Logging/ Chipping – On-Road Vehicles – On-Site	0.03	0.32	0.21	0.00	0.13	0.03
Emergency Generator Testing ^b	0.94	18.73	48.70	0.26	0.19	0.19

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Table 4.3-17 Maximum Unmitigated Daily Project Emissions (lbs/day)						
Source	ROG	NO_x	CO	SO_x	PM₁₀	PM_{2.5}
Underground Blasting/Mining ^f	0.00	15.85	62.40	1.86	1.61	0.53
Ore Processing	—	—	—	—	0.29	0.21
Reagent Off-Gassing	0.00	—	—	—	—	—
Diesel Fuel Tanks – Breathing/Working	0.12	—	—	—	—	—
Fugitive Dust – Unpaved Roads/ Disturbed Areas/ Material Handling/ Wind Erosion ^c	—	—	—	—	39.05	5.82
Architectural Coatings	0.26	—	—	—	—	—
Consumer Products	2.65	—	—	—	—	—
Maximum Total Daily Emissions	8.38	100.20	156.37	2.31	54.28	10.86
<i>NSAQMD Significance Threshold Level^d</i>	<i>Level A (<24)</i>	<i>Level B (24-136)</i>	<i>N/A</i>	<i>N/A</i>	<i>Level A (<79)</i>	<i>N/A</i>
Significant (Yes/No or Potentially)? ^e	Potentially	Potentially	No	No	Potentially	No
Year 2033 to 2102 – Mining, Brunswick Industrial Site Operations, Fill Placement at Off-Site Location						
Off-Road Equipment ^a	0.37	5.28	15.39	0.03	0.03	0.03
On-Road Vehicles – Off-Site	1.13	74.82	8.88	0.35	17.31	5.24
On-Road Vehicles – On-Site	0.40	2.99	2.48	0.01	2.64	0.66
Emergency Generator Testing ^b	0.94	18.73	48.70	0.26	0.19	0.19
Underground Blasting/Mining ^f	0.00	15.85	62.40	1.86	1.61	0.53
Ore Processing	—	—	—	—	0.29	0.21
Reagent Off-Gassing	0.00	—	—	—	—	—
Diesel Fuel Tanks – Breathing/Working	0.12	—	—	—	—	—
Architectural Coatings	0.26	—	—	—	—	—
Consumer Products	2.65	—	—	—	—	—
Maximum Total Daily Emissions	5.87	117.68	137.86	2.50	22.07	6.85
<i>NSAQMD Significance Threshold Level^d</i>	<i>Level A (<24)</i>	<i>Level B (24-136)</i>	<i>N/A</i>	<i>N/A</i>	<i>Level A (<79)</i>	<i>N/A</i>
Significant (Yes/No or Potentially)? ^e	Potentially	Potentially	No	No	Potentially	No
Year 2103 – Reclamation						
Off-Road Equipment ^a	0.08	0.32	3.91	0.01	0.01	0.01

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**Table 4.3-17
Maximum Unmitigated Daily Project Emissions (lbs/day)**

Source	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
On-Road Vehicles – Off-Site	0.19	0.36	0.90	0.01	0.30	0.09
Diesel Fuel Tanks – Breathing/Working	0.12	—	—	—	—	—
Maximum Total Daily Emissions	0.39	0.68	4.81	0.01	0.31	0.10
NSAQMD Significance Threshold Level ^d	Level A (<24)	Level A (<24)	N/A	N/A	Level A (<79)	N/A
Significant (Yes/No or Potentially)? ^e	Potentially	Potentially	No	No	Potentially	No

Notes: Totals may not sum due to rounding.

- a Accounts for APM-AQ-1 (Exhaust Emission Controls), including Tier 4 Final equipment owned by Rise Grass Valley Inc.
- b For maximum daily emissions, all diesel generators (2 during construction and 4 during operations) were conservatively assumed to operate for 2 hours on the same day, 1 time per month.
- c For APM-AQ-2 (Surface Fugitive Dust Controls), a control efficiency of 55 percent was included when calculating the emissions of PM₁₀ and PM_{2.5} for vehicle traffic on unpaved roads during operation and a control efficiency of 80% was assumed for chemical stabilization on unpaved roads during construction. A moisture content of 13 percent was assumed when calculating emissions of PM₁₀ and PM_{2.5} during fill spreading and compaction to account for fugitive dust control.
- d The NSAQMD Threshold Levels are presented in Table 4.3-5.
- e Significance is based on NSAQMD thresholds. For Level A or B criteria, emissions are considered potentially significant and trigger mitigation. If the emissions exceed the Level C threshold, they are considered significant and require greater mitigation. After incorporation of feasible mitigation, emissions at Level A or B would be less than significant, and emissions at Level C (i.e., >136 pounds per day) would be significant and unavoidable.
- f Includes emissions from rock blasting, combustion of ANFO, and detonators for blasting.

Source: Dudek, 2021.

As shown in Table 4.3-17, daily unmitigated emissions of ROG, NO_x and PM₁₀ would be potentially significant (Level A or B) according to the NSAQMD significance criteria; therefore, mitigation is required. Because emissions of ROG, NO_x and PM₁₀ would not reach or exceed Level C, emissions would not be considered significant and unavoidable, pursuant to NSAQMD's significance criteria. The NSAQMD does not have significance criteria for SO₂, CO, or PM_{2.5}, thus emissions of SO₂, CO, or PM_{2.5} are presented for informational purposes only. According to NSAQMD guidance, emissions exceeding the Level A or B significance threshold would contribute to existing nonattainment conditions and may also interfere with the region's ability to maintain ambient air quality standards if mitigation is not implemented.

Therefore, prior to mitigation, the project would result in potentially significant levels of ROG, NO_x, and PM₁₀ emissions and could conflict with or obstruct implementation of the Ozone Attainment Plan pursuant to Criterion 1.

Mobile Source Emissions by Air District

For the purposes of this analysis, all mobile source emissions generated by the project have been assumed to occur within the NSAQMD's jurisdictional boundaries. Assuming all mobile source emissions occur within NSAQMD's jurisdictional



boundaries prior to comparing emissions to the NSAQMD thresholds represents a conservative assumption. Nonetheless, it is acknowledged that due to the assumed trip length for some project vehicles, portions of project trips and associated mobile source emissions could occur outside of the NSAQMD jurisdictional boundaries and within other air district boundaries. Accordingly, to facilitate public disclosure and to present the magnitude of potential emissions occurring within other air districts, off-site mobile source emissions for the Year 2033 to 2102 – Mining, Brunswick Industrial Site Operations, Fill Placement at Off-Site Location scenario by air district are presented herein. The Year 2033 to 2102 scenario was selected for this informational evaluation as that scenario resulted in the maximum daily emissions of NO_x, CO, SO_x, PM₁₀, and PM_{2.5} from on-road vehicles; only ROG was slightly greater in other scenarios evaluated. The origins and destinations of all vehicle trip types is not available at this time; therefore, trip portions in other air districts are estimated based on the best available information. The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR subsection 15145). Nonetheless, this analysis is provided in an effort to show a good faith analysis and comply with CEQA's information disclosure requirements.

Based on best available information, air districts where project-generated mobile source emissions may occur are anticipated to include PCAPCD, SMAQMD, Yolo-Solano Air Quality Management District (YSAQMD), and the BAAQMD, in addition to the NSAQMD. Notably, the project would not include any activities that fall within the permitting jurisdiction of any air district other than the NSAQMD (i.e., all project-related activities that require permitting would occur within NSAQMD's jurisdictional boundaries and activities occurring in other air district boundaries would not require permitting). The PCAPCD, SMAQMD, YSAQMD, and BAAQMD, however, are responsible for planning to attain applicable ambient air quality standards, and as part of this planning obligation, these air districts are responsible for accounting for vehicular emissions from locations within their respective boundaries. Air districts do not directly regulate vehicle exhaust emission standards, which are regulated by the USEPA under the federal Clean Air Act and by CARB under both federal and state laws.

To estimate the criteria air pollutant emissions by air district, the unmitigated off-site mobile source emissions for running exhaust and paved road dust were apportioned to each air district according to the estimated VMT for each trip that may occur within that air district boundary. For this emission estimation, only running exhaust and paved road dust emissions were included; starting and idling emissions, which are minor, are excluded because the focus is on the VMT rather than the ultimate origin and/or destination of each trip. In the Year 2033 to 2102 scenario, haul trucks, freight trucks, explosive trucks, and cement delivery trucks are anticipated to have a 60-mile one-way trip length, which represents a trip distance between the project site to as far as Sacramento. Assuming a destination of Sacramento, haul trucks, freight trucks, explosive trucks, and cement delivery trucks were assumed to have the following air district trip mileage breakdown: 16 miles (27 percent) within NSAQMD, 26 miles (43 percent) within PCAPCD, and 18 miles (30 percent) within SMAQMD. Concentrate trucks are assumed to have a 145-mile one-way trip length, which represents a trip distance between the project site and the Port of Oakland. For concentrate trucks, the following air district trip mileage breakdown was assumed: 16 miles (11 percent) within



NSAQMD, 26 miles (18 percent) within PCAPCD, 17 miles (12 percent) within SMAQMD, 34 miles (23 percent) within YSAQMD, and 52 miles (36 percent) within BAAQMD. Fuel trucks, outside services, and employees, which all have an assumed one-way trip length less than 15 miles, are anticipated to occur within the NSAQMD boundaries.

Table 4.3-18 presents the maximum daily project-generated off-site mobile source emissions by air district based on the assumptions discussed above for informational purposes only. Because this information is presented for informational purposes only, the emissions apportioned per air district do not affect the conclusions presented above related to Criterion 1.

Table 4.3-18						
Maximum Daily Project Off-Site Mobile Source Emissions by Air District (lbs/day)						
Year 2033 to 2102 – Mining, Brunswick Industrial Site Operations, Fill Placement at Off-Site Location						
Air District	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
NSAQMD	0.24	18.90	1.81	0.10	22.44	5.82
PCAPCD	0.28	29.39	2.75	0.13	29.16	7.54
SMAQMD	0.20	20.46	1.91	0.08	20.32	5.23
YSAQMD	0.02	1.71	0.16	0.01	1.71	0.44
BAAQMD	0.03	2.68	0.25	0.01	2.68	0.69
Notes: Combined emissions by air district do not match total project-generated mobile source emissions due to rounding and inclusion of running exhaust and paved road emissions only						
Source: Dudek, 2021.						

Criterion 2

Regarding demographic growth and Criterion 2, forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) were developed by NCTC for the NCTC’s 2015–2035 RTP. The Ozone Attainment Plan prepared by NSAQMD relies on the land use and population projections provided in the 2015–2035 RTP. In turn, the 2015-2035 RTP is generally consistent with the local plans in Nevada County; therefore, because the Ozone Attainment Plan is consistent with the 2015-2035 RTP, the Ozone Attainment Plan is also generally consistent with local government plans. The Brunswick Industrial Site is currently zoned Light Industrial (M1) with Site Performance Combining District (SP). Implementation of the project would include rezoning the Brunswick Industrial Site to Light Industrial with Mineral Extraction Combining District (M1-ME). The primary purpose of the Mineral Extraction Combining District is to inform the public of the potential for mineral extraction. However, the base zoning district of M1 would remain unchanged.

As described in the 2015–2035 RTP, the mining, logging, and construction industry in Nevada County has resulted in an increase in 390 jobs from 2009 to 2014. Additionally, the mining, logging, and construction industry is projected to be the fastest-growing market through 2022, with an anticipated 37.4 percent growth rate. During full operations, the project would require approximately 312 direct employees. It is anticipated that most of the jobs associated with the project would be filled by residents within the vicinity of the project sites. However, the possibility exists that



implementation of the project could result in population growth in the event that new employees move to the area. Even in the case that some employees do move to the area, as noted previously, growth in the mining sector has been anticipated through the year 2022, and thus, the movement of new employees to the area has been previously anticipated in the 2015-2035 RTP and the Ozone Attainment Plan. Considering the anticipated utilization of current residents as employees at the project sites and the inclusion of mining industry employment growth within the 2015-2035 RTP and the Ozone Attainment Plan, the project would not result in regional growth that is not accounted for within the Ozone Attainment Plan. Because the project would not result in regional growth in excess of the levels anticipated in the Ozone Attainment Plan, the project would comply with Criterion 2.

Conclusion

Based on the analysis presented above, the proposed project would comply with Criterion 2. However, as presented in Table 4.3-17, emissions of ROG, NO_x, and PM₁₀ would be potentially significant (Level A or B) during construction, operations, and reclamation, and mitigation would be required in order for the project to comply with Criterion 1. Because the project would not comply with Criterion 1 without mitigation, implementation of the project could conflict with the Ozone Attainment Plan, and implementation of the project could create a conflict with or obstruct implementation of the applicable air quality plan related to the region's nonattainment status for ozone and PM₁₀, resulting in a **significant** impact prior to implementation of mitigation.

Mitigation Measure(s)

The emission data presented in Table 4.3-17 (i.e., unmitigated emissions) reflect the reductions that would occur with implementation of APM-AQ-1 and APM-AQ-2. Table 4.3-19 shows the estimated maximum daily mitigated emissions associated with construction, operation, and reclamation of the project, accounting for additional emissions reductions associated with Mitigation Measure 4.3-1(b), which would result in a reduction in construction contractors' equipment exhaust criteria air pollutants during project construction (year 2021).³⁹ Additional reductions could not be quantified for Mitigation Measure 4.3-1(a), which are the NSAQMD recommended mitigation measures that are applicable to the project.

According to the NSAQMD, implementation of recommended mitigation measures for Level A and B thresholds (included as Mitigation Measure 4.3-1[b] below) would reduce project impacts to a *less-than-significant* level during all years of project construction, operations, and reclamation.⁴⁰

³⁹ Tier 4 standards for engine hp between 11 hp and 75 hp were available starting in 2008. For engines with hp between 75 and 175, Tier 4 engines were available starting in 2012. For engine hp between 175 and greater than 1,200, Tier 4 engines were available starting in 2011. As such, equipment engines that meet Tier 4 emission standards are currently available at the time of this analysis, and would continue to be available during the project's construction and operational years (starting in 2021).

⁴⁰ Dudek. *Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Idaho Maryland Mine Project Nevada County, California* [pg. 51]. November 2021.



Table 4.3-19 Maximum Mitigated Daily Project Emissions (lbs/day)						
Source	ROG	NO_x	CO	SO_x	PM₁₀	PM_{2.5}
Year 2021 – Construction/Dewatering						
Off-Road Equipment ^a	3.25	15.97	54.08	0.10	0.60	0.60
On-Road Vehicles – Off-Site	1.34	8.79	10.83	0.05	3.54	1.05
On-Road Vehicles – On-Site	0.30	1.70	1.20	0.00	0.70	0.18
Diesel Fuel Tanks – Breathing/Working	0.12	—	—	—	—	—
Emergency Generator Testing ^b	0.47	9.37	24.35	0.13	0.09	0.09
Fugitive Dust – Unpaved Roads/ Disturbed Areas/ Material Handling/ Wind Erosion ^c	—	—	—	—	8.30	2.95
Architectural Coatings	2.64	—	—	—	—	—
Asphalt Off-Gassing	0.38	—	—	—	—	—
Maximum Total Daily Emissions	8.50	35.82	90.46	0.28	13.23	4.87
<i>NSAQMD Significance Threshold Level^d</i>	<i>Level A (<24)</i>	<i>Level B (24-136)</i>	<i>N/A</i>	<i>N/A</i>	<i>Level A (<79)</i>	<i>N/A</i>
Significant (Yes/No or Potentially)? ^e	No	No	No	No	No	No
Year 2022 to 2026 – Mining, Brunswick Industrial Site Operations, Fill Placement at Centennial Industrial Site						
Off-Road Equipment ^a	0.65	6.67	25.51	0.05	0.06	0.06
On-Road Vehicles – Off-Site	1.27	21.65	4.22	0.05	7.20	2.08
On-Road Vehicles – On-Site	0.69	3.57	2.81	0.00	1.86	0.47
Logging/ Chipping – Off-Road Equipment	0.58	27.89	3.15	0.02	3.60	1.19
Logging/ Chipping – On-Road Vehicles - Off-Site	0.03	0.32	0.21	0.00	0.13	0.03
Logging/ Chipping – On-Road Vehicles - On-Site	0.65	6.67	25.51	0.05	0.06	0.06
Emergency Generator Testing ^b	0.94	18.73	48.70	0.26	0.19	0.19
Underground Blasting/Mining ^f	0.00	15.85	62.40	1.86	1.61	0.53
Ore Processing	—	—	—	—	0.29	0.21
Reagent Off-Gassing	0.00	—	—	—	—	—
Diesel Fuel Tanks – Breathing/Working	0.12	—	—	—	—	—
Fugitive Dust – Unpaved Roads/ Disturbed Areas/	—	—	—	—	39.05	5.82

(Continued on next page)



Table 4.3-19 Maximum Mitigated Daily Project Emissions (lbs/day)						
Source	ROG	NO_x	CO	SO_x	PM₁₀	PM_{2.5}
Material Handling/ Wind Erosion ^c						
Architectural Coatings	0.26	—	—	—	—	—
Consumer Products	2.65	—	—	—	—	—
Maximum Total Daily Emissions	9.07	107.49	157.41	2.27	54.40	10.97
<i>NSAQMD Significance Threshold Level^d</i>	<i>Level A (<24)</i>	<i>Level B (24-136)</i>	<i>N/A</i>	<i>N/A</i>	<i>Level A (<79)</i>	<i>N/A</i>
Significant (Yes/No or Potentially)? ^e	No	No	No	No	No	No
Year 2027 to 2032 – Mining, Brunswick Industrial Site Operations, Fill Placement at Brunswick Industrial Site						
Off-Road Equipment ^a	0.65	6.67	25.51	0.05	0.06	0.06
On-Road Vehicles – Off-Site	0.67	13.15	2.29	0.09	6.19	1.76
On-Road Vehicles – On-Site	0.60	4.77	3.70	0.01	2.75	0.69
Logging/ Chipping – Off-Road Equipment	1.88	12.80	10.41	0.04	0.41	0.40
Logging/ Chipping – On-Road Vehicles - Off-Site	0.58	27.89	3.15	0.02	3.60	1.19
Logging/ Chipping – On-Road Vehicles - On-Site	0.03	0.32	0.21	0.00	0.13	0.03
Emergency Generator Testing ^b	0.94	18.73	48.70	0.26	0.19	0.19
Underground Blasting/Mining ^f	0.00	15.85	62.40	1.86	1.61	0.53
Ore Processing	—	—	—	—	0.29	0.21
Reagent Off-Gassing	0.00	—	—	—	—	—
Diesel Fuel Tanks – Breathing/Working	0.12	—	—	—	—	—
Fugitive Dust – Unpaved Roads/ Disturbed Areas/ Material Handling/ Wind Erosion ^c	—	—	—	—	39.05	5.82
Architectural Coatings	0.26	—	—	—	—	—
Consumer Products	2.65	—	—	—	—	—
Maximum Total Daily Emissions	8.38	100.20	156.37	2.31	54.28	10.86
<i>NSAQMD Significance Threshold Level^d</i>	<i>Level A (<24)</i>	<i>Level B (24-136)</i>	<i>N/A</i>	<i>N/A</i>	<i>Level A (<79)</i>	<i>N/A</i>
Significant (Yes/No or Potentially)? ^e	No	No	No	No	No	No
Year 2033 to 2102 – Mining, Brunswick Industrial Site Operations, Fill Placement at Off-Site Location						
Off-Road Equipment ^a	0.37	5.28	15.39	0.03	0.03	0.03

(Continued on next page)



**Table 4.3-19
Maximum Mitigated Daily Project Emissions (lbs/day)**

Source	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
On-Road Vehicles – Off-Site	1.13	74.82	8.88	0.35	17.31	5.24
On-Road Vehicles – On-Site	0.40	2.99	2.48	0.01	2.64	0.66
Emergency Generator Testing ^b	0.94	18.73	48.70	0.26	0.19	0.19
Underground Blasting/Mining ^f	0.00	15.85	62.40	1.86	1.61	0.53
Ore Processing	—	—	—	—	0.29	0.21
Reagent Off-Gassing	0.00	—	—	—	—	—
Diesel Fuel Tanks – Breathing/Working	0.12	—	—	—	—	—
Architectural Coatings	0.26	—	—	—	—	—
Consumer Products	2.65	—	—	—	—	—
Maximum Total Daily Emissions	5.87	117.68	137.86	2.50	22.07	6.85
<i>NSAQMD Significance Threshold Level^d</i>	<i>Level A (<24)</i>	<i>Level B (24-136)</i>	<i>N/A</i>	<i>N/A</i>	<i>Level A (<79)</i>	<i>N/A</i>
Significant (Yes/No or Potentially)? ^e	No	No	No	No	No	No
Year 2103 – Reclamation						
Off-Road Equipment ^a	0.08	0.32	3.91	0.01	0.01	0.01
On-Road Vehicles – Off-Site	0.19	0.36	0.90	0.01	0.30	0.09
Diesel Fuel Tanks – Breathing/Working	0.12	—	—	—	—	—
Maximum Total Daily Emissions	0.39	0.68	4.81	0.01	0.31	0.10
<i>NSAQMD Significance Threshold Level^d</i>	<i>Level A (<24)</i>	<i>Level A (<24)</i>	<i>N/A</i>	<i>N/A</i>	<i>Level A (<79)</i>	<i>N/A</i>
Significant (Yes/No or Potentially)? ^e	No	No	No	No	No	No

Notes: Totals may not sum due to rounding.

a Accounts for APM-AQ-1 (Exhaust Emission Controls), including Tier 4 Final equipment owned by Rise Grass Valley Inc.

b For maximum daily emissions, all diesel generators (2 during construction and 4 during operations) were conservatively assumed to operate for 2 hours on the same day, 1 time per month.

c For APM-AQ-2 (Surface Fugitive Dust Controls), a control efficiency of 55% was included when calculating the emissions of PM10 and PM2.5 for vehicle traffic on unpaved roads during operation and a control efficiency of 80% was assumed for chemical stabilization on unpaved roads during construction. A moisture content of 13% was assumed when calculating emissions of PM10 and PM2.5 during fill spreading and compaction to account for fugitive dust control.

d The NSAQMD Threshold Levels are presented in Table 4.3-5.

e Significance is based on NSAQMD thresholds. For Level A or B criteria, emissions are considered potentially significant and trigger mitigation. If the emissions exceed the Level C threshold, they are considered significant and require greater mitigation. After incorporation of feasible mitigation, emissions at Level A or B would be less than significant, and emissions at Level C (i.e., >136 pounds per day) would be significant and unavoidable.

f Includes emissions from rock blasting, combustion of ANFO, and detonators for blasting.

Source: Dudek, 2021.



- 4.3-1(a) *Prior to the initiation of construction, the following requirements shall be noted on project improvement plans. Improvements plans shall be submitted to the Nevada County Planning Department for review and approval.*

Mitigations for Use During Construction:

The following measures are from the Northern Sierra Air Quality Management District and are based on the significance threshold level of emissions.

For all Significance Level Thresholds (A, B, and C)

- a. Alternatives to open burning of vegetative material shall be used unless deemed infeasible by the Northern Sierra Air Quality Management District. Among suitable alternatives are chipping, mulching, or conversion to biomass fuel.*
- b. Grid power shall be used (as opposed to diesel generators) for job site power needs where feasible during construction.*

Additional Measures for Emissions at Level B Thresholds:

- c. All controls discussed above (a and b) shall be implemented.*
- d. Temporary traffic control shall be provided during all phases of the construction to improve traffic flow as deemed appropriate by the local transportation agencies and/or the California Department of Transportation.*
- e. Construction activities shall be scheduled to direct traffic flow to off-peak hours as much as practicable.*

- 4.3-1(b) **Construction Exhaust Emissions Minimization Plan.**

Prior to the initiation of construction, Rise Grass Valley Inc. or its designee shall submit a Construction Exhaust Emissions Minimization Plan to Nevada County or its designated representative for review and approval. The Construction Exhaust Emissions Minimization Plan shall detail project compliance with the following requirements:

- Where access to alternative sources of power and alternative-fueled equipment are available, portable diesel engines shall be prohibited.*
- All diesel-powered equipment with engines equal to or greater than 50 horsepower (hp) shall be powered by California Air Resources Board (CARB) certified Tier 4 Final engines. If 50 hp or greater engines that comply with Tier 4 Final emissions standards are not commercially available, then the project applicant shall ensure that all diesel-powered equipment equal to or greater than 25 hp shall have at least CARB-certified Tier 3 engines with the most effective Verified Diesel Emission Control Strategies available for the engine type, such as Level 3 Diesel Particulate Filters (Tier 4 engines automatically meet this requirement).*



- a. For purposes of this mitigation measure, “commercially available” shall mean the availability of the Tier 4 Final equipment, taking into consideration factors such as critical path timing of construction and geographic proximity of the equipment location to the project sites.
- b. The project applicant shall maintain and submit records to Nevada County concerning its efforts to comply with this requirement.

4.3-2 Expose sensitive receptors to substantial pollutant concentrations. Based on the analysis below and with implementation of mitigation, the impact is less than significant.

The major pollutants of concern are localized CO emissions, TAC emissions, and criteria pollutants, which are addressed below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Implementation of the proposed project would increase traffic volumes on streets near the project sites. As noted in the Method of Analysis section, several intersections would operate at unacceptable LOS during the Near-Term Existing Plus Project and Year 2035 Plus Project scenarios. CO emissions resulting from intersections operating at unacceptable LOS were quantified using CALINE4, and the results are presented in Table 4.3-20.

As shown in Table 4.3-20, the maximum CO concentration predicted for the one-hour averaging period at the studied intersections would be 9.3 ppm, which is below the one-hour CO CAAQS of 20 ppm. The maximum predicted eight-hour CO concentration of 5.58 ppm at the studied intersections would be below the eight-hour CO CAAQS of nine ppm. Neither the one-hour CAAQS nor the eight-hour CAAQS would be equaled or exceeded at any of the intersections studied. Therefore, the project would not expose sensitive receptors to substantial concentrations of localized CO and impacts related to localized CO emissions would be less than significant.

Table 4.3-20 CALINE4 Predicted CO Concentrations		
Intersection	Maximum Modeled Impact (ppm)	
	One-Hour	Eight-Hour¹
Near-Term Existing Plus Project		
Brunswick Rd/Idaho Maryland Rd (LOS F in PM)	9.3	5.58
Brunswick Rd/SR 174 (LOS E PM)	9.1	5.46
Idaho Maryland Rd/Centennial Dr (LOS F in PM)	9.2	5.52
Year 2035 Plus Project		
Sutton Way/Dorsey Dr (LOS F in PM)	9.0	5.40
Notes:		
¹ 8-hour concentrations were obtained by multiplying the 1-hour concentration by a persistence factor of 0.6.		
Source: Dudek, 2021.		



TAC Emissions

Project construction, operations, and reclamation activities would produce DPM emissions (with PM₁₀ exhaust modeled as surrogate) due to off-road equipment and haul truck trips, and other TAC emissions from mining and soil movement. The TAC emissions associated with blasting and crushing, ore processing, and earthwork and material handling would include asbestos, silica, and trace heavy metal TACs including arsenic, beryllium, cadmium, copper, lead, manganese, mercury, nickel, selenium, and vanadium. In addition, for purposes of the HRA, diesel emergency generators were assumed to operate for up to 100 hours per year in accordance with CARB's ATCM for Stationary Compression Ignition Engines. Other emissions of TACs from blasting pertain to the combustion of ANFO. However, according to the safety data sheet for the detonators that would be used at the project site, the detonators would not emit any TACs that have OEHHA approved reference exposure levels, and, therefore, the detonators would not impact the health calculations assessed within this EIR.

Emissions from the foregoing sources could result in elevated concentrations of TAC emissions at nearby receptors, which could lead to an increase in the risk of cancer or other health impacts. Consequently, an HRA was performed to determine the extent of increased cancer risks and hazard indices at the maximally exposed receptors. The detailed HRA is included as part of Appendix E.1 to this EIR, with results summarized below.

The maximally exposed receptor was estimated to be the nearest existing residence, which is north of the Brunswick Industrial Site. Potential health risks at the maximally exposed individual residence resulting from project implementation are shown in Table 4.3-21. Table 4.3-21 presents health risks both from an unmitigated project scenario as well as a mitigated project scenario following implementation of Mitigation Measure 4.3-1(b) of this EIR.

As shown in Table 4.3-21, the incremental cancer risk at the maximally exposed individual resident of 10.4 in one million (assuming exposure starts in 3rd trimester) from project implementation would exceed the NSAQMD threshold of 10 in one million without mitigation. However, with incorporation of higher-tier engines during construction, as required by Mitigation Measure 4.3-1(b), the project would result in an incremental cancer risk of 7.6 in one million. The unmitigated and mitigated chronic hazard index would be 0.6 and 0.6 at the maximally exposed individual resident, respectively, which would be below the NSAQMD threshold of 1.0. The unmitigated and mitigated acute hazard index would be 0.004 and 0.004 at the maximally exposed individual resident, respectively, which would be below the NSAQMD threshold of 1.0. Thus, the project would not result in exposure of sensitive receptors to substantial concentrations of TACs with the implementation of the required Mitigation Measure 4.3-1(b).

It should be noted that because asbestos is present in some of the material that would be mined, the project would have the potential to result in emissions of asbestos. Health risks related to asbestos are considered together with the TACs discussed above; in addition, further consideration is given to emissions of asbestos separately below.



Table 4.3-21 Project-Related Health Risk Results			
Receptor	Cancer Risk (persons per million)¹	Chronic Impact	Acute Impact
Unmitigated Project			
Maximally Exposed Individual Resident ²	10.4	0.6	0.004
<i>NSAQMD Significance Criteria</i>	10	1.0	1.0
Exceed Threshold?	Yes	No	No
Mitigated Project³			
Maximally Exposed Individual Resident ²	7.6	0.6	0.004
<i>NSAQMD Significance Criteria</i>	10	1.0	1.0
Exceed Threshold?	No	No	No
Notes: TAC exposure at receptors modeled with AERMOD, which were then input into HARP2 to generate health risk estimates. Exposure was assumed to begin in the 3 rd trimester of pregnancy for a duration of 30 years, pursuant to the OEHHA 2015 Risk Assessment Guidelines Manual.			
¹ Accounts for APM-AQ-3 (ASUR Plan), which incorporates measures designed to minimize asbestos in engineered fill produced by the project, as well as asbestos fibers generated from underground mining from exhausting to the surface.			
² The maximally exposed individual resident for annual cancer and chronic health risk impacts is located north of the project sites at UTM coordinates 671091.4 meter Easting (m E)/4342277.23 meters Northing (m N).			
³ Mitigated risk values incorporate Mitigation Measure 4.3-1(b) (Control Measures for Construction Exhaust-Related Emissions), which requires all construction contractor equipment with engines 50 hp or greater to be Tier 4.			
Source: Dudek, 2021.			

Asbestos

With regard to potential asbestos emissions from mining, Rise Grass Valley Inc. would be required to comply with applicable regulations, including those established by the MSHA and CARB, that limit potential exposure for workers. Further, as described in APM-AQ-3, the project would include implementation of an ASUR Plan that has been designed to minimize asbestos in the engineered fill produced by the project, as well as asbestos fibers generated from underground mining exhausting to the surface. Finally, pursuant to the CARB ATCM for Construction, Grading, Quarrying and Surface Mining Operations, an ADMP is required to be submitted to the NSAQMD for any project with greater than one acre of surface disturbance if any portion of the area to be disturbed is mapped as having serpentine or ultramafic rock or if any portion of the area to be disturbed has naturally-occurring asbestos, serpentine or ultramafic rock as determined by the owner/operator or the Air Pollution Control Officer. Because asbestos was found to be present in some of the underground mining material samples that Rise Grass Valley Inc. sent for laboratory analysis,⁴¹ an ADMP is required to be implemented to reduce potential asbestos exposure and protect public health.

⁴¹ Samples containing naturally-occurring asbestos were from underground rock only; naturally-occurring asbestos is not known to outcrop at the surface of the Brunswick Industrial Site or Centennial Industrial Site.



Criteria Pollutants

ROG and NO_x are precursors to O₃, for which the MCAB is designated as nonattainment with respect to the NAAQS and CAAQS. As discussed previously, the health effects associated with O₃ are generally associated with reduced lung function. The contribution of ROG and NO_x to regional ambient O₃ concentrations is the result of complex photochemistry. The increases in O₃ concentrations in the MCAB due to O₃ precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O₃ concentrations would also depend on the time of year that the ROG emissions would occur because exceedances of the O₃ NAAQS and CAAQS tend to occur between April and October when solar radiation is highest. The holistic effect of a single project's emissions of O₃ precursors is speculative due to the lack of quantitative methods to reliably and meaningfully assess the impact. Thus, a project's ROG and NO_x emissions are evaluated in the context of the NSAQMD significance thresholds, which define the levels of emissions that can occur without causing or contributing to violations of the NAAQS or CAAQS. In turn, the NAAQS and CAAQS define the pollutant concentrations above which adverse health effects are expected to occur. Because ROG and NO_x emissions associated with project construction, operation, and reclamation would be potentially significant before mitigation, the project could minimally contribute to regional O₃ concentrations and the associated health effects.

Health effects that result from NO_x (including NO₂) include respiratory irritation. NO_x emissions from project construction, operation, and reclamation would occur at NSAQMD threshold Level B. Project implementation is not anticipated to contribute to exceedances of the NAAQS or CAAQS for NO₂ because the MCAB is designated as attainment of the NAAQS and CAAQS for NO₂, and the existing NO₂ concentrations in the area are well below the NAAQS and CAAQS standards. Thus, project-related NO₂ emissions would not be sufficient to create exceedances of the NAAQS and CAAQS for NO₂ and implementation of the project would not result in exposure of receptors to substantial concentrations of NO₂.

CO tends to be a localized impact associated with congested intersections. As described above, the project-related CO emissions would not contribute to significant health effects or expose receptors to substantial pollutant concentrations.

Construction, operation, and reclamation of the project would result in PM₁₀ emissions at NSAQMD threshold Level A, which would be considered potentially significant before mitigation. As such, the project would potentially contribute to exceedances of the CAAQS for PM₁₀, and would potentially obstruct the MCAB from coming into attainment for this pollutant. The project would be required to comply with NSAQMD Rule 207, Particulate Matter, and would implement APM-AQ-2, Surface Fugitive Dust Controls, which would limit the amount of dust generated during project implementation. By reducing the generation of fugitive dust through compliance with the foregoing NSAQMD rules and APM-AQ-2, emissions of PM₁₀ would be reduced to the maximum extent practicable and receptors would not be exposed to excess pollutant concentrations.



Notably, as detailed in Appendix C of the Air Quality and GHG Report prepared by Dudek (included as Appendix E.1 to this EIR), numerous scientific and technological complexities exist that are associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, such as the disconnect between mass emissions and concentrations due to secondary pollutant (such as O₃) generation and pollutant transport, as well as the inaccuracy of applying regional and population-wide models to a local level in order to estimate health effects, and modeling tools endorsed by an expert agency (i.e., NSAQMD) that could provide reliable and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects do not currently exist.

Thus, considering the conclusion of Impact 4.3-1, that the proposed project would not obstruct attainment of CAAQS and NAAQS, and with implementation of all APMs as well as Mitigation Measures 4.3-1(a) and 4.3-1(b), the proposed project would not expose sensitive receptors to excess concentrations of criteria pollutants causing substantial adverse health impacts.

Conclusion

Table 4.3-20 demonstrates that project-related CO emissions would not exceed the one-hour or eight-hour thresholds, and, as such, the project would not expose sensitive receptors to excess concentrations of CO. Table 4.3-21 demonstrates that emissions of TACs would not result in health risks to nearby receptors in excess of NSAQMD thresholds. Furthermore, criteria pollutant emissions from project construction, operations, and reclamation would not expose receptors to substantial concentrations of pollutants. Implementation of the ASUR Plan would ensure that underground mining activities and use of project-generated fill would not result in the emission of asbestos containing dust. Nevertheless, an ADMP would be required pursuant to the CARB ATCM for Construction, Grading, Quarrying and Surface Mining Operations. Without implementation of an ADMP, the project could result in a **significant** impact with respect to exposing receptors to substantial concentrations.

Mitigation Measure(s)

Implementation of Mitigation Measure 4.3-2 would ensure project consistency with the CARB ATCM for Construction, Grading, Quarrying and Surface Mining Operations by requiring preparation and implementation of an ADMP, even though the ASUR Plan is specifically designed to prohibit significant levels of asbestos from reaching the surface. The following mitigation measure would ensure that the potential impact would be *less-than-significant*.

4.3-2 Asbestos Dust Mitigation Plan.

Prior to the initiation of any clearing, grading, or construction activities, Rise Grass Valley Inc. shall submit an Asbestos Dust Mitigation Plan (ADMP) to Northern Sierra Air Quality Management District (NSAQMD) for review and approval. The provisions of the ADMP shall be initiated at the beginning of the project (before clearing or grubbing) and maintained for the duration of the project. The Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (Title 17 of the California Code of Regulations [CCR] Section 93105) contains



specific requirements for the preparation of an ADMP. Conditions of the ADMP shall include the following:

- Provisions of this ADMP shall apply throughout construction, operation, and reclamation activities, except as specified otherwise.
- All visible track-out material (from vehicles leaving the work site) must be removed from all public roads at least once per day using wet sweeping or a HEPA-filter-equipped vacuum device.
- A gravel pad designed and maintained to effectively clean tires of exiting vehicles, a wheel wash system, or a minimum of 50 feet of pavement must be placed between the construction area and any public road, and must be used by all exiting vehicles (including personal vehicles and delivery trucks) throughout the duration of the project.
- All active storage piles shall be adequately wetted or covered with plastic to ensure that no visible dust crosses the property boundary. Potential dust emissions from disturbed surface areas and storage piles that will remain inactive for more than seven days shall be controlled to completely prevent visible dust from crossing the property boundary by at least one of the following methods (pursuant to [e][4][C] of the ATCM):
 - a. Keeping the surface adequately wetted;
 - b. Applying chemical dust suppressants or chemical stabilizers according to the manufacturer's recommendations and all applicable regulations;
 - c. Covering with tarp(s) or vegetative cover;
 - d. Installing wind barriers of 50 percent porosity around three sides of all storage piles; and/or
 - e. Installing wind barriers across open areas and between the project sites and any adjacent occupied residential or business property.
- The maximum vehicle speed on all unpaved parts of the project sites must be clearly posted and must not exceed 15 miles per hour.
- All areas where vehicles drive on the site, at all times when the area is subjected to vehicle or equipment traffic, shall be watered every two hours or kept adequately wetted to prevent visible dust emissions from leaving the property boundary, except where a gravel cover has been established that has a silt content of less than five percent and an asbestos content of less than 0.25 percent and is at least three inches thick.
- For all earthmoving activities, at least one of the following methods of dust control shall be implemented, pursuant to (e)(4)(E) of the ATCM:
 - a. Pre-wetting the ground to the depth of anticipated cuts; and/or



- b. Suspending grading operations when visible dust emissions from any aspect of the grading (including tires, fans, and exhaust) cross the property line.*
- *Trucks used for hauling material off site shall be maintained such that spillage cannot occur from holes or other openings.*
- *All loads to be hauled off site shall be adequately wetted to prevent visible dust from escaping during transportation, pursuant to (e)(4)(F)2 of the ATCM, and shall either:*
 - a. be completely covered with tarps; or*
 - b. have at least six inches of freeboard on the sides of the bed of the vehicle, with no excavated material extending above the edges of the vehicle bed at any point.*
- *Upon completion of the project, disturbed surface areas shall be stabilized, pursuant to (e)(4)(G) of the ATCM, using one or more of the following methods:*
 - a. establishment of a vegetative cover;*
 - b. placement of at least three inches of material having an asbestos content of 0.25 percent asbestos or less as measured using an approved asbestos bulk test method; and/or*
 - c. paving.*
- *The NSAQMD's Air Pollution Control Officer may require bulk sampling at any time. If bulk sampling is required, the sampling shall be performed in accordance with California Air Resources Board Test Method 435. Where Method 435 specifies "serpentine," this shall apply to gravel, decomposed ultramafic rock, and any other material as specified by the Air Pollution Control Officer.*
- *The NSAQMD's Air Pollution Control Officer may require air monitoring at any time, and may modify the ADMP on the basis of results of the monitoring. If required, provisions of air monitoring shall be determined in coordination with the NSAQMD.*
- *Before site disturbance (e.g., clearing, grubbing, or grading) begins, the NSAQMD shall be informed by telephone at (530) 274-9360 of the exact day on which site disturbance will commence.*

4.3-3 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Based on the analysis below, the impact is *less than significant*.

Impacts associated with project emissions of criteria air pollutants and toxic air contaminants are addressed under Impacts 4.3-1 and 4.3-2. In consideration of the project's potential to result in other emissions, analysis in Impact 4.3-3 considers the potential for the project to result in impacts related to the emission of odors.



The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of the location receiving the odors each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Some of these activities, for instance the use of off-road diesel-powered equipment, would continue with project operations. However, such odors would disperse rapidly from the point of origin within the project sites and would generally occur at magnitudes that would not affect substantial numbers of people.

Land uses and industrial operations that typically are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, solid waste transfer stations, rendering plants, dairies, and fiberglass molding. The project does not propose any of the aforementioned odor-generating land uses.

The possibility exists that objectionable odors could be produced by the pumped mine water or by sulfide flotation associated with ore processing. The aforementioned sources are discussed in further detail below.

Mine Water Treatment

Groundwater pumped from the underground mine would go through an on-site water treatment process before being discharged. To determine the potential for odor generation from mine water treatment, two similar existing treatment systems in Nevada County, at the Empire Mine and the North Star Mine, were examined. Nevada County evaluated the North Star treatment system in 2015 before approval of the Mitigated Negative Declaration for the project (Nevada County 2015). Additionally, Nevada County planning staff assessed the Empire Mine site for odors, and odors were not identified. It is understood that odors do not occur because the water is not stagnant and does not contain biological contaminants. The naturally occurring mineral contaminants of manganese, iron, and arsenic, including their oxidized forms, do not emit an odor (Nevada County 2015).

The Empire Mine and North Star treatment plants are passive systems, whereas the proposed project would include an active treatment method. The chemicals proposed to be used in water treatment for the proposed project were evaluated for their potential to create odors, and only sodium hypochlorite was reported to have an odor (chlorine odor). Sodium hypochlorite is added at the Water Treatment Plant and, therefore, would only have the potential to occur inside the Water Treatment Plant building. Additionally, the water treatment process includes the use of granulated activated carbon filters, which serve to remove potential odors from the treated water.

Finally, ammonia derived from explosive residues could be present in the mine water pumped from the mine; however, any ammonia present, if any, would exist in negligible



quantities and any potential odors would disperse rapidly from the project site. Thus, any odors associated with ammonia would generally occur at magnitudes that would not affect substantial numbers of people.

For the foregoing reasons, mine water treatment associated with the proposed project would result in a less-than-significant odor impact.

Ore Processing

The mineral process plant within the on-site Process Plant building would use reagents for the flotation of sulfide minerals. The proposed chemicals to be used in flotation were evaluated for their potential to create odors. The frother reagent (MIBC) is reported to have a mild alcohol odor, whereas one of the promoter reagents (AEROFLOAT) has a mild alcohol and sulfur odor, and the other promoter reagent (AEROPHINE) does not produce any odor.

The flotation reagents are added during mineral processing and, therefore, would only have the potential to occur inside the Process Plant building. The Process Plant building would be serviced by a centralized heating, ventilation, and air conditioning system and, as feasible, emissions from processing activities at the site would be adequately contained therein. Potential odor from the use of MIBC and AEROFLOAT would disperse rapidly from the project site and would generally occur at magnitudes that would not affect substantial numbers of people.

Based on the preceding considerations, mineral processing associated with the proposed project would result in a less-than-significant odor impact.

Conclusion

Based on the above, implementation of the proposed project would not have the potential to result in emissions leading to odors, which could adversely affect a substantial number of people, and this impact would be **less than significant**.

Mitigation Measure(s)

None required.

4.3-4 Result in the inefficient or wasteful use of energy. Based on the analysis below, the impact is less than significant.

Implementation of the proposed project would result in the consumption of energy resources during construction, operation, and reclamation activities. The principal forms of energy consumed would be electricity, gasoline, and diesel. The foregoing forms of energy would be consumed by off-road equipment, facilities, stationary generators, and on-road vehicles. Off-road equipment (such as graders, excavators, cranes, et.) and stationary generators would generally be powered by diesel; however, some equipment, such as boring machines, air compressors, locomotives, pumps, and ventilation equipment would be electrically powered. On-road vehicles would demand either diesel or gasoline, with lighter duty vehicles often requiring gasoline while haul trucks and heavier duty vehicles typically require diesel fuel.



In addition to reducing air quality and GHG emissions, APM-AQ-1, Exhaust Emission Controls, would serve to avoid inefficient energy consumption in several ways. First, APM-AQ-1 commits the project applicant to using Tier 4 Final equipment throughout project construction, operation, and reclamation. The commitment to the use of Tier 4 engines is further required by Mitigation Measure 4.3-1(b) of this EIR. As a result of the improvements integrated into Tier 4 Final engines (relative to lower tier engines), Tier 4 Final compliant engines are generally the most fuel-efficient models currently available. Consequently, by using Tier 4 compliant engines throughout the construction, operation, and reclamation processes, fuel use by off-road equipment would be minimized, and the off-road equipment used in project implementation would not be inefficient.

As a further means of increasing the efficiency of fuel use associated with project implementation, APM-AQ-1 includes measures to minimize vehicle idling where practical. In general, reducing idling reduces the amount of run-time for engines, which decreases the amount of fuel consumed. Reducing idling time would, therefore, avoid inefficient energy consumption related to off-road vehicle use. Similarly, maintaining equipment in accordance with manufacturer's specifications, as required by APM-AQ-1, ensures that equipment continues to operate efficiently.

In addition to the energy efficiency requirements focused on reducing fuel consumption discussed above, construction and operations would also require operation of electrically powered equipment. Use of grid-supplied electricity provides an opportunity for the use of renewably generated electricity to power project operations. Unlike fossil-fueled equipment, electric equipment may receive electrical power from sources such as solar, hydro-electric, wind, or biomass, which are sustainable and renewable. The electricity provider for the project area, PG&E, currently utilizes a variety of renewable energy sources to provide electricity to the grid. Thus, use of electrically powered equipment would reduce the project's dependence on fossil-fuel energy supplies and would not be considered an inefficient source of energy demand. Although electricity demand for the project would primarily be met through grid-supplied electricity, in certain instances, such as during power outages or emergency electrical shut-offs, the use of emergency generators would be necessary to provide continued electrical power. Despite the emergency generators being diesel fueled, both of the generators used during project construction and all four of the generators used during project operations, if needed, would be Tier 4 Final engines. As discussed above, Tier 4 Final engines are the most efficient engines currently available, which would ensure that the consumption of fuel by the generators would be minimized to the extent feasible. Moreover, the generators would be used to provide continued operations to critical mining infrastructure such as pumps, locomotives, and ventilation systems, which are critical to the safety of miners and efficient operation of the mine. Thus, the use of electrically powered equipment would not result in the inefficient or wasteful consumption of energy.

All stages of project implementation would require on-road vehicle use. Light- and heavy-duty vehicles would be used by employees commuting to and from the project sites, as well as for the movement of goods, products, and equipment to and from the project sites. On-road vehicles currently use a variety of fuels including gasoline, diesel, and electricity. California has implemented strict regulations related to fuel efficiency standards for all types of vehicles, and to encourage the proliferation of



electrically powered vehicles. Project-related vehicles, including those operated and owned by the project applicant, would be required to meet all existing and future state standards, which would ensure that all vehicles operated as part of the project are fuel- and energy-efficient. Finally, by using project-generated fill at the Centennial and Brunswick sites, the project would provide a local source of fill materials to both sites, which would minimize the length of travel for fill material. Providing local sources of fill materials reduces the energy required to transport material, and provides an energy-efficient supply of construction materials.

Based on the above, APM-AQ-1 and Mitigation Measure 4.3-1(b) would ensure that only high-efficiency off-road equipment is used during project construction, operation, and reclamation. Electrically powered equipment used on-site would primarily be served by grid-supplied electricity, which would originate from an increasingly renewably sourced mix of energy, and, if emergency power is required, the emergency generators would be Tier 4 Final compliant engines. On-road vehicles are required to meet stringent state and federal requirements related to fuel efficiency. All project vehicles would be required to comply with the existing requirements, which would ensure that on-road vehicles would be operated in an energy efficient manner. Accordingly, the proposed project would not result in an inefficient, wasteful, and unnecessary consumption of energy, and the impact would be ***less than significant***.

Mitigation Measure(s)

None required.

4.3-5 Conflict with a State or local plan for renewable energy or energy efficiency. Based on the analysis below, the impact is *less than significant*.

State regulations promote the generation of renewable energy and encourage energy efficiency through requirements placed on utility providers and strict development standards. For instance, the RPS require utilities, including PG&E, to procure an increasing proportion of electricity from renewable sources. Ultimately the RPS requirements mandate that all electricity produced within the state be renewably sourced by the year 2045. The proposed project is anticipated to result in increased electricity consumption of 16,513 MWh during the year of construction and 49,613 MWh annually during operations. Reclamation activity is not anticipated to create a substantial demand for electrical power. Although the project would increase electricity demand, the increased demand is not anticipated to conflict with PG&E's ability to meet the RPS requirements. In fact, PG&E has previously exceeded the RPS requirements as recently as the year 2017; in 2017 PG&E exceeded the RPS requirements by four percent by providing 33 percent of all delivered electricity through renewable sources. PG&E plans to increase the proportion of RPS compliant renewable sources of electricity in line with state requirements in the future.⁴² Project electricity demand would not inhibit PG&E's continued compliance with RPS.

⁴² PG&E. *Renewable Energy*. Available at: Renewable Energy - PG&E Corporate Responsibility and Sustainability Report 2017. Accessed December 2020.



Another key state initiative related to energy efficiency is the goal of increasing energy efficiency requirements for new structures. To that end, the State has adopted several regulations including the California Building Energy Efficiency Standards, the CALGreen Standards, the California Building Standards Code (CBSC) and Title 24 and 20 of the CCR, all of which include mandatory and voluntary measures that are intended to increase energy efficiency and decrease net energy demand. All structures developed as part of the proposed project would be required to adhere to the California Building Energy Efficiency Standards, CALGreen, and various other building standards contained in the California Building Standards Code and Titles 24 and 20 of the CCR. Adherence to the foregoing requirements would ensure that construction of the project would not interfere with plans for energy efficiency.

In addition to the State plans for renewable energy generation and energy efficiency discussed above, Nevada County adopted the Energy Action Plan (EAP) in 2019. The EAP includes voluntary actions that are intended to meet the goals of reducing Countywide annual electricity demand by 51 percent and natural gas consumption by 30 percent in the year 2035, relative to a year 2005 baseline. The target energy reductions are anticipated to be achieved through increased energy efficiency, increased renewable energy production, and measures related to water supply sustainability. It should be noted that the EAP is not a Qualified GHG Emissions Reduction Plan under CEQA pursuant to the requirements outlined in the CEQA Guidelines, Section 15183.5(D); therefore, no CEQA document can tier from the County EAP. Nevertheless, the compliance of the project with EAP strategies has been analyzed and presented in Table 4.3-22.

Table 4.3-22 Project Consistency with Nevada County Energy Action Plan Energy Reduction Measures		
Strategy Number	Strategy Description	Project Consistency
Goal 1: Energy Efficiency – Improve Energy Efficiency in Buildings, Facilities, and Nevada County Operations		
Strategy 1.1	Expand outreach and education on existing energy efficiency practices, programs, and financing options for residential and non-residential utility customers.	Nevada County (County) to implement. Not applicable to the project.
Strategy 1.2	Improve compliance with current California Building Energy Efficiency Standards (Title 24, Part 6) by providing informational materials when available.	Consistent. Project would comply with Title 24, Part 6 standards in applicable buildings. County to implement the provision of informational materials.
Strategy 1.3	Continue to increase the energy efficiency of County buildings, facilities, and operations.	County to implement. Not applicable to the project.
Goal 2: Renewable Energy – Expand the Utilization of Renewable Energy and Resilience Measures		
Strategy 2.1	Prepare for the inclusion of renewable energy systems in new construction and large retrofit projects in order to meet California Zero Net Energy Goals by providing informational material when available.	Pertains to solar photovoltaic systems in all residential construction and large retrofit projects. County to implement the provision of informational

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Table 4.3-22 Project Consistency with Nevada County Energy Action Plan Energy Reduction Measures		
Strategy Number	Strategy Description	Project Consistency
		materials. Not applicable to the project because the project consists of mining activity and industrial type development.
Strategy 2.2	Encourage renewable energy projects through education, outreach, and local leadership.	County to implement. Not applicable to the project.
Strategy 2.3	Encourage energy storage and grid optimization infrastructure projects that support local renewable energy systems and community resilience.	Pertains to energy storage and grid optimization infrastructure projects. Not applicable to the project.
Goal 3: Water Energy – Encourage the Efficient and Safe Transportation and Use of Water Resources		
Strategy 3.1	Improve and increase the County’s outreach and education efforts in collaboration with Nevada Irrigation District and other water agencies by providing information on existing and future water efficiency and conservation programs.	Consistent. Project activities would comply with water efficiency Title 24, Part 11 (CALGreen Code) standards in applicable buildings, including installing toilets, urinals, faucets, and showerheads subject to the CALGreen maximum flow rates. County to implement the provision of informational materials.
Strategy 3.2	Coordinate with Nevada Irrigation District (NID) and other water agencies to participate in proactive leak detection programs in order to reduce water losses.	County and NID to implement. Not applicable to the project.
Strategy 3.3	Continue to improve the efficiency of County Wastewater Treatment operations and encourage and collaborate with Nevada Irrigation District and other water agencies to improve the efficiency of agency water operations.	County to implement. Not applicable to the project.
Source: Dudek, 2021.		

As shown in Table 4.3-22, the majority of strategies within the EAP are directed at the County level or other types of projects (e.g., residential or commercial projects, renovations of existing developments, etc.). Nevertheless, the proposed project complies with all applicable strategies from the EAP.

Considering the above, the proposed project is not anticipated to interfere with any State adopted plans for renewable energy production or energy efficiency, and a **less-than-significant** impact would occur.

Mitigation Measure(s)

None required.



Cumulative Impacts and Mitigation Measures

A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects. The geographic context for the cumulative air quality analysis includes Nevada County and surrounding areas within the portions of the MCAB designated nonattainment for ozone and/or PM₁₀.

As mentioned above, global climate change is, by nature, a cumulative impact. Emissions of GHG contribute incrementally to adverse environmental effects associated with global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). Because climate change is a global phenomenon, a single project could not generate enough GHG emissions to contribute noticeably to climate change. However, the combination of GHG emissions from a project with other past, present, and future projects (including global anthropomorphic activities) could contribute substantially to the world-wide phenomenon of global climate change and the associated environmental impacts. Although the geographical context for global climate change is the Earth, for analysis purposes under CEQA, and due to the regulatory context pertaining to GHG emissions and global climate change applicable to the proposed project, the geographical context for global climate change in this EIR is limited to the State of California.

4.3-6 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard. Based on the analysis below, the project's incremental contribution to this significant cumulative impact is less than cumulatively considerable.

Past, present, and future development projects may contribute to adverse air quality impacts in the MCAB on a cumulative basis. In developing thresholds of significance for air pollutants, NSAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, the project's emissions would be considered cumulatively considerable, resulting in a significant adverse incremental contribution to the region's existing air quality conditions.⁴³ Therefore, if the project's emissions are below the NSAQMD's thresholds, then the project would not result in a cumulatively considerable increase of any criteria air pollutant.

Impact 4.3-1 compares the estimated project emissions to the NSAQMD's thresholds of significance under Criterion 1. In particular, Table 4.3-17 presents the estimated unmitigated project emissions from construction, operation, and reclamation. Considering the level of emissions presented in Table 4.3-17, the project is required to comply with Mitigation Measures 4.3-1(a) and 4.3-1(b) in order to reduce emissions and comply with the NSAQMD's applicable air quality plans. Implementation of Mitigation Measures 4.3-1(a) and 4.3-1(b) would reduce project-related emissions to the levels presented in Table 4.3-19. According to the NSAQMD, implementation of Measures 4.3-1(a) and 4.3-1(b) would ensure that implementation of the project would not conflict with the applicable air quality plans.

⁴³ Dudek. *Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Idaho Maryland Mine Project Nevada County, California* [pg. 40]. November 2021.



Therefore, emissions resulting from the implementation of the proposed project would not represent a cumulatively considerable contribution of any criteria pollutant for which the project region is in nonattainment. As such, the impact would be **less than cumulatively considerable**.

Mitigation Measure(s)

None required.

4.3-7 Generation of GHG emissions that may have a significant impact on the environment. Based on the analysis below and with implementation of mitigation, the project’s incremental contribution to global GHG emissions and climate change is less than cumulatively considerable.

Implementation of the project would contribute to increases of GHG emissions that are associated with global climate change during construction, operation, and reclamation. Construction of the project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, worker vehicles, and emergency generator testing and maintenance. Additionally, GHG emissions would be associated with PG&E-supplied electricity for the underground mine equipment, water treatment, and raise boring. Sources of GHG emissions generated during project operations would include off-road equipment, on-road vehicles, emergency generator testing and maintenance, underground blasting, electricity use associated with facility consumption, NID conveyance of water to residences along the potable water line, septic field treatment of wastewater, solid waste, and carbon emissions associated with tree removal. Emissions from reclamation activities would be associated with the use of off-road vehicles as well as employee commutes. Assumptions associated with project construction-related, operational, and reclamation-related GHG emission calculations are provided in the Method of Analysis section above, as well as in the Air Quality and GHG Report included as Appendix E.1 to this EIR.

The estimated unmitigated annual emissions from construction, operations, and reclamation activity are presented in Table 4.3-23.

Table 4.3-23				
Estimated Annual Greenhouse Gas Emissions (Metric Tons)				
Emission Source	CO ₂	CH ₄	N ₂ O	CO ₂ e
Year 2021 – Construction/Dewatering				
Emergency Generators ^a	301.76	0.01	0.00	303.44
Off-Road Equipment ^b	1,029.94	0.30	0.13	1,077.25
On-Road Vehicles – Off-Site	496.35	0.01	0.04	508.67
On-Road Vehicles – On-Site	11.61	0.00	0.00	12.22
PG&E-Supplied Electricity	1,527.86	0.25	0.03	1,542.97
NID-Supplied Potable Water	3.56	0.00	0.00	3.60
Total Annual Emissions				3,444.55
<i>GHG Threshold</i>				<i>1,100</i>
Significant (Yes/No)?				Yes

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Table 4.3-23 Estimated Annual Greenhouse Gas Emissions (Metric Tons)				
Emission Source	CO₂	CH₄	N₂O	CO₂e
Year 2022 to 2026 – Mining, Brunswick Industrial Site Operations, Fill Placement at Centennial				
Emergency Generators ^a	603.53	0.02	0.01	606.88
Off-Road Equipment ^b	721.54	0.21	0.09	754.68
On-Road Vehicles – Off-Site	900.61	0.02	0.07	922.80
On-Road Vehicles – On-Site	71.40	0.01	0.01	75.16
Logging/ Chipping – Off-Road Equipment	1.07	0.00	0.00	1.10
Logging/ Chipping – On-Road Vehicles Off-Site	4.52	0.00	0.00	4.73
Logging/ Chipping – On-Road Vehicles On-Site	0.02	0.00	0.00	0.02
Underground Blasting/Mining ^c	68.79	0.00	0.00	69.05
PG&E-Supplied Electricity	4,590.43	0.74	0.09	4,635.82
NID-Supplied Potable Water	5.48	0.00	0.00	5.53
Wastewater Septic Field	—	0.33	0.00	8.52
Solid Waste	41.55	2.46	—	102.94
Tree Removal – Carbon Loss ^d	33.30	—	—	33.30
Total Annual Emissions				7,221.64
<i>GHG Threshold</i>				<i>10,000</i>
Significant (Yes/No)?				No
Year 2027 to 2032 – Mining, Brunswick Industrial Site Operations, Fill Placement at Brunswick				
Emergency Generators ^a	603.53	0.02	0.01	606.88
Off-Road Equipment ^b	721.55	0.21	0.09	754.27
On-Road Vehicles – Off-Site	680.59	0.01	0.05	694.55
On-Road Vehicles – On-Site	82.35	0.00	0.01	86.51
Logging/ Chipping – Off-Road Equipment	1.07	0.00	0.00	1.10
Logging/ Chipping – On-Road Vehicles Off-Site	4.52	0.00	0.00	4.73
Logging/ Chipping – On-Road Vehicles On-Site	0.02	0.00	0.00	0.02
Underground Blasting/Mining ^c	68.79	0.00	0.00	69.05
PG&E-Supplied Electricity	4,590.43	0.74	0.09	4,635.82
NID-Supplied Potable Water	1.92	0.00	0.00	1.94
Wastewater Septic Field	—	0.33	0.00	8.52
Solid Waste	41.55	2.46	—	102.94
Tree Removal – Carbon Loss ^d	33.30	—	—	33.30
Total Annual Emissions				6,999.63
<i>GHG Threshold</i>				<i>10,000</i>
Significant (Yes/No)?				No
Year 2033 to 2102 – Mining, Brunswick Industrial Site Operations, Fill Placement at Off-Site Location				
Emergency Generators ^a	603.53	0.02	0.01	606.88
Off-Road Equipment ^b	395.26	0.05	0.02	402.44
On-Road Vehicles – Off-Site	2,998.79	0.01	0.42	3,123.46
On-Road Vehicles – On-Site	54.16	0.00	0.01	56.89
Underground Blasting/Mining ^c	68.79	0.00	0.00	69.05
PG&E-Supplied Electricity	4,590.43	0.74	0.09	4,635.82

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Emission Source	CO ₂	CH ₄	N ₂ O	CO ₂ e
NID-Supplied Potable Water	1.92	0.00	0.00	1.94
Wastewater Septic Field	—	0.33	0.00	8.52
Solid Waste	41.55	2.46	—	102.94
Tree Removal – Carbon Loss ^d	33.30	—	—	33.30
Total Annual Emissions				9,041.23
<i>GHG Threshold</i>				<i>10,000</i>
Significant (Yes/No)?				No
Year 2103 – Reclamation				
Off-Road Equipment ^b	25.86	0.00	0.00	26.02
On-Road Vehicles – Off-Site	19.61	0.00	0.00	20.07
Total Annual Emissions				46.09
<i>GHG Threshold</i>				<i>10,000</i>
Significant (Yes/No)?				No
Totals may not sum due to rounding.				
^a The diesel emergency generators were assumed to operate up to a maximum of 100 hours per year for routine testing and maintenance, per the CARB ATCM for Stationary Compression Ignition Engines. ^b Accounts for APM-AQ-1 (Exhaust Emission Controls), including Tier 4 Final equipment owned by Rise Grass Valley Inc and electricity needed for underground equipment. ^c Includes GHG emissions from the combustion of ANFO and detonators for blasting. ^d Carbon loss was estimated for 24 acres of tree removal, then amortized over the anticipated 80-year project life.				
Source: Dudek, 2021.				

As shown in Table 4.3-23, the project would not exceed the applied threshold of 10,000 MT CO₂e per year during operations and reclamation. However, the project would exceed the 1,100 MT CO₂e per year threshold during construction.

Therefore, the proposed project would not be considered to generate GHG emissions that would have a significant impact on the environment, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs during operations and reclamation. However, project construction would have the potential to generate GHG emissions that could have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and the project’s incremental contribution of GHG emissions would be **cumulatively considerable**.

Mobile Source GHG Emissions by Air District

As discussed in Impact 4.3-1, for the purpose of this EIR, all mobile source emissions generated by the project are assumed to occur within the NSAQMD jurisdictional boundaries. Assuming all mobile source GHG emissions are included in the project’s GHG emissions inventory prior to comparing emissions to the applied CEQA GHG threshold represents a conservative assumption. Nonetheless, due to the assumed trip length for some project vehicle trips, portions of project trips and associated mobile source emissions could occur outside of the NSAQMD jurisdictional boundaries and within other air district boundaries. Accordingly, to facilitate full public disclosure and to present the magnitude of potential GHG emissions occurring within other air districts, off-site mobile source emissions for the Year 2033 to 2102 – Mining,



Brunswick Industrial Site Operations, Fill Placement at Off-Site Location scenario by air district are presented by air district herein. GHG emissions result in global effects; accordingly, the location of the GHG emission source is irrelevant from a scientific perspective. However, because GHG emissions are compared to the lead agency applied numeric threshold, GHG emissions are separated by air district for disclosure and informational purposes. For this GHG emission estimation, only running exhaust emissions were included; starting and idling emissions, which are minor, as excluded as the focus is on the VMT rather than the ultimate origin and/or destination of each trip and paved road dust do not result in GHG emissions.

Table 4.3-24 presents the estimated annual project-generated off-site mobile source GHG emissions by air district for informational purposes only (The emissions presented in Table 4.3-24 are accounted for in Table 4.3-23, above, in “On-Road Vehicle” category under the “Year 2033 – 2102 Emissions for Mining, Brunswick Industrial Site Operations, Fill Placement at Off-Site Location” scenario. Combined emissions by air district in Table 4.3-24 are not identical to the Table 4.3-23 data due to rounding and inclusion in Table 4.3-24 of running exhaust and paved road emissions only.)

Table 4.3-24				
Estimated Annual Off-Site Mobile Source Greenhouse Gas Emissions by Air District (Metric Tons)				
Year 2033 to 2102 – Mining, Brunswick Industrial Site Operations, Fill Placement at Off-Site Location				
Air District	CO₂	CH₄	N₂O	CO₂e
NSAQMD	1,074.79	0.00	0.11	1,108.93
PCAPCD	1,084.55	0.00	0.16	1,135.37
SMAQMD	756.02	0.00	0.11	791.44
YSAQMD	26.55	0.00	0.00	27.79
BAAQMD	41.55	0.00	0.01	43.50
Total	2,983.46	0	0.39	3,107.03
Notes: Combined emissions by air district do not match total project-generated mobile source emissions due to rounding and inclusion of running exhaust and paved road emissions only.				
Source: Dudek, 2021.				

Mitigation Measure(s)

Implementation of the following mitigation measures would ensure that construction-related emissions would be reduced sufficiently to ensure that the project’s incremental contribution of GHG emissions would be *less than cumulatively considerable*.

4.3-7(a) Construction GHG Emissions Reductions.

To reduce greenhouse gas (GHG) emissions generated during project construction from construction equipment, the following measures shall be incorporated into the project construction drawings:

- a) *Properly tune and maintain all construction equipment in accordance with manufacturer’s specifications;*



- b) Where feasible, employ the use of electrical or alternative fueled (i.e., non-diesel) construction equipment, including forklifts, concrete/industrial saws, pumps, aerial lifts, air compressors, and other comparable equipment types to the extent commercially available;
- c) To reduce the need for electric generators and other fuel-powered equipment, provide on-site electrical hookups for the use of hand tools such as saws, drills, and compressors used for building construction;
- d) Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes;
- e) Use locally sourced or recycled materials for construction materials (goal of at least 20 percent based on costs for building materials, and based on volume for roadway, parking lot, sidewalk and curb materials). Wood products utilized should be certified through a sustainable forestry program; and
- f) Minimize the amount of concrete for paved surfaces or utilize a low carbon concrete option.

4.3-7(b) **Carbon Offsets – Construction Emissions.**

Rise Grass Valley Inc. (Rise) shall retire carbon offsets in a quantity sufficient to offset the project's construction greenhouse gas (GHG) emissions to below the 1,100 metric ton carbon dioxide equivalent (MT CO₂e) per year construction threshold, consistent with the performance standards and requirements set forth below. Specifically, prior to Nevada County's (County) issuance of the project's first grading permit, Rise shall retire carbon offsets equaling 2,345 MT CO₂e, which was calculated by subtracting 1,100 MT CO₂e (threshold) from the construction emissions generated by the project.

Carbon Offset Standards – Eligible Registries, Acceptable Protocols and Defined Terms:

"Carbon offset" shall mean an instrument, credit or other certification verifying the reduction of GHG emissions issued by the Climate Action Reserve, the American Carbon Registry, or Verra (previously, the Verified Carbon Standard). This shall include, but is not limited to, an instrument, credit or other certification issued by these registries for GHG reduction activities within the Nevada County region. The Project shall neither purchase offsets from the Clean Development Mechanism (CDM) registry nor purchase offsets generated under CDM protocols. Qualifying carbon offsets presented for compliance with this mitigation measure may be used provided that the evidence required by the "Reporting and Enforcement Standards" below is submitted to the County demonstrating that each registry shall continue its existing practice of requiring the following for the development and approval of protocols or methodologies:

- i) Adherence to established GHG accounting principles set forth in the International Organization for Standardization (ISO) 14064, Part 2 or the World Resources Institute/World Business Council for



- Sustainable Development (WRI/WBCSD) Greenhouse Gas Protocol for Project Accounting; and
- ii) Oversight of the implementation of protocols and methodologies that define the eligibility of carbon offset projects and set forth standards for the estimation, monitoring and verification of GHG reductions achieved from such projects. The protocols and methodologies shall:
 - a. Be developed by the registries through a transparent public and expert stakeholder review process that affords an opportunity for comment and is informed by science;
 - b. Incorporate standardized offset crediting parameters that define whether and how much emissions reduction credit a carbon offset project should receive, having identified conservative project baselines and the length of the crediting period and considered potential leakage and quantification uncertainties;
 - c. Establish data collection and monitoring procedures, mechanisms to ensure permanency in reductions, and additionality and geographic boundary provisions; and,
 - d. Adhere to the principles set forth in the program manuals of each of the aforementioned registries, as such manuals are updated from time to time.
 - e. Be approved by the California Air Resources Board, and be compliant with 17 CCR § 95972.

Further, any carbon offset used to reduce the project's GHG emissions shall be a carbon offset that represents the past or forecasted reduction or sequestration of one MT of CO₂e that is "not otherwise required" (CEQA Guidelines Section 15126.4[c][3]). Each carbon offset used to reduce GHG emissions shall achieve additional, real, permanent, quantifiable, verifiable, and enforceable reductions, which are defined for purposes of this mitigation measure as follows:

- i) "Additional" means that the carbon offset is not otherwise required by law or regulation, and not any other GHG emissions reduction that otherwise would occur;
- ii) "Real" means that the GHG reduction underlying the carbon offset results from a demonstrable action or set of actions, and is quantified under the protocol or methodology using appropriate, accurate, and conservative methodologies that account for all GHG emissions sources and sinks within the boundary of the applicable carbon offset project, uncertainty, and the potential for activity-shifting leakage and market-shifting leakage;
- iii) "Verifiable" means that the GHG reduction underlying the carbon offset is well documented, transparent and set forth in a document prepared by an independent verification body that is accredited through the American National Standards Institute (ANSI);
- iv) "Permanent" means that the GHG reduction underlying the carbon offset is not reversible; or, when GHG reduction may be reversible,



that a mechanism is in place to replace any reversed GHG emission reduction;

- v) “Quantifiable” means the ability to accurately measure and calculate the GHG reduction relative to a project baseline in a reliable and replicable manner for all GHG emission sources and sinks included within the boundary of the carbon offset project, while accounting for uncertainty and leakage; and*
- vi) “Enforceable” means that the implementation of the GHG reduction activity must represent the legally binding commitment of the offset project developer to undertake and carry it out.*

The protocols and methodologies of the Climate Action Reserve, the American Carbon Registry, and Verra establish and require carbon offset projects to comply with standards designed to achieve additional, real, permanent, quantifiable, verifiable and enforceable reductions. Additionally, the “Reporting and Enforcement Standards” below ensure that the emissions reductions required by this mitigation measure are enforceable against Rise, as the County has authority to hold Rise accountable and to take appropriate corrective action if the County determines that any carbon offsets do not comply with the requirements set forth in this mitigation measure.

The above definitions are provided as criteria and performance standards associated with the use of carbon offsets. Such criteria and performance standards are intended only to further construe the standards under CEQA for mitigation related to GHG emissions (see, e.g., State CEQA Guidelines Section 15126.4(a), (c)), and are not intended to apply or incorporate the requirements of any other statutory or regulatory scheme not applicable to the project (e.g., the Cap-and-Trade Program).

Reporting and Enforcement Standards:

Prior to issuance of requested grading permits, Rise shall submit a report to the County that identifies the quantity of emission reductions required by this mitigation measure, as well as the carbon offsets to be retired to achieve compliance with this measure. For purposes of demonstrating that each offset is additional, real, permanent, quantifiable, verifiable and enforceable, the report shall include: (i) the applicable protocol(s) and methodologies associated with the carbon offsets, (ii) the third-party verification report(s) and statement(s) affiliated with the carbon offset projects, (iii) the unique serial numbers assigned by the registry(ies) to the carbon offsets to be retired, which serves as evidence that the registry has determined the carbon offset project to have been implemented in accordance with the applicable protocol or methodology and ensures that the offsets cannot be further used in any manner.

If the County determines that the project’s carbon offsets do meet the requirements of this mitigation measure, the offsets can be used to reduce project GHG emissions and project permits shall be issued. If the County determines that the project’s carbon offsets do not meet the requirements of this mitigation measure, the offsets cannot be used to reduce project



GHG emissions and project permits shall not be issued. Additionally, the County may issue a notice of non-consistency and cease permitting activities in the event that the County determines the carbon offsets provided to reduce project GHG emissions are not compliant with the aforementioned standards. In the event of such an occurrence, project permitting activities shall not resume until Rise has demonstrated that the previously provided carbon offsets are compliant with the standards herein or have provided substitute carbon offsets achieving the standards of this mitigation measure in the quantity needed to achieve the required emission reduction.

4.3-8 Conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Based on the analysis below, the project’s impact is less than cumulatively considerable.

Nevada County has not adopted any plans, policies, or regulations that meet the requirements of a Qualified GHG Emissions Reduction Plan under CEQA section 15183.5(D). Although the County’s EAP is intended to reduce energy reduction within the County, which can directly or indirectly lead to reductions in GHG emissions, because the EAP is not a Qualified GHG Emissions Reduction Plan, the project’s compliance with the EAP is not directly relevant to this discussion of plans specifically intended to reduce GHG emissions. Instead, the EAP is discussed elsewhere within this Chapter, specifically Impacts 4.3-5 and 4.3-9. Thus, to assess the project’s potential for creating a conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, the project’s consistency with the NCTC’s 2015–2035 RTP, the CARB’s Scoping Plan, SB 32, and EO S-3-05 is discussed below.

Project Consistency with the NCTC’s 2015-2035 RTP

The NCTC’s 2015–2035 RTP is intended to reduce air pollutant and GHG emissions associated with future growth by increasing the efficiency of the transportation system and increasing alternative transportation options. As described in the 2015–2035 RTP, the mining, logging, and construction industry in Nevada County has experienced an increase of 390 jobs from 2009 to 2014, and is projected to be the fastest-growing market through 2022, with an anticipated 37.4 percent growth rate. As described under Impact 4.3-1, although the project would increase traffic within the project area due to increased employment, projections within the 2015–2035 RTP have identified and accounted for such growth in the mining industry. Therefore, the project would not conflict with the RTP.

Consistency with the CARB’s Scoping Plan

As discussed previously, the Scoping Plan (approved by CARB in 2008 and updated in 2014 and 2017) provides a framework for actions to reduce California’s GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. According to the California Natural Resource Agency’s *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97*, “[t]he Scoping Plan may not be appropriate for use in determining



the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan.” Accordingly, the Scoping Plan is not intended to be used for project-level evaluations. Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most such measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., LCFS), among others.

The Scoping Plan recommends strategies at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California’s GHG emissions. To the extent that these regulations are applicable to the project, the project would comply with all regulations adopted in furtherance of the Scoping Plan to the extent required by law. For instance, vehicles used on-site and for hauling activities will be required to meet existing fleet regulations and emissions standards. Consequently, compliance with the Scoping Plan is ensured through compliance with mandatory, statewide regulations.

Consistency with SB 32 and EO S-3-05

As discussed previously, EO S-3-05 establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. SB 32 establishes a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40 percent below 1990 levels by December 31, 2030. Although established protocols or thresholds of significance for the future year analyses have not been prepared, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting the aforementioned long-term GHG goals, although the specific path to compliance is unknown.

CARB has expressed optimism regarding both the 2030 and 2050 goals. The CARB states in the First Update to the Climate Change Scoping Plan that “California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32.”⁴⁴ Regarding the 2050 target for reducing GHG emissions to 80 percent below 1990 levels, the First Update states the following:

This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary

⁴⁴ California Air Resources Board. *First Update to the Climate Change Scoping Plan* [pg. ES2]. May 2014.



to meet federal air quality standards in 2032, could lead to even greater emission reductions.⁴⁵

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05. This is confirmed in the 2017 Scoping Plan, which states:

This Scoping Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Plan includes policies to require direct GHG reductions at some of the State's largest stationary sources and mobile sources. These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and-Trade Program, which constrains and reduces emissions at covered sources.⁴⁶

In addition, the project is consistent with the NCTC 2015–2035 RTP, and measures in the Scoping Plan, and would not conflict with the state's trajectory toward future GHG reductions. With respect to future GHG targets under SB 32 and EO S-3-05, the CARB maintains the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet SB 32's 40 percent reduction target by 2030 and EO S-3-05's 80 percent reduction target by 2050. The CARB's legal interpretation regarding the ability of the CARB to adopt regulations as necessary to achieve future GHG reduction goals represents the opinion of an expert agency, which provides evidence that future regulations will be adopted to continue GHG reductions on the State's trajectory toward meeting future GHG targets. Because the specific path to compliance for the state regarding the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the project would be speculative and cannot be identified at this time, nor are they required.

Conclusion

Based on the above considerations, the proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Consequently, the project's impact is ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.

⁴⁵ California Air Resources Board. *First Update to the Climate Change Scoping Plan* [pg. 34]. May 2014.

⁴⁶ California Air Resources Board. *California's 2017 Climate Change Scoping Plan* [pg. 6]. November 2017.



4.3-9 Result in the inefficient or wasteful use of energy or conflict with a State or local plan for renewable energy or energy efficiency. Based on the analysis below, the project's impact is less than significant.

Impacts 4.3-4 and 4.3-5 discuss the consumption of energy on a project-level, within the context of existing State plans and regulations, as well as local plans. As discussed previously, the project would involve consumption of diesel, gasoline, and electricity throughout construction, operations, and reclamation. Both the APMs and the mitigation measures within this EIR would act to increase the energy efficiency of project operations, while reducing energy demand from the project. For instance, APM-AQ-1 and Mitigation Measure 4.3-1(b) would ensure that Tier 4 Final engines are used during project construction, operation, and reclamation. Tier 4 Final engines are more fuel-efficient than lower tier engine models, which reduces the total fuel demand for the project. Unnecessary idling would be minimized through APM-AQ-1 to further reduce the potential for wasteful or inefficient use of energy.

All proposed structures would be built in compliance with existing statewide mandatory energy efficiency standards, such as those contained in the California Building Energy Efficiency Standards and the CALGreen Code. Compliance with the energy efficiency standards would reduce the amount of electricity consumed in proposed facilities. State regulations would also work to reduce the amount of energy consumed by on-road vehicles. For instance, State and federal emissions standards and fuel economy standards result in increased fuel efficiency for on-road vehicles. The same building energy efficiency requirements would be met by other cumulative development identified in Chapter 5, Statutorily Required Sections, of this EIR.

There is already a trend in Nevada County regarding increased energy efficiency. According to the Nevada County EAP, since 2010, Nevada County residents and businesses have saved 13,034,571 kWh of electricity and 163,282 therms of natural gas annually from PG&E energy efficiency programs including Nevada City and Grass Valley customers.⁴⁷ Increased efficiency will be ensured in the future as cumulative development occurs due to compliance with the State's robust energy efficiency requirements. For example, the 2019 CBSC has begun phasing in Zero Net Energy requirements by requiring residential projects to meet 100% of their electricity needs through rooftop solar. Cumulative residential development would include rooftop solar to meet 100% of each project's electricity demand. In addition, pursuant to 2019 CBSC, new non-residential buildings associated with cumulative development are also required to be solar ready.

Based on the above, implementation of the project in combination with other cumulative development would not result in the wasteful or inefficient use of energy. Because the project would not conflict with a local plan to increase energy efficiency and reduce energy consumption, a **less-than-significant** impact would occur.

Mitigation Measure(s)

None required.

⁴⁷ Sierra Business Council. Nevada County Energy Action Plan. February 2019, pg. 21.



Non-CEQA Related Analysis

The information and analysis presented heretofore within this Chapter has focused on the proposed elements of the project, and the foreseeable consequences and impacts of such elements. The information and analysis above properly considers impacts that could occur due to implementation of the project under the routine conditions that existed at the time of release of the Notice of Preparation. However, PG&E has recently begun to intermittently institute Public Safety Power Shutoffs (PSPS) during periods of high fire danger, to reduce the potential for electric utility infrastructure to cause wildfires. PSPS are not scheduled nor are PSPS regular occurrences, but rather are instituted on an as needed basis when weather patterns present a particularly high danger for starting wildfires. Despite the uncertain nature of PSPS, certain aspects of the project must be provided constant electrical power in order to maintain critical function. Consequently, the proposed project would include installation of emergency generators, two during construction and four during operations, that would be permitted by the NSAQMD for emergency use and are critical to the continuing operation of the facility and the safety of the workers during emergency situations, based on the following considerations:

- Ground water continually flows into the underground mine. If the water is not pumped out, the water would very quickly flood the lowest tunnels. Flooding would destroy electrical equipment that was left in place and cause increased work and material waste when the workings would be again dewatered.
- The ventilation system must be continuously on in order to provide airflow through the underground workings. Continuous operation of the ventilation system is necessary to provide a safe environment underground.
- The compressed air system for the underground mine is important for emergency situations where the ventilation system could fail or a fire occur underground and therefore must be kept operational.
- Electric locomotives need to remain functional at all times to move persons and equipment from working headings to the shafts.
- Underground lighting at certain key locations is necessary for safety.
- The hoists must be available for use to move personnel and equipment from the underground to surface. If the hoists did not function the workers would be trapped underground.
- The processing plant recirculates water and ground minerals through the processing systems. The slurry of water and ground minerals must be constantly agitated so that the solids do not settle. If the recirculation machines are turned off during operations, the sand would settle in all of the tanks and pipes which is very costly and time consuming to remediate.
- The water treatment system must remain functional so that water can be treated and discharged.

PSPSs are infrequent (as an example, nine days of power outages annually would be a conservative representation based on the PSPSs in recent years) and emergency generator use may not be needed at all during construction and/or some years of operations. However, for disclosure, maximum daily emissions were estimated for 2,655 hp emergency generator usage during construction (two generators) and operations (four generators), assuming all emergency generators would operate for 24 hours per day. Emissions for the generators were estimated based on the exhaust emission data sheets for the representative Cummins model QSK60-G17, which are Tier 4 Final engines. It should be noted that Tier 4 Final standards represent the highest level of emissions control technology currently available. Although maximum daily emissions have



been estimated, the ultimate number of days per year the generators would operate can not be known with certainty. Because the use of emergency generators is speculative and beyond the reasonable control of Rise Grass Valley, Inc., the emissions presented in Table 4.3-25 are for informational purposes only.⁴⁸ Finally, it is important to note that while the use of emergency generators during power-outages such as PSPSs is outside of the scope of CEQA, the regular use of generators for routine maintenance and testing has been considered throughout the entirety of the analysis of the chapter, as such use is not speculative.

Table 4.3-25						
Emergency Generator Emissions During 24-Hour Power Outage						
Source	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Construction						
Two Emergency Generators	3.60	71.92	187.00	0.99	0.72	0.71
Operations						
Four Emergency Generators	8.99	179.81	467.50	2.47	1.80	1.78
<i>Source: Dudek, 2021.</i>						

In terms of NSAQMD’s emissions thresholds, based on the emissions presented in Table 4.3-25, operation of the emergency generators in response to a PSPS occurring during project construction or operation would result in emissions of ROG and PM₁₀ in Level A. Emissions of NO_x would be at Level B during project construction, and Level C during operations. Mitigation has been included in this EIR that would apply to all aspects of the project, including the proposed generators. Moreover, Tier 4 Final include the highest level of emissions control technologies commercially available. Consequently, emissions from operations of the generators would be minimized to the maximum extent feasible.

⁴⁸ The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145). California courts have consistently held that “an EIR is not required to engage in speculation in order to analyze a worst case scenario.” (See Napa Citizens for Honest Government v. Napa County Bd. of Supervisors (2001) 91 Cal.App.4th 342, 373.). This discussion is nonetheless provided in an effort to show good-faith analysis and comply with CEQA’s information disclosure requirements.

“The Stationary Engine ATCM allows owners and operators of emergency standby engines to use those engines to provide electrical power when a facility experiences the loss of normal electrical service that is beyond the reasonable control of the facility. Electrical service loss resulting from PSPS events is beyond the reasonable control of most back-up engine owners and operators, and therefore, appropriately- permitted emergency standby engines may be operated to provide electrical power during such an event pursuant to the Stationary Engine ATCM” (CARB, *Use of Back-Up Engines for Electricity Generation During Public Safety Power Shutoff Events*. 2019. Accessed February 2020. Available at: https://ww2.arb.ca.gov/sites/default/files/2019-10/PSPS_Back-up_Power_Guidance.pdf).



4.4 BIOLOGICAL RESOURCES

4.4. BIOLOGICAL RESOURCES

4.4.1 INTRODUCTION

The Biological Resources chapter of the EIR evaluates the biological resources known to occur or potentially occur within the Centennial and Brunswick Industrial Sites and East Bennett Road pipeline alignment. The Biological Resources chapter describes potential impacts to special-status plant and wildlife species and sensitive natural communities and identifies measures to eliminate or substantially reduce those impacts to a less-than-significant level. The information contained in the analysis is primarily based on the following project-specific reports:

Centennial Industrial Site

- Greg Matuzak Environmental Consulting LLC. *Centennial Industrial Site Aquatic Resources Delineation of Waters of the United States and State of California*. October 2020 (Appendix F.1).
- Greg Matuzak Environmental Consulting LLC. *Centennial Industrial Site Biological Resources Assessment*. January 2021 (Appendix F.2).
- Greg Matuzak Environmental Consulting LLC. *Updated Technical Memorandum for Centennial Industrial Site: Idaho-Maryland Mine Project – Biological Resources Impact Assessment*. January 29, 2021 (Appendix F.3).
- Greg Matuzak Environmental Consulting LLC. *Centennial Industrial Site Habitat Management Plan for the Pine Hill Flannelbush (*Fremontodendron decumbens*)*. January 2021 (Appendix F.4). Referred to as “Centennial Pine Hill Flannelbush Habitat Management Plan” hereafter.
- Greg Matuzak Environmental Consulting LLC. *Centennial Industrial Site Idaho-Maryland Mine Project, Watercourse/Wetlands/Riparian Areas Management Plan*. January 2021 (Appendix F.5).
- Wendy Boes Botanical Consultant. *Centennial Industrial Site CNPS Ranked Plants and Special Status Plant Survey Report*. January 2021 (Appendix F.6).

Brunswick Industrial Site and East Bennett Road

- Greg Matuzak Environmental Consulting LLC. *Brunswick Industrial Site and East Bennett Road Right of Way (ROW) Aquatic Resources Delineation of Waters of the United States and State of California*. October 2020 (Appendix F.7).
- Greg Matuzak Environmental Consulting LLC. *Brunswick Industrial Site and East Bennett Road Right of Way (ROW), Watercourse/Wetlands/Riparian Areas Management Plan*. January 2021 (Appendix F.8).
- Greg Matuzak Environmental Consulting LLC. *Brunswick Industrial Site and East Bennett Road Right of Way (ROW) Biological Resources Assessment*. January 2021 (Appendix F.9).
- Greg Matuzak Environmental Consulting LLC. *Updated Technical Memorandum for the Idaho-Maryland Mine Project – South Fork Creek Discharge Biological Resources Assessment*. January 29, 2021 (Appendix F.10).
- Wendy Boes Botanical Consultant. *Brunswick Mine and East Bennett Road Right of Way Special Status Plant Survey Report*. January 2021 (Appendix F.11).

The above-listed reports reflect the versions of the reports that were updated, as necessary to address the comments included in the third-party independent peer review performed by Madrone Ecological Consulting, Inc. under contract with Raney.¹

¹ Madrone Ecological Consulting. *Peer Review of the Biological Resources Reports Prepared for the Proposed Idaho-Maryland Mine – Rise Grass Valley Project, City of Grass Valley, Nevada County, California*. July 20, 2020.



4.4.2 EXISTING ENVIRONMENTAL SETTING

The following sections describe the environmental setting and biological resources occurring in the proposed project region, the Centennial and Brunswick Industrial Sites, and the East Bennett Road Right-of-Way (ROW).

Regional Setting

The Brunswick Area (defined as the Brunswick Industrial Site and East Bennett Road ROW) is located in Nevada County, CA in the northern-central Sierra Nevada foothills. The Sierra Nevada foothills lie between the western edge of the Sierra Nevada and the eastern border of the Central Valley. The foothills form a belt 10 to 30 miles wide that ranges from 500 to 5,000 feet in elevation in a series of northwest to north-northwest aligned ridges that decline in elevation from northeast to southwest. Many rapidly flowing rivers and streams run westerly in deeply incised canyons with bedrock channels to the Central Valley and eventually to the Pacific Ocean. Alluvial fans, floodplains, and terraces are not extensive; and all but the largest streams are generally dry during the summer. Dominant vegetation communities include grasslands, oak woodlands, and chaparral.

General Characterization of Sites

Centennial Industrial Site

As discussed in Section 1.3, “Approach To Centennial Industrial Site Baseline,” of this EIR, for the purposes of this biological resources analysis, the environmental baseline for the Centennial Industrial Site has been adjusted to be consistent with anticipated site conditions at the completion of the separate Centennial Industrial Site Clean-up Project.

It is estimated that approximately half of the Centennial Industrial Site will consist of graded and revegetated areas under the post-remediation condition. An engineered fill pad would be located along the eastern portion of the site. The remaining areas will consist of varying topography covered with natural vegetation communities and a limited amount of aquatic resources, the primary feature of which is Wolf Creek. Wolf Creek is a perennial feature that runs along the northern portion of the Centennial Industrial Site.

Brunswick Industrial Site

The approximately 119-acre Brunswick Industrial Site is characterized by both natural and disturbed areas. Disturbed areas are generally a result of prior mining and lumber mill practices, public access, and ongoing management for many years. Within the Brunswick Industrial Site, the dumping of soils, landscape materials, and other miscellaneous items has also occurred for many years. A large section of the Brunswick Industrial Site located in the eastern areas along Brunswick Road would be characterized as disturbed and/or developed given the amount of pavement and impervious surfaces in those areas, as well as the remaining infrastructure related to prior mining and mill operations. Areas not subject to this regular type of previous disturbance are dominated by native habitat and, therefore, are also the baseline condition within the Brunswick Industrial Site.

The Brunswick Area is located in an area containing South Fork Wolf Creek, a perennial stream. Several intermittent and ephemeral streams connect directly to South Fork Wolf Creek within the Brunswick Industrial Site. South Fork Wolf Creek also flows to the south of the East Bennett Road ROW within the Brunswick Area. South Fork Wolf Creek contains associated riparian woodland and scrub and large tracks of wet meadow wetlands dominant in the northwestern section of the Brunswick Industrial Site.



South Fork Wolf Creek begins at a 48-inch culvert fed by surface drainage and road runoff from both the east and west sides of Brunswick Road, which crosses Brunswick Road through the culvert within the Brunswick Industrial Site. The culvert is located south of a large manmade clay-lined pond and flows northwest across the Brunswick Area. The 48-inch diameter culvert is approximately 1,600 feet long (Regional Water Quality Control Board [RWQCB] Order No. 88-185, December 18th, 1990). Additionally, perennial surface drainage from the west side of Brunswick Road drains north to the 48-inch culvert inlet.

The Brunswick Industrial Site elevation ranges from approximately 2,675 to 2,950 feet above mean sea level (msl).

East Bennett Road ROW

The approximately 10-acre East Bennett Road ROW contains a developed and paved public road and ROW that has been used for decades. In addition, the shoulders of East Bennett Road that are included as part of the East Bennett Road ROW are also developed given the grading and fill material associated with the development of the road.

Vegetation Communities

This section will describe the vegetation community types within the Centennial and Brunswick Industrial Sites and the East Bennett Road ROW. Consistent with the approach taken in the Greg Matuzak Environmental Biological Resources Assessments, the acreages for the Brunswick Industrial Site and East Bennett Road ROW are addressed in the same section.

Centennial Industrial Site

Vegetation communities within the Centennial Site include the following vegetation community types as described below, as shown in Figure 4.4-1.

The acreage of each vegetation community type at the Centennial Site is a good-faith estimate because it cannot be precisely established for the baseline condition given that the baseline has been adjusted to account for the separate remediation efforts that will be conducted under the California Department of Toxic Substances Control (DTSC) oversight pursuant to the Remedial Action Plan (RAP) prepared for DTSC approval. The vegetation community acreage estimates included in this analysis are conservative in the event that minor changes to the RAP are made prior to final approval by DTSC. DTSC, as the CEQA lead agency for approval of the RAP and its associated CEQA document, will separately require the applicant to mitigate impacts to sensitive habitats and species resulting from remediation activities.

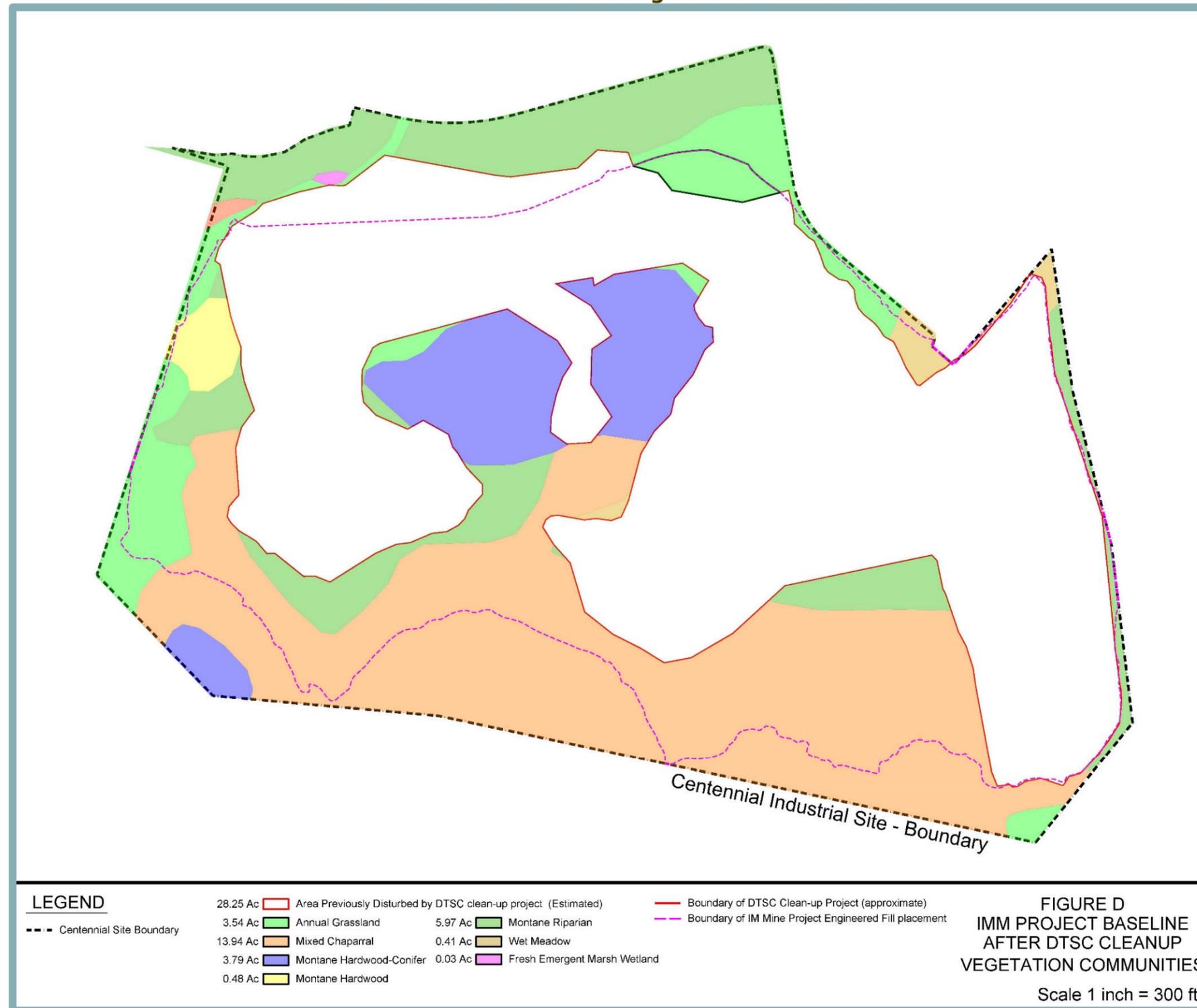
Approximate vegetation community acreages for the adjusted baseline condition of this EIR (i.e., post-remediation) are included below in Table 4.4-1.

Graded/Remediated Areas

The areas identified for remediation within the RAP comprise approximately 28.25 acres, or roughly half of the Centennial Industrial Site. The excavation areas would be backfilled and regraded with clean fill to promote drainage, and erosion controls will be installed. The engineered fill pad along the eastern portion of the site would be graded so that runoff would drain away from the fill slope into surface and subsurface drainage controls. Following completion of excavation, stabilization, and placement activities, the disturbed areas would be hydroseeded or broadcast seeded with an erosion-control native seed mix to reduce erosion and maintain fill slope stability.



Figure 4.4-1
Centennial Industrial Site Vegetation Communities



Source: Greg Matuzak Environmental Consulting, 2021.



**Table 4.4-1
 Centennial Industrial Site Baseline Conditions Vegetation
 Communities and Acreages (Post-Remediation Baseline)**

Vegetation Community	Acres
Graded/Remediated Areas	28.25
Montane Hardwood-Conifer	3.79
Montane Hardwood	0.48
Wolf Creek and Montane Riparian	5.97
Mixed Chaparral	13.94
Annual Grassland	3.54
Freshwater Emergent Marsh Wetland	0.03
Wet Meadow	0.41
Total	Approximately 56 acres

Source: Greg Matuzak Environmental Consulting LLC, 2021.

Montane Hardwood

Montane hardwood habitat is identified within the Centennial Industrial Site in a small, localized stand along the western boundary. Montane hardwood is characterized by stands of an overstory of California black oak and occasionally canyon live oak (*Quercus chrysolepis*). There is often homogeneity in the canopy structure, and canopy closure is variable between seasons as the dominant overstories species is deciduous, ranging from 5-45 percent. Due to the prior disturbance, there is abundant Himalayan blackberry (*Rubus armenicus*) in the understory along with other nonnatives including bristly dogtail (*Cynosurus echinatus*) and hedgenettle (*Torilis arvensis*).

Montane Hardwood-Conifer

Montane hardwood-conifer habitat in the Sierra Nevada occurs at elevations between 1,000 and 4,000 feet above msl and is comprised of a mosaic of hardwoods and conifers. The Centennial Industrial Site is likely a midpoint on the gradient between hardwood forest and conifer forest containing both hardwood and conifer tree species, often in a mosaic pattern with small pure stands of conifers interspersed with small stands of hardwoods. Species associated with montane hardwood-conifer include ponderosa pine, California black oak, canyon live oak, madrone and Douglas fir.

Mixed Chaparral

Mixed chaparral is identified within the Centennial Industrial Site. Mixed chaparral is primarily associated with the gabbro soils of the Secca and Dubekella complexes that are known to occur within the southwestern section of the site. In the gabbro, this vegetation type is relatively intact and is characterized by whiteleaf manzanita, buck brush (*Ceanothus cuneatus*), Oregon white oak (*Quercus garryana* var. *semota*), chaparral pea (*Pickeringia montana*), and occasionally scattered foothill pine. McNab cypress (*Hesperocyparis macnabiana*) is occasional in the southwestern portions of the Centennial Industrial Site. With the exception of occasional natural and manmade openings within this habitat type, mixed chaparral forms almost continuous stands.

Annual Grassland

Annual grasslands are open vegetation types that are dominated by annual plant species, often nonnative. These species can occur within the understory of other vegetation types like oak woodlands, but where annual grasslands are mapped there is little to no overstory or shrub cover.



This vegetation type is common within the Centennial Industrial Site where there has been prior disturbance and little to no water source other than rainfall. The fall rainfall will spark germination and plants will grow through the cool months and in spring will grow rapidly and flower, fruit and senesce. Common to the environmental setting of this habitat type are yellow star thistle (*Centaurea solstitialis*), garden burnett (*Poterium sanguisorba*), soft chess (*Bromus hordeaceus*), bisnaga (*Ammi visnaga*), and patches of Himalayan blackberry.

Montane Riparian

A structural gradient generally occurs from neighboring vegetation into montane riparian, resulting in oaks or pines grading in with the more riparian species. The montane riparian vegetation along both sides of the main stem of Wolf Creek is dominated by white alder (*Alnus rhombifolia*) with other overstory species from adjacent vegetation types, including California black oak, pine and Douglas fir. The understory of montane riparian along the stream is dominated by Himalayan blackberry.

Wet Meadow

Wet meadows generally contain a single vegetation stratum and are generally dominated by forbs and graminoids. Shrub and trees are sometimes present but generally make up a small portion of this vegetation type. This is typically a diverse plant community driven by hydrologic influences. The wet meadows in the Centennial Industrial Site are typically created where extreme disturbance has occurred in the past or the presence of placer diggings. These wet meadows are characterized by bentgrass (*Agrostis*) and various rush (*Juncus*) species.

Freshwater Emergent Marsh Wetlands

Freshwater emergent marsh wetlands are characterized by hydrophyllic plants and generally standing water. All emergent wetlands have soils that are saturated to the extent that the soils are always anaerobic. There is a limited amount of fresh emergent wetlands identified within the Centennial Industrial Site. This habitat type within the Centennial Industrial Site is dominated by cattails (*Typha* spp.), arroyo willow, and pacific rush (*Juncus effuses* ssp. *pacificus*).

Brunswick Industrial Site and East Bennett Road ROW

Vegetation community types within the Brunswick Area are described below, identified in Table 4.4-2 and illustrated in Figure 4.4-2.²

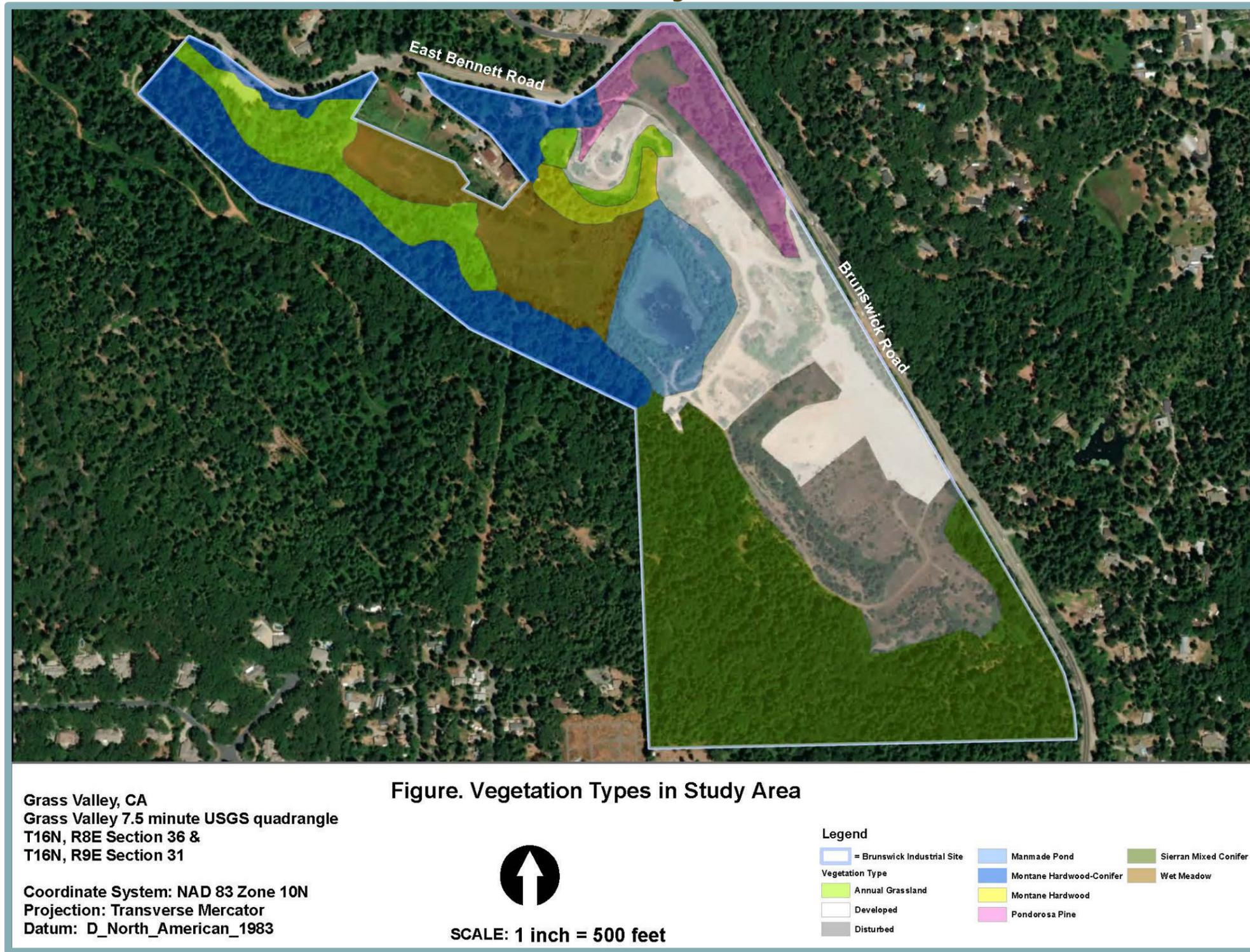
Developed

The entirety of the East Bennett Road ROW is considered developed given it contains pavement and shoulders that include fill material used as part of the construction of the road. In addition, the area connecting the northwestern end of East Bennett Road with the Centennial Industrial Site is also considered developed given the paved and gravel access as well as the prior industrial uses within that area.

² Figure 4.4-2 does not include East Bennett Road ROW because the only habitat within that portion of the study area is Developed.



**Figure 4.4-2
 Brunswick Industrial Site Vegetation Communities**



Source: Greg Matuzak Environmental Consulting, 2021.



**Table 4.4-2
 Brunswick Area Existing Conditions Vegetation Communities and
 Acreages**

Vegetation Community	Acres
Montane Hardwood-Conifer	15.63
Montane Hardwood	1.65
Ponderosa Pine	4.85
Sierran Mixed Conifer	35.98
Annual Grassland	8.15
Manmade Pond	7.28
Wet Meadow	9.36
Developed	29.49
Disturbed	16.84
Total	129.23

Source: Greg Matuzak Environmental Consulting LLC, 2021.

Within the Brunswick Industrial Site, a large portion of the eastern section of the site is mapped as developed as it contains asphalt, gravel, and pavement. The areas within the Brunswick Industrial Site mapped as developed contain little to no vegetation and the sparse vegetation present is considered ruderal and dominated by non-native and mostly invasive grassland species. The central area of the mapped developed section of the Brunswick Industrial Site contains artificial depressions that include some wetland and riparian species from the ponding of water that occurs within those artificial topographical low areas.

Disturbed

A small area within the northeast corner of the Brunswick Industrial Site and a large area within the southern/southeastern section of the site is mapped as disturbed. Those areas contain a mix of fill material, asphalt, and gravel that have created a mix of non-native ruderal grassland vegetation and areas of barren ground. The southern disturbed area also contains some artificial depressions from prior uses that include some wetland and riparian species given the ponding of water that occurs within those artificial topographical low areas, but those areas are dominated mostly by invasive Himalayan blackberry shrubs (*Rubus armenicus*).

Montane Hardwood

Montane hardwood habitat is identified on the Brunswick Industrial Site within and adjacent to a drainage area within the northeastern section of the site. Montane hardwood is characterized here by stands of an overstory of native oak trees mixed with some riparian species (*Salix* sp.). There is often homogeneity in the canopy structure, and canopy closure is variable between seasons as the dominant overstories species is deciduous, ranging from 5-45 percent. Due to prior disturbance, there is abundant Himalayan blackberry in the understory along with other nonnatives including bristly dogtail (*Cynosurus echinatus*) and hedgenettle (*Torilis arvensis*).

Montane Hardwood-Conifer

Montane hardwood-conifer habitat in the Sierra Nevada occurs at elevations between 1,000 and 4,000 feet above msl and is comprised of a mosaic of hardwoods and conifers. The Brunswick Industrial Site is likely a midpoint on the gradient between hardwood forest and conifer forest containing both hardwood and conifer tree species, often in a mosaic pattern with small pure stands of conifers interspersed with small stands of hardwoods. Species associated with montane hardwood-conifer include ponderosa pine, California black oak, canyon live oak, madrone and



Douglas fir. This vegetation community has been mapped within the northwestern section of the Brunswick Industrial Site along the South Fork Wolf Creek corridor and in two smaller areas along the southern side of East Bennett Road.

Annual Grassland

Annual grasslands are open vegetation types that are dominated by annual plant species, often nonnative. These species can occur within the understory of other vegetation types like oak woodlands, but where annual grasslands are mapped there is little to no overstory or shrub cover. This vegetation type is common within the northwestern section of the Brunswick Industrial Site where there has been prior disturbance and little to no water source other than rainfall. The fall rainfall will spark germination and plants will grow through the cool months and in spring will grow rapidly and flower, fruit and senesce. Common to the environmental setting of this habitat type are yellow star thistle (*Centaurea solstitialis*), garden burnett (*Poterium sanguisorba*), soft chess (*Bromus hordeaceus*), bisnaga (*Ammi visnaga*), and patches of Himalayan blackberry.

Ponderosa Pine

Ponderosa pine (*Pinus ponderosa*) habitat is found within the northeastern corner of the Brunswick Industrial Site. The structure and composition of the ponderosa pine forest varies widely according to the amount of soil moisture available during the summer. The canopy closure tends to be low in the Brunswick Area ranging from 5-35 percent. In the Brunswick Industrial Site, California black oak (*Quercus kelloggii*), madrone (*Arbutus menziesii*), foothill pine (*Pinus sabiniana*), and incense cedar (*Calocedrus decurrens*) are common associates of ponderosa pine. A variety of understory shrub species occur throughout the ponderosa pine forest. In the Brunswick Areas the more common understory shrubs are white leaf manzanita (*Arctostaphylos viscida* ssp. *viscida*), poison oak (*Toxicodendron diversilobum*), and honeysuckle (*Lonicera hispidula*). These understory shrubs often form dense, impenetrable stands, especially on open rocky slopes, and in areas of recent disturbance.

Sierran Mixed Conifer

The Sierran mixed conifer forest is generally a multi strata forest dominated by conifers with hardwood as a component of the understory. This vegetation type is found along the hillslope on the western and southern portions of the Brunswick Industrial Site. The forest here is more mesic, occurring on mostly east facing slopes. The forest is dominated by Douglas fir, incense cedar, and black oak, has high canopy closure, and often has a midstory strata of madrone, hazelnut (*Corylus cornuta* ssp. *californica*) and younger black oak. The understory has high litter cover and Himalayan blackberry and honeysuckle area common in the understory.

Montane Riparian

A structural gradient generally occurs from neighboring vegetation into montane riparian, resulting in oaks or pines grading in with the more riparian species. This vegetation type is characterized by two different ecological conditions, (1) placer diggings where small depressions within the disturbed and developed mapped areas of the Brunswick Industrial Site pond water long enough for riparian species such as willows (*Salix* sp.) to occur, and (2) along a narrow stretch of the South Fork Wolf Creek.

The montane riparian in the placer diggings and areas created from earth movement are characterized by black cottonwood (*Populus tremuloides*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), and occasionally ponderosa pine in the overstory. Dense thickets are



often resultant with Himalayan blackberry and Baltic rush (*Juncus balticus* ssp. *atar*) in the herbaceous layer.

The montane riparian vegetation along both sides of the South Fork Wolf Creek is dominated by white alder (*Alnus rhombifolia*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*), with other overstory species from adjacent vegetation types, including California black oak, pine and Douglas fir. The understory of montane riparian along the stream is dominated by Himalayan blackberry. This vegetation type forms a very narrow band along both sides of the creek between the mapped montane conifer-hardwood and annual grassland and wet meadow vegetation communities.

Wet Meadow

Wet meadows generally contain a single vegetation stratum and are generally dominated by forbs and graminoids. Shrub and trees are sometimes present but generally make up a small portion of this vegetation type. This is typically a diverse plant community driven by hydrologic influences. The wet meadows in the northwestern section of the Brunswick Industrial Site are within areas mapped as alluvial, clayey soil types. These wet meadows are characterized by bentgrass (*Agrostis*), various rush (*Juncus*) species, and common velvet grass (*Holcus lanatus*).

A very large wet meadow (WM-4) exists within the Brunswick Area adjacent to South Fork Wolf Creek that is likely a natural meadow and is dominated by reed canarygrass (*Phalaris arundinacea*). The other wetland meadows are much smaller in size and are located in small depressional areas along disturbed roadways within the eastern and northern sections of the Brunswick Area.

Freshwater Emergent Marsh Wetlands

Freshwater emergent marsh wetlands are characterized by hydrophyllic plants and generally standing water. All emergent wetlands have soils that are saturated to the extent that the soils are always anaerobic. Freshwater emergent marsh wetlands are mapped in small depressional areas mostly within developed or disturbed areas of the Brunswick Industrial Site; these are not historic features but appear to have been created by prior disturbance coupled with the presence of some water source. Within the Brunswick Industrial Site, this habitat type is dominated by arroyo willow, red willow, and pacific rush (*Juncus effuses* ssp. *pacificus*).

Aquatic Resources

This section describes and identifies the aquatic resources present within the Centennial and Brunswick Industrial Sites, and the East Bennett Road ROW.

Centennial Industrial Site

Similar to vegetation community types, the exact acreages of each aquatic resource type cannot be precisely established for the baseline condition given that the baseline has been adjusted to account for the planned remediation efforts that will be conducted under DTSC oversight pursuant to the RAP that has been prepared and publicly reviewed for DTSC approval. Final disturbance acreages to aquatic resources as a result of remediation activities may vary from current estimates. As a result, the disturbance acreages identified herein are conservatively estimated. DTSC, as the CEQA lead agency for approval of the RAP and its associated CEQA document, will separately require the applicant to mitigate impacts to aquatic resources.



Approximate aquatic resources acreages and descriptions for the adjusted baseline condition of this EIR (i.e., post-remediation), are as follows, based upon the RAP currently under review by DTSC:

- 0.377-acre of perennial stream comprised of Wolf Creek;
- 0.033-acre of ephemeral stream comprised of small features in southwestern corner of the Site; and
- 0.05-acre of wetlands within northwestern and southeastern corners of the Site.

The above-listed aquatic features are shown in Figure 4.4-3.

Brunswick Industrial Site and East Bennett Road ROW

Aquatic resources within the Brunswick Industrial Site and East Bennett Road ROW are described below and illustrated in Figure 4.4-4 and Figure 4.4-5.

Brunswick Industrial Site

South Fork Wolf Creek, a perennial stream, emerges from a 48-inch culvert within the Brunswick Industrial Site south of the large, on-site man-made clay lined pond (PD-1) and flows northwest across the Brunswick Area. South Fork Wolf Creek daylights from an existing 48-inch diameter culvert, which is approximately 1,600 feet long (RWQCB Order No. 88-185, December 18th, 1990). The 48-inch culvert appears to be fed by surface drainage and a potential perennial spring on the east side of Brunswick Road, which crosses Brunswick Road through a culvert and creates a perennial drainage (P-1) that flows north along the western side of Brunswick Road before entering the 48-inch culvert inlet that crosses the Brunswick Industrial Site and empties south of the clay lined pond, which is the beginning of South Fork Wolf Creek. The 48-inch culvert was flowing with water in December 2018, as well as during the July and August 2019 site surveys.

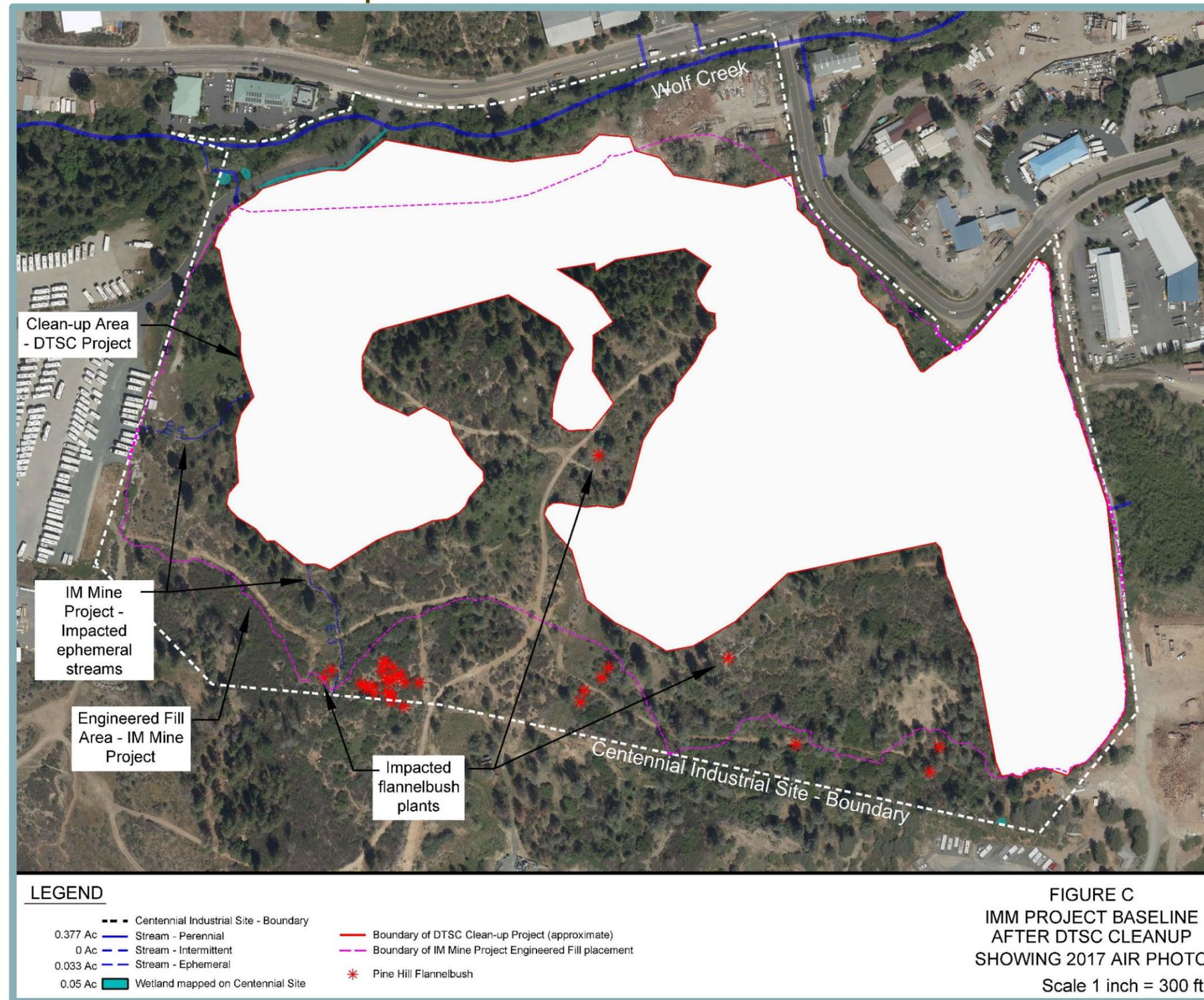
Drainage patterns within the western section of the Brunswick Industrial Site run from the hills to the west and drain east and northeast, eventually ponding in the southern section of the Brunswick Industrial Site or connecting with the South Fork Wolf Creek. Within the eastern section of Brunswick Industrial Site, drainage originates from off the property to the east and northeast. Areas to the east and northeast drain west and southwest, mostly entering the Brunswick Industrial Site through four intermittent streams, sheet flow, and the 48-inch culvert that connects the western edge of Brunswick Road with South Fork Wolf Creek. The wetlands in the eastern portion of the Brunswick Industrial Site drain to the northwest through the existing intermittent streams or sheet flow. Most of the wetlands within the eastern and southern sections of the Brunswick Industrial Site are due to disturbance in those areas where ponding of sheet flow and drainage occurs.

The following drainage features were identified within the Brunswick Industrial Site, as shown on Figure 4.4-4:

- Perennial drainage (P-1) runs along the western edge of Brunswick Road in a northerly direction before entering a culvert that crosses through the central section of the Brunswick Industrial Site before exiting the large culvert and creating South Fork Wolf Creek. The perennial drainage appears to cross Brunswick Road from the east and may be fed by a perennial spring coming from the hillsides east of the property before entering the perennial drainage along the western side of Brunswick Road, adjacent to the property.



**Figure 4.4-3
 Aquatic Resources on Centennial Industrial Site**



Source: Greg Matuzak Environmental Consulting, 2021.



**Figure 4.4-4
 Aquatic Resources on the Brunswick Industrial Site**



Source: Greg Matuzak Environmental Consulting, 2021



**Figure 4.4-5
Aquatic Resources along East Bennet Road ROW**



Source: Greg Matuzak Environmental Consulting, 2021.



- South Fork Wolf Creek, a perennial stream, runs along the western and northwestern sections of the Brunswick Area and originates from the outlet of a 48-inch diameter culvert.
- A man-made clay lined pond (PD-1) associated with previous saw milling operations does not have a direct outlet or connection to the South Fork Wolf Creek. PD-1 receives its water mainly from surface runoff and precipitation. PD-1 was used previously as a recycling pond for site runoff containment and log watering during mill operations. PD-1 is non-jurisdictional pursuant to federal Clean Water Act (CWA) regulations given it receives water from sheet flow within the Brunswick Industrial Site and does not connect directly or indirectly with South Fork Wolf Creek or any other “waters of the U.S.”.
- A small, unnamed ephemeral drainage (E-1) flows into the Brunswick Industrial Site from the surrounding hills to the west of South Fork Wolf Creek. Another small, unnamed ephemeral drainage (E-2) connects to the culvert outlet of South Fork Wolf Creek.
- Four small intermittent streams flow into the northeastern section of the Brunswick Industrial Site from offsite, while a single small intermittent stream enters South Fork Wolf Creek from the west just downstream from where the perennial stream daylight.
- Wet meadow wetland (WM-4) is located within a large area in the northwestern section of the Brunswick Industrial Site and dominates the non-woodland habitat within that area.

Each of the mapped wetlands and stream features within the Brunswick Industrial Site have a connection to the South Fork Wolf Creek.

East Bennett Road ROW

In general, South Fork Wolf Creek runs parallel to and on the south side of East Bennett Road. Drainage along the East Bennett Road ROW generally flows from the north to the south with several culverts and storm drains crossing the ROW. Roadside drainages have formed which convey some water along the edges of the ROW; however, the roadside drainages do not contain a defined bed and bank or ordinary high water mark (OHWM). Several roadside drainages were observed; however, these drainages do not connect to South Fork Wolf Creek. Other drainage features were located outside of the ROW, including a large wet area located on the northern side of the ROW near the Brunswick Industrial Site. Therefore, along the ROW no jurisdictional drainages were mapped.

A roadside wetland was delineated along the south side of the East Bennett Road ROW near the Centennial Industrial Site and was mapped as a potentially regulated wetland (see Figure 4.4-5).

Aquatic Resources Delineation Results

A total of 9.60 acres of “waters of the U.S.”, including wetlands, and “waters of the State of California”, were identified and mapped within the Brunswick Area. The 9.60 acres of wetland-waters include 8.72 acres of mapped wetlands and 0.88-acre of mapped “other waters of the U.S.,” including South Fork Wolf Creek, as well as several intermittent and ephemeral streams.

The 8.72 acres of wetlands identified and mapped within the Brunswick Industrial Site include:

- 6.97 acres of wet meadow wetlands (4 features mapped);
- 0.50-acre of freshwater emergent marsh wetlands (6 features mapped);
- 1.16 acres of riparian wetlands (3 features mapped); and
- 0.09-acre of roadside wetlands along the East Bennett Road ROW (1 feature mapped).



Table 4.4-3 includes the list of wetlands delineated and mapped within the Brunswick Area, including the wetland type, wetland identification number which corresponds to the delineation exhibits shown in Figure 4.4-4 and Figure 4.4-5.

Table 4.4-3 Wetlands Delineated Within Brunswick Industrial Site and along the East Bennett Road ROW			
No.	Wetland Type	Wetland ID Number	Size (Acres)
1	Meadow wetland	WM-1	0.02
2	Meadow wetland	WM-2	0.01
3	Meadow wetland	WM-3	0.01
4	Meadow wetland	WM-4	6.93
5	Marsh	MA-1	0.1
6	Marsh	MA-2	0.3
7	Marsh	MA-3	0.02
8	Marsh	MA-4	0.007
9	Marsh	MA-5	0.05
10	Marsh	MA-6	0.02
11	Riparian	RI-1	0.03
12	Riparian	RI-2	0.76
13	Riparian	RI-3	0.37
14	Roadside Wetland	RW-1	0.09
Total			8.72

Source: Greg Matuzak Environmental Consulting, 2021.

The 0.88-acre (4,392 linear feet) of streams identified and mapped within the Brunswick Industrial Site includes:

- One perennial stream, the South Fork Wolf Creek, totaling 0.59-acre, over 2,563 linear feet;
- One perennial drainage along the western edge of Brunswick Road, totaling 0.16-acre, over 701 linear feet;
- Five intermittent streams totaling 0.07-acre, over 745 linear feet; and
- Two ephemeral streams that only flow during and immediately after precipitation events totaling 0.06-acre, over 383 linear feet.

Table 4.4-4 includes the list of streams delineated and mapped within the Brunswick Area, including the stream type, stream identification number which corresponds to the delineation exhibits shown in Figure 4.4-4 and Figure 4.4-5.



**Table 4.4-4
 Streams Delineated within Brunswick Industrial Site**

No.	Stream Type	Wetland ID Number	Size (Acres)
1	Perennial Stream	South Fork Wolf Creek – 1	0.59
2	Perennial Drainage	P – 1	0.16
3	Intermittent Stream	I – 1	0.05
4	Intermittent Stream	I – 2	0.002
5	Intermittent Stream	I – 3	0.006
6	Intermittent Stream	I – 4	0.003
7	Intermittent Stream	I – 5	0.004
8	Ephemeral Stream	E – 1	0.01
9	Ephemeral Stream	E – 2	0.05
Total			0.88
<i>Source: Greg Matuzak Environmental Consulting, 2021.</i>			

Special-Status Species

Special-status species are species that have been listed as “threatened” or “endangered” under the Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), or are of special concern to federal resource agencies, the State, or private conservation organizations. A species may be considered special-status due to declining populations, vulnerability to habitat change, or restricted distributions. A description of the criteria and laws pertaining to special-status classifications is described in the Regulatory Context.

Special-status species is defined as those species that are:

- listed as threatened or endangered, or proposed or candidates for listing by the United States Fish and Wildlife Service (USFWS) or National Marine Fisheries Service;
- listed as threatened or endangered and candidates for listing by California Department of Fish and Wildlife (CDFW);
- identified as Fully Protected species or species of special concern by CDFW;
- identified as Medium or High priority species by the Western Bat Working Group; and
- plant species considered to be rare, threatened, or endangered in California by the California Native Plant Society (CNPS) and CDFW [California Rare Plant Rank (CRPR) 1 and 2]:
 - CRPR 1A: Plants presumed extinct.
 - CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.
 - CRPR 2A: Plants extirpated in California, but common elsewhere.
 - CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.

Several species of plants and animals within the State of California have low populations, limited distributions, or both. Such species may be considered “rare” and are vulnerable to extirpation as the State’s human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described below, State and federal laws have provided the CDFW and the USFWS with a mechanism for conserving and protecting the diversity of plant and animal species native to the State. A number of native plants and animals have been formally designated as threatened or endangered under State and federal endangered species legislation. Others have been designated as “candidates” for such listing. Still others have been designated as



“species of special concern” by the CDFW. In addition, the CNPS has developed a set of lists of native plants considered rare, threatened, or endangered. Collectively, these plants and animals are referred to as “special-status species.”

To determine potentially occurring special-status species, the standard databases from the USFWS, CDFW (the California Natural Diversity Database [CNDDDB]),³ and the CNPS were queried and reviewed. The searches provided a comprehensive list of regionally-occurring special-status species and were used to determine which species have some potential to occur within or near the project site. In addition to the database searches, field surveys were conducted of the project sites by Greg Matuzak Environmental Consulting (see Method of Analysis section for a more detailed discussion of surveys).

Special-Status Plants

Based on the results of the searches, 23 CNPS ranked plants and special-status plant species were identified as occurring within the nine Quad search. Ten of these plant species were dismissed from further consideration due to a lack of suitable habitat in the analysis area, the Centennial and Brunswick Sites being substantially outside of the known range and distribution for the plant species, or both. The plant species dropped from further consideration include the following:

- Jepson’s onion (*Allium jepsonii*)
- Mosquin’s clarkia (*Clarkia mosquinii*)
- Ahart’s buckwheat (*Eriogonum umbellatum* var. *ahartii*)
- Jepson’s coyote thistle (*Eryngium jepsonii*)
- Minute pocket moss (*Fissidens pauperculus*)
- Yosemite tarplant (*Jensia yosemitana*)
- Inundated bog club-moss (*Lycopodiella inundata*)
- Follett’s monardella (*Monardella follettii*)
- Sticky pyrrocoma (*Pyrrocoma lucida*)
- Oval-leaved viburnum (*Viburnum ellipticum*)

The special-status plant species with at least a low potential to occur within the Centennial Industrial Site and Brunswick Area according to the results of the nine Quad search and CNDDDB 5-mile buffer search are evaluated in Table 4.4-5. As discussed further in the Method of Analysis section of this chapter, the special-status plant species field surveys were conducted at a time when the majority of potentially occurring special-status plant species could be identified if they were present.

The following section uses “Brunswick Area” to describe both the Brunswick Industrial Site and the East Bennett Road ROW.

³ CDFW’s California Natural Diversity Database Biogeographic Information and Observation System (BIOS) 9 Quad search included the Grass Valley, Nevada City, North Bloomfield, Chicago Park, Colfax, Rough and Ready, Lake Combie, French Corral and Wolf 7.5-minute USGS quadrangles (CDFW, 2019).



**Table 4.4-5
Special-Status Plant Species with Potential to Occur in the Vicinity of the Centennial
Industrial Site and Brunswick Area**

Common and Scientific Name	Legal Status ¹	Habitat Association	Identification Period	Potential for Species/Habitat Presence
	Federal/State/CNPS			
Stebbins' morning-glory <i>Calystegia stebbinsii</i>	FE/CE/1B.2	Gabbroic or serpentinite soils. Openings in chaparral, cismontane woodland, lower montane coniferous forest, from 980-4,330 feet.	Apr-Jul	Centennial Industrial Site Low. Potential for occurrence in openings and under chaparral in gabbroic soils. Known 4 miles to east on gabbroic chaparral on Oceola Ridge. Was not observed during targeted 2019 protocol level field surveys. Brunswick Area Low. Known 4 miles to east on gabbroic chaparral on Oceola Ridge. Gabbroic soils not present in study area. Was not observed during 2019 protocol level field surveys.
Sierra arching sedge <i>Carex cyrtostachya</i>	--/--/1B.2	Lower montane mesic coniferous forest, meadows and seeps, marshes and swamps, Riparian forests (margin), from 2,000- 4,460 feet.	May-Aug	Centennial Industrial Site and Brunswick Area Low. Potential for occurrence in mesic forests. Within the known distributional and elevational range for this species, though nearest known occurrence 16 miles to the north. This species was recently described so the full extent of its range and distribution are unlikely yet known. Marginal habitat present in study area, and it was not observed during 2019 field surveys.
Chaparral sedge <i>Carex xerophila</i>	--/--/1B.2	Chaparral, cismontane woodland, lower montane coniferous forests on serpentinite and gabbroic substrates, from 1,400 – 2,525 feet.	Mar-Jun	Centennial Industrial Site Low. Potential for occurrence in openings and under chaparral in gabbroic soils. Known 4 miles away on Oceola Ridge in gabbroic chaparral. Was not observed during 2019 protocol level field surveys. Brunswick Area Low. Known 4 miles away on Oceola Ridge in gabbroic chaparral. Gabbroic soils not present in

(Continued on next page)



**Table 4.4-5
Special-Status Plant Species with Potential to Occur in the Vicinity of the Centennial Industrial Site and Brunswick Area**

Common and Scientific Name	Legal Status ¹	Habitat Association	Identification Period	Potential for Species/Habitat Presence
	Federal/State/CNPS			
				study area. Was not observed during 2019 protocol level field surveys.
Red Hills soaproot <i>Chlorogalum grandiflorum</i>	--/--/1B.2	Chaparral, cismontane woodland, lower montane coniferous forests on serpentinite and gabbroic substrates, from 800 – 5,545 feet.	May-Jun	Centennial Industrial Site Low. Potential for occurrence in openings and under chaparral in gabbroic soils. Known over 10 miles south in Bunch Canyon south of Colfax, with no known occurrences to north. Was not observed during 2019 protocol level field surveys. Brunswick Area Low. Known over 10 miles south in Bunch Canyon south of Colfax, with no known occurrences to north. Gabbroic soils not present in study area. Was not observed during 2019 protocol level field surveys.
Pine Hill flannelbush <i>Fremontodendron decumbens</i>	FE/CR/1B.2	Chaparral, cismontane woodland on serpentinite and gabbroic substrates, from 1,390 – 2,495 feet.	Apr-July	Centennial Industrial Site High. Potential for occurrence in openings and under chaparral in gabbroic soils in Idaho Maryland study area. Known from CNDDB Occurrence #14. Protocol level field surveys in 2019 expanded boundaries of known occurrence. Brunswick Area Low. Known from two miles to the north. Gabbroic soils not present in study area. Was not observed during 2019 protocol level field surveys.
Finger rush <i>Juncus digitatus</i>	--/--/1B.1	Seasonal wet areas, cismontane woodland openings, openings in lower montane coniferous	Apr-Jun	Centennial Industrial Site and Brunswick Area Low. Potential for the occurrence in gravelly, seasonally moist openings. Known less than one mile to the north near the intersection of Idaho

(Continued on next page)



**Table 4.4-5
Special-Status Plant Species with Potential to Occur in the Vicinity of the Centennial Industrial Site and Brunswick Area**

Common and Scientific Name	Legal Status ¹	Habitat Association	Identification Period	Potential for Species/Habitat Presence
	Federal/State/CNPS			
		forest, xeric vernal pools, from 2,165-2,590 feet.		Maryland and Brunswick. Was not observed during 2019 protocol level field surveys.
Cantelow's lewisia <i>Lewisia cantelovii</i>	--/--/1B.2	Moist, granitic areas in broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest mesic, sometimes serpentinite seeps, from 1,080-4,495 feet.	May-Oct	Centennial Industrial Site and Brunswick Area Low. Potential for occurrence in any rocky outcrops with seeps on the parcel. There are records for this species in the Middle Yuba and South Yuba river canyons within 7 miles of the study area. The preferred habitat for this species in the study area has been disturbed and is of reduced quality. Was not observed during 2019 protocol level field surveys.
Sierra blue grass <i>Poa sierrae</i>	--/--/1B.3	Openings in lower montane coniferous forest, 1,195-4,920 feet.	Apr-Jul	Centennial Industrial Site Low. There is only marginal suitable habitat for this species in the study area, primarily in the ponderosa pine forest, and in the forested areas along Wolf Creek. Known from Steephollow Creek from a collection from 1964. Was not observed during 2019 protocol level field surveys. Brunswick Area Moderate. There is only marginal suitable habitat for this species in the study area, primarily in the Sierran mixed conifer, ponderosa pine forest, and in the forested areas along South Fork of Wolf Creek. Known 7 miles to the east of the study area at Steephollow Creek from a collection from 1964. Was not observed during 2019 protocol level field surveys.
Brownish beaked-rush	--/--/2B.2	Wet areas (marshes, swamps, meadows, and seeps) in montane	Jul-Aug	Centennial Industrial Site Low. Suitable habitat for this species in the perennial marsh wetlands. It is known 3 miles to

(Continued on next page)



**Table 4.4-5
 Special-Status Plant Species with Potential to Occur in the Vicinity of the Centennial
 Industrial Site and Brunswick Area**

Common and Scientific Name	Legal Status ¹	Habitat Association	Identification Period	Potential for Species/Habitat Presence
	Federal/State/CNPS			
<i>Rhynchospora capitellata</i>		coniferous forest, from 145-6,560 feet.		the west near the Nevada County Fairgrounds from a report in 1973. Was not observed during 2019 protocol level field surveys. Brunswick Area Moderate. Suitable habitat for this species in the perennial marsh wetlands. It is known 3 miles to the west near the Nevada County Fairgrounds from a report in 1973. Was not observed during 2019 protocol level field surveys.
Scadden Flat checkerbloom <i>Sidalcea stipularis</i>	--/CE/1B.1	Marshes and swamps (montane freshwater), from 2,295-2,395 feet.	Jul-Aug	Centennial Industrial Site Low. Suitable habitat for this species in the perennial marsh wetlands. It is known 3 miles to the west near the Nevada County Fairgrounds from a report in 1973. Was not observed during 2019 protocol level field surveys. Brunswick Area Moderate. Suitable habitat for this species in the perennial marsh wetlands. It is known 3 miles to the west near the Nevada County Fairgrounds from a report in 1973. Was not observed during 2019 protocol level field surveys.

¹ FE = Federally Endangered
 CR = State Rare
 CE = State Endangered
 -- = no listing.
 California Native Plant Society Rare Plant Rank (formerly known as CNPS lists)
 1B = Rank 1B species: rare, threatened, or endangered in California and elsewhere.
 2B = Rank 2B species: rare, threatened, or endangered in California but more common elsewhere.
 3 = Rank 3 species are taxonomically problematic and lack the necessary information to assign them to one of the other ranks.
 4 = Rank 4 plants are of limited distribution or infrequent throughout a broader area in California; should be monitored regularly.

Source: CNPS 2019; CNDDDB 2019; USFWS 2019, and Calflora 2019.



Stebbins' morning glory (*Calystegia stebbinsii*) – CA State and Federally Endangered and CNPS 1B.1

Stebbins' morning glory inhabits chaparral and cismontane woodland. It is found in red clay soils of the pine hill formation on gabbro or serpentine soils in open areas, normally between 980 and 4,330 feet above msl. The species is known from a location approximately 4.5 miles to west of the Brunswick Area on gabbroic chaparral on Oceola Ridge. This species was not identified during field surveys conducted in December 2018 or July and August 2019.

Potential for occurrence of this species in the Centennial Industrial Site and Brunswick Area is considered low given the lack of (Brunswick), or limited nature of (Centennial Industrial Site), openings and mixed chaparral vegetation in gabbroic soils.

Sierra arching sedge (*Carex cyrtostachya*) – CNPS List 1B.2

Sierra arching sedge inhabits lower montane mesic coniferous forest, meadows and seeps, marshes and swamps, riparian forests (margin), from 2,000 to 4,460 feet above msl. The Brunswick Area is within the known distributional and elevational range for this species, though the nearest known occurrence 16 miles to the north. This species was recently described⁴ so the full extent of its range and distribution are unlikely yet known. Suitable marginal habitat is present within the mesic forests located in the Centennial and Brunswick Industrial Sites; however, the species was not identified within the Sites during botanical surveys. Therefore, the potential for this species to occur within the Sites is considered low.

Chaparral sedge (*Carex xerophila*) – CNPS List 1B.2

Chaparral sedge inhabits openings within chaparral habitat, cismontane woodland, and lower montane coniferous forests. This species is found in areas containing serpentine and gabbroic microhabitats between 1,400 and 2,525 feet above msl. This species has been identified within approximately four miles of the Centennial Industrial Site and Brunswick Area on Oceola Ridge in gabbroic chaparral. The blooming period for this species is March to June. The surveys were not conducted during the blooming period for this species. This species was not identified during field surveys conducted in December 2018 or July and August 2019 surveys.

Potential for occurrence of this species in the Centennial Industrial Site and Brunswick Area is considered low given the lack of (Brunswick), or limited nature of (Centennial Industrial Site), openings and mixed chaparral vegetation in gabbroic soils.

Red Hills soaproot (*Chlorogalum grandiflorum*) – CNPS List 1B.2

Red Hills soaproot is found in chaparral, cismontane woodland, lower montane coniferous forests on serpentinite and gabbroic substrates, between 800 and 5,545 feet above msl and blooms between May and June. The species was not documented within five miles of the Centennial Industrial Site and Brunswick Area (CNDDDB 2019); however, it is known over 10 miles south in Bunch Canyon south of Colfax, with no known occurrences to north. This species was not identified during field surveys conducted in December 2018 or July and August 2019 surveys; however, the blooming period for this species is May to June. The surveys were not conducted during the blooming period for this species.

⁴ A "species description" is a formal description of a newly discovered species.



Potential for occurrence of this species in the Centennial Industrial Site and Brunswick Area is considered low given the lack of (Brunswick), or limited nature of (Centennial Industrial Site), openings and mixed chaparral vegetation in gabbroic soils.

Pine Hill flannelbush (*Fremontodendron decumbens*) – Federally Endangered, CA State Rare, and CNPS List 1B.2

Pine Hill flannelbush gets its name from the Pine Hill formation in western El Dorado County, where the known occurrences are found. The Pine Hill formation is dominated by chaparral underlain by gabbro-derived soils. Pine Hill flannelbush occurs on scattered rocky outcrops in chaparral on and in the vicinity of Pine Hill and in the black oak woodland on Pine Hill. Gabbro soils are derived from mafic rocks (high in magnesium and iron) and are composed of the minerals plagioclase, olivine, clinopyroxene, iron oxides, and hornblende. Gabbro, a dark large-crystalline rock, is formed when liquid magma cools slowly underground. A red soil is formed when the rock is exposed and weathers at the earth's surface. Gabbro soils are well-drained and are underlain by gabbrodiorite (granular igneous) rocks at a depth of more than one meter (3.3 feet).

Reports of occurrences of Pine Hill flannelbush in Yuba and Nevada counties have been questioned. According to the USFWS Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills (2002),⁵

Although there are some reports of *F. californicum* ssp. *decumbens* occurring in some small scattered populations in Yuba or Nevada County, other reports describe these individuals as aberrant *F. californicum* ssp. *californicum* (California flannelbush). Most occurrences of *Fremontodendron californicum* ssp. *decumbens* are on private land (California Natural Diversity Data Base 1998). One occurrence is on Bureau of Land Management land and one occurrence is on California Department of Fish and Game and California Department of Forestry and Fire Protection lands (California Natural Diversity Data Base 1998). Presently, the majority of the *F. californicum* ssp. *decumbens* individuals are located on the parcel managed by the California Department of Forestry and Fire Protection on Pine Hill, and on a nearby private parcel (L. Eng *in litt.* 1999).

The Pine Hill flannelbush is listed within the CNDDB (CDFW, 2019) as potentially occurring within the southern section of the Centennial Industrial Site and within adjacent private lands to the south. While initially identified and mapped as Pine Hill flannelbush in 1999, 2008, and 2009, since the species was mapped by the CDDDB within the Centennial Industrial Site as the Pine Hill flannelbush, the identity of the plants has been questioned. The Centennial Industrial Site does contain the appropriate soils and vegetation community types required for the Pine Hill flannelbush. CDFW assumes that the plants mapped within the Centennial Industrial Site are either a distinct population of Pine Hill flannelbush or a hybrid with the more common *Fremontodendron californicum* (CDFW, 2019). However, the USFWS Recovery Plan Amendment for Gabbro Soil Plants of the Central Sierra Nevada Foothills: El Dorado Bedstraw (*Galium californicum* ssp. *sierrae*) and Pine Hill flannelbush (*Fremontodendron californicum* ssp. *decumbens*) states that “Results of subsequent genetic work by a University of California, Davis researcher, to determine if Nevada and Yuba County flannelbushes are Pine Hill flannelbush,

⁵ United State Fish and Wildlife Service. *Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills* [pg. II-13]. August 30, 2002.



were inconclusive; therefore, we [the USFWS] continue under the assumption that these plants are not the listed entity.⁶

According to the botanical study prepared for the Centennial Industrial Site, the recent genetic work conducted by Dr. Shannon Still from U.C. Davis has confirmed that Pine Hill flannelbush is known to occur in Nevada County, but this work is still in press (Bill Wilson, personal communication 2019).⁷ During protocol-level field surveys implemented in 2019 for the Pine Hill flannelbush, the plants in the population were confirmed to have morphological characteristics, the floral and habit, of the Pine Hill flannelbush. Based on the unpublished genetic results and the supporting morphological characteristics, Matuzak Environmental is conservatively assuming the identification of Pine Hill flannelbush within the Centennial Industrial Site with it to be confirmed prior to the implementation of any disturbance. Similarly, for the purposes of this EIR, it is assumed that the individual plants identified within the Centennial Industrial Site may be the FESA listed Pine Hill flannelbush. This is a conservative approach to analysis.

Centennial Industrial Site: The Centennial Industrial Site has suitable habitat for the Pine Hill flannelbush in the Dubekella and Secca-Rock Outcrop complex soil series, a soil derived from gabbrodiorite parent material. The known occurrence of the previously mapped Pine Hill flannelbush population within and directly adjacent to the Centennial Industrial Site (CDFW, 2019) was initially located within the Centennial Industrial Site in December 2018 and tentatively identified due to it being a perennial shrubby plant with characteristics (leaf morphology, plant habit, seeds, fruits) that allowed it to be fairly confidently identified at that time of year. The identification was verified during its blooming period when species-specific surveys for Pine Hill flannelbush were implemented, and the whole of the population that occurs within the Centennial Industrial Site was mapped in July of 2019 (see Figure 4.4-6). Sixty individuals were counted within the Centennial Industrial Site, all mature, flowering plants. No seedling or juvenile individuals were encountered. They occupied an absolute area of 0.22-acre over approximately 4.5 acres in the southern portion of the Centennial Industrial Site, with one plant occurring disjunct from the main population, in the center of the study area. The population extends beyond the Centennial Industrial Site towards the south into adjacent private properties (previously mapped by CDFW 2019). The population was not mapped or documented beyond the edge of the Centennial Industrial Site.

Brunswick Area: Potential for occurrence of this species within the Brunswick Area is considered low given the lack of openings and mixed chaparral vegetation in gabbroic soils within the Brunswick Area. The Pine Hill flannelbush was not found within the Brunswick Area during any of the field surveys conducted in December 2018 or in July and August 2019 within the Brunswick Area.

⁶ United States Fish and Wildlife Service. *Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills: El Dorado bedstraw (Galium californicum ssp. sierrae) and Pine Hill Flannelbush (Fremontodendron californicum ssp. decumbens)* [pg. 3]. September 2019. See also United States Fish and Wildlife Service. *5-Year Review Stebbin's morning-glory (Calystegia stebbinsii), Pine Hill ceanothus (Ceanothus roderickii), Pine Hill flannelbush (Fremontodendron californicum ssp. decumbens), El Dorado bedstraw (Galium californicum ssp. sierrae), Layne's butterweed (Packera layneae), Summary and Evaluation* [pg. 11]. May 2019.

⁷ Wendy Boes. *Centennial Industrial Site CNPS Ranked Plants and Special Status Plant Survey Report*. January 2021.



**Figure 4.4-6
 Centennial Industrial Site – Pine Hill Flannelbush Occurrences**



Source: Greg Matuzak Environmental Consulting, 2021.



Finger rush (*Juncus digitatus*) – CNPS List 1B.1

Finger rush inhabits open chaparral habitat surrounded by mixed oak/conifer woodland on low gradient, north-facing, and vernal moist slopes. This species also associates with sandy clay loam soil within substrates underlain by granitic bedrock. This species is found between 2,165 and 2,590 feet above msl. A low potential for the occurrence of this species exists in gravelly, seasonally moist openings within the Centennial and Brunswick Industrial Sites.

The species is known less than one mile to the north of the Sites, near the intersection of Idaho-Maryland Road and Brunswick Road (species identified in 2011). This species was not identified on either Site during the December 2018 or July and August 2019 surveys; however, the blooming period for this species is April to June. The species has a low potential to occur within the Centennial Industrial Site and the Brunswick Area.

Cantelow's lewisia (*Lewisia cantelovii*) – CNPS List 1B.2

Cantelow's lewisia is found in moist, granitic areas in broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest mesic, sometimes serpentinite seeps between 1,080 and 4,495 feet above msl. The species blooms between May and October. A low potential for occurrence of this species exists within the rocky outcrops with seeps within the Centennial and Brunswick Industrial Sites, though habitat for this species is very limited. Records for this species occurs in the Middle Yuba and South Yuba river canyons within seven miles of the Brunswick Area. The species was not documented within five miles of the Centennial Industrial Site and Brunswick Area (CNDDDB, 2019). The species was not observed during 2019 field surveys.

Sierra blue grass (*Poa sierra*) – CNPS List 1B.3

Sierra blue grass is found in openings in lower montane coniferous forest, between 1,195 and 4,920 feet above msl and blooms between April and July. The species was not documented within five miles of the Centennial Industrial Site and Brunswick Area (CNDDDB 2019); however, it has been documented at Steephollow Creek in a collection from 1964. The species was not observed during the 2019 field surveys.

The potential for occurrence of this species is considered moderate for the Brunswick Industrial Site (Sierran mixed conifer, ponderosa pine forest, and in the forested areas along South Fork of Wolf Creek) and low for the Centennial Industrial Site (ponderosa pine forest, and in the forested areas along Wolf Creek).

Brownish beaked-rush (*Rhynchospora capitellata*) – CNPS List 2B.2

Brownish beaked-rush inhabits meadows and seeps, marshes and swamps, and it is found in upper and lower montane coniferous forests, normally between 145 and 6,560 feet above msl. This species is normally identified on mesic sites and has been identified within three miles west of the Centennial and Brunswick Industrial Sites in a marshy area along the northwest corner of the Nevada County Fairgrounds along State Route (SR) 20 in 1973. The species was not identified during field surveys conducted in December 2018 or July and August 2019. However, suitable habitat for this species occurs within the perennial marsh wetlands within the Centennial and Brunswick Industrial Sites, but the species has not been identified within five miles of the Brunswick Area since 1973.

The likelihood of this species occurring within the Brunswick Area is considered moderate, and low for occurring within the Centennial Industrial Site.



Scadden Flat checkerbloom (*Sidalcea stipularis*) – CA State Endangered and CNPS List 1B.1

Scadden Flat checkerbloom inhabits marshes and swamps between July and August. It is found in wet montane marshes fed by springs, normally between 2,295 and 2,395 feet above msl. Suitable habitat for this species occurs within the perennial marsh wetlands in the Centennial and Brunswick Industrial Sites. The species has been documented over three miles to the west near the Nevada County Fairgrounds from a report in 1973. Additionally, this species was not documented during the field surveys conducted in December 2018 or in July and August 2019.

The likelihood of this species occurring within the Brunswick Area is considered moderate, and low for occurring within the Centennial Industrial Site.

Non-Special-Status Plants (CNPS Lists 3)

While not considered special-status species under the above-listed categories, for disclosure purposes, the following CNPS Lists 3 and 4 plant species are addressed.

CNPS List 3

Describing the plants included in Rank 3 on its website, CNPS states “we lack the necessary information to assign them to one of the other ranks or to reject them.”⁸ Accordingly, Rank 3 plants are plants that CNPS knows exist, but has insufficient evidence to prove their rarity or endangerment. CNPS states on its website that many of the plants assigned to Rank 3 meet the definitions of the California Endangered Species Act of the California Fish and Game Code (FGC), and are eligible for state listing. Specifically, CNPS’s website provides the following statement regarding Rank 3 plants:

Many of the plants constituting California Rare Plant Rank 3 meet the definitions of the California Endangered Species Act of the California Fish and Game Code, and are eligible for state listing. Impacts to these species or their habitat should be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they may meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

The CEQA Guidelines, Section 15380, broadly define “endangered” and “rare” species as follows:

(b) A species of animal or plant is:

(1) “Endangered” when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors; or

(2) “Rare” when either:

(A) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or

⁸ California Native Plant Society. *CNPS Rare Plant Ranks*. Available at <https://www.cnps.org/rare-plants/cnps-rare-plant-ranks>. Accessed December 2020.



(B) *The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered “threatened” as that term is used in the Federal Endangered Species Act.*⁹

CDFW, as the trustee agency under CEQA,¹⁰ has stated that *some* CNPS Rank 3 plants need to be considered under CEQA, but only if sufficient information is available to adequately assess potential impacts to such plants (See, e.g., *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*, p. 3, footnote 6 (March 20, 2018) [“Impacts to [Rank] 3 plants may warrant consideration under CEQA if sufficient information is available to assess potential impacts to such plants.”].) As Rank 3 plants definitionally are those without sufficient evidence for a specific ranking, analysis under CEQA is only therefore required in the unusual case when some new evidence is uncovered that was not reflected in the CNPS’s Rank 3 designation.

None of the three CNPS List 3 species that have at least a low potential to occur within the project area (see below descriptions) meet the CEQA Guidelines Section 15380 as either “endangered” “threatened” or “rare” under the CEQA guidelines species definitions given their survival and reproduction in the wild are not in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors; or are any of the species existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or any of the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.¹¹ None of these three species have been previously identified within the project area and none of these species were identified during the focused botanical resources surveys conducted for the project.

Butte County fritillary (Fritillaria eastwoodiae) – CNPS List 3.2

Butte County fritillary is found in openings in chaparral, cismontane woodland, and lower montane coniferous forest, sometimes serpentinite between 160 and 4,920 feet above msl. The species blooms between March and June and there is potential for occurrence in open areas in the Brunswick Industrial Site. A 1979 record for this species has been documented on the south side of the South Yuba River canyon, approximately seven miles north of the Centennial and Brunswick Industrial Sites, and other occurrences on the Washington Ridge; however, the species has not been documented within five miles of the Centennial Industrial Site and Brunswick Area. The species was not documented during the botanical surveys, and the potential for the species to occur within the Centennial Industrial Site and Brunswick Area is considered low.

Dubious pea (Lathyrus sulphureus var. argillaceus) – CNPS List 3

Dubious pea inhabits lower and upper montane coniferous forest and cismontane woodlands, normally between 490 and 3,050 feet above msl. The species has been previously identified within five miles of the Brunswick Area. This species has a low potential to occur in forested areas of the Centennial and Brunswick Industrial Sites. This species was not identified during the

⁹ The federal Endangered Species Act defines “threatened species” to mean “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” (16 USC § 1532, subd. (20).)

¹⁰ See Fish & G. Code § 1802, 14 CCR §§ 1802, 15386.

¹¹ Greg Matuzak Environmental Consulting, LLC. *Idaho Maryland Mine Evaluation of California Native Plant Society (CNPS) List 3 Species Under CEQA*. December 6, 2020.



December 2018 or July and August 2019 surveys; however, the blooming period for this species is April to May.

Cedar Crest popcorn flower (Plagiobothrys glyptocarpus var. modestus) – California Native Plant Society List 3

The species is known to occur within cismontane woodland as well as valley and foothill grasslands (mesic), from 2,850 to 2,855 feet above msl. This species is known from previous collections in 1919 and 1937 from nearby Cedar Ridge, less than a mile south of the Brunswick Industrial Site and from previous collections in Nevada City. Suitable habitat for this species is present within the woodland areas within the Centennial and Brunswick Industrial Sites. This species was not identified during field surveys conducted in December 2018 or July and August 2019 surveys, and given the species has not been documented within five miles of the Sites since 1937, the potential for this species to occur within the Centennial and Brunswick Industrial Sites is considered moderate.

CNPS List 4

CRPR 4 plant taxa are of limited distribution or infrequent throughout a broader area in California, so that their vulnerability or susceptibility to threat appears low at this time, from a statewide perspective. Taxa on the CRPR lists are evaluated by panels of taxon experts and are assigned a CRPR based primarily on number of occurrences, distribution, and level of threat. CNPS and CDFW maintain that all CRPR 1 and 2 taxa meet the definition of endangered, rare, or threatened under CEQA Section 15380 and must be evaluated during CEQA review. According to CNPS, “CRPR 4 taxa do not clearly meet CEQA standards and thresholds for impact considerations”.¹² However, CNPS and CDFW strongly recommend that these taxa be evaluated in CEQA documents. Reasons for considering List 4 species in CEQA documents, according to CNPS, include among others, areas where the taxon is especially uncommon and areas where the taxon has sustained heavy losses (declining).

Two CNPS List 4 species are known to occur on the Centennial Industrial Site and one of the species occurs within the Brunswick Area. Similar to the above-discussed List 3 species, these two List 4 species do not meet the criteria for endangered, rare, or threatened under 15380.

Humboldt lily (Lilium humboldtii ssp. humboldtii) - CNPS List 4.2

Humboldt lily is known to occur in openings in chaparral, cismontane woodland and lower montane coniferous forests. It is known from Amador, Butte, Calaveras, El Dorado, Fresno, Mariposa, Nevada, Placer, Tehama, Tuolumne, and Yuba counties at elevations ranging between 295 and 4,200 feet above msl. Humboldt lily is a perennial bulb that blooms May through August. The Brunswick Industrial Site has suitable habitat for the species and a single occurrence consisting of 10 individuals, within an area less than 110 square feet, was documented within a disturbed area of the Brunswick Industrial Site, and a single occurrence consisting of a few individuals was documented within the East Bennett Road ROW. Additionally, 10 individual Humboldt lily plants were observed in an area less than 10 square meters on the northern portion of the Centennial Industrial Site.

¹² California Native Plant Society. *Technical Memorandum: Considerations for Including CRPR 4 Plant Taxa in CEQA Biological Resource Impact Analysis*. January 2020.



Sierra brodiaea (Brodiaea sierra) - CNPS Status List 4.3

Sierra brodiaea is known to occur on serpentinite or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forests. It is known from Butte, Nevada and Yuba counties at elevations ranging between 164 and 3,215 feet above msl. Sierra brodiaea is a perennial bulb that blooms May through August. It is an herbaceous plant, with a broad umbel of purple, fluted flowers. The Centennial Industrial Site has highly suitable habitat in the Secca-Rock Outcrop complex soil series, a soil derived from gabbro-diorite parent material. A large population with thousands of individuals covering almost a quarter of the Centennial Industrial Site was mapped during 2019 field surveys.

Special-Status Wildlife

The CNDDDB database five-mile buffer search revealed five special-status wildlife species that have previously been identified and mapped within five miles of the Centennial Industrial Site and Brunswick Area (see Table 4.4-6). The species previously identified within five miles of the Sites include:

- California black rail
- Coast horned lizard
- Western bumble bee
- Foothill yellow-legged frog
- Townsend's big-eared bat

None of these species were identified within the Centennial Industrial Site, nor Brunswick Area, during biological resources surveys conducted in December 2018 and July 2019. In addition, no USFWS Designated Critical Habitat (DCH) has been mapped by USFWS for any federally-listed species within the vicinity of the Sites.

Given the presence of a large manmade pond and perennial freshwater marsh wetlands within the Brunswick Industrial Site and the presence of the South Fork Wolf Creek within the western section of the Brunswick Industrial Site, western pond turtle and California red-legged frog are also included as special-status aquatic wildlife species with the potential to occur within the Brunswick Area, though neither of these species was identified during the surveys conducted within the Brunswick Area.

Similarly, given the presence of the main stem of Wolf Creek along the northern boundary of the Centennial Industrial Site, and the potential presence of the perennial freshwater marsh wetlands within the eastern portion of the Centennial Industrial Site, depending upon the final remediation limits, western pond turtle and California red-legged frog are also included as special-status aquatic wildlife species with the potential to occur within the Centennial Industrial Site.

Additionally, two species of bat, the hoary bat (*Lasiurus cinereus*) and the pallid bat (*Antrozous pallidus*) are included in the assessment below given they have a low potential to occur within the Centennial Industrial Site and Brunswick Area; however, neither bat species has been previously identified within five miles of the Sites (CDFW 2019a).



**Table 4.4-6
Special-Status Wildlife Species with Potential to Occur in the Vicinity of the Centennial Industrial Site and Brunswick Area**

Common and Scientific Name	Legal Status ¹	Habitat Requirements	Potential for Species/Habitat Presence
	Federal/State/CNPS		
Amphibians			
California red-legged frog <i>Rana draytonii</i>	FT/SSC	Found in permanent and semi-permanent aquatic habitats, such as creeks and ponds, with emergent and submergent vegetation. May aestivate in rodent burrows or cracks during dry periods. Along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County.	Centennial Industrial Site Very Low. However, should perennial aquatic resources, such as the freshwater emergent marsh habitats within the eastern section of the Centennial Site, remain after remediation, these resources contain marginal suitable habitat for the species. Brunswick Area Very Low. However, the perennial aquatic resources such as the freshwater emergent marsh habitats and a large manmade pond within the Brunswick Industrial Site contain marginal suitable habitat for the species.
Foothill yellow-legged frog <i>Rana boylei</i>	SCT/SCC	Perennial rocky (pebble or cobble) streams with cool, clear water in a variety of habitats from valley and foothill oak woodland, riparian forest, ponderosa pine, mixed conifer, coastal scrub, and mixed chaparral at elevations ranging from 0 to 6,370 feet. Occurs in the Klamath, Cascade, north Coast, south Coast, and Transverse Ranges; through the Sierra Nevada foothills up to approximately 6,000 feet south to Kern County.	Centennial Industrial Site Very Low. However, the main stem of Wolf Creek within the northern section of the Centennial Industrial Site contains marginal suitable habitat for the species. Brunswick Area Very Low. However, the South Fork Wolf Creek within the western section of the Brunswick Industrial Site contains marginal suitable habitat for the species.
Reptiles			
Western pond turtle <i>Emys marmorata</i>	--/SSC	Thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation, below 6,000 feet in elevation. Populations extend throughout the coast and central valley of California.	Centennial Industrial Site High. Potential for occurrence in areas near water, including Wolf Creek and perennial aquatic resources, such as the freshwater emergent marsh habitats within the eastern section of the Centennial

(Continued on next page)



**Table 4.4-6
 Special-Status Wildlife Species with Potential to Occur in the Vicinity of the Centennial Industrial Site and Brunswick Area**

Common and Scientific Name	Legal Status ¹	Habitat Requirements	Potential for Species/Habitat Presence
	Federal/State/CNPS		
			Industrial Site, should some portion remain after remediation. Brunswick Area High. Potential for occurrence in areas near water, including South Fork Wolf Creek and perennial aquatic resources such as the freshwater emergent marsh habitats and manmade pond within the Brunswick Industrial Site.
Coast horned lizard <i>Phrynosoma blainvillii</i>	--/SSC	Associated with open patches of sandy soils in washes, chaparral, scrub, and grasslands.	Centennial Industrial Site Moderate. Potential for occurrence in areas with appropriate habitat within the Centennial Site, including open chaparral habitats. Brunswick Area Moderate. Potential for occurrence in areas with appropriate habitat within the Brunswick Industrial Site, including open disturbed areas.
Mammals			
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	--/SSC	Associated with lower montane coniferous and mixed conifer forest habitats where abandoned buildings and structures occur for roosting.	Centennial Industrial Site Low. Potential for occurrence in areas containing abandoned structures, including the existing decant structure in the northwestern section of the Centennial Industrial Site. Brunswick Area Low. Potential for occurrence in areas containing abandoned structures, including the existing mill structure in the Brunswick Industrial Site.

(Continued on next page)



**Table 4.4-6
 Special-Status Wildlife Species with Potential to Occur in the Vicinity of the Centennial Industrial Site and Brunswick Area**

Common and Scientific Name	Legal Status ¹	Habitat Requirements	Potential for Species/Habitat Presence
	Federal/State/CNPS		
Birds			
California black rail <i>Laterallus jamaicensis coturiculus</i>	--/CT	California black rail inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. The species requires water depths of approximately 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat.	Centennial Industrial Site Very Low. However, the perennial aquatic resources, such as the freshwater emergent marsh habitats within the eastern section of the Centennial Industrial Site, should some portion remain after remediation, contain marginal suitable habitat for the species. Brunswick Area Very Low. However, the perennial aquatic resources such as the freshwater emergent marsh habitats within the Brunswick Industrial Site contain marginal suitable habitat for the species.
Invertebrates			
Western bumble bee <i>Bombus occidentalis</i>	--/SCT	Western bumble bee was documented approximately 3 miles northeast of Nevada City (4+ miles from the Centennial Industrial Site) in 1968. It is known from a single collection on May 20th of that year. This species is of conservation concern and is listed as S1, Critically Imperiled, by NatureServe and is listed on the CNDDDB.	Centennial Industrial Site and Brunswick Area Very Low. The species is unlikely to occur in the Centennial Industrial Site, Brunswick Industrial Site, or surrounding region.
¹ Status explanations: -- = no listing. <i>Federal</i> BCC = federal Bird of Conservation Concern FPT = federal proposed threatened under the federal Endangered Species FT = listed as threatened under the federal Endangered Species Act. <i>State</i> FP = state fully protected SCT = state candidate for listing as threatened under the California Endangered Species			

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**Table 4.4-6
 Special-Status Wildlife Species with Potential to Occur in the Vicinity of the Centennial Industrial Site and Brunswick Area**

Common and Scientific Name	Legal Status ¹	Habitat Requirements	Potential for Species/Habitat Presence
	Federal/State/CNPS		
SE = listed as endangered under the California Endangered Species Act. SSC = state species of special concern ST = listed as threatened under the California Endangered Species Act.			
Source: CNDDDB 2019 and USFWS 2019.			



Townsend's big-eared bat (*Corynorhinus townsendii*) – CA State Species of Concern

The Townsend's big-eared bat species inhabits lower montane coniferous and mixed conifer forest habitats where abandoned buildings and structures occur for roosting. This species has been identified within three miles, generally south, of the Centennial Industrial Site and Brunswick Area, within an abandoned building at the Empire Mine State Historic Park.

Limited suitable roosting sites for this species occurs within the Centennial Industrial Site given the lack of abandoned structures. The existing decant tower, which is located in the northwest portion of the Centennial Industrial Site, may contain suitable roosting habitat for this species.

Limited suitable roosting sites for this species occurs within the Brunswick Area given the presence of only one abandoned structure.

Therefore, the potential for this species to occur within the Centennial Industrial Site and Brunswick Area is considered low.

Coast horned lizard (*Phrynosoma blainvillii*) – CA State Species of Concern

The coast horned lizard occurs in open sandy areas, scattered low bushes, chaparral, manzanita, and oak woodland habitats. It is found in the Sierra Nevada foothills from Butte County to Kern County and throughout the central and southern California coast. Coast horned lizards forage on the ground in open areas, usually between shrubs and often near ant nests. The species relies on camouflage for protections. Predators and extreme heat are avoided by burrowing into loose soil. Periods of inactivity and winter hibernation are spent burrowed in the soil under surface objects such as logs or rocks, in mammal burrows, or in crevices (Zeiner et al., 2000). They inhabit mostly open country, especially sandy areas, washes, flood plains and wind-blown deposits in a wide variety of habitats and can be found at elevations up to 8,000 feet (2,438 meters) (CaliforniaHerps, 2014).

This species has been documented between three and five miles of the Centennial Industrial Site and Brunswick Area to the west, northwest, and southwest. Potential suitable habitat within the sandy and rocky locations exists within the Centennial Industrial Site, and the open disturbed and developed locations within the Brunswick Industrial Site. As both Sites include the required open areas of exposed, sandy soils for this species, this species has the potential to occur within the Sites. Coast horned lizards were not observed during the December 2018 or early January 2019 site visits or during reconnaissance-level biological surveys conducted in July 2019. The potential for this species to occur within the Centennial and Brunswick Industrial Sites is considered moderate.

Western pond turtle (*Emys marmorata*) – CA State Species of Concern

Western pond turtles associate with permanent ponds, lakes, streams, irrigation ditches, and permanent pools along intermittent streams. They are most commonly associated with permanent or nearly permanent water in a wide variety of habitats. This species requires basking sites such as partial submerged logs, rocks, mats of floating vegetation, or open mud banks. During the spring or early summer, females move overland up to 325 feet to find suitable sites for egg laying.

Centennial Industrial Site: The main stem of Wolf Creek, a perennial stream, and the large marsh wetlands in the eastern section of the Centennial Industrial Site containing perennial water/ponding are considered suitable habitat for this species. It is important to reiterate that the



large marsh wetlands in the eastern portion of the Centennial Industrial Site are currently proposed to be removed during remediation activities under DTSC oversight, pursuant to the RAP, and this action has already been analyzed in an independent CEQA document with DTSC as the lead agency. However, out of an abundance of caution, if the currently proposed remediation boundary limits were modified by DTSC prior to commencement of remediation, this EIR addresses the possibility that some amount of freshwater emergent marsh wetland habitat may remain on the Centennial Industrial Site post-remediation.

The western pond turtle has not been previously identified within five miles of the Centennial Industrial Site and was not identified during the December 2018 or early January 2019 site visits, or during reconnaissance-level biological surveys conducted in July 2019. The potential for this species to occur within the Centennial Industrial Site is considered high.

Brunswick Area: The South Fork Wolf Creek, a perennial stream, large manmade pond, and the perennial freshwater marsh wetlands within the Brunswick Industrial Site are considered suitable habitat for the western pond turtle.

This species has not been previously identified within five miles of the Brunswick Area and was not identified during the December 2018 or early January 2019 site visits, or during reconnaissance-level biological surveys conducted in July 2019. The potential for this species to occur within the Brunswick Industrial Site is considered high.

Foothill yellow-legged frog (*Rana boylei*) – Candidate as Threatened under CESA

Foothill yellow-legged frogs inhabit partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. The species requires at least some cobble-sized substrate for egg laying. The species requires at least 15 weeks to attain metamorphosis. This species has been identified within five miles of the Centennial Industrial Site and approximately 3.9 miles southeast of the Brunswick Area, within Greenhorn Creek.

Centennial Industrial Site: The main stem of Wolf Creek within the Centennial Industrial Site is considered suitable habitat for this species. This species was not identified during the December 2018 or early January 2019 site visits or during reconnaissance-level biological surveys conducted in July 2019 within the Centennial Site for special-status wildlife species. Protocol-level surveys (Visual Encounter Surveys [VES method surveys] pursuant to the CDFW protocol) for this species were not implemented within the Centennial Industrial Site as part of this reporting. The potential for this species to occur within the Centennial Industrial Site is considered very low.

Brunswick Area: The species was not identified during focused VES method surveys for this species conducted on August 29, 2019, within South Fork Wolf Creek within the Brunswick Area, as well as within the portions of the creek that flow through public property downstream within the Empire Mine State Historic Park.

The stretches of South Fork Wolf Creek within the Brunswick Industrial Site from the large 48-inch culvert creating the stream, and downstream 700 feet from the culvert, does not contain suitable habitat for the species given the silty nature of the bed of the stream and lack of rocky stream habitat in that area. However, from approximately 700 feet downstream of the 48-inch culvert to the northwestern boundary of the Brunswick Industrial Site (approximately 2,000 feet of South Fork Wolf Creek) there is marginal suitable habitat for the species. Given the species has



not been previously identified within the South Fork Wolf Creek watershed and only marginal suitable habitat occurs within the Brunswick Industrial Site for the species, there is a very low likelihood this species occurs within the South Fork Wolf Creek.

CA Red-legged Frog (*Rana aurora draytonii*) – Federal Threatened and CA State Species of Concern

CA red-legged frog (CRLF) is known in Nevada County in the North Bloomfield U.S. Geological Survey (USGS) Quadrangle within the Rock Creek watershed. CRLF has not been identified within five miles of the Centennial Industrial Site or Brunswick Area, and designated critical habitat for this federally threatened species has not been mapped for this species within the vicinity.

Centennial Industrial Site: Potential suitable reproductive habitat for this species may occur within the large marsh wetlands with perennial water/ponding in the eastern section of the Centennial Industrial Site. It is important to reiterate that the large marsh wetlands in the eastern portion of the Centennial Industrial Site are currently proposed to be removed during remediation activities under DTSC oversight, pursuant to the RAP. However, in the event that the currently proposed remediation boundary limits are modified by DTSC prior to commencement of remediation, this EIR addresses the possibility that some amount of freshwater emergent marsh wetland habitat may remain on the Centennial Industrial Site post-remediation.

If suitable breeding locations are located within 1.25 miles of the Centennial Industrial Site and connected by barrier-free dispersal habitat that is at least 300 feet in width, then suitable dispersal habitat could be located within the Centennial Industrial Site. This species has not been previously identified within five miles of the Centennial Industrial Site and was not identified during the December 2018 or early January 2019 site visits, or during reconnaissance-level biological surveys conducted in July 2019.

Given that CRLF was not identified during any of the site surveys, and have not been identified in the Grass Valley USGS Quadrangle, the watershed associated with the Centennial Industrial Site, or within five miles of the Centennial Industrial Site, the potential for this species to occur is considered extremely low.

Brunswick Area: Potential suitable reproductive habitat for this species may occur within the larger marsh wetlands with perennial water/ponding and the large manmade pond within the Brunswick Industrial Site. Additionally, if suitable breeding locations are located within 1.25 miles of the Brunswick Area and connected by barrier-free dispersal habitat that is at least 300 feet in width, then suitable dispersal habitat could be located within the Brunswick Area. It is unknown whether suitable breeding locations are located within 1.25 miles of the Brunswick Area. However, given that CRLF have not been identified in the Grass Valley USGS Quadrangle, the watershed associated with the Brunswick Area, or within five miles of the Brunswick Area, the potential for this species to occur is considered extremely low.

California black rail (*Laterallus jamaicensis coturiculus*) – CA State Threatened

California black rail inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. The species requires water depths of approximately one inch that does not fluctuate during the year and dense vegetation for nesting habitat.

Centennial Industrial Site: The species has been identified within five miles to the southeast and southwest of the Centennial Industrial Site. Suitable habitat for this species occurs within the large



marsh wetlands within the eastern section of the Centennial Industrial Site, though these are anticipated to be removed during remediation activities. Nevertheless, as previously discussed, this action has already been analyzed in an independent CEQA document with DTSC as the lead agency. However, out of an abundance of caution, in the event that the currently proposed remediation boundary limits were somehow modified by DTSC prior to commencement of remediation, this EIR addresses the possibility that some amount of freshwater emergent marsh wetland habitat may remain on the Centennial Industrial Site post-remediation.

The California black rail was not identified during the December 2018 or early January 2019 site visits or during reconnaissance-level biological surveys conducted in July 2019. The potential for this species to occur within the Centennial Site is considered very low.

Brunswick Area: The California black rail has been identified within three miles to the southeast and the southwest of the Brunswick Area. The species was not identified during field surveys. Suitable habitat for this species occurs within the larger marsh wetlands within the southwestern section of the Brunswick Industrial Site where there is permanent ponding of water and dense vegetation along the edges of those wetland features. The potential for this species to occur within the Brunswick Area is considered very low given the developed nature of the Brunswick Industrial Site where suitable habitat for the species is located.

Western bumble bee (*Bombus occidentalis occidentalis*) – Candidate for CESA Listing as Endangered

The western bumble bee is a CESA Candidate for listing as Endangered and is under review by the USFWS; however, the species was last documented within five miles of the Centennial Industrial Site and Brunswick Area in 1968 (considered its historical distribution) and is currently only known (current distribution defined by CDFW as known locations where the species has been identified between 2003 – 2017) from a few locations in the Sierra Nevada, none of which are within western Nevada County where the study area is located (CDFW 2019b). Therefore, it is unlikely the species would occur within the Centennial Industrial Site and Brunswick Area.

Hoary bat (*Lasiurus cinereus*) and Pallid bat (*Antrozous pallidus*)

The hoary bat is considered a Medium Risk species by the Western Bat Working Group and the pallid bat is a CDFW species of special concern. Neither species has been previously identified within five miles of the Centennial Industrial Site and Brunswick Area (CDFW 2019a) and is not thought to inhabit the sites. However, the Centennial and Brunswick Industrial Sites provide potential roosting habitat for both species within the riparian and woodlands. Therefore, if either species is present during the proposed disturbance, bat day roosts could be impacted.

4.4.3 REGULATORY CONTEXT

A number of Federal, State, and local policies provide the regulatory framework that guides the protection of biological resources. The following discussion summarizes those laws that are most relevant to biological resources in the vicinity of the project site.

Federal Regulations

The following are the Federal environmental laws and policies relevant to biological resources.

Federal Endangered Species Act

Under the FESA, the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered (16 United States Code [USC] § 1533(c)). Two



federal agencies oversee the FESA: the USFWS has jurisdiction over plants, wildlife, and resident fish, while the National Marine Fisheries Service (NMFS) has jurisdiction over anadromous fish and marine fish and mammals. Section 7 of the FESA mandates that federal agencies consult with the USFWS and NMFS to ensure that federal agency actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species.

Section 10 requires the issuance of an “incidental take” permit before any public or private action may be taken that could take an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan (HCP) that would offset the take of individuals that may occur, incidental to implementation of a proposed project, by providing for the protection of the affected species.

Pursuant to the requirements of the FESA, a federal agency reviewing a project within the jurisdiction of the agency must determine whether any federally listed threatened or endangered species may be present in the project area and whether the proposed project will have a potentially significant impact on such species. In addition, the agency is required to determine whether the proposed action is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC § 1536(3), (4)).

Migratory Bird Treaty Act

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of state and federal laws. The federal Migratory Bird Treaty Act (MBTA) prohibits the intentional killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior. Section 3503.5 of the California FGC states, “It is unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the code or any regulation adopted pursuant thereto.”

Clean Water Act

The U.S. Army Corps of Engineers (“Corps”) and the Environmental Protection Agency (“EPA”) regulate the discharge of dredge or fill material into “waters of the U.S.” under Section 404 of the CWA. “Waters of the U.S.” include wetlands and lakes, rivers, streams, and their tributaries. Wetlands are defined for regulatory purposes as areas “...inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated solid conditions” as specified in 33 Code of Federal Regulations (CFR) 328.3, 40 CFR 230.3.

Generally, wetlands include swamps, marshes, bogs, and similar areas. Lakes, rivers, and streams are defined as “other waters of the U.S.” Jurisdictional limits of these features are typically noted by the OHWM. The OHWM is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as mark a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR 328 and 33 CFR 329).

Isolated ponds or seasonal depressions had been previously regulated as waters of the U.S. However, in *Solid Waste Agency of Northwestern Cook County (SWANCC) v. USACE et al.* (January 8, 2001), the U.S. Supreme Court ruled that certain “isolated” wetlands (e.g., non-



navigable, isolated, and intrastate) do not fall under the jurisdiction of the CWA and are no longer under the jurisdiction of the Corps. Some circuit courts (e.g., *U.S. v. Deaton*, 2003; *U.S. Rapanos*, 2003; *Northern California River Watch v. City of Healdsburg*, 2006), though, have ruled that SWANCC does not prevent CWA jurisdiction if a “significant nexus” such as a hydrologic connection exists, whether it be man-made (e.g., roadside ditch) or natural tributary to navigable waters, or direct seepage from the wetland to the navigable water, a surface or underground hydraulic connection, an ecological connection (e.g., the same bird, mammal, and fish populations are supported by both the wetland and the navigable water), and changes to chemical concentrations in the navigable water is present due to water from the wetland.

Areas considered to be non-jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions with no outlet for drainage (33 CFR, Part 328).

The *Clean Water Rule* is a 2015 regulation published by the EPA and Corps to clarify water resources management in the United States under a provision of the CWA. The regulation defined the scope of federal water protection in a more consistent manner, particularly over streams and wetlands, which have a significant hydrological and ecological connection to traditional navigable waters, interstate waters, and territorial seas. It is also referred to as the *Waters of the United States* rule, which defines all bodies of water that fall under U.S. federal jurisdiction. The rule has been contested in litigation and in 2017 the Trump administration announced its intent to review and rescind or revise the rule. Following a Supreme Court ruling on January 22, 2018 that lifted a nationwide stay on the rule, the Trump administration formally suspended the rule until February 6, 2020, thereby giving the EPA time to issue a draft proposal of replacement water regulatory requirements.

On October 22, 2019, the EPA and the Corps published a final rule to repeal the 2015 Clean Water Rule: Definition of “Waters of the United States” (“2015 Rule”), which amended portions of the CFR, and to restore the regulatory text that existed prior to the 2015 Rule. The final rule became effective on December 23, 2019. However, on April 21, 2020, the EPA and the Corps published the Navigable Waters Protection Rule to define “Waters of the United States” in the *Federal Register*. For the first time, the agencies have streamlined the definition so that it includes four simple categories of jurisdictional waters, provides clear exclusions for many water features that traditionally have not been regulated, and defines terms in the regulatory text that have never been defined before. Congress, in the CWA, explicitly directed the Agencies to protect “navigable waters.” The Navigable Waters Protection Rule regulates traditional navigable waters and the core tributary systems that provide perennial or intermittent flow into them.

Under the final rule, four clear categories of waters are federally regulated:

- The territorial seas and traditional navigable waters,
- Perennial and intermittent tributaries to those waters,
- Certain lakes, ponds, and impoundments, and
- Wetlands adjacent to jurisdictional waters

Therefore, as of June 22, 2020, the final rule details 12 categories of exclusions, features that are not “waters of the United States,” such as features that only contain water in direct response to rainfall (e.g., ephemeral features); groundwater; many ditches; prior converted cropland; and



waste treatment systems. The final rule clarifies key elements related to the scope of federal CWA jurisdiction, including:

- Providing clarity and consistency by removing the proposed separate categories for jurisdictional ditches and impoundments.
- Refining the proposed definition of “typical year,” which provides important regional and temporal flexibility and ensures jurisdiction is being accurately determined in times that are not too wet and not too dry.
- Defining “adjacent wetlands” as wetlands that are meaningfully connected to other jurisdictional waters, for example, by directly abutting or having regular surface water communication with jurisdictional waters.

The Navigable Waters Protection Rule is the second step in a two-step process to review and revise the definition of “waters of the United States” consistent with the February 2017 Presidential Executive Order entitled “Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the ‘Waters of the United States.’” This final rule became effective on June 22, 2020 and replaces the Step One Rule published in October 2019 as outlined above.

On January 20, 2021, President Joe Biden issued Executive Order 13, 990, expressing the policy of the new administration. Executive Order 13, 990 directed federal agencies to immediately review and, as appropriate and consistent with applicable law, take action to address the promulgation of Federal regulations and other actions during the last 4 years. Consistent with Executive Order 13, 990, the EPA and Corps of Engineers have provided notice of their intent to restore the pre-2015 regulatory definition of “waters of the United States” while working to develop a new regulatory definition.

On August 30, 2021, Arizona Federal District Court Judge, Rosemary Marquez, struck down the Navigable Waters Protection Rule in *Pasqua Yaqui Tribe, et al. v. United States Environmental Protection Agency*, CV-20-00266-TUC-RM, United States District Court for the District of Arizona.

Pine Hill Flannelbush Recovery Plan

Pine Hill flannelbush (*Fremontodendron decumbens*) inhabits rocky ridges on gabbro and serpentine soils within chaparral and cismontane woodlands within the central Sierra Nevada foothills. This species is endemic to these soil types and is normally documented between 1,390 and 2,495 feet above msl. It is listed as endangered by the USFWS under the FESA and is listed as Rare by the CDFW. Pine Hill flannelbush also has a CRPR 1B.2 status on the CNPS *Inventory of Rare and Endangered Plants* (CNPS, 2019).

In 2002, USFWS published a Recovery Plan for five federally listed plant species and one additional species of concern that primarily occur on gabbroic substrates in the central Sierra Nevada foothills (USFWS, 2002). In 2019, the USFWS published their 5-year review of the species covered under the recovery plan, including the Pine Hill flannelbush (USFWS, 2019). Of the species covered under the Recovery Plan, only the Pine Hill flannelbush occurs within the Centennial Industrial Site (“Centennial Site”). Another FESA listed species covered under the Recovery Plan, Stebbins’ morning-glory (*Calystegia stebbinsi*), was not documented within the Centennial Site and therefore, is not covered under this Habitat Management Plan (“HMP”). Federal recovery plans delineate reasonable actions that are believed to be required to recover and/or protect listed species. Recovery plans have no legal authority, but provide guidelines to



federal, state, local, and private entities for management actions that will assist in preventing extinction of listed species and facilitating those species towards achieving recovery.

The Recovery Plan presents a community-level strategy for recovery and conservation of the six species as all six species co-occur in the same natural chaparral community within the Pine Hill formation in western El Dorado County, as well as where any of the species occur within their range. Therefore, the likelihood of successful recovery for these species is increased by protecting the entire community in which these species occur for the Pine Hill formation in western El Dorado County given the species almost exclusively occurs at that location. The federal Recovery Plan also considers the requirements of each individual species and presents individual recovery criteria for each species (USFWS, 2002).

The Recovery Plan identifies habitat loss, habitat fragmentation, alteration of natural fire regime, and suppression of disturbance necessary for reproduction, all ultimately tied to increasing urbanization within the species' range, as the primary reasons for the decline of, and ongoing threats, to all six species, including the Pine Hill flannelbush. Lesser threats to these species identified by the Recovery Plan include road widening and maintenance, off-road vehicle use, garbage dumping, horse paddocking, and competition with invasive non-native vegetation. The Recovery Plan notes that activities often associated with rural residential areas, such as clearing chaparral for fire protection around houses, bulldozing land (grading for houses or barns), planting fruit trees, and irrigation sometimes adversely modify habitat, rendering it unsuitable for Pine Hill flannelbush and the other five species.

Interim goals of the Recovery Plan include stabilizing and protecting populations, conducting research necessary to refine reclassification and recovery criteria, and reclassifying (i.e., downlisting) Pine Hill flannelbush from endangered to threatened. The Recovery Plan's ultimate goals include:

1. protect and restore sufficient habitat and numbers of populations; and
2. ameliorate both the threats that caused five of the gabbro soil plants to be listed and any other newly identified threats to warrant delisting of Stebbins' morning-glory and two of the other listed species and downlisting of Pine Hill flannelbush and one of the other listed species (USFWS, 2002).

Criteria used to evaluate when listed species are "recovered" include number and distribution of populations, population sizes, and probabilities of persistence over specific time periods. The Recovery Plan emphasizes the following recovery and long-term conservation tasks:

1. habitat protection and management;
2. surveying and monitoring;
3. research; and
4. public participation, outreach, and education.

The Recovery Plan specifically recommends that management plans be prepared for all populations recommended for protection and any adjacent areas identified as necessary for continued survival and recovery (USFWS, 2002). However, the 5-year review of the species covered under the Recovery Plan concluded for the Pine Hill flannelbush that results of subsequent genetic work by a University of California, Davis researcher, to determine if Nevada and Yuba County flannelbushes are Pine Hill flannelbush, were inconclusive; therefore, the USFWS continue under the assumption that these plants are not the listed entity (USFWS, 2019).



State Regulations

The following are the State environmental laws and policies relevant to biological resources.

California Department of Fish and Wildlife

CDFW administers a number of laws and programs designed to protect fish and wildlife resources under the California FGC, such as CESA (FGC Section 2050, et seq.), Fully Protected Species (FGC Section 3511) and the Lake or Streambed Alteration Agreement Program (FGC Sections 1600 to 1616). Such regulations are summarized in the following sections.

California Endangered Species Act

The State of California enacted CESA in 1984. CESA is similar to the FESA but pertains to State-listed endangered and threatened species. CESA requires State agencies to consult with CDFW when preparing CEQA documents to ensure that the State lead agency actions do not jeopardize the existence of listed species. CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify “reasonable and prudent alternatives” to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if they determine that “overriding considerations” exist; however, the agencies are prohibited from approving projects that would result in the extinction of a listed species.

CESA prohibits the taking of State-listed endangered or threatened plant and wildlife species without first seeking proper authorization. CDFW exercises authority over mitigation projects involving State-listed species, including those resulting from CEQA mitigation requirements. CDFW may authorize taking if an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy is implemented. CDFW requires preparation of mitigation plans in accordance with published guidelines.

Fish and Game Code Section 3505

Birds of prey are protected in California under provisions of the California FGC, Section 3503.5, (1992), which states, “it is unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “taking” by CDFW.

Lake or Streambed Alteration Program

The CDFW is responsible for conserving, protecting, and managing California’s fish, wildlife, and native plant resources. To meet this responsibility, the FGC, Section 1602, requires notification to CDFW of any proposed activity that may substantially modify the bed or bank of a river, stream, or lake. Notification is required by any person, business, state or local government agency, or public utility that proposes an activity that will:

- substantially divert or obstruct the natural flow of any river, stream or lake;
- substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.



For the purposes of Section 1602, rivers, streams and lakes must flow at least intermittently through a bed or channel. If notification is required and CDFW believes the proposed activity is likely to result in adverse harm to the natural environment, the CDFW will require that the parties enter into a Lake or Streambed Alteration Agreement.

CDFW Species of Special Concern

In addition to formal listings under FESA and CESA, plant and wildlife species receive additional consideration during the CEQA process. Species that may be considered for review are included on a list of “Species of Special Concern” developed by CDFW. Species whose numbers, reproductive success, or habitat may be threatened are tracked by CDFW in California.

Regional Water Quality Control Board

Pursuant to Section 401 of the CWA and EPA 404(b)(1) guidelines, in order for a Corps federal permit applicant to conduct any activity which may result in discharge into navigable waters, they must provide a certification from the RWQCB that such discharge will comply with the State water quality standards. The RWQCB has a policy of no-net-loss of wetlands in effect and typically requires mitigation for all impacts to wetlands before the RWQCB will issue water quality certification.

The State Water Resources Control Board (SWRCB) adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California (April 2019) (23 CCR 3013).

The Procedures consist of four major elements: 1) a wetland definition; 2) wetland delineation procedures; 3) a wetland jurisdictional framework; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Procedures will apply to all applications for discharges of dredged or fill material to waters of the state beginning May 28, 2020.

The Procedures strengthen the protection of waters of the state that are no longer protected under the federal CWA due to U.S. Supreme Court decisions and changes to regulatory definitions. The State Water Code defines “waters of the state” broadly to include “any surface water or groundwater, including saline waters, within the boundaries of the state.” “Waters of the state” includes all “waters of the U.S.” The Procedures define three categories of wetlands that are waters of the state: natural wetlands, wetlands created by modification of a surface water of the state, and artificial wetlands that meet certain criteria.

State Oak Woodland Regulations

State laws that regulate protection of oak woodlands include Professional Forester’s Law (PFL) and CEQA according to PRC Section 21083.4. Oak woodlands are defined as areas having 10 percent oak canopy cover or greater. “Oaks” are defined in PRC Section 21083.4 as a native tree species in the genus *Quercus*, that is five inches diameter at breast height (DBH) or greater. The Oak Woodlands Conservation Act (Senate Bill [SB] 1334) provides funding for the conservation and protection of oak woodlands in California. Oak trees and oak woodland habitats are protected under both the State and the Nevada County landmark groves and landmark oak tree regulations as discussed below.



Local Regulations

The following are the local environmental laws and policies relevant to biological resources.

Nevada County General Plan

The Nevada County General Plan biological resource policies that are applicable to the proposed project are presented below:

Water Element

- Goal 11.1 Identify, protect and manage for sustainable water resources and riparian habitats.
- Policy 11.7 Through the development and application of Comprehensive Site Development Standards, and project environmental review, establish and enforce minimum building setback lines from perennial streams and significant wetlands that are adequate to protect stream and wetland resource values.
- Policy 11.8 Utilize voluntary clustering of development to preserve stream corridors, riparian habitat, wetlands, and floodplains.
- Policy 11.10 Cooperate with State and Federal agencies and public and quasi-public organizations and agencies in the acquisition, restoration, and maintenance of habitat lands.
- Policy 11.11 Cooperate with and encourage the USFS and BLM to restore/maintain habitat areas on existing owned lands.

Wildlife and Vegetation Element

- Goal 13.1 Identify and manage significant areas to achieve sustainable habitat.
- Policy 13.1 Where significant environmental features, as defined in Policy 1.17, are identified during review of projects, the County shall require all portions of the project site that contain or influence said areas to be retained as non-disturbance open space through clustered development on suitable portions of the project site, or other means where mandatory clustering cannot be achieved. The intent and emphasis of such open space designation and non-disturbance is to promote continued viability of contiguous or inter-dependent habitats by avoiding fragmentation of existing habitat areas and preserving movement corridors between related habitats. Vegetation management for the benefit of habitat preservation or restoration shall be considered consistent with the intent of this policy.
- Policy 13.2 As part of the Comprehensive Site Development Standards, include standards to minimize removal of existing vegetation and require installation and long-term maintenance of landscaping in setbacks and buffer areas. These standards shall be applicable to all discretionary projects and to all ministerial projects other than a single-family residence located on an individual lot. Tree removal



may be allowed where necessary to comply with public right-of-way development or dedication, or development of required site access and public utilities. Individual trees or groups of trees shall be protected during construction to prevent damage to the trees and their root systems. Vegetation in proximity to structures shall conform to applicable fire protection standards.

- Policy 13.2A Project review standards shall include a requirement to conduct a site-specific biological inventory to determine the presence of special status species or habitat for such species that may be affected by a proposed project. The results of the biological inventory shall be used as the basis for establishing land use siting and design tools required to achieve the objective of no net loss of habitat function or value for special status species.

Where a Habitat Management Plan is deemed appropriate, the Plan shall be prepared to comply with the requirements of the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA). The plan shall provide the background data, impact analysis, and mitigation programs necessary to obtain a FESA Section 10(a) and CESA Section 2081 permit authorizing incidental take of federal and state listed threatened and endangered species that occur in areas proposed for future development. Prior to implementation of an adopted Habitat management Plan, project applicants proposing the development of a project that would impact a federal or state listed species, or a species that is proposed for listing, shall be individually responsible for obtaining federal and state incidental take permits on a project-by-project basis.

- Policy 13.2B Development projects which have the potential to remove natural riparian or wetland habitat of 1 acre or more shall not be permitted unless:
- a. No suitable alternative site or design exists for the land use;
 - b. There is no degradation of the habitat or reduction in the numbers of any rare, threatened, or endangered plant or animal species as a result of the project;
 - c. Habitat of superior quantity and superior or comparable quality will be created or restored to compensate for the loss; and
 - d. The project conforms with regulations and guidelines of the U.S. Fish and Wildlife Service

- Policy 13.3 As part of the Comprehensive Site Development Standards, require the maximum feasible use of drought tolerant native plant species for landscaping of all new multi-family residential, commercial, industrial, and public projects. Invasive, non-native plants, as determined by a landscape architect or other similar expert, that may displace native vegetation on adjoining undeveloped lands



shall not be used. Landscaping with native trees and shrubs shall be encouraged to provide suitable habitat for native wildlife, particularly in proposed open space uses of future development.

- Policy 13.4A No net loss of habitat functions or values shall be caused by development where rare and endangered species and wetlands of over 1 acre, in aggregate, are identified during the review of proposed projects. No net loss shall be achieved through avoidance of the resource, or through creation or restoration of habitat of superior or comparable quality, in accordance with guidelines of the U.S. Fish and Wildlife Service and the California Department of Fish and Game.
- Policy 13.4B Habitat that is required to be protected, restored, or created as mitigation for a project's impacts shall be monitored and maintained in accord with a County-approved Habitat Management Plan.
- Policy 13.4D The County shall prepare and implement a Habitat Management Plan for rare and endangered species and wetlands habitat while allowing the preparation of individual project habitat management plans as an alternative, including an offsite ecological reserve.
- Policy 13.4G To minimize the loss or disturbance of deer habitat, clustering shall be required on parcels of 40 acres in size or larger in critical migratory deer winter ranges in Rural Regions within the western portion of the County, when such parcels are located in areas where the existing parcelization in the immediate vicinity is currently 40 acres or more.
- Policy 13.4H Non-development buffers shall be maintained adjacent to perennial stream corridors through the use of clustering, the designation of a Planned Development, or the implementation of other siting and design tools. Buffers shall be sufficient in size to protect the stream corridor for movement, as well as provide some adjacent upland habitat for foraging.
- Policy 13.8 As part of the Comprehensive Site Development Standards, include measures applicable to all discretionary and ministerial projects to minimize disturbance of heritage and landmark trees and groves. These measures shall include, but are not limited to, requirements for on-site vegetation inventories and mandatory clustering of development in areas likely to support such vegetation or habitat.
- Policy 13.9 Development in the vicinity of significant oak groves of all oak species shall be designed and sited to maximize the long-term preservation of the trees and the integrity of their natural setting. The County shall adopt a regulation to protect native heritage oak trees and significant oak groves. All native oak tree species with a trunk diameter of 36 inches or greater shall be protected.



Nevada County Land Use and Development Code

The Nevada County Land Use and Development Code (LUDC) (Title 3) includes Resource Standards within Article 4. The primary purpose of site development resource standards is to avoid the impact of development projects on sensitive environmental resources and natural site constraints. Where avoidance is not possible, development should minimize impacts in a reasonable fashion that strikes a balance between allowing development of the project site and protecting the resource or avoiding the constraint.

According to Section L-II 4.3.3, General Provisions, Subdivision B, Standard,

The intent of these site development standards is to avoid resource impacts and natural constraints to the maximum possible. To that end, such standards will be applied successively as follows (an applicant cannot descend to the succeeding methods until he or she has shown to the satisfaction of the County that the preceding methods are infeasible):

1. Avoiding the impact by designing or re-designing the project so that the resource or constraint is fully protected and not disturbed. Avoidance is the preferred standard unless the Planning Agency determines that implementation of this standard effectively removes the potential for the reasonable development of the parcel. Avoidance may be attained through clustering, transfer of development rights, buffering, screening, identification of building envelopes, the provision of open space, or other techniques that permanently protect the resource or avoid the constraint. Permanence shall be ensured through dedication, easements, irrevocable trusts, deed restrictions, covenants, or similar techniques running with the land. In addition, zoning techniques (i.e., "Open Space" District, setbacks, etc.) may also be used to ensure permanence. Provisions to avoid the resource or constraint shall become conditions of approval or mitigation measures of the project.
2. Minimizing the impact through preparation and implementation of a County-approved Management Plan prepared by an independent consultant approved by, or under the direction of, County staff, that limits the degree of impact to the maximum extent possible. Where the Planning Agency determines that avoidance is not acceptable or adversely affects another environmentally-sensitive resource, minimization shall be the preferred standard unless the County determines that the standard will not effectively protect the resource or avoid the constraint to an acceptable level. In such instances the County shall deny the project. Minimization may be attained through clustering, buffering, screening, identification of building envelopes, the provision of open space, or other techniques that permanently protect the resource or avoid the constraint. Permanence shall be ensured through dedication, easements, irrevocable trusts, deed restrictions, covenants, or similar techniques running with the land. In addition, zoning techniques (i.e., "Open Space" District, setbacks, etc.) may also be used to ensure permanence. Management Plan provisions to minimize impacts shall become conditions of approval or mitigation measures of the project.
3. Compensating for the impact by replacing or providing a substitute resource or environments. Compensation is appropriate where the Planning Agency determines that avoiding or minimizing the impact is not acceptable. Compensation may include the on-site or off-site provision or creation, protection, and maintenance of a resource or habitat. Management Plan provisions to compensate for impacts shall become conditions of approval of the project. Lands used as compensation for unavoidable project impacts shall be acquired through fee title or conservation easements with the express purpose of maintenance as compensation for impacts to wildlife in perpetuity. Holders of title or easements shall be restricted to mutually



agreed upon agencies or private, non-profit conservation entities approved by the Planning Agency.

Realistic and effective avoidance of impacts and then minimization of impacts must first precede the use of compensatory mitigation.

Subdivision C provides additional direction on Management Plans, discussed in item 2 above. According to subdivision C,

- C. **Management Plan.** Management Plans are a tool that can be used to minimize the impacts of development on environmentally sensitive environmental resources and/or constraints. Where avoidance is not a feasible alternative, a Management Plan may be prepared, consistent with the provisions of this subsection.

Management Plans proposed in conjunction with a discretionary project, such as the proposed project, shall be considered by the hearing body reviewing the project. Management Plans are required for certain types of resources. With respect to biological resources, and those applicable to the Centennial and Brunswick Industrial Sites, these include Rare and Endangered Species and their Habitat (Sec. L-II 4.3.3(A)(i)) and Watercourses, Wetlands and Riparian Areas (Sec. L-II 4.3.3(A)(n)).

Two Management Plans have been prepared to address biological resources and minimization of project impacts to these resources on the Centennial Industrial Site (related to watercourse/wetlands/riparian areas and Pine Hill flannelbush) and one Management Plan has been prepared to address the watercourse/wetland/riparian areas on the Brunswick Industrial Site. The Management Plans consist of:

Watercourse/Wetlands/Riparian Areas Management Plan (Centennial and Brunswick)

Pursuant to the Nevada County LUDC, Chapter II; Zoning Regulations, Section L-II 4.3.17 (Ordinance Number 2033) requires a Watercourses, Wetlands, and Riparian Areas Management Plan be prepared for projects in non-disturbance buffers, including areas that are within 100 feet of the high water mark of perennial streams, watercourses, and wetlands, 50 feet from the high water mark of intermittent watercourses, and 100 feet upslope or 20 feet downslope from an Nevada Irrigation District (NID) canal (Nevada County LUDC, 2000). Therefore, aquatic resources Management Plans were developed for the Centennial and Brunswick Industrial Sites due to the proposed future impacts to protected aquatic resources and their non-disturbance buffers within the Sites. The Management Plans meet the requirements of the Nevada County LUDC for the proposed development within aquatic features mapped within the Sites, as well as potential disturbance within the non-disturbance buffers of the aquatic features.

Pine Hill Flannelbush (*Fremontodendron decumbens*) – Centennial Industrial Site Only

The Pine Hill Flannelbush Management Plan for the Centennial Industrial Site has been developed in compliance with the Nevada County LUDC, Section L-II 4.3.12, which includes regulations intended to follow the FESA and CESA, by avoiding the impact to 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 Nevada County Planning Agency that it will not adversely affect rare,



threatened, or endangered species or their occupied habitat and that it will result in no net loss of habitat function or value for the defined species. When it is determined that a project will adversely affect a defined species or their habitat, the regulations require that a site-specific habitat management plan consistent with state and federal requirements be prepared.

Nevada County Landmark Groves and Landmark Oak Tree Regulations

Section L-II 4.3.18 of the Nevada County LUDC addresses trees. Landmark trees are any native oak tree species (*Quercus* species) with a trunk diameter of 36 inches or greater at DBH. Landmark groves are hardwood tree groves with 33+ percent canopy closure, or groves whose size, visual impact, or association with a historically significant structure or event has caused it to be marked for preservation by the county, state, or federal government.

Projects shall be approved only when they do not remove or disturb defined trees or groves, unless a Management Plan is prepared consistent with paragraph 3 or other standards are met consistent with paragraph 3. Exempted from this standard shall be trees or groves determined to be dead, dying, or a public safety hazard by a certified professional arborist, licensed landscape architect, registered professional forester, or qualified biologist or botanist (referred to herein as a qualified professional). In addition, exemption shall apply to those trees that must be removed to ensure fire safe access or provide adequate fuel reduction as determined by the California Department of Forestry or local fire district. Tree removal may also be allowed where necessary to provide for site access and public utilities or public right-of-way.

If the above standard effectively precludes development of the project or a revised project, or adversely affects another environmentally-sensitive resource, a Management Plan shall be prepared by a certified arborist, registered forester, qualified biologist or botanist, or landscape architect. Said Plan shall evaluate the impact of the project on defined trees and groves and recommend project modifications that avoid or minimize impacts. Emphasis shall be placed on protecting groups of trees rather than individuals. Defined trees that must be removed shall be replaced on an inch for an inch replacement of the removed tree(s). The total of replacement trees shall be required to have a combined diameter of the tree(s) removed. The Management Plan shall provide for the long-term maintenance of the replacement trees.

Management Plans shall emphasize protection of two varieties of oak: blue oak (*Quercus douglasii*) and valley oak (*Quercus lobata*). Both are of very limited distribution in Nevada County and considered to be sensitive plants worthy of special protection. However, no such protected oak resources were identified within the Centennial Industrial Site or Brunswick Area and thus a Management Plan would not be required to be developed for the protection of such landmark oak trees and/or landmark oak groves within the two areas.

4.4.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to biological resources. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, the County's General Plan, and professional judgment, a significant impact would occur if the proposed project would result in the following:



- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

Neither the Centennial Industrial Site, Brunswick Industrial Site, or East Bennett ROW are within an area covered by an adopted HCP, NCCP, or other approved local, regional or state habitat conservation plan. Thus, the proposed project would not conflict with the provisions of any such plan, and therefore this issue is not discussed further.

Method of Analysis

This section provides an overview of the methods employed for the identification and documentation of various biological and aquatic resources documented onsite and/or in the vicinity and identified in the sections above.

Biological Resources Assessments

Generally, in order to evaluate the Centennial Industrial Site, Brunswick Industrial Site, and East Bennett ROW for the presence of any sensitive biological resources, baseline information from databases and reporting for similar projects in the City of Grass Valley and Nevada County was collected and reviewed prior to conducting reconnaissance-level field biological surveys.

Sensitive Biological Resources Background Review

The following information was used to identify potential sensitive biological resources, including the presence of special-status plant and wildlife species, within the Centennial Industrial Site and Brunswick Industrial Site, and East Bennett ROW region:

- California Department of Fish and Wildlife's California Natural Diversity Database records search of 5-mile buffer around the Centennial Industrial Site, Brunswick Industrial Site, and East Bennett ROW (CDFW, 2019a);
- The California Native Plant Society's online Inventory of Rare and Endangered Plants of California (CNPS, 2019);
- The U.S. Fish and Wildlife Service Information, Planning, and Consultation System (IPaC) for endangered, threatened, and proposed listed species (USFWS, 2019);
- National Wetland Inventory maps (NWI, 2019);
- United States Department of Agriculture (USDA) Soils Mapper (USDA, 2019);



- Natural Resources Conservation Service (NRCS) Hydric Soils List for Nevada County (NRCS, 2019);
- Nevada County General Plan (Nevada County, 1996 with subsequent amendments through 2012);
- Draft Environmental Impact Report, including Appendices, for the Idaho-Maryland Mine Project (ESA Associates, October 2008);
- Idaho-Maryland Mine Special-Status Plant Survey Report (ESA Associates, August 2006);
- Idaho-Maryland Mine Special-Status Wildlife Habitat Evaluation Report (ESA Associates, August 2006);
- Centennial Industrial Site Aquatic Resources Delineation of Waters of the United States and State of California (Matuzak, 2020); and
- Centennial Industrial Site Special Status Plant Survey Report (Boes, 2020).
- Brunswick Industrial Site and East Bennett Road ROW Aquatic Resources Delineation of Waters of the United States and State of California (Matuzak, 2020); and
- Brunswick Site Special Status Plant Survey Report (Boes, 2020).

Reconnaissance Level Biological Resources Field Surveys

Reconnaissance level biological resources field surveys were conducted on foot for the entirety of the Centennial Industrial Site (56.41 acres), Brunswick Industrial Site, and East Bennett ROW (129.23 acres) by Greg Matuzak, Principal Biologist and owner of Greg Matuzak Environmental Consulting LLC, and Wendy Boes, a local Nevada County botanist, on December 9 through 12, and 17 and 18, 2018. Follow up reconnaissance level biological resources field surveys were conducted by Greg Matuzak for potential special-status wildlife species habitats on December 30, 2018 and by Wendy Boes for the special-status plant species habitat on January 3, 2019. The purpose of the surveys completed in December 2018 and January 2019 was to identify habitat and vegetation types and to determine the potential for any special-status plant and wildlife species identified in the desktop analysis and background research to occur within the Centennial Industrial Site and Brunswick Area.

Further evaluation of the Centennial Industrial Site was conducted on July 1, 10 and 14, 2019, and for the Brunswick Area, July 1, 14, and August 16, 2019, by Ms. Boes who implemented botanical surveys within the entirety of the Sites. The follow-up botanical surveys were conducted during the time of year when the majority of target special-status plant species with potential to occur within the two Sites are known to be in bloom and identification of each is most likely. Wendy Boes most recently served as a U.S. Forest Service botanist with the local Tahoe National Forest and has also been a local botanical expert consultant in the greater project area for many years.

During the site visits and surveys conducted in July 2019, Greg Matuzak also conducted reconnaissance-level wildlife surveys to document the presence of such species and associates suitable habitats within the Centennial Industrial Site and Brunswick Area.

Additional surveys were conducted on the Brunswick Industrial Site due to the presence of South Fork Wolf Creek. Mr. Matuzak conducted a habitat assessment and Visual Encounter Surveys (VES) for foothill yellow-legged frog within the South Fork Wolf Creek in the Brunswick Industrial Site, as well as within the portions of the creek that flow through public property downstream within the Empire Mine State Historic Park on August 29, 2019. The VES methodology is based on a CDFW-approved protocol following Yarnell et al. (January 2014) for evaluating the abundance, distribution, and habitat associations of foothill yellow-legged frog within rivers and



streams, and to provide the necessary data to coordinate other stream reach study efforts,¹³ where feasible, such as instream flow studies where hydrodynamic modeling will be used. Given the intensity of the implementation of the VES methodology, it also provides the ability to assess the presence of other aquatic resources within the stream study area and to assess the overall habitat quality of the study stretch in terms of the potential of the stream to provide the necessary habitat structure and streambed substrate for macroinvertebrates, fish, and other aquatic resources.

Aquatic Resources Delineations

The delineation of potential Section 404 “waters of the United States” and wetlands (as a subcategory of waters), RWQCB “waters of the State”, and CDFW jurisdictional areas within the Centennial Industrial Site was conducted on December 11, 12, 17, and 18, 2018, with follow up site visits on July 1, 10, and 14, 2019. For the Brunswick Area, the delineation was conducted on December 17 and 18, 2018, with follow up site visits on July 10, July 14, August 16, and August 29, 2019. For both Sites, the routine Corps methodology was employed, as detailed in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratories, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Regions* (Version 2.0) (Corps, 2010). Reconnaissance level site visits were conducted in late November and early December 2018 that aided the characterization of the extent of potential jurisdictional areas that were mapped in mid-December 2018 and in July and August 2019.

The entirety of the Centennial Industrial Site and Brunswick Area was surveyed on foot by wetland ecologist, Mr. Greg Matuzak, and GPS/GIS specialist and botanist, Ms. Wendy Boes, to identify and map the presence of “waters of the U.S.,” including wetlands, and “waters of the State of California.” The extent or boundary of wetland habitats was further defined using routine on-site wetland determination protocol currently in use by the Corps, published Corps regulatory guidance letters, and Sacramento District regulatory policy.

Additionally, Mr. Greg Matuzak conducted a follow up review of targeted areas within the central and eastern sections of the Centennial and Brunswick Industrial Sites on August 27, 2020 to reevaluate the potential presence of wetlands and streams not previously mapped as part of the December 2018 and July 2019 wetland assessment field related surveys.

Field Data Collection

Data was collected on vegetation, soils, and hydrology using wetland determination protocol as described in the 1987 Manual. Both upland and wetland data were collected to distinguish wetland boundaries from the adjacent upland. No soil test pits were taken within potential aquatic features that were confined to channels, thus conforming to the definition of “other waters of the U.S.” (i.e., exhibits a distinct bed and bank with an OHWM). No soil test pits were taken within ponded areas with standing water as it was assumed that such ponded areas are potential jurisdictional wetland features since they exhibited a direct connection to mapped downstream stream and/or wetland features also considered jurisdictional.

¹³ See for example, Greg Matuzak Environmental LLC. *Updated Technical Memorandum for the Idaho-Maryland Mine Project – South Fork Wolf Creek Discharge Biological Resources Assessment*. January 29, 2021.



Botanical Reports

Centennial Industrial Site, Brunswick Industrial Site and East Bennett Road ROW

The botanical field survey was conducted in general accordance with the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018). Wendy Boes, botanist, served as the lead investigator for the botanical survey. Denise Della Santina, biologist, provided additional field assistance. The field survey was floristic in nature and consisted of identifying each species observed to the taxonomic level necessary to determine whether the plant is a federal or state listed special-status species. Plant taxonomy followed Baldwin et al. (2012), including applicable errata and supplements (Jepson Flora Project 2019). The field surveys were performed by walking meandering transects through microhabitats with the potential to support special-status plants. Survey intensity was heightened in areas corresponding to vegetation communities having the potential to support the special status plants identified in the pre-field resource review.

Reconnaissance level surveys were conducted December 9-12, 18 & 19, 2018. These surveys were conducted in concurrence with wetland delineation efforts. The result of these surveys was to assess the potential habitat for special-status plants but were not conducted within the appropriate phenological timeframe for detection and confirmation for most, if not all, of the special-status plants.

Field surveys were conducted by Wendy Boes and Denise Della Santina on July 1, 10, and 14, and August 16, 2019. The field survey was conducted at a time when the majority of potentially occurring special-status plant species could be identified if they were present. A nearby reference population of finger rush was visited on June 24, 2019 prior to commencing field surveys to ensure this species was still detectable, which was confirmed. No other reference sites were required to be visited given the botanists local knowledge of the other target species as part of the survey effort. Adverse conditions (e.g., drought, herbivory) were not encountered that would affect the identification of potential special-status plant species.

Independent Peer Review

Madrone Ecological Consulting was retained by Raney to conduct a third-party independent technical peer review of the various biological resources reports prepared for the Centennial Industrial Site and Brunswick Area by Greg Matuzak Environmental Consulting LLC.

Prior to the review of the project's biological resources reports, Madrone Ecological Consulting, LLC (Madrone) completed a review of publicly available database resources. Madrone queried the CNDDDB, the USFWS National Wetlands Inventory Online Mapper, and the CNPS Inventory of Rare and Endangered Plants. In addition, Madrone Senior Biologists Dustin Brown (wildlife biologist) and Daria Snider (botanist) conducted a field survey of the three sites discussed in the report to generally assess the adequacy of biological resource documentation. This reconnaissance-level field survey was conducted on 17 June 2020.

Madrone's field visit identified some aquatic features that were not discussed in the Aquatic Resource Delineations for the project. In response, Matuzak Environmental conducted a targeted review of site conditions within the central and eastern sections of the Brunswick Industrial Site



and the Centennial Industrial Site on August 27, 2020.¹⁴ The purpose of this review was to reevaluate site conditions for the potential presence of wetlands within the site based on the July 2020 Madrone Ecological Consulting peer review. Except for the perennial drainage that runs along Brunswick Road (not identified in the December 2018 and July and August 2019 field surveys), this targeted survey did not identify any additional potential CWA regulated wetlands. These survey areas lacked the required indicators of wetland hydrology and hydric soils required by the Corps to be regulated under the CWA. As identified above, a perennial drainage was mapped that runs along the western edge of Brunswick Road in a northerly direction before entering a culvert that crosses through the central section of the Brunswick Industrial Site before exiting the large culvert and creating the South Fork Wolf Creek. The perennial drainage appears to cross Brunswick Road from the east and most likely is fed by perennial springs coming from the eastern hillsides before entering the perennial drainage along the western side of Brunswick Road.

Madrone's peer review also identified concerns with respect to the timing of the special-status plant surveys conducted for the Centennial and Brunswick botanical reports. The reports indicate that botanical surveys were conducted for the Centennial Industrial Site on July 1, 10 and 14, 2019, and for the Brunswick Area, on July 1, 14, and August 16, 2019, by Wendy Boes. The botanical surveys were conducted during the time of year when the majority of target special-status plant species with potential to occur within the two Sites are known to be in bloom and identification of each is most likely. Wendy Boes most recently served as a US Forest Service botanist with the local Tahoe National Forest and has also been a local botanical expert consultant in the greater project area for many years. Notwithstanding, in order to address the peer review comment, this EIR requires additional special-status plant surveys to be conducted prior to on-site ground disturbance activities to identify potential early blooming season (April to May) special-status plant species within the Centennial Industrial Site and Brunswick Area.

Madrone Ecological also recommended that CRPR List 3 species be treated as special-status. As demonstrated in this chapter, doing so should be based on whether the plants in question meet the criteria in CEQA Guidelines Section 15380. This chapter demonstrates that List 3 species potentially occurring on the Sites do not meet the criteria in Section 15380.

Madrone Ecological provided other peer review comments, including suggested revisions to mitigation language, which have been incorporated into this EIR and addressed by Greg Matuzak Environmental Consulting in the form of revised reports attached to the EIR as appendices. All peer review comments have been adequately addressed and resolved.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to biological resources is based on implementation of the proposed project in comparison to baseline conditions and the standards of significance presented above.

¹⁴ Greg Matuzak Environmental Consulting LLC. *Brunswick Industrial Site and East Bennett Road Right of Way (ROW) Biological Resources Assessment* [pg. 5-2]. January 2021; Greg Matuzak Environmental Consulting LLC. *Centennial Industrial Site Biological Resources Assessment* [pg. 5-4]. January 2021.



4.4-1 Have a substantial adverse effect to special-status plant species either directly or through habitat modifications. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Centennial Industrial Site

Special-status plant surveys were initially conducted in December 2018 and early January 2019, which is outside the blooming period for most special-status plant species with potential to occur within the Centennial Industrial Site. The blooming period for special-status plant species within the Centennial Industrial Site range between March and October. The Pine Hill flannelbush, a federally endangered and California Rare Plant was ostensibly¹⁵ identified based on the perennial nature of the plant and from the identification of dried flowers from earlier in 2018 (Boes, 2020). Follow up special-status plant surveys were conducted in July and August 2019 during the time of year when most special-status plant species with the potential to occur within the Centennial Industrial Site are in bloom and most easily identified.

The Centennial Industrial Site contains two unlisted plant species. Neither species is rare nor threatened. The CNPS lists the species as “List 4 Species”, which include the Humboldt lily (*Lilium humboldtii* ssp. *humboldtii*) and the Sierra brodiaea (*Brodiaea sierra*). A large population with thousands of individual Sierra brodiaea covering almost a quarter of the Centennial Industrial Site was mapped during 2019 field surveys and a single occurrence of the Humboldt lily consisting of 10 individuals in an area less than 110 square feet was also documented in the Centennial Industrial Site during 2019 field surveys. Neither Humboldt lily nor Sierra brodiaea meet the CEQA Guidelines Section 15380 as either “endangered” “threatened” or “rare” under the CEQA guidelines species definitions given their survival and reproduction in the wild are not threatened with endangerment.¹⁶ Therefore, impacts to these species (CNPS List 4) do not require mitigation under CEQA Guidelines Section 15380.

Table 4.4-7 and Figure 4.4-7 identify the estimated acreage impacts to vegetation communities within the Centennial Industrial Site as a result of placement of engineered fill associated with the Brunswick Industrial Site mining operation. Approximately half of the Centennial Industrial Site will have been already disturbed during site remediation carried out under DTSC oversight, at which time the applicant would be required by DTSC to implement mitigation measures protective of special-status plants.

The vegetation communities further impacted by the proposed project (i.e., placement of engineered fill) have been identified to contain suitable habitat for other potentially occurring special-status plant species. Therefore, proposed disturbance within those vegetation communities remaining after remediation could impact special-status plant species, if present during such disturbance.

¹⁵ This word is used due to the inconclusive genetic results of recent research and further discussed herein.

¹⁶ Email communication between Greg Matuzak Environmental LLC. and Chris Powell, Mitchell Chadwick LLP. December 17, 2020.

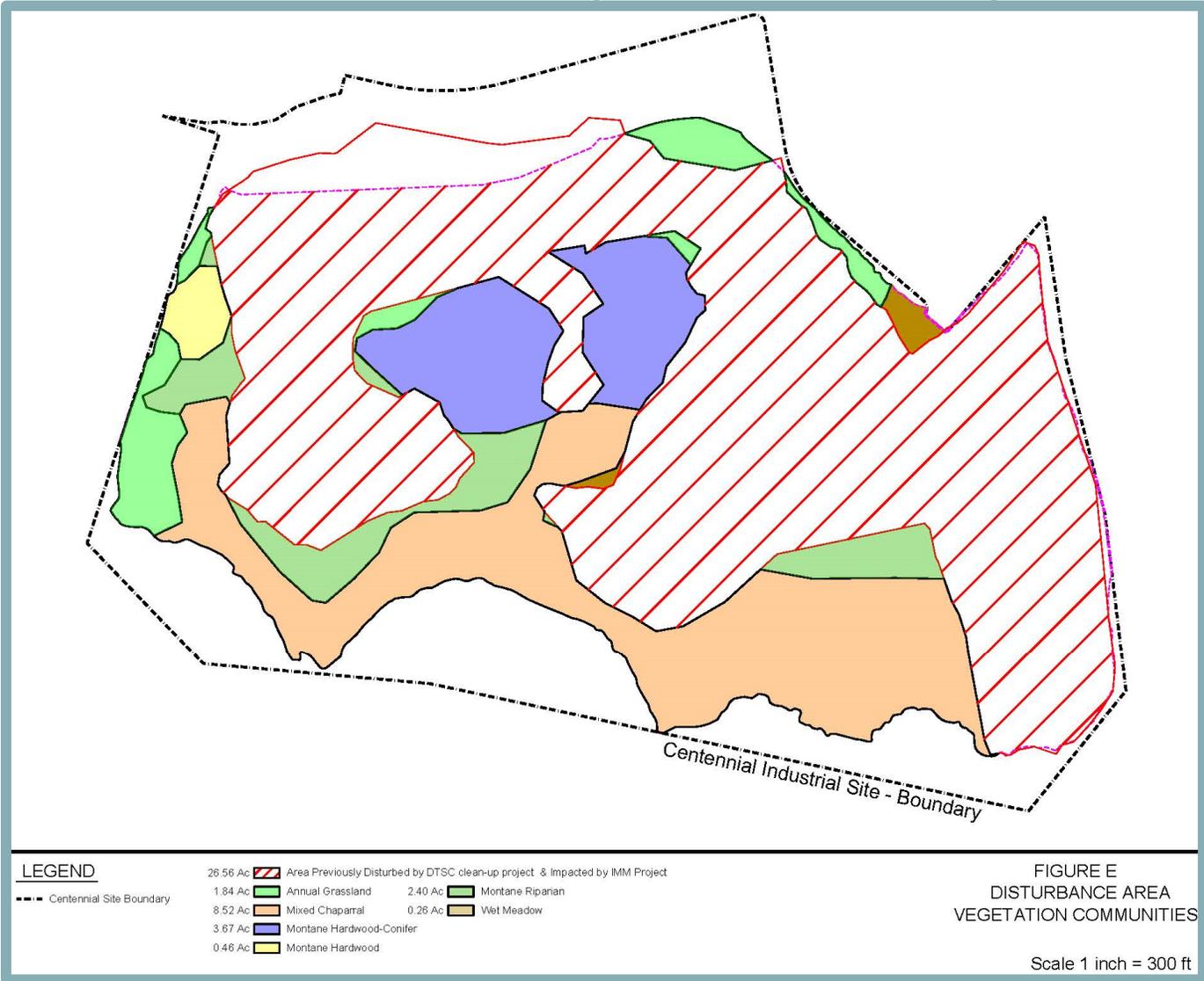


**Table 4.4-7
 Centennial Industrial Site: Estimated Acreage Impacts to
 Vegetation Communities**

Vegetation Community	Estimated Acreage Impacts	Associated Special-Status Species
Montane Hardwood-Conifer	3.67	Chaparral sedge (Rank 1B.2), Red Hills soaproot (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's Lewisia (Rank 1B.2)
Montane Hardwood	0.46	Brandegee's clarkia (Rank 1B.2), Chaparral sedge (Rank 1B.2), Red Hills soaproot (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's Lewisia (Rank 1B.2)
Wolf Creek and Montane Riparian	2.40	Sierra blue grass (Rank 1B.3), Foothill yellow-legged frog (CSC), Western pond turtle (CSC)
Mixed Chaparral	8.52	Pine Hill flannelbush (FE/CR), Stebbins' morning glory (FE/CE), finger rush (Rank 1B.1), Chaparral sedge (Rank 1B.2), Cantelow's lewisia (Rank 1B.2), Red Hills soaproot (Rank 1B.2), Coast horned lizard (CSC) and nesting migratory birds (CDFW)
Annual Grassland	1.84	Brownish beaked-rush (Rank 2B.2)
Wet Meadow	0.26	Brownish beaked-rush (Rank 2B.2) and finger rush (Rank 1B.1)
Estimated Total Acreage Disturbance	17.15	



**Figure 4.4-7
 Centennial Industrial Site Vegetation Communities Impacts**



Therefore, prior to the implementation of future ground disturbing activities within the Centennial Industrial Site, an additional special-status plant survey would be required to identify potential early blooming season (April to May) special-status plant species within the Centennial Industrial Site.

Pine Hill Flannelbush

As stated above, in the past there has been question as to whether the flannebush occurrences on the Centennial Industrial Site are Pine Hill flannelbush (i.e., ssp. *decumbens*). As previously discussed, recent genetic work has confirmed that Pine Hill flannelbush is known to occur in Nevada County, but this work is still in press. For the purposes of the Biological Report and this EIR, it is conservatively assumed that the individual plants identified within the Centennial Industrial Site may be the FESA listed Pine Hill flannelbush.

Sixty individual mature and flowering Pine Hill flannelbush plants occupy an absolute area of 0.22 acres over approximately 4.5 acres of the Centennial Industrial Site. The base of the engineered fill that would be placed on the Centennial Industrial Site during the proposed mining operations at Brunswick would extend approximately 44 acres across the site, although much of the area would have already experienced surface disturbance by site remediation efforts, as previously discussed. Disturbance and engineered fill placement would be avoided on the remaining 12.7 acres, which includes the main stem of Wolf Creek, the 100-foot non-disturbance setback of the main stem of Wolf Creek, and an undisturbed and protected zone containing Pine Hill flannelbush.

The proposed placement of engineered fill at the Centennial Site would impact 18 Pine Hill flannelbush plants directly by requiring their removal as part of the Idaho-Maryland Mine Project. The remaining 42 individual Pine Hill flannelbush plants are located outside of the proposed engineered fill areas and therefore, they would not be directly impacted by the Idaho-Maryland Mine Project. However, four individual Pine Hill flannelbush plants would be located within 30 feet of the edge of the engineered fill material and could be subject to indirect effects from changes in topography, runoff, etc. that could occur as an edge effect on those individual plants. The four individual plants are located approximately 27, 26, 28, and 29 feet from the edge of the proposed engineered fill. Therefore, it is estimated that 18 individual Pine Hill flannelbush plants would be directly impacted, and potentially four additional Pine Hill flannelbush plants could be indirectly impacted by the Idaho-Maryland Mine Project.

Centennial Pine Hill Flannelbush Habitat Management Plan

A HMP has been developed for Pine Hill flannelbush in compliance with the Nevada County LUDC, Section L-II 4.3.12. When it is determined that a project would adversely affect a defined special-status species or their habitat, the regulations require that a site-specific habitat management plan consistent with state and federal requirements be prepared.

Pine Hill flannelbush within the Centennial Industrial Site have been confined to the southern section that has been mapped by the U.S. Department of Agriculture (USDA) as Secca-Rock outcrop complex, two to 50 percent slopes. The placement of engineered fill would impact a little less than half (approximately five acres) of



the total estimated gabbro soils (10.31 acres, Secca-Rock outcrop complex, two to 50 percent slopes) on the property.

Figure 4.4-8 contains mapping of USDA soils series within six miles of the Centennial Industrial Site that are known to contain gabbro parent material, the soil type required for the Pine Hill flannelbush. The soils series within Nevada County that are known to contain gabbro parent material include Secca, Sites, Boomer, and Chaix variants USDA soils series (from the Nevada County USDA Soils Series). A majority of the mapped Secca-Rock outcrop complex, two to 50 percent slopes soil type is located to the southwest of the Centennial Industrial Site where the largest area of previously mapped flannelbush in Nevada County has occurred within and adjacent to the Nevada County transfer station off of McCourtney Road (CNDDDB, 2020). Within six miles of the Centennial Industrial Site, approximately 8,124 acres of Secca-Rock outcrop complex, two to 50 percent slopes have been mapped, and a total of 30,741 acres of Secca, Sites, Boomer, and Chaix variants USDA soils series have been mapped within six miles of the Centennial Industrial Site. Therefore, gabbro soils are not a limiting factor within the region of the Centennial Industrial Site.

If in fact, the flannelbush specimens on the Centennial Industrial Site are the federally endangered Pine Hill flannelbush (ssp. *decumbens*), it is noteworthy that the USFWS's 5-Year Review of the Recovery Plan for Gabbro Soil Plants recommends securing and protecting the flannelbush within Nevada and Yuba counties if they are determined to be the listed decumbent flannelbush.

The Centennial Pine Hill flannelbush HMP sets forth an overall management approach and mitigation strategy, including such actions as protective measures for the 42 plants within the avoidance area, seed collection and propagation, transplanting, and monitoring to ensure success.

Brunswick Industrial Site and East Bennet Road ROW

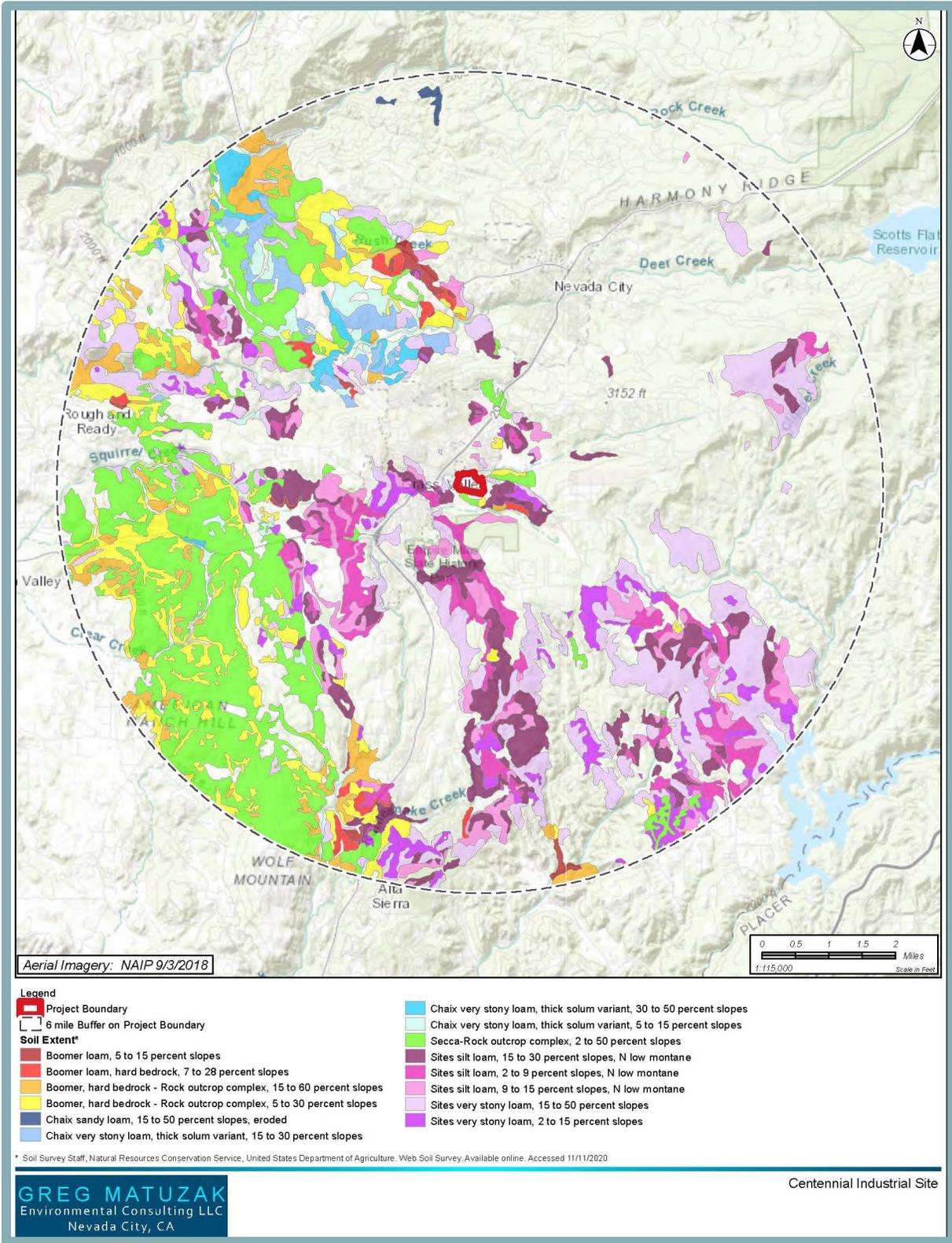
Special-status plant surveys were conducted in December 2018 and early January 2019, as well as July and August 2019, which is in the blooming period for most special-status plant species with potential to occur within the Brunswick Area. The blooming period for special-status plant species within the Brunswick Area range between March and October. The Humboldt lily, a CNPS List 4.2 special-status plant species, was identified within the Brunswick Industrial Site and along the East Bennett Road ROW in July and August 2019. As a CNPS List 4 species, Humboldt lily is not considered special-status under the criteria used in this analysis.

According to CNPS, "CRPR 4 taxa do not clearly meet CEQA standards and thresholds for impact considerations".¹⁷ However, CNPS and CDFW strongly recommend that these taxa be evaluated in CEQA documents. Reasons for considering List 4 species in CEQA documents, according to CNPS, include among others, areas where the taxon is especially uncommon and areas where the taxon has sustained heavy losses (declining).

¹⁷ California Native Plant Society. *Technical Memorandum: Considerations for Including CRPR 4 Plant Taxa in CEQA Biological Resource Impact Analysis*. January 2020.



**Figure 4.4-8
 Gabbro Soils Within 6 Miles of Centennial Industrial Site**



Humboldt lily is known to occur in openings in chaparral, cismontane woodland and lower montane coniferous forests. It is known from Amador, Butte, Calaveras, El Dorado, Fresno, Mariposa, Nevada, Placer, Tehama, Tuolumne, and Yuba counties at elevations ranging between 295 and 4,200 feet above msl. The Brunswick Industrial Site has suitable habitat for the species and a single occurrence consisting of 10 individuals, within an area less than 110 square feet, was documented within a disturbed area of the Brunswick Industrial Site, and a single occurrence consisting of a few individuals was documented within the East Bennett Road ROW.

Humboldt lily does not meet the CEQA Guidelines Section 15380 as either “endangered” “threatened” or “rare” under the CEQA guidelines species definitions given their survival and reproduction in the wild are not threatened with endangerment.¹⁸

Special-status plants were not documented within the Brunswick Area during the site visits and surveys. However, as shown on Table 4.4-8, which identifies the acreage impacts to vegetation communities within the Brunswick Area, those vegetation communities have been identified to contain suitable habitat for special-status plant species. Therefore, proposed disturbance within those vegetation communities mapped within the Brunswick Area could impact special-status plant species if present during such disturbance.

Vegetation Community	Estimated Acreage Impacts	Associated Special-Status Species
Montane Hardwood-Conifer	1.24	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow’s lewisia (Rank 1B.2)
Montane Hardwood	0.06	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow’s lewisia (Rank 1B.2)
Ponderosa Pine	0.93	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow’s lewisia (Rank 1B.2)
Sierran Mixed Conifer	16.44	Sierra arching sedge (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow’s lewisia (Rank 1B.2)
Manmade Pond	7.28	Western pond turtle (CSC), California red-legged frog (ESA listed)
Disturbed and Developed	33.44	Coast horned lizard (CSC), Townsend’s big-eared bat (CSC)
Annual Grassland	0.26	Brownish beaked-rush (Rank 2B.2)
Wet Meadow	0.26	Brownish beaked-rush (Rank 2B.2) and finger rush (Rank 1B.1)
Estimated Total Acreage Disturbance	60	

Prior to the implementation of project ground disturbing activities within the Brunswick Area, an additional special-status plant survey would be required and is specified as

¹⁸ Email communication between Greg Matuzak Environmental LLC. and Chris Powell, Mitchell Chadwick LLP. December 17, 2020.



mitigation below to identify potential early blooming season (April to May) special-status plant species within the Brunswick Area.

Conclusion

An estimated 18 individual Pine Hill flannelbush plants would be impacted by proposed engineered fill placement at the Centennial Industrial Site. In addition, suitable habitat for other potentially occurring special-status plant species would be impacted at both the Centennial Industrial Site and Brunswick Area. Therefore, the proposed project would have a **significant** impact to special-status plant species either directly (e.g., threaten to eliminate a plant community) or through substantial habitat modifications.

Mitigation Measure(s)

Pine Hill Flannelbush

Implementation of mitigation measure 4.4-1(a) would reduce the potential impact to Pine Hill flannelbush to a *less-than-significant* level.

Additionally, given the presence of and potential impacts to a FESA listed special-status plant species within the Centennial Industrial Site, the USFWS will develop a Biological Opinion (BO) if the Idaho-Maryland Mine Project is covered under a Section 7 FESA consultation, or if the Idaho-Maryland Mine Project is covered under a Section 10 FESA consultation, a HCP for the Pine Hill flannelbush would most likely be required. The BO or HCP covering impacts to this FESA listed species within the Centennial Industrial Site may contain additional requirements related to avoidance and minimization measures. Notwithstanding potential additional requirements that may be imposed by the USFWS under BO or HCP, Mitigation Measure 4.4-1(a) is considered sufficient to mitigate the project impact to Pine Hill flannelbush for the purposes of the County's CEQA review.

4.4-1(a) *Prior to issuance of grading permits for the Centennial Industrial Site, the project applicant shall implement project-specific mitigation measures 1-3 within the Centennial Pine Hill Flannelbush Habitat Management Plan (Matuzak 2021) (HMP), to the satisfaction of the County, USFWS and CDFW. Project-specific mitigation measures generally include protective measures for the Pine Hill flannelbush within the on-site avoidance area. For project actions that will directly impact the Pine Hill flannelbush, measure 4 (monitoring) shall occur on an ongoing basis, and measure 5 depends upon the results of monitoring, and thus, measures 4 and 5 are not required prior to issuance of grading permits):*

1. *Seed Collection;*

Collect seed for seedbanking and for future replacement and recovery efforts pursuant to the requirements of Section 6.2 of the HMP.

2. *Develop Transplantation Plan and Monitoring Plan;*

The Transplantation and Monitoring Plan shall be developed in consultation with USFWS and CDFW, and shall, at a minimum,



address location(s) for dormant season relocation, site selection for transplanting, and metrics of successful establishment (i.e., Section 6 of the HMP).

3. *Transplanting;*

Transplant the individuals of Pine Hill flannelbush that fall within the disturbance footprint to another site with similar soil, hydrologic, vegetation type and aspect. The transplantation site(s) selected shall extend the known population spatially, in other words, planting beyond the known perimeters of the existing population is preferable, to maintain population coverage. Transplanting shall occur in the season deemed to have the greatest potential for success, generally the fall, after rains have commenced.

4. *Transplant Monitoring; and*

Transplants shall be monitored every month for the first six months, then subsequently, every two months for the first two years. After monitoring identifies successful establishment and flowering for the second season for each of the transplants, transplanting will have been deemed successful.

5. *Alternative Measures to Transplantation and Seed Collection (if required pursuant to the criteria in the HMP)*

If Steps 1-4 of the HMP are not successful in maintaining the Pine Hill flannelbush population numbers, then the following measures shall be taken:

- Individuals shall be grown from seed and transplanted out in a 100:1 ratio for those taken.*
- Transplants of individuals grown from seed shall be planted with similar soil, hydrologic, vegetation type and aspect.*
- Transplanting shall occur in the season deemed to have the greatest potential for success, generally the fall, after rains have commenced.*
- Transplants shall be monitored every month for the first six months, then subsequently, every two months for the first two years.*

Habitat Enhancement: Prior to issuance of grading permits, pursuant to the HMP, the applicant shall enhance Pine Hill flannelbush habitat outside the disturbance footprint, which could include removal of invasive plants and conducting a pilot study by collaborating with CAL FIRE or other research facility to conduct prescribed fire in areas to enhance natural germination and recruitment, as Pine Hill flannelbush need fire for successful germination, and root sprouts.



***Conservation Easement:** Prior to issuance of grading permits, the applicant shall record a Conservation Easement for the on-site Pine Hill flannelbush avoidance area, or use a similar land protection mechanism that runs with the land in perpetuity, to protect the Pine Hill flannelbush plants within the avoidance area. The management guidelines for the Conservation Easement or similar mechanism shall require that the habitat be managed for the Pine Hill flannelbush and its associated habitat. The applicant shall also record a Conservation Easement or use a similar land protection mechanism for any offsite areas not owned by the applicant where the transplants are to be located.*

Other Special-Status Plant Species

Implementation of mitigation measure 4.4-1(b) would reduce the potential project impacts to other special-status plants to a *less-than-significant* level.

4.4-1(b) *Prior to issuance of grading permits for the Centennial Industrial Site and Brunswick Area (i.e., Brunswick Industrial Site and East Bennett Road ROW), focused plant surveys shall be performed according to CDFW and CNPS protocol (e.g., “Procotols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities”, CDFW 2018), as generally described below. If special-status plant species (i.e., federal and/or state endangered, threatened, or proposed candidates for listing; CRPR Lists 1 or 2) are not found during appropriately timed focused surveys, then further mitigation is not necessary. The results of the surveys shall be submitted to the Nevada County Planning Department.*

Prior to Improvement Plan approval for each phase of the project, focused surveys shall be performed by a qualified botanist during the appropriate early blooming period (April to May) for those special-status plant species identified in the Biological Resources Assessments as potential occurring within the Centennial Industrial Site and/or Brunswick Area. Furthermore, should additional plants having the potential to occur within these areas be given special-status in the future, the qualified botanist shall also determine the presence/absence of such species. The survey(s) shall be conducted on-site as well as in any off-site improvement areas, as applicable for each phase, during the early identification periods (bloom periods) for all potentially occurring special-status plant species. If the special-status plant species are not found to be present during the focused survey(s), then no further action is required. The results of the focused surveys shall be submitted to the Nevada County Planning Department.

If any special-status plant species are found, protection of such plant shall include complete avoidance, transplantation, or on- or off-site restoration of the special-status plant species that could be impacted by site disturbance. These protective measures for such plants shall be included as part of the required development of a Habitat Management Plan (HMP) as part of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12, which 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 HMP shall include the avoidance, minimization, and mitigation measures outlined below as part of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12.

At a minimum, the HMP shall include the following protective measures for special-status plant species with the potential to be impacted by the proposed disturbance:

- *a map of the location of special-status species that may be disturbed or need to be protected;*
- *location of environmental protection fencing to be placed around the individual plants to be protected;*
- *identification of the location of protected plants on design and construction drawings;*
- *environmental awareness training for all personnel working on the project during initial site disturbance to discuss the location of the protected plants and the measures to be taken to avoid impacts to them; and*
- *weekly site monitoring by a qualified biologist to ensure that the special-status plants are being protected during site disturbance and construction.*

Where individuals would be potentially affected directly by site disturbance and transplantation of individual plants is required to minimize and mitigate for impacts to such species, the following shall be integrated into the HMP:

- *remove bulbs of individual plants to be directly impacted during the dormant season;*
- *relocate the bulbs to a site with similar soil, hydrologic, vegetation type and aspect as the portion of the project site where the plants are found; and*
- *identify the location(s) for dormant season relocation and site selection for transplantation.*

The HMP would also include a requirement to meet the following criteria:

- *metrics of successful establishment, which would include a minimum of 80 percent survival of the transplants after two years of transplanting the species.*

If the 80 percent survival is not established after two years, transplants of individuals grown from seed shall be planted at a location with similar soil, hydrologic, vegetation type and aspect as the portion of the site where they are found. Transplantation shall occur in the season deemed to have the greatest potential for success, generally the fall, after rains have



commenced. Transplants shall be monitored every month for the first six months, then every two months for a minimum of two years. After two summer seasons of monitoring identifies successful establishment of 50 percent of the initial transplants, transplant seedlings will be deemed successful.

4.4-2 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status wildlife species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

This impact statement evaluates the potential for special-status wildlife to occur within the Centennial Industrial Site and the Brunswick Area, and whether the construction and operation associated with the proposed project could have a substantial adverse effect on any special-status wildlife species. As previously discussed, approximately half of the Centennial Industrial Site will have been already disturbed during site remediation carried out under DTSC oversight, at which time the applicant would be required by DTSC to implement mitigation measures protective of special-status wildlife.

Foothill Yellow-Legged Frog

Centennial Industrial Site

The main stem of Wolf Creek within the Centennial Industrial Site is considered suitable habitat for Foothill Yellow-Legged Frog. This species was not identified during any surveys of the Centennial Industrial Site for special-status wildlife species between 2018 and 2019. Protocol-level surveys (VES method surveys pursuant to the CDFW protocol) for this species were not performed within the Centennial Industrial Site as part of this reporting, as the potential for this species to occur within the Centennial Industrial Site is considered very low.

Pre-construction activities and grading near the toe of the engineered fill industrial pad on the Centennial Industrial Site may cause temporary impacts to the 100-foot non-disturbance buffer of Wolf Creek (perennial creek). All construction activities would remain outside the Special Flood Hazard Area as pursuant to Federal Emergency Management Agency (FEMA) regulations, which is covered under a separate Management Plan prepared by Nevada City Engineering, Inc. for the Idaho-Maryland Mine Project (see Chapter 4.8, Hydrology and Water Quality, of this EIR).

Temporary or permanent impacts would not occur to Wolf Creek from project development; however, in the event that temporary encroachment within the Wolf Creek 100-foot non-disturbance buffer would be required as part of construction, the project could have an adverse effect on foothill yellow-legged frog were it present within Wolf Creek.

Brunswick Industrial Site

Foothill yellow-legged frog was not identified during focused VES method surveys for this species conducted on August 29, 2019 within South Fork Wolf Creek within the



Brunswick Area, as well as within the portions of South Fork Wolf Creek that flow through public property downstream within the Empire Mine State Historic Park.

The stretches of South Fork Wolf Creek within the Brunswick Industrial Site from the large 48-inch culvert creating the stream, and downstream 700 feet from the culvert, do not contain suitable habitat for the species given the silty nature of the bed of the stream and lack of rocky stream habitat in that area. However, from approximately 700 feet downstream of the 48-inch culvert to the northwestern boundary of the Brunswick Industrial Site (approximately 2,000 feet of South Fork Wolf Creek) there is marginal suitable habitat for the species. Given the species has not been previously identified within the South Fork Wolf Creek watershed and only marginal suitable habitat occurs within the Brunswick Industrial Site for the species, there is a very low likelihood this species occurs within the South Fork Wolf Creek.

The proposed project includes limited disturbance to South Fork Wolf Creek within the Brunswick Industrial Site, such as the installation of the outfall for the treated mine water discharge and the outfall for the stormwater detention pond, as well as the replacement of the 48-inch culvert and outfall where South Fork Wolf Creek originates on the Site. While these improvements would occur within stretches of South Fork Wolf Creek that are only considered marginally suitable habitat, it is conservatively concluded that the proposed project could adversely affect foothill yellow-legged frog if present during construction of these improvements.

In addition to the physical improvements, the project includes discharge of treated mine water into South Fork Wolf Creek. As discussed in detail in Chapter 4.8, Hydrology and Water Quality, the proposed project will discharge a maximum of 5.6 cubic feet per second (cfs) of treated mine water to South Fork Wolf Creek and such discharges will be in compliance with the waste discharge requirements of General Order R5-2016-0076, National Pollutant Discharge Elimination System (NPDES) No. CAG995002 for Tier 3 Dischargers: Discharges of wastewater from hard rock mines.

Base flow in South Fork Wolf Creek may range from 0.17 cfs in the summer to 6.5 cfs in the winter between storm events, at the location of the proposed discharge of the treated mine water (Balance, 2020).¹⁹ During field monitoring in January 2020, Balance noted that small to moderate storm flows of 11 cfs upstream of the proposed discharge location and 17.3 cfs downstream of the proposed discharge location did not produce any evidence of bed sediment transport, meaning that there was no erosion or sedimentation occurring in the stream bed during the monitored storm flows. Sediment pebble count analysis conducted by Balance (2020) indicate that the flow rate at which sediment within the channel may become mobilized ranges from 20 cfs to 90 cfs.

With the addition of the maximum proposed discharge of 5.6 cfs and increasing measured baseflows by a 50 percent safety factor, post-project baseflows during non-storm periods would be expected to range between approximately 5.8 cfs and 15 cfs. These estimates are less than 23 cfs, the threshold for bedload sediment mobility and well below flows that commonly exhibit significant work on the channel (i.e., 1- to 2-year

¹⁹ Balance Hydrologics, Inc. *Geomorphic Assessment, South Fork Wolf Creek, Near Grass Valley, California* [pg. 39]. March 2020.



flood). Balance therefore concludes that discharges during baseflow periods would not result in substantial erosion or siltation on site in South Fork Wolf Creek.²⁰

During larger storm events, the proposed detention pond on the Brunswick Industrial Site would reduce the peak flows within South Fork Wolf Creek by much more than 5.6 cfs. Thus, under project conditions the overall peak storm flows would be lower than they are under existing conditions, resulting in less potential for erosion and sediment transport than under existing conditions.

Therefore, based on the conclusion of Balance, potential downstream impacts to the stream channel and associated riparian zone along both sides of South Fork Wolf Creek from the additional discharge of 5.6 cfs would be minimal on sensitive biological resources, such as foothill yellow-legged frog, and do not represent a potential significant impact to the stream channel or associated riparian zone within South Fork Wolf Creek.²¹

It is also important to note that, as part of the NPDES coverage through the Central Valley RWQCB General Order R5-2016-0076 (NPDES No. CAG995002), regular monitoring would be required and Rise would be required to meet the discharge requirements as detailed in the NPDES permit. Several NPDES regulated parameters (e.g., temperature, pH, turbidity, dissolved oxygen) have the potential to affect aquatic resources and sensitive aquatic habitat if those parameters are found to be outside the safe threshold limits identified within the NPDES discharge requirements. According to the Water Treatment Plant Design Report, the Water Treatment Plant has been designed to meet the discharge standards in NPDES No. CAG995002.²² In addition, the NPDES parameters would be regularly monitored to ensure compliance with the NPDES discharge requirements (see Mitigation Measure 4.8-1(a) of the Hydrology and Water Quality chapter). This would ensure that State of California water quality standards are met as part of the proposed discharge and to ensure that impacts to biological resources, including benthic macroinvertebrates (BMI) and the food web within South Fork Wolf Creek and downstream further within the main stem of Wolf Creek, would not be adverse.

Western Pond Turtle

Centennial Industrial Site

The main stem of Wolf Creek, a perennial stream, and the large marsh wetlands within the eastern section of the Centennial Industrial Site containing perennial water/ponding are considered suitable habitat for this species. The species has not been documented within five miles of the Centennial Industrial Site and has also not been identified within the Centennial Industrial Site during the surveys implemented within the Centennial Industrial Site; however, it has a high potential to occur given the suitable habitat that occurs within the Centennial Industrial Site. It is important to note that the wetlands within the eastern section of the Centennial Industrial Site are anticipated to be removed during

²⁰ Balance Hydrologics, Inc. *Geomorphic Assessment, South Fork Wolf Creek, Near Grass Valley, California* [pg. 40]. March 2020.

²¹ Greg Matuzak Environmental Consulting, LLC. *Updated Technical Memorandum for the Idaho-Maryland Mine Project – South Fork Wolf Creek Discharge Biological Resources Assessment* [pg. 10]. January 29, 2021.

²² Linkan Engineering. *Idaho-Maryland Mine Water Treatment Plant Design Report* [pg. 2-1]. February 2021.



remediation activities under DTSC oversight, and thus, DTSC would require mitigation measures protective of western pond turtle.

Temporary or permanent impacts would not occur to Wolf Creek from project development; however, in the event that temporary encroachment within the Wolf Creek 100-foot non-disturbance buffer would be required as part of construction, the project could have an adverse effect on western pond turtle if present within Wolf Creek.

Brunswick Area

The South Fork Wolf Creek (perennial stream), the large manmade pond, and the marsh wetlands within the Brunswick Area that contain perennial water/ponding are considered suitable habitat for this species. The species has not been documented within five miles of the Brunswick Area and has not been identified within the Brunswick Area during the biological resources species surveys conducted within the Brunswick Area. The species is considered to have a high potential to occur within the Brunswick Area.

The proposed project includes minimal physical improvements to South Fork Wolf Creek within the Brunswick Industrial Site, such as the installation of the outfall for the treated mine water discharge and the outfall for the stormwater detention pond, as well as the replacement of the 48-inch culvert and associated outfall where South Fork Wolf Creek originates on the Site. In addition, the project includes improvements to the clay-lined pond, including synthetic liner installation and dam repair work. The proposed project could adversely affect western pond turtle if present during construction of these improvements.

Discharge of treated mine water would not result in substantial adverse effects to western pond turtle within South Fork Wolf Creek for the reasons discussed above regarding foothill yellow-legged frog.

California Red-Legged Frog

Centennial Industrial Site

Potential suitable reproductive habitat for this species may occur within the large marsh wetlands with perennial water/ponding in the eastern section of the Centennial Industrial Site. It is unknown if there are suitable breeding locations within 1.25 miles of the Centennial Industrial Site and connected by barrier-free dispersal habitat that is at least 300 feet in width, which would be required for suitable dispersal habitat to be located within the Centennial Industrial Site. However, the species has not been documented within the Centennial Industrial Site, it has not been documented in the watershed, and was not documented by the species surveys conducted. Therefore, this species has a very low potential to occur within the Centennial Industrial Site. In addition, the wetlands within the eastern section of the Centennial Industrial Site are anticipated to be removed during remediation activities under DTSC oversight, and thus, DTSC would require mitigation measures protective of CRLF.

Brunswick Area

Potential suitable reproductive habitat for this species may occur within the larger marsh wetlands with perennial water/ponding and within the large manmade pond within the Brunswick Area. It is unknown if there are suitable breeding locations within 1.25 miles



of the Brunswick Area and connected by barrier-free dispersal habitat that is at least 300 feet in width, which would be required for suitable dispersal habitat to be located within the Brunswick Area. However, the species has not been documented within the Brunswick Area, it has not been documented in the watershed, and was not documented during the biological resources surveys conducted within the Brunswick Area. Therefore, this species has a very low potential to occur within the Brunswick Area.

The proposed project includes physical improvements to the clay-lined pond, including synthetic liner installation and dam repair work, as well as disturbance of the marsh wetlands. While there is a very low potential of occurrence, it is conservatively concluded that the proposed project could adversely affect CRLF if present during construction of these improvements.

California Black Rail

Centennial Industrial Site

This species was not identified during the December 2018 or early January 2019 site visits or during reconnaissance-level biological surveys conducted in July 2019. The potential for this species to occur within the Centennial Industrial Site is considered very low. Suitable habitat for this species occurs within the large marsh wetlands within the eastern section of the Centennial Industrial Site. The wetlands within the eastern section of the Centennial Industrial Site are anticipated to be removed during remediation activities under DTSC oversight, and thus, DTSC would require mitigation measures protective of California black rail.

Brunswick Area

California black rail has been identified within three miles to the southeast and the southwest of the Brunswick Area. The species was not identified during field surveys. Suitable habitat for this species occurs within the larger marsh wetlands within the southwestern section of the Brunswick Industrial Site where there is permanent ponding of water and dense vegetation along the edges of those wetland features. The potential for this species to occur within the Brunswick Area is considered very low given the developed nature of the Brunswick Industrial Site where suitable habitat for the species is located. While there is a very low potential of occurrence, it is conservatively concluded that the proposed project could adversely affect California black rail if present during disturbance of on-site wetlands.

Coast Horned Lizard

Coast horned lizard has been documented between three and five miles of the Centennial Industrial Site and Brunswick Area to the west, northwest, and southwest. Potential suitable habitat exists within the sandy and rocky locations within the Centennial Industrial Site, and the open disturbed and developed locations within the Brunswick Industrial Site. As both Sites include the required open areas of exposed, sandy soils for this species, this species has the potential to occur within the Sites. Coast horned lizards were not observed during the December 2018 or early January 2019 site visits or during reconnaissance-level biological surveys conducted in July 2019. The potential for this species to occur within the Centennial and Brunswick Industrial Sites is considered moderate. Thus, construction activities could have an adverse effect on coast horned lizard if present during on-site disturbance.



Special-Status Bats

Three special-status bats have the potential to occur within the Centennial and Brunswick Industrial Sites: Townsend's big-eared bat, hoary bat, and pallid bat.

The Townsend's big-eared bat species inhabits lower montane coniferous and mixed conifer forest habitats where abandoned buildings and structures occur for roosting. This species has been identified within three miles, generally south, of the Centennial Industrial Site and Brunswick Area, within an abandoned building at the Empire Mine State Historic Park.

Limited suitable roosting sites for this species occurs within the Centennial Industrial Site given the lack of abandoned structures. The existing decant tower, which is located in the northwest portion of the Centennial Industrial Site, may contain suitable roosting habitat for this species. Limited suitable roosting sites for this species occurs within the Brunswick Area given the presence of only one abandoned structure. Therefore, the potential for this species to occur within the Centennial Industrial Site and Brunswick Area is considered low.

The hoary bat is considered a Medium Risk species by the Western Bat Working Group and the pallid bat is a CDFW species of special concern. Neither species has been previously identified within five miles of the Centennial Industrial Site and Brunswick Area (CDFW 2019a). However, the Centennial and Brunswick Industrial Sites provide roosting habitat for both species within the riparian and woodlands. Therefore, if either species is present during the proposed disturbance, bat day roosts could be impacted.

Nevertheless, if any of these bats is present prior to demolition of on-site structures or tree removal, the project could adversely affect the bat(s).

Non-Special Status Birds Protected by Other Laws

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of state and federal laws. The federal MBTA prohibits the intentional killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior. Section 3503.5 of the California FGC states, "It is unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the code or any regulation adopted pursuant thereto."

The Centennial Industrial Site and Brunswick Area contain many larger trees, several of which contain suitable habitat for nesting raptors, including suitable nesting sites for Cooper's hawk. In addition, the Centennial Industrial Site and Brunswick Area also includes smaller riparian trees and shrubs as well as grasslands that provide suitable nesting habitat for other protected bird species. The breeding season for raptors and other protected bird species in the vicinity of the overall project area is generally from February 1 to August 31 but varies depending on the species and localized weather patterns. On-site removal of vegetation could result in adverse effects to nesting raptors and other birds protected under the MBTA should they be nesting on-site prior to commencement of construction.



Wildlife Disturbance

Hauling of engineered fill would result in vehicle trips to and from the Sites. Vehicle traffic on roadways causes increased vehicle-related noise and other effects, which have the potential to affect wildlife in surrounding areas.²³ Studies of the effects of noise on wildlife populations have shown that while some species can be negatively affected by traffic noise and wildlife densities are generally inversely proportional to distance from roadways, many species of wildlife are unaffected by roadway noise.²⁴ In general, wildlife species have been shown to acclimate to the noise environment in which the species resides,²⁵ or to select habitat based on a range of factors including the level of disturbance.²⁶ Currently, heavy trucks frequent the proposed haul route, in particular, Brunswick Road. Thus, wildlife species in proximity to the haul route would be considered acclimated to noise levels associated with such operations.

With respect to blasting, the Blasting Report for the project states: “In underground mining, especially the type proposed at the Idaho-Maryland Mine, there would be no air overpressure produced on the surface. The blast would not cause this pressure wave to form or an audible sound produced.”²⁷

Above-ground activities would generate noise during project operations, including placement of engineered fill, shaft ventilation fan, exterior pumps outside the process plant building, water treatment plant pumps and turbine aerator, and Brunswick shaft skipping within the headframe building. However, it is important to remember that most protected species have a low to very low potential to occur on the Centennial Industrial Site and Brunswick Area. For example, CRLF and yellow-legged frog, species who use vocalizations to communicate, and thus could be sensitive to increases in noise, are considered to have a very low potential to occur on-site. California black rail is the only special-status bird that was identified as potentially occurring on the Sites, though it is considered to have only a very low potential to occur. Common avian species having no special status are not at risk of populations declining below self-sustaining levels. Notwithstanding, it is noted that song birds have been observed to adjust their songs in response to anthropogenic noise.²⁸

With regard to lighting and potential effects on wildlife behavior at nighttime, it is noted that limited night work would occur at the Centennial Industrial Site. Hauling and dumping of engineered fill at the Centennial Industrial Site would occur between 6:00 AM and 10:00 PM. The project would not include the installation of any new lighting elements on the Centennial Industrial Site. Lighting during nighttime hauling and dumping of engineered fill would be limited to haul truck headlights.

²³ California Department of Transportation, Division of Environmental Analysis. *The Effects of Highway Noise on Birds*. September 30, 2007.

²⁴ U.S. Department of Transportation, Federal Highway Administration. *Synthesis of Noise Effects on Wildlife Populations*. September 2004.

²⁵ Davies S, Haddad N, Ouyang JQ. *Biology Letters*, 13:20170276: “Stressful City Sounds: Glucocorticoid Responses to Experimental Traffic Noise are Environmentally Dependent.” October 2017.

²⁶ Francis, Clinton D., Ortega, Catherine P., and Cruz, Alexander. *Current Biology*, Volume 19: “Noise Pollution Changes Avian Communities and Species Interactions.” July 23, 2009.

²⁷ IDC-PBS. *Environmental Factors of Blasting Report for the Proposed Idaho-Maryland Gold Project, Nevada County, CA* [pg. 27]. September 27, 2019.

²⁸ Katherine E. Gentry et al. “Evidence of suboscine song plasticity in response to traffic noise fluctuations and temporary road closures” in *Bioacoustics* (2017). Halfwerk and Slabbekoorn. “A behavioural mechanism explaining noise-dependent frequency use in urban birdsong”, in *Animal Behaviour* (December 2009).



With regard to the Brunswick Industrial Site, vehicles would be entering and exiting the site mostly during daytime hours, considering shift changes at 7:00 AM, 3:30 PM, and 7:00 PM. While hauling of materials off-site would occur until 10:00 PM, which would add light from vehicle headlights, such lighting sources would not result in substantially increased light pollution relative to existing vehicle traffic on local roadways. Placement, grading, and compaction of engineered fill at Brunswick Industrial Site would not occur during nighttime hours. All exterior lighting within the Brunswick Industrial Site would comply with Section L-II 4.2.8, Lighting, of the Nevada County LUDC; Section E, Lighting, of the Western Nevada County Design Guidelines; and Section 5.0, Lighting, of the City of Grass Valley Community Design Guidelines. The lighting associated with the proposed improvements on the Brunswick Industrial Site is not anticipated to substantially affect the lighting environment in the surrounding area.

Consequently, noise and nighttime lighting related to proposed operations would not be anticipated to result in adverse impacts to wildlife behavior.

Conclusion

Both the Centennial Industrial Site and the Brunswick Area contain aquatic and other natural habitats that could support a variety of special-status wildlife species. The proposed project would result in disturbance to natural habitats as a result of activities, such as grading, placement of engineered fill, installation of outfalls (South Fork Wolf Creek), etc. As discussed above, for the Centennial Industrial Site, western pond turtle and CRLF would only be expected to occur within the larger wetlands in the eastern portion of the property. The wetlands within the eastern section of the Centennial Industrial Site are anticipated to be removed during remediation activities under DTSC oversight, and thus, DTSC would require mitigation measures protective of western pond turtle and CRLF. In the event that the final RAP approved by DTSC includes modified disturbance limits, such that a portion of the easterly wetlands remain on-site, the proposed placement of engineered fill associated with the mining operations could have an adverse effect on western pond turtle and CRLF if present during fill activities at the Centennial Industrial Site. Thus, mitigation for western pond turtle and CRLF has been included for both the Centennial Industrial Site and Brunswick Area to cover all potential outcomes.

In conclusion, development of the proposed project could have a substantial adverse effect, either directly or through habitat modifications, on wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. This is considered a **significant** impact.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impacts to a *less-than-significant* level.

Foothill Yellow-Legged Frog

- 4.4-2(a) *Pre-construction Survey and Avoidance and Minimization Measures.* *A pre-construction survey shall be conducted by a qualified biologist following CDFW recommended Visual Encounter Survey (VES) methods no more than fourteen (14 days) prior to disturbance within and directly adjacent to (i.e., riparian zone) the South Fork Wolf Creek and Wolf Creek. If the pre-*



construction survey does not detect foothill yellow-legged frog, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required.

If this species is documented during pre-construction VES method surveys (egg masses, juveniles, or adults), disturbance to the stream and species shall be completely avoided given the species is listed as Threatened under CESA. If the species is documented during the pre-construction VES surveys, CDFW shall be contacted immediately. An Incidental Take Permit (ITP) may be required from CDFW as part of the development of conservation measures to ensure avoidance and minimization of potential impacts to any frogs identified within South Fork Wolf Creek and/or Wolf Creek. The ITP may allow a CDFW qualified wildlife biologist with a CDFW handling permit for the species to move individuals out of the disturbance areas to avoid impacting this species and/or other potential conservation measures to avoid and minimize impacts to the species.

Watercourse/Wetlands/Riparian Areas Management Plans. The applicant shall implement the mitigation measures identified in the Aquatic Resources Management Plans for the Centennial Industrial Site and Brunswick Area, pursuant to Mitigation Measure 4.4-3, which include measures designed to protect aquatic resources and the biological resources they support. Such measures generally include, but are not limited to, mitigation for encroachment into non-disturbance buffers, restoration of impacted areas within stream zones, implementation of Best Management Practices (BMPs) during construction, and post construction erosion control.

Western Pond Turtle

4.4-2(b) Pre-construction Survey and Avoidance and Minimization Measures. A pre-construction survey shall be conducted by a qualified biologist no more than seven (7) days prior to the proposed disturbance within 325 feet of perennial water sources at both the Centennial and Brunswick Industrial Sites. The survey(s) shall include a search of these suitable habitat areas for western pond turtle nests and mature adults. If the pre-construction survey does not detect western pond turtle, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required. If a western pond turtle is found, it should be allowed to move out of the way of the disturbance zone on its own or a qualified wildlife biologist with a CDFW handling permit for the species can move individuals out of the disturbance areas to avoid impacting this species.

If a nest is documented during pre-construction surveys, a non-disturbance buffer shall be established, as determined by a qualified biologist, based on the location of the nest until all eggs have hatched and the juveniles have dispersed out of the proposed impact area.



Watercourse/Wetlands/Riparian Areas Management Plans. The applicant shall implement the mitigation measures identified in the Aquatic Resources Management Plans for the Centennial Industrial Site and Brunswick Area, pursuant to Mitigation Measure 4.4-3, which include measures designed to protect aquatic resources and the biological resources they support. Such measures generally include, but are not limited to, mitigation for encroachment into non-disturbance buffers, restoration of impacted areas within stream zones, implementation of BMPs during construction, and post construction erosion control.

California Red-Legged Frog

4.4-2(c) Pre-construction Survey and Avoidance and Minimization Measures. A qualified wildlife biologist approved by USFWS shall conduct preconstruction surveys within areas of suitable habitat on both the Centennial and Brunswick Industrial Sites in accordance with The Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog (USFWS Guidance, August 2005) to avoid disturbance and take of the species. This Guidance recommends a total of up to eight (8) surveys to determine the presence of CRLF at or near a project site. If the protocol surveys do not detect CRLF, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required.

If CRLF are identified during the pre-construction surveys, coordination and consultations with the USFWS shall be required through a FESA Section 7 or Section 10 process. As part of the consultation process, specific avoidance, minimization, and mitigation measures shall be required to be implemented, which could include, but may not be limited to the following: additional pre-construction surveys and daily monitoring to ensure that the proposed site disturbance will not disturb individual CRLF, environmental awareness training to contractors working within or adjacent to CRLF habitat, and exclusionary fencing installation between CRLF aquatic habitat and disturbance areas.

Additionally, a Habitat Management Plan (HMP) shall be required for any state or federally listed special-status wildlife species if documented within the Centennial or Brunswick Industrial Sites. The HMP would be developed for the special-status species as part of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12 and it would include the avoidance, minimization, and mitigation measures outlined above and as part of any coordination or consultation with the USFWS compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12.

Watercourse/Wetlands/Riparian Areas Management Plans. The applicant shall implement the mitigation measures identified in the Aquatic Resources Management Plans for the Centennial and Brunswick Industrial Sites, pursuant to Mitigation Measure 4.4-3, which include measures designed to protect aquatic resources and the biological resources they



support. Such measures generally include, but are not limited to, mitigation for encroachment into non-disturbance buffers, restoration of impacted areas within stream zones, implementation of BMPs during construction, and post construction erosion control.

California Black Rail

4.4-2(d) Pre-construction Survey and Avoidance and Minimization Measures. Pre-construction surveys for California black rail shall be conducted by a qualified biologist prior to the implementation of any ground disturbance within or directly adjacent to any perennial marsh habitat within the Centennial and Brunswick Industrial Sites. The pre-construction surveys for this species shall occur no more than fourteen (14) days prior to any such disturbance within or directly adjacent to the species habitat. The pre-construction surveys shall include conducting call back/response surveys. This species is most active between two hours before and three hours after sunrise; therefore, surveys shall start at sunrise and continue no later than 0930. If evening surveys are to be conducted, they shall be paired with a morning survey, and all sites shall have surveys conducted at both time periods. The preferred method for conducting surveys via the call-back/response protocol of Evens et al (1991). If the pre-construction survey does not detect evidence of California black rail, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required. If a positive call back is identified during the surveys, then the species is assumed to be present and the area shall be avoided from disturbance in order to avoid impacts to individuals of the species, if feasible.

Given the species is a CESA listed species, coordination with CDFW shall occur if a positive response to the call-back/response surveys occurs and if any proposed disturbance may impact the species. Any area containing this species would likely need to be avoided in order to avoid impacts to and take of this species, if feasible, or additional mitigation measures would be required in coordination with CDFW to minimize and avoid impacts to such species. Additional avoidance measures could include, but may not be limited to the following: environmental awareness training, daily construction monitoring by a CDFW qualified biologist when disturbance related activities occur within or directly adjacent to the species habitat, and exclusionary fencing installation between the species habitat and the proposed disturbance areas. Additionally, an ITP could be required by CDFW if complete avoidance of the species is not feasible. Areas where no positive response to the call-back/response surveys are assumed to not contain individuals of the species and therefore, disturbance in those areas would have no impact on this species.

Watercourse/Wetlands/Riparian Areas Management Plans. The applicant shall implement the mitigation measures identified in the Aquatic Resources Management Plans for the Centennial and Brunswick Industrial Sites, pursuant to Mitigation Measure 4.4-3, which include measures designed to protect aquatic resources and the biological resources they



support. Such measures generally include, but are not limited to, mitigation for encroachment into non-disturbance buffers, restoration of impacted areas within stream zones, implementation of BMPs during construction, and post construction erosion control.

Coast Horned Lizard

4.4-2(e) Pre-construction Survey and Avoidance and Minimization Measures. A pre-construction survey shall be conducted by a qualified biologist no more than seven (7) days prior to disturbance within the areas of the Centennial and Brunswick Industrial Sites that contain disturbed or developed surfaces and annual grassland vegetation community. If the pre-construction survey does not show evidence of coast horned lizard, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required.

If the species is documented during pre-construction survey(s), a qualified wildlife biologist (approved by CDFW) shall move individual coast horned lizards outside of the proposed disturbance area(s) in order to avoid an impact to this species. Once the coast horned lizard(s) have been removed from the disturbance area(s) and out of harm's way, the proposed work would no longer pose a risk to individuals of the species.

Special-Status Bats

4.4-2(f) Pre-construction Survey and Avoidance and Minimization Measures. A pre-construction bat roosting survey shall be conducted by a qualified biologist no more than seven (7) days prior to disturbance of any structures or riparian and forested woodlands within the Centennial Industrial Site and Brunswick Area to identify the presence or absence of roosting bats. If the pre-construction survey does not show evidence of roosting bats, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required.

If any Townsend's big-eared bats (or any other species of bat, including the hoary and pallid bat) are identified during roosting surveys, passive removal of the roosting bats prior to disturbance to structures and riparian and forested woodlands shall be implemented to avoid impacts to this species. Passive removal includes allowing roosting bats to freely leave the roost site (riparian and forested woodlands and any structure). Once the roosting bats have been passively removed from the structure(s) and riparian and forested woodlands, the structure(s) would be closed off from recurring bat roosting within the structure(s) and the proposed work within the structure(s) would no longer pose a risk to individuals of the species. For riparian and forested woodlands containing bat roosts, the removal of trees associated with such woodlands would only occur once the bats leave the day roosts. Furthermore, if a maternal (breeding) roost is documented, no disturbance shall occur until the breeding roost has dispersed from the structure or riparian and forested woodlands they are found in.



Non-Special Status Raptors and Migratory Birds

4.4-2(g) Pre-construction Survey and Avoidance and Minimization Measures. Prior to initiation of ground-disturbing activities for any phase of project construction, if construction is expected to occur during the raptor nesting season (February 1 to August 31), a qualified biologist shall conduct a preconstruction survey prior to vegetation removal. The pre-construction survey shall be conducted within 7 days prior to commencement of ground-disturbing activities. The survey shall be conducted within all areas of proposed disturbance and all accessible areas within 250 feet of proposed disturbance. If the pre-construction survey does not show evidence of active nests, a letter report documenting the results of the survey shall be provided to the Nevada County Planning Department, and additional measures are not required. If construction does not commence within 7 days of the pre-construction survey, or halts for more than 14 days, an additional pre-construction survey shall be required.

If any active nests are located within the proposed disturbance area, an appropriate buffer zone shall be established around the nests, as determined by the project biologist. The biologist shall mark the buffer zone with construction tape or pin flags and maintain the buffer zone until the end of breeding season or the young have successfully fledged. Buffer zones are typically 100 feet for migratory bird nests and 500 feet for raptor nests. If active nests are found within the disturbance footprint, a qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. Guidance from CDFW shall be required if establishing the typical buffer zone is impractical. If construction activities cause the nesting bird(s) to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the exclusionary buffer shall be increased, as determined by the qualified biologist, such that activities are far enough from the nest to stop the agitated behavior. The exclusionary buffer shall remain in place until the young have fledged or as otherwise determined by a qualified biologist.

4.4-3 Have a substantial adverse effect on riparian habitat or other sensitive natural community, or State or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Based on the analysis below and with implementation of mitigation, the impact is less than significant.

Centennial Industrial Site

Under baseline conditions that assume completion of the separate Centennial Industrial Site Clean-Up Project, as discussed previously, the placement of engineered fill at the Centennial Industrial Site as part of the proposed Idaho-Maryland Mine Project is not anticipated to have any impacts on mapped wetlands within the Centennial Industrial Site, given that any fill or dredge of mapped wetlands within the Centennial Industrial Site would occur as part of the separate remediation project approved through DTSC,



prior to the development of the proposed project. DTSC is the lead agency for a separate CEQA review of the remediation activities, and through such process, DTSC will require the applicant to mitigate for impacts for wetlands, pursuant to federal and state laws governing such resources.

Table 4.4-9 below includes the disturbance impacts to mapped streams within the Centennial Industrial Site from the implementation of the proposed project. The disturbance area is graphically illustrated in Figure 4.4-9. The project-specific impacts are discussed in more detail in what follows.

Table 4.4-9 Area of Disturbance to Mapped Streams within the Centennial Industrial Site (Post-Remediation Baseline)			
Stream Type	Wetland ID Number	Size (Acres)	Maximum Potential Impact by Proposed Project (Acres)
Perennial Stream	Wolf Creek – 1	0.377	--
Ephemeral Stream	E – 3	0.015	0.015
Ephemeral Stream	E – 4	0.018	0.018
	TOTAL	0.41	0.033

Permanent fill to streams from construction and grading of engineered fill industrial pad.

Construction and grading related to the placement of engineered fill on the Centennial Industrial Site would cause permanent impacts to two mapped stream features (E-3 and E-4) and their associated 50-foot non-disturbance buffer zone. The two features consist of two ephemeral streams. It is estimated that a maximum of approximately 0.033-acre of streams would be permanently filled.

The impacted stream features convey site drainage in developed or disturbed areas, or immediately adjacent to developed and disturbed areas of the Centennial Industrial Site. The ephemeral stream feature E-3 transmits site drainage from the southern area of the Centennial Industrial Site towards the north. Ephemeral stream feature E-4 drains from the hills along the western edge of Centennial Industrial Site, coming from runoff off of the DeMartini RV Sales site and flowing northeast until it connects with the large wet meadow wetland (WM-5).

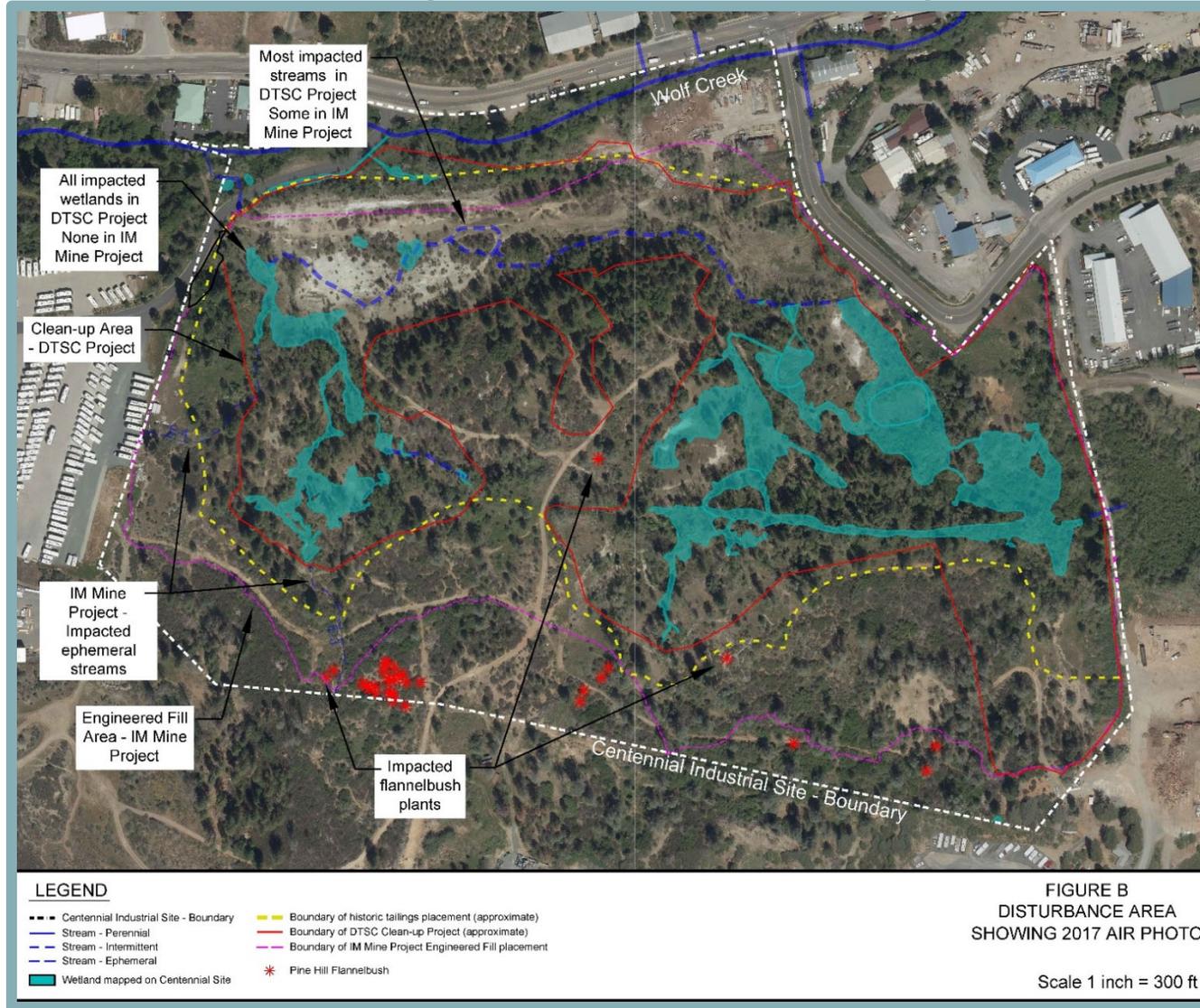
Site construction activities may encroach on 100-foot non-disturbance buffer of Wolf Creek.

Pre-construction activities and grading near the toe of the engineered fill pad on the Centennial Industrial Site may cause temporary impacts to the 100-foot non-disturbance buffer of Wolf Creek (perennial creek). All construction activities would remain outside the Special Flood Hazard Area as pursuant to FEMA regulations.

Temporary or permanent impacts would not occur to Wolf Creek from project development; however, this potential temporary impact is being included within this analysis in the event that temporary encroachment within the Wolf Creek 100-foot non-disturbance buffer would be required as part of construction.



Figure 4.4-9
Centennial Industrial Site: Proposed Disturbance Area and Aquatic Feature Impacts



Brunswick Area

Several aquatic features are present within the Brunswick Area, only one of which – a roadside ditch – occurs along East Bennett Road. These existing features are shown in Figure 4.4-4 and Figure 4.4-5. Table 4.4-10 and Table 4.4-11 below include the estimated disturbance on mapped wetlands and streams within the Brunswick Area, according to the Brunswick Industrial Site and East Bennett Road ROW Aquatic Resources Delineation of Waters of the United States and State of California (Greg Matuzak Environmental Consulting LLC, 2020) in comparison to the proposed on- and off-site improvements. The disturbance area is graphically illustrated in Figure 4.4-10. The project-specific impacts are discussed in more detail in what follows.

No.	Wetland Type	Wetland ID Number	Size (Acres)	Area of Disturbance (Acres)
1	Meadow wetland	WM-1	0.02	0.02
2	Meadow wetland	WM-2	0.01	0.01
3	Meadow wetland	WM-3	0.01	0.01
4	Meadow wetland	WM-4	6.93	-----
5	Marsh	MA-1	0.1	0.1
6	Marsh	MA-2	0.3	0.3
7	Marsh	MA-3	0.02	0.02
8	Marsh	MA-4	0.007	0.007
9	Marsh	MA-5	0.05	0.05
10	Marsh	MA-6	0.02	0.02
11	Riparian	RI-1	0.03	0.03
12	Riparian	RI-2	0.76	-----
13	Riparian	RI-3	0.37	-----
14	Roadside Wetland	RW-1	0.09	-----
14	-----	TOTAL	8.72	0.57 acres

No.	Stream Type	Stream ID Number	Size (Acres)	Estimated Disturbance (acres and linear feet)
1	Perennial Stream	South Fork Wolf Creek – 1	0.59	15 lf. (0.01 acres) * 40 lf. (0.04 acres) *
2	Perennial Drainage	P – 1	0.16	-----
3	Intermittent Stream	I – 1	0.05	-----
4	Intermittent Stream	I – 2	0.002	-----
5	Intermittent Stream	I – 3	0.006	-----
6	Intermittent Stream	I – 4	0.003	-----
7	Intermittent Stream	I – 5	0.004	33.5 lf. (0.002 acres)
8	Ephemeral Stream	E – 1	0.01	16 lf. (0.0007 acres)
9	Ephemeral Stream	E – 2	0.05	188 lf. (0.05 acres)
9	-----	TOTAL	0.88	293 lf. (0.103 acres) **

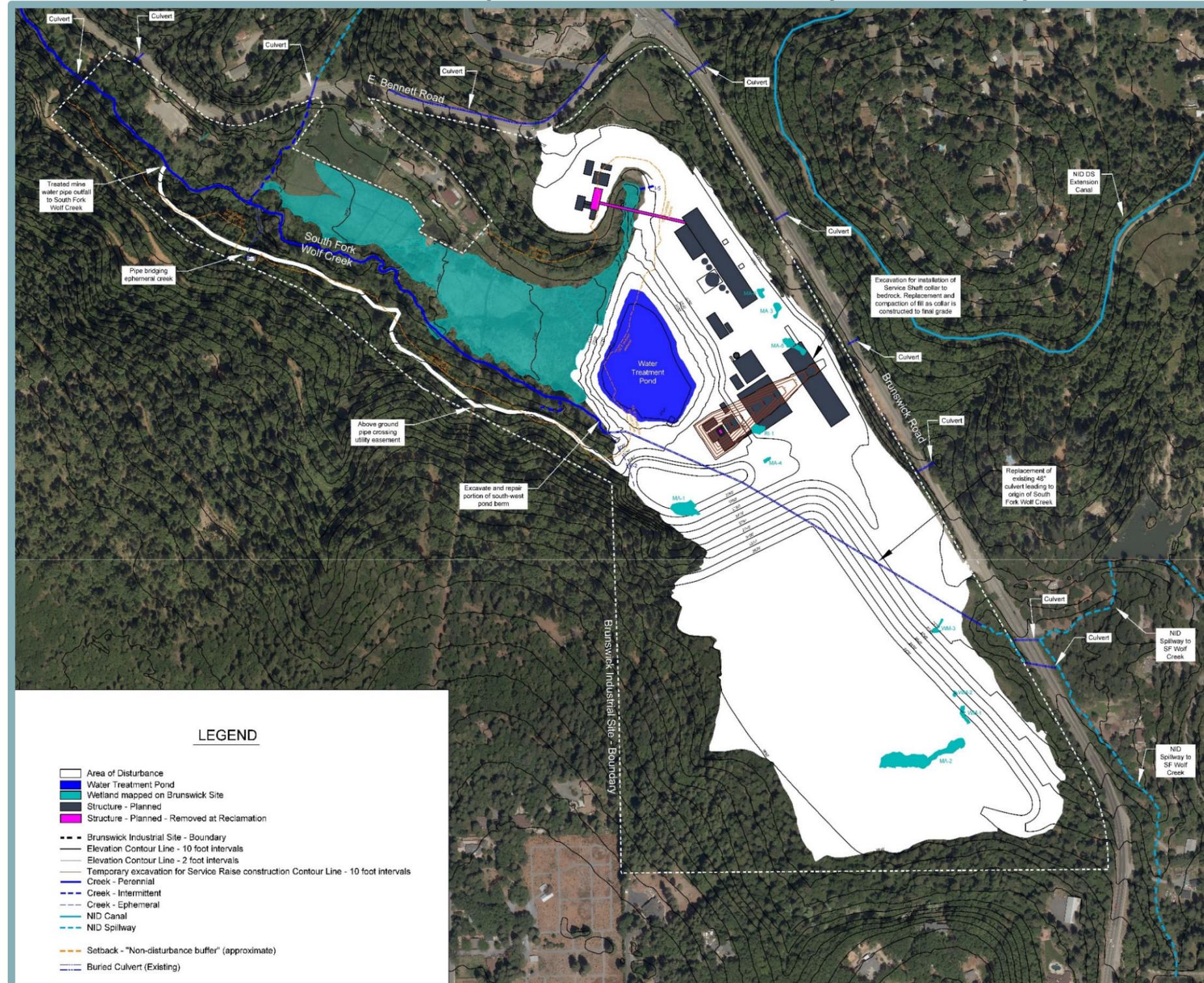
Notes:

* impacts estimated at 0.01-acre (permanent) and 0.04-acre (temporary)

** impacts estimated at 0.062-acre (permanent) and 0.041-acre (temporary)



**Figure 4.4-10
 Brunswick Industrial Site: Proposed Disturbance Area and Aquatic Feature Impacts**



The existing clay-lined pond (referred to as PD-1 in the Matuzak Environmental Aquatic Resources Delineation) associated with prior saw milling operations does not have a direct outlet or connection to the South Fork Wolf Creek. PD-1 contains a 2-foot clay liner to limit any potential infiltration and receives its water mainly from surface runoff and precipitation.

PD-1 is a manmade pond used previously as a recycling pond for site runoff containment and log watering during mill operations. PD-1 is non-jurisdictional pursuant to federal CWA regulations given it receives water from sheet flow within the Brunswick Industrial Site and does not connect directly or indirectly with South Fork Wolf Creek or any other "waters of the U.S." and therefore, it does not receive water from or connect to a "waters of the U.S."

Construction of Treated Mine Water Outfall to South Fork Wolf Creek

Pursuant to Nevada County LUDC Section L-II 4.3.17, South Fork Wolf Creek (perennial stream) has a 100-foot non-disturbance buffer zone. The proposed treated mine water discharge pipe outfall would be placed within or adjacent to South Fork Wolf Creek. Construction of the outfall may cause approximately 15 linear feet of permanent impact (approximately 0.01-acre) to the southern bank of the creek from placement of the pipe and modification of the stream bank to ensure adequate energy dissipation and erosion protection.

Placement of the discharge pipeline connecting the proposed outfall within the southern bank of the South Fork Wolf Creek may cause a "temporary impact" to the non-disturbance buffer zone during construction or placement of the pipeline. The pipeline has been routed along an existing access road to minimize the potential impacts to non-disturbance setback environments.

Replacement of deteriorated culvert at South Fork Work Creek

The deteriorated 48-inch buried culvert that runs underneath the Brunswick Industrial Site would be replaced and upgraded as part of the proposed project. It is estimated that the culvert replacement may have a temporary impact area of 40 foot. x 40 foot. (0.04-acre) within or adjacent to South Fork Wolf Creek. This would cause a temporary impact during replacement and existing conditions would be re-established once the culvert is replaced.

Repair of existing clay lined pond berm will require work in the 100-foot non-disturbance buffer near the head of South Fork Wolf Creek

The project includes excavation and reconstruction of a segment of the berm of the existing clay-lined pond to remove pockets of sawdust not removed during prior construction. This segment of the pond berm is located adjacent to South Fork Wolf Creek and in the 100-foot non-disturbance buffer zone of South Fork Wolf Creek. This crest of the berm would be paved to provide a surfaced access road along the perimeter of the pond and a section of the pond berm is within the 100-foot non-disturbance buffer zone of South Fork Wolf Creek and the adjacent wetland meadow. The paved perimeter access road would be cross-sloped to drain water into the pond rather than towards the creek or wetland meadow.



Treated water pipe placement will cross an ephemeral stream (E-1)

The proposed treated mine water discharge pipe is an aboveground pipe that would be located along an existing access road on the south side of South Fork Wolf Creek. The existing access road crosses the ephemeral stream feature E-1. A support structure would be constructed across the ephemeral stream (E-1) so that the pipe crosses over the two-foot wide stream instead of through the stream, which may cause a temporary impact to approximately 16 linear feet of the stream.

Riparian vegetation, if present along the existing access road, may be impacted from placement of the discharge pipe. The pipeline has been routed along an existing access road to minimize the potential impacts to riparian environments, as well as the 50-foot non-disturbance buffer of the ephemeral stream (pursuant to Nevada County LUDC Section L-II 4.3.17).

Site grading will encroach on intermittent stream (I-5)

Grading of the site for construction preparation would cause a permanent impact to approximately 34 linear feet of the intermittent stream feature I-5, which has a 50-foot non-disturbance buffer zone pursuant to Nevada County LUDC. This mapped intermittent stream feature originates from a culvert which transports surface drainage from the northeastern portion of the Brunswick Industrial Site. The intermittent stream extends to a drainage gully which is identified as a riparian wetland. Proposed construction activities would require extension of the existing culvert so that flow of surface drainage is not interrupted.

Engineered fill industrial pad will encroach on ephemeral stream (E-2)

Currently, the ephemeral stream feature E-2 transmits site drainage from the southeastern hills, as well as off-site drainage, which eventually flows into South Fork Wolf Creek.

Placement of engineered fill material would cause surface disturbance on the eastern area of the site. The industrial pad would include a surface detention pond to manage storm water drainage. The construction extents of the surface detention pond would cause a permanent impact to approximately 188 linear feet of ephemeral stream feature E-2, which has a 50-foot non-disturbance buffer zone pursuant to Nevada County LUDC. Following construction, site drainage would continue to drain to the lower reaches of ephemeral stream feature E-2 and subsequently South Fork Wolf Creek, similar to pre-construction conditions.

Permanent fill to small wetlands from construction and grading

Construction and grading from surface facilities and the engineered fill industrial pad on the Brunswick Industrial Site would cause permanent impacts to ten (10) mapped wetland features (WM-1, WM-2, WM-3, MA-1, MA-2, MA-3, MA-4, MA-5, MA-6, and RI-1), which have a 100-foot non-disturbance buffer zone pursuant to Nevada County LUDC. The 10 wetland features consist of three meadow wetlands, seven marsh wetlands, and one riparian wetland. It is estimated that approximately 0.57-acre of mapped wetlands would be permanently filled.

The impacted wetland features are small wetlands located in already developed or disturbed areas or immediately adjacent to developed or disturbed areas of the



Brunswick Industrial Site. Wetland features MA-1 and MA-2 have developed in site drainage features, constructed by previous operations, that connect to culverts as part of the existing management of surface drainage on the site.

Watercourse/Wetlands/Riparian Areas Management Plans

Due to the fact that certain project improvements would encroach within the non-disturbance buffer zones required for aquatic features pursuant to Nevada County LUDC, Chapter II; Zoning Regulations, Section L-II 4.3.17 (Ordinance Number 2033), management plans have been prepared for the Centennial Industrial Site and Brunswick Area. These Watercourse, Wetlands, and Riparian Areas Management Plans include recommended mitigation and conditions, generally including obtaining resource agency permits and complying with permit conditions (e.g., habitat replacement), BMPs related to encroachment into non-disturbance buffers, restoration of South Fork Wolf Creek and Wolf Creek impacted areas, where feasible, and post construction erosion control.

Any temporary impacts to the stream zones within the Centennial and Brunswick Industrial Sites, including riparian habitat, would be required to be restored to pre-construction contours and revegetated immediately following construction. Site restoration would include all exposed/disturbed areas and access points within any stream as a result of the disturbance activities (pipeline, outfall, new culvert, etc.). These areas shall be restored using locally native vegetation.

Conclusion

Based on the above, implementation of the proposed project at the Centennial Industrial Site and Brunswick Industrial Site, and East Bennett ROWs could have a substantial adverse effect on riparian habitat and/or other sensitive natural communities and/or have a substantial adverse effect on State or Federally protected aquatic resources (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filling, hydrological interruption, or other means. Thus, a **significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

- 4.4-3(a) *Prior to initiation of ground-disturbing activities, the applicant shall provide a US Army Corps of Engineers (Corps) verification letter to the Nevada County Planning Department, indicating Corps' concurrence with the total acreage of jurisdictional waters that would be impacted within the Centennial Industrial Site and Brunswick Area as a result of the proposed project.*
- 4.4-3(b) *The applicant shall implement the Watercourse/Wetlands/Riparian Areas Management Plans prepared for the Centennial Industrial Site and Brunswick Area, as approved in their final form by Nevada County. Specifically, the applicant shall implement the mitigation measures and conditions identified in the Management Plans, which include measures designed to protect aquatic resources and the biological resources they support. Such measures generally include, but are not limited to, the following and shall be implemented in accordance with their specified*



timing (e.g., either prior to, during, or after ground disturbance activities within non-disturbance buffers):

- **Encroachment into the Non-Disturbance Buffers**
 - Limit construction to periods of extended dry weather and the dry summer season, if feasible;
 - Establishing the areas around active stream channels and wetlands as Environmentally Sensitive Area where those areas will not be impacted by construction or thereafter;
 - No fill or dredge material will enter or be removed from any wetlands or streams except for those identified in Table 4.0 and Table 5.0 in the Management Plans during construction and thereafter;
 - Use appropriate machinery and equipment to limit disturbance within and directly adjacent to these areas;
 - Placement of soil erosion control devices (such as wattles, hay bales, etc.) between the protected aquatic resources (wetlands and streams) and the areas to be graded and disturbed to limit potential runoff and sedimentation into such protected resources;
 - Dewatering of any streams that will be required to occur as part of the proposed disturbance within the Brunswick Area must include a Water Diversion Plan and be approved by CDFW prior to the implementation of such dewatering activities; and
 - Implement Best Management Practices during and following construction.

- **Restoration of Areas Adjacent to Impacted Streams**

- Centennial Industrial Site

- Placement of rock and rip rap along the embankment of Wolf Creek should be avoided given the proposed Centennial Site Idaho-Maryland Mine Project will not encroach into Wolf Creek;
 - Some rock and rip rap can be placed at the top of the embankment of the ephemeral and intermittent streams within the Centennial Site Idaho-Maryland Mine Project, if needed, to protect the embankment(s) from erosion after construction is completed. This would potentially be implemented for ephemeral and intermittent streams that will not be completely filled or impacted and occur directly adjacent to the proposed fill of those streams; and
 - Plant willow cuttings from the adjacent willow trees and other native shrubs and riparian trees along the embankments of streams not being impacted and filled as needed. A revegetation plan will be a requirement of the CDFW Streambed Alteration Agreement that will include impacts to the bed and bank, of any stream within the Centennial Site Idaho-Maryland Mine Project Area. Implementation of General and Project Specific Conditions will be required for all permits for the proposed project.



Brunswick Area

- *Placement of rock and rip rap along the embankment of the South Fork Wolf Creek should be minimized to reduce the footprint of such impacts to the perennial creek and its embankments;*
- *Some of the rock and rip rap can be placed at the top of the embankment of the South Fork Wolf Creek to protect the embankment from further erosion during restoration of the riparian zone and embankment on the southern side of the perennial stream.*
- *Plant willow cuttings from the adjacent willow trees and other native shrubs and riparian trees along the embankment and broadcast seed the embankment with local, native grass seed. A revegetation plan will be a requirement of the CDFW Streambed Alteration Agreement that will include impacts to the bed and bank, of any stream within the Brunswick Area. Implementation of General and Project Specific Conditions will be required for all permits for the proposed project.*
- **Implement BMPs During Construction**
 - *Minimize the number and size of work areas for equipment and spoil storage sites in the vicinity of any streams and wetlands that will not be disturbed by project development. Place staging areas and other work areas outside of the 50-foot non-disturbance buffers of ephemeral and intermittent aquatic resources and 100-foot non-disturbance buffers of perennial aquatic resources.*
 - *The applicant shall exercise reasonable precaution to protect the aquatic resources within the Centennial Industrial Site and Brunswick Area, as well as the adjacent non-disturbance buffers of such aquatic resources, from pollution with fuels, oils, and other harmful materials. Construction byproducts and pollutants such as oil, cement, and wash water shall be prevented from discharging into or near these resources and shall be collected for removal off the site. All construction debris and associated materials and litter shall be removed from the work site immediately upon completion.*
 - *No equipment for vehicle maintenance or refueling shall occur within the 50-foot and 100-foot non-disturbance buffers. The contractor shall immediately contain and clean up any petroleum or other chemical spills with absorbent materials such as sawdust or kitty litter. For other hazardous materials, follow the cleanup instruction on the label.*
- **Implement Post Construction Erosion Control**
 - *Exposed bare soil along the embankment of South Fork Wolf Creek, where the outfall and dissipation rip rap will occur, as well as the embankment of Wolf Creek and any exposed bare soil adjacent to the other mapped aquatic resources within the Centennial Industrial Site and Brunswick Area, including their*



50-foot and 100-foot non-disturbance buffers, shall be protected against loss from erosion by the seeding of an erosion control mixture and restored with native grasses and mulching pursuant to Nevada County and regulatory agency guidelines. Non-native species that are known to invade wild lands, such as orchard grass, velvet grass, rose clover, winter and spring vetch, and wild oats shall not be used as they displace native species.

- 4.4-3(c) *To the extent feasible, as determined by the qualified biologist in coordination with the Corps, the project shall be designed to avoid and minimize adverse effects to waters of the U.S. or jurisdictional waters of the State of California within the project area. Prior to initiation of ground-disturbing activities, a Section 404 permit for fill of any jurisdictional wetlands within the Centennial Industrial Site and Brunswick Area shall be acquired, and mitigation for impacts to jurisdictional waters that cannot be avoided shall conform with the Corps “no-net-loss” policy, and be based on the final impact acreages verified by the Corps. Mitigation for impacts to both federal and State jurisdictional waters shall be addressed using these guidelines. Compensatory mitigation can include but is not limited to the following: onsite and/or offsite wetland creation and/or restoration, purchase or placement of conservation easements, payment of an in-lieu fee, and/or purchase of mitigation credits at an approved Corps wetland mitigation or conservation bank.*

The applicant must also obtain a water quality certification from the RWQCB under Section 401 of the Clean Water Act (CWA). Written verification of the Section 404 permit and the Section 401 water quality certification shall be submitted to the Nevada County Planning Department.

- 4.4-3(d) *Prior to initiating of ground disturbing activities within the non-disturbance buffers for aquatic resources on the Centennial Industrial Site and Brunswick Area, the applicant shall apply for a Section 1600 Lake or Streambed Alteration Agreement from CDFW. Impacts to CDFW 1600 jurisdictional areas shall be outlined in the application and are expected to be in substantial conformance with the impacts to biological resources outlined in this EIR (see Tables 4.4-9 through 4.4-11). Impacts for each activity shall be broken down by temporary and permanent, and a description of the proposed mitigation for biological resource impacts shall be outlined per activity and then by temporary and permanent. Minimization and avoidance measures within jurisdictional areas shall be proposed as appropriate and may include: preconstruction species surveys and reporting, protective fencing around avoided biological resources, worker environmental awareness training, seeding disturbed areas immediately adjacent to riparian areas with native seed, and installation of project-specific storm water BMPs. Mitigation may include restoration or enhancement of jurisdictional resources on- or off-site, purchase of habitat credits from an agency-approved mitigation/conservation bank, off-site or on-site conservation easements,*



working with a local land trust to preserve aquatic or riparian areas, or any other method acceptable to CDFW.

A site revegetation plan would be required to be developed and approved by CDFW as part of a Streambed Alteration Agreement permit condition and native trees planned for removal with a diameter at breast height of 4 inches or greater would need to be mitigated for through planting of native riparian trees within adjacent stream zones not being impacted by the Idaho-Maryland Mine Project, with clear success criteria identified, monitoring and reporting required, and corrective actions to be taken if mitigation measures do not meet the proposed success criteria.

Written verification of the Section 1600 Lake or Streambed Alteration Agreement shall be submitted to the Nevada County Planning Department.

4.4-4 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Based on the analysis below, the impact is *less than significant*.

Movement corridors serve two primary purposes: first, to enable migratory animals, especially deer, to move seasonally from and between winter and summer habitats, and second, to allow animals to move within their home range or residence areas. Seasonal corridors also sustain overall habitat values and insure population density and diversity. These corridors are not necessarily individual paths, but can also be characterized as zones or corridors through which animals move. In the case of deer, the corridors serve to link winter and summer habitats which serve the life cycle of the animal. In general, animal movement generally occurs along riparian corridors and/or low-lying “saddles” which connect various micro-habitat areas. The creeks, streams and drainages in the County constitute riparian corridors which are capable of support, for both migratory and resident wildlife movement.

The deer population in Nevada County is made up of both resident and migrating animals. The western portion of the county supports both resident deer and winter populations of migrating deer. The western portion of the County supports the migratory Nevada City deer herd, as well as resident populations of the Motherlode deer herd. Winter ranges of the Nevada City and Motherlode herds often overlap.

Known migratory deer ranges outlined in the Nevada County General Plan were reviewed for deer migration corridors, critical range, and critical fawning areas. According to the Migratory Deer Ranges Nevada County General Plan map, the Centennial Industrial Site and Brunswick Area are located in an area of potential Deer Winter Range.²⁹ The field surveys did not record any observations of deer. The Centennial Industrial Site and Brunswick Area do not contain any known major deer migration corridors, known deer holding areas, nor critical deer fawning areas.

²⁹ Nevada County. *Nevada County General Plan, Volume 2: Background Data and Analysis* [Figure 5]. 1996.



The primary movement corridor within the Brunswick Industrial Site is South Fork Wolf Creek and its associated riparian zone. With little exception, South Fork Wolf Creek and its riparian zone would remain intact, and while limited improvements (e.g., treated water pipe outfall installation, culvert replacement) would occur within the non-disturbance buffer zones required pursuant to the Nevada County LUDC, the Creek and its riparian zone would be able to continue to serve as a movement corridor for wildlife. In addition, the Watercourse/Wetlands/Riparian Areas Management Plan for the Brunswick Area requires restoration of impacted areas within the non-disturbance buffer zone.

The primary movement corridor within the Centennial Industrial Site is Wolf Creek and its associated riparian zone. With the possible exception of limited grading disturbance around the toe of the engineered fill pad, no other proposed improvements would impact the non-disturbance buffer zone associated with Wolf Creek required pursuant to Nevada County LUDC. The Creek and its riparian zone would be able to continue to serve as a movement corridor for wildlife. In addition, the Watercourse/Wetlands/Riparian Areas Management Plan for the Centennial Industrial Site requires restoration of impacted areas within the non-disturbance buffer zone.

Given the above, the proposed project would not interfere substantially with the movement of any wildlife and a *less-than-significant* impact would result.

Mitigation Measure(s)

None required.

4.4-5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, or have a substantial adverse effect on the environment by converting oak woodlands. Based on the analysis below, the impact is *less than significant*.

According to Nevada County LUDC, Chapter II; Zoning Regulations, Section L-II 4.3.18, for Trees, landmark trees are any native oak tree species (*Quercus* species) with a trunk diameter of 36 inches or greater at DBH, or four feet six inches. This section identifies landmark groves as hardwood tree groves with 33+ percent canopy closure, or groves whose size, visual impact, or association with a historically significant structure or event has caused it to be marked for preservation by the county, state, or federal government.

Projects shall be approved only when they do not remove or disturb defined trees or groves, unless a Management Plan is prepared consistent with the Nevada County LUDC for such trees. The Centennial Industrial Site and Brunswick Area Biological Reports do not include an assessment of or proposed mitigation for potential impacts to such protected oak resources given the Centennial Industrial Site and Brunswick Area do not contain protected oak resources pursuant to the Nevada County LUDC, which would require such an assessment and Management Plan.³⁰

³⁰ Greg Matuzak Environmental Consulting, LLC. *Centennial Industrial Site Biological Resources Assessment* [pg. 5-16]. January 2021; Greg Matuzak Environmental Consulting LLC. *Brunswick Industrial Site and East Bennett Road Right of Way (ROW) Biological Resources Assessment* [pg. 5-13]. October 2020.



Additionally, the Centennial Industrial Site and Brunswick Area do not contain protected oak resources pursuant to the State of California oak woodlands protections set forth in PRC Section 21083.4. Though the Centennial Industrial Site and Brunswick Area contain several species of native oak trees, the conifer and hardwood woodlands within the Centennial Industrial Site and Brunswick Area are dominated by ponderosa pine, incense cedar, Douglas fir, and madrone. The most dominant native oak tree within the Centennial Industrial Site and Brunswick Area is the California black oak and it was not identified in the densities required to grant them protection under State of California law (10 percent canopy cover requirement) or under the Nevada County LUDC (minimum 33 percent canopy cover).

Considering that the proposed project would not involve removal of landmark trees nor landmark groves protected under local regulations, the proposed project would not conflict with local policies and/or ordinances that protect biological resources, including tree resources. Therefore, a **less-than-significant** impact could occur.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

For further detail related to the cumulative setting of the proposed project, refer to Chapter 5, Statutorily Required Sections, of this EIR.

4.4-6 Cumulative loss of habitat for special-status species. Based on the analysis below and with implementation of mitigation, the project's incremental contribution to cumulative biological resources impacts is less than cumulatively considerable.

The following section discusses the cumulative list of projects that could produce related effects to biological resources in combination with the proposed project. A total of 12 of the cumulative projects are located within the City of Grass Valley, the majority of which are consistent with the City's General Plan, and thus, cumulative biological resources impacts attributable to these projects have been accounted for in the City's General Plan EIR. The City of Grass Valley General Plan EIR found that while buildout of the General Plan³¹ would have the potential to result in significant impacts to biological resources, these impacts would be reduced to a less-than-significant level through compliance with the policies and standards identified in the General Plan. For example, the General Plan EIR found that with a requirement that development cause no net loss of habitat functions or values through avoidance of the resource, or through creation or restoration of habitat of superior or comparable quality, in accordance with guidelines of the USFWS and the CDFW, cumulative impacts to habitat would be reduced to a less-than-significant level. Specifically, the General Plan EIR found that potential cumulative impacts related to loss of habitat, particularly for sensitive species, loss of wetlands, and adverse effects on movement and dispersal of wildlife and wildlife migration corridors

³¹ It is noted that Loma Rica Ranch Specific Plan, the largest cumulative project, is identified as a "Special Development Area" in the Grass Valley General Plan (Figure 3-4), and thus development within this area, and related impacts to biological resources, was considered in the General Plan EIR.



would all be reduced to less-than-significant levels through compliance with the General Plan and City ordinances.

Based on the Grass Valley General Plan EIR's cumulative biological resources analysis, the Dorsey Marketplace Draft EIR, which evaluates a project for which a General Plan Amendment is required, concluded that "Thus, there would be no significant cumulative impact to which the project could contribute. Further, implementation of Mitigation Measures 6a through 6f would ensure that the project would result in no net loss of habitat functions or values..."³² Generally, the measures included in the Dorsey Marketplace Draft EIR require protection of special-status species and replacement of impacted wetland and woodland habitats.

The remaining eight cumulative projects are located within unincorporated Nevada County. Several of these project sites include one or more natural habitats that could be partially impacted should development ultimately occur as planned (excludes the 12836 Greenhorn Road site which was not found to contain habitats supporting special-status species). For example, Housing Element Rezone Site 3 contains a perennial stream along its southern boundary, and as such, an Environmentally Sensitive Area was designated on the southern portion of the site in the Housing Element Rezone Implementation Program EIR.³³ Mitigation Measures in the EIR require special-status plant and wildlife surveys for Site 3, and if detected, implementation of avoidance and minimization measures. Unlike Site 3, Site 5 does not contain any designated Environmentally Sensitive Areas. Nevertheless, due to the presence of Sierran mixed conifer habitat, the EIR requires implementation of preconstruction wildlife surveys, and depending upon survey results, implementation of avoidance and minimization measures. The 30-acre Tranquility Lane Estates project site along Idaho-Maryland Road contains Lava Cap habitat and two old growth trees; these sensitive habitats are within protected open space on the tentative final map. Potential impacts to migratory birds through removal of other vegetation would be addressed by mitigation requiring preconstruction surveys and nest avoidance. The 152-acre South Woodlands Subdivision project site is located east of the Greenhorn Road/Brunswick Road intersection and contains sensitive natural habitats, including 44 landmark oak trees (> 36" DBH), of which approximately 60 percent are black oaks and 40 percent are canyon live oaks, as well as approximately 10 acres of landmark oak groves. Altogether, the project would result in the potential removal of up to 14 landmark oaks and 63 native oak trees within landmark oak groves. An oak resources management plan for on-site oaks has been prepared to offset these losses and minimize impacts to the remaining resources. On-site road improvements would require four culverted seasonal stream crossings for road and driveway construction. An aquatic resources management plan has been prepared to offset the potential loss of the habitat value of the ephemeral streams from the future road and driveway construction. The project could result in potential impacts to several special-status species; however, the adopted Initial Study includes mitigation measures to ensure avoidance of protected species if detected on-site during preconstruction surveys. The seven-acre ZAP Manufacturing project site and 6.3-acre Event Helper project site are located adjacent to one another within the Loma Rica Industrial Park. These sites contain oak woodland habitat on steeper slopes, which have been designated a "Non-Disturbance Area", pursuant to Nevada County LUDC

³² Dudek. *Dorsey Marketplace Draft EIR* [pg. 6-22]. March 2019.

³³ RBF. *Housing Element Rezone Implementation Program EIR* [Figure 3-17]. September 2013.



Section L-II 4.3.13. Due to the removal of other conifer and deciduous trees, protected birds may be impacted if nesting on-site prior to construction. However, the adopted Initial Studies include measures ensuring preconstruction surveys, and nest avoidance, if active nests are found on-site.

With respect to the proposed project, this chapter provides a wide range of mitigation to minimize potential adverse effects to habitat for special-status species. For instance, Mitigation Measure 4.4-3(c) would require that the proposed project conform with the Corp's "no-net-loss" policy for wetland mitigation. Thus, any wetlands lost within the project area must be compensated through the protection of existing wetlands, avoidance of wetland impacts, or creation of new wetland habitat elsewhere.

It should be noted that while the project would involve loss of some existing on-site habitat, other areas of the overall project site would be avoided and protected. Notably, 12.7 acres of the Centennial Industrial Site would be preserved, including the main stem of Wolf Creek, the 100-foot non-disturbance setback of the main stem of Wolf Creek, and an undisturbed and protected zone containing Pine Hill flannelbush. Regarding the latter, the southern portion of the Centennial Industrial Site, containing the majority of Pine Hill flannelbush, would remain undeveloped and be protected in perpetuity. Within this avoidance area, 42 of the 60 flannelbush plants would be protected. Furthermore, as previously noted, while Pine Hill flannelbush is conservatively assumed to be present on the Centennial Industrial Site for purposes of this EIR, the presence of said species is inconclusive based on current published scientific literature. As previously discussed, the USFWS Recovery Plan Amendment for Gabbro Soil Plants of the Central Sierra Nevada Foothills: El Dorado Bedstraw (*Galium californicum* ssp. *sierrae*) and Pine Hill flannelbush (*Fremontodendron californicum* ssp. *decumbens*) states that "Results of subsequent genetic work by a University of California, Davis researcher, to determine if Nevada and Yuba County flannelbushes are Pine Hill flannelbush, were inconclusive; therefore, we [the USFWS] continue under the assumption that these plants are not the listed entity."³⁴ Yet, according to the botanical study prepared for the Centennial Industrial Site, the recent genetic work conducted by Dr. Shannon Still from U.C. Davis has confirmed that Pine Hill flannelbush is known to occur in Nevada County, but this work is still in press (Bill Wilson, personal communication 2019).³⁵ During protocol-level field surveys implemented in 2019 for the Pine Hill flannelbush, the plants in the population were confirmed to have morphological characteristics, the floral and habit, of the Pine Hill flannelbush.

This EIR requires implementation of a Habitat Management Plan for the assumed Pine Hill flannelbush, which includes, among other action items, a robust transplantation strategy, the details of which will ultimately be subject to review and approval by USFWS and CDFW. For example, the 18 individual plants that would be directly impacted by the engineered fill placement at Centennial Industrial Site would be transplanted to another site with similar soil, hydrologic, vegetation type and aspect, and monitoring to ensure

³⁴ United States Fish and Wildlife Service. *Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills: El Dorado bedstraw (Galium californicum ssp. sierrae) and Pine Hill Flannelbush (Fremontodendron californicum ssp. decumbens)* [pg. 3]. September 2019.

³⁵ Wendy Boes. *Centennial Industrial Site CNPS Ranked Plants and Special Status Plant Survey Report*. January 2021.



success. If transplanting ultimately proves unsuccessful, substantial transplanting from seedbank shall occur at a 100:1 ratio.

This chapter has also demonstrated that gabbro soils, the type required for Pine Hill flannelbush, are not believed to be a limiting factor in the project area. The soils series within Nevada County that are known to contain gabbro parent material include Secca, Sites, Boomer, and Chaix variants USDA soils series (from the Nevada County USDA Soils Series). Within six miles of the Centennial Industrial Site, approximately 8,124 acres of Secca-Rock outcrop complex, two to 50 percent slopes have been mapped, and a total of 30,741 acres of Secca, Sites, Boomer, and Chaix variants USDA soils series have been mapped within six miles of the Centennial Industrial Site. Based on Figure 4.4-8, and adopted environmental documents for such projects, it is not anticipated that the cumulative list of projects would substantially impact gabbro soils (most notable areas include limited portions of the Loma Rica Ranch Specific Plan). The placement of engineered fill would impact a little less than half (approximately five acres) of the total estimated gabbro soils (10.31 acres, Secca-Rock outcrop complex, two to 50 percent slopes) on the property.

In addition to mitigation measures requiring the compensation of lost sensitive habitat, this EIR contains mitigation measures requiring that pre-construction surveys be conducted to reduce the potential for implementation of the proposed project to result in loss of individual special-status species. Such mitigation measures require that should pre-construction surveys identify special-status species within areas to be impacted by the proposed project, avoidance measures must be implemented to prevent the loss of identified special-status species.

In summary, while the Grass Valley General Plan EIR concluded that buildout within the City would result in a less-than-significant cumulative impact to biological resources through compliance with policies and standards identified in the General Plan, and the cumulative projects within unincorporated Nevada County has been shown to be responsible for mitigating their incremental impacts associated with loss of sensitive habitats, this EIR conservatively concludes that the combined effects on biological resources resulting from the cumulative list of projects could be considered significant. However, the proposed project's incremental contribution to the significant cumulative effect could be reduced with implementation of the mitigation measures required in this EIR. Without implementation of the required mitigation measures, the proposed project's incremental contribution to the potential significant cumulative effect could be considered **cumulatively considerable** and **significant**.

Mitigation Measure(s)

Implementation of the following mitigation measures is sufficient to reduce all project-specific impacts to a less-than-significant level. With implementation of the following mitigation measure, which requires implementation of project-specific mitigation measures, the project's incremental contribution to cumulative biological resources impacts would be reduced to a *less than cumulatively considerable* level.

4.4-6 *Implement Mitigation Measures 4.4-1(a-b), 4.4-2 (a-g), and 4.4-3(a-d).*



4.5 CULTURAL AND TRIBAL CULTURAL RESOURCES

4.5. CULTURAL AND TRIBAL CULTURAL RESOURCES

4.5.1 INTRODUCTION

The Cultural and Tribal Cultural Resources chapter of the EIR addresses known historic and prehistoric resources in the project vicinity, as well as the potential for previously unknown resources to occur within the overall project site. In addition, a discussion of Tribal Cultural Resources potentially occurring in the project area is provided. The chapter summarizes the existing setting with respect to these resources, identifies thresholds of significance, evaluates project impacts to such resources, and sets forth mitigation measures as necessary. The information presented in this chapter is sourced primarily from the Nevada County General Plan,¹ the Nevada County General Plan EIR,² and the Historic Properties Inventory and Finding of Effect for the Idaho-Maryland Mine Project (InContext, 2020) prepared for the proposed project.³ A redacted version of the InContext 2020 report is included as Appendix G of this EIR.

4.5.2 EXISTING ENVIRONMENTAL SETTING

According to the Nevada County General Plan EIR, a variety of prehistoric and historic site types occur within Nevada County. The following sections provide further details regarding the prehistoric overview, ethnographic overview, and historic overview of the project area, as well as a description of any identified cultural resources associated with the project site and a discussion of tribal cultural resources.

Prehistoric Overview

The earliest evidence of human occupation in the Sierra Nevada region dates to the Terminal Pleistocene and Early Holocene (12,000–8,000 B.P.), although archaeological finds from this timeframe are sparse and are typically limited to isolated stemmed points at high elevations. Sites from the Terminal Pleistocene and Early Holocene time indicate a semi-sedentary lifestyle, small group size, and subsistence focused on large game hunting. Large-stemmed and corner-notched projectile points made of local basalt are common in these early assemblages, although obsidian obtained through trade with the people of the Great Basin and California Coast Ranges has been documented.

Early and middle Holocene (8,000–5,000 B.P.) lifeways focused on hunting, with small and semi-sedentary social groups. Middle to late Holocene (5,000–2,000 B.P) archaeological patterns show an increase in population and economic intensification, demonstrated by an increase in settlement size, use of food storage pits, bow and arrow technology, reliance on small game and labor-intensive resources, such as seeds and nuts, and increased trade of obsidian and shell beads with groups to the east and west.

¹ Nevada County. *Nevada County General Plan*. Updated 2014.

² Nevada County. *Nevada County General Plan, Final Environmental Impact Report*. March 1995.

³ InContext. *Historic Properties Inventory and Finding of Effect for the Idaho-Maryland Mine Project, Nevada County, California*. December 2020.



Late Period (2,000–450 B.P.) archaeological patterns reflect a waning population along the western slope of the Sierra Nevada from 1,450 to 700 B.P. From 700 B.P. to approximately the time of European contact, the population appears to increase again, and lifeways were centered on a plant-based diet.

Ethnographic Overview

The project area is traditionally Hill Nisenan territory, a tribe who are sometimes referred to as Southern Maidu. The Nisenan are a Maidu-speaking people who settled in villages along major waterways, ridges, and flats. Settlements were typically organized around a central village, with family groups building homes apart from the main hub. Winter homes were conical and constructed from skins, bark slabs, and brush, while summer residences were typically brush structures. Villages tended to be located near large bedrock outcrops suitable for creating bedrock mortars used to process acorns and other plant foods, as well as small animals.

The nearest recorded ethnographic tribelet in the project area was *Hi'et*, southwest of present-day Nevada City, and the nearest recorded ethnographic villages were *Tsekankan* and *Ustoma*. Prehistoric archaeological sites or localities have not been recorded in the immediate vicinity of the project site. The lack of recorded prehistoric sites in the area can be attributed largely to the impacts of Euro-American incursion into Grass Valley. Traditional lifeways were disrupted, and Native people were displaced with the onset of the Gold Rush in the mid-nineteenth century.

Historic Overview

The following section provides an overview of the Grass Valley Mining District and California Gold production, as well as local history associated with the project area.

Grass Valley Mining District and California Gold Production

Gold mining in the Grass Valley area began in 1848 when placer gold was discovered in Wolf Creek. However, the region is primarily known for its high-producing lode mines that were productive from the 1860s through the 1950s. Although lode mining began in Grass Valley in the 1850s, lode mining did not develop in earnest until after the Comstock rush ended in 1865. Eventually, the Grass Valley Mining District (District) was the most productive gold-bearing area in California. Gold production from the late 1860s to 1950s in the District paralleled production throughout the State, but in much higher numbers. A steady increase began in the late 1860s with an infusion of capital. Another boost occurred from technological advances in the 1890s. With World War I (WWI) came prosperity and higher costs of production, which slowed output. Then, with the Great Depression, production costs decreased, increasing output. The ten-year span from 1930 to 1940 demonstrated a remarkable abundance within the District; nearly 2.2 million tons of ore were produced, yielding \$26.76 million. During World War II (WWII), the United States forced shut down of mines as non-essential to the war effort. An attempt to reopen the mines was made after the shutdown was lifted, but higher production costs stunted output until many mines, including the largest mines in Grass Valley, closed in 1956.

In the late 1860s, Nevada City and Grass Valley business owners began advocating at the State and federal levels for a railroad to connect their business interests with the Central Pacific Railroad. Mine operations needed a continuous supply of timber to fuel the boilers that supplied energy to the mines, and the train line helped bring more timber. On March 25, 1874, the State legislature approved the bill allowing the Centennial Narrow Gauge Railroad (CNGR) between Nevada City and Colfax. Construction was completed in April 1876. The railroad helped develop



other economic opportunities within the region, such as the fruit packing plants and lumber mills that ran along the railroad; however, Nevada County Narrow Gauge Railroad's (NCNGR's) main goal remained the support of the local quartz mines. The railroad route followed what is now East Bennet Road to the north bank of South Fork Wolf Creek, crossing the Union Hill Mine and New Brunswick Mine parcels. Passenger travel on the rail line stopped in 1938, and operations ceased completely in 1942 at the onset of WWII. By the following year, only the grade remained because the entire line had been sold for scrap.

Project-Specific Historic Context

The Idaho-Maryland Mine property was identified as a lucrative gold-bearing parcel in 1851. Today, the Idaho-Maryland Mine is a consolidation of several of the important early day producing mines in the District, including the Eureka, Idaho, Maryland, Brunswick, and Union Hill Mines.

Early Development (1860–1890)

The early development period is characterized by steady growth in the number of mine claims, the expansion of underground and surface level operations, and production of such mines. The end of this period marks the sale of the Idaho Mine and the shift to the consolidation of the mines. In the early years of underground mining, the District had small claims that made it difficult to pay for equipment; therefore, the claims could not be worked. However, after 1860, the depths and production of the mines increased due to the use of newer technology and engineering. Underground mining requires technical engineering and the ability to design the infrastructure both above and below ground. Many of the first mine builders depended upon Cornish miners to design and build such infrastructure. However, as mines got deeper, more improvements became necessary and mining engineers were needed. Later mining operations began using power drills, nitroglycerine-based dynamite, and hydraulics, which further increased mining production.

Idaho Mine (ca. 1850-1893)

The Idaho vein, which stemmed from the eastern extension of the Eureka vein, was discovered in the bed of Wolf Creek about 1.5 miles east of downtown Grass Valley during the Gold Rush. The claim was not recorded until a rich strike was made in 1863. Two years later, discovery of high yielding ore within the claim prompted several investors to finance large-scale mining production. However, the initial capitalization of the Idaho Mine failed and the mine was purchased by the Coleman Brothers, who sold their North Star Mine, in 1867. The Coleman's Idaho Quartz Mining Company sunk a shaft to 300 feet and ran into the eastern extension of the Eureka-Idaho Ore Shoot. In 1881, the Idaho Mine reached a vertical depth of 1,200 feet, which no other gold mine in California had reached. As such, the Idaho Mine was considered one of the most up-to-date mines in the industry.

In 1868, the Idaho Quartz Mining Company finished constructing a stamp mill at the Idaho Mine. That year, 763 tons of ore were milled, yielding \$13,978 from the newly built stamp mill. In 1877, the timber in the 200-foot level had to be completely replaced. The mill property comprised an office, mill, buddle house, machine shop, drain tunnel, sulphurets house, tailings sluices, rocker house, pump house, hoisting works, blacksmith shop, waste rock track, air shaft, water ditch, Narrow Gauge Railroad (NGRR), and roads to Hills Flat and Grass Valley. Hydraulic mining ended in 1882, which allowed water supplies to serve other needs. The Idaho Mine installed Pelton wheels and contracted with South Yuba Water Company to supply water to the mine. Steam power switched to waterpower in 1883 and proved beneficial both operationally and



economically. The Idaho Mine was the leading quartz mine in California from 1869 to 1892. The Idaho Quartz Mining Company worked the same pay shoot until 1893, when operations halted because the mine reached its claim boundary to the east.

Eureka Mine (1851-1877)

Discovered in February 1851, the Eureka Mine was located on the north side of Wolf Creek 0.25-mile east of Grass Valley, and was one of the earliest quartz mining locations in the District. In 1863, the vertical shaft was sunk to a depth of 100 feet, leading to the discovery of a rich ore shaft that averaged \$28 per ton. As the levels of the mine grew, so did the quality of the ore. At the 600-foot level and more than three feet wide, the ore value averaged \$50 per ton. The Eureka Mine was the largest producer of quartz gold in California and in the United States from 1866 to 1871. The Eureka Mine closed in 1877.

Maryland Mine (1865-1893)

The Maryland Mine was located in June 1865, west of the Idaho Mine claim. Substantial work of the claim did not occur until 1880. In 1890, the underground workings of the Idaho and Maryland mines met, prompting a lawsuit to determine the boundary between the two properties. A compromise boundary was agreed upon and, three years later, the Idaho Mine workings reached the boundary line. The Coleman brothers sold the Idaho Mine to the Maryland Gold Quartz Mining Company, who took possession in 1893.

Union Hill Mine (1860-1900)

The Union Hill Gold Quartz Mine claim, which intersects the current project area, was made in 1866. The Union Hill Mine operated successfully until 1870, when a decline in the mining industry forced the closure of most mines in the area, except the Idaho-Maryland and Empire Mines. In 1900, the Union Hill Mine reopened and was subsequently purchased by the Idaho-Maryland Mines Company in 1918.

Brunswick Mine (ca. 1880-1919)

The exact date the Brunswick Mine was founded is unknown. In 1888, the Brunswick Mine was worked only to a depth of 300 feet in the Old Brunswick shaft. Eventually, the three-compartment incline shaft reached depths of 700 feet and continued to 1,250 feet, where the Brunswick Consolidated Gold Mining Company found good-quality ore in 1896. The owners constructed a new vertical shaft, New Brunswick, in 1915. They also built a steel headframe and completed a twenty-stamp mill and cyanide plant. The method of treating and handling the ore improved and kept operating costs low.

Consolidation (1890-1919)

The consolidation period is characterized by financial instability and several exchanges of ownership among the mines, followed by closures from lack of capital and later from WWI. The end of this period marks the consolidation and reopening of the mines under new ownership: the Idaho-Maryland Mines Company.

A lawsuit in 1890 between the Idaho Quartz Mining Company and the Maryland Gold Quartz Mining Company determined the boundary line for the two mine properties. When the Idaho Mine reached the compromise line in 1893, with no other ore bodies found that would call for further operations, the Coleman brothers decided to sell the mine. They sold the Idaho Mine claim to the Maryland Gold Mining Company for \$85,000 in April 1893. Dual management of the Idaho-Maryland Mine began on May 1, 1893, but the company name remained Maryland Gold



Quartz Mining Company. Furthermore, because both the Idaho Mine and Maryland Mine remained open, more than 200 miners within the Grass Valley area kept their jobs.

In 1894, the Maryland Gold Quartz Mining Company purchased the Idaho Quartz Mining Company and its Idaho Mine. The name then changed to Idaho-Maryland Mine and, soon afterward, the Dorsey vein was discovered. The Idaho-Maryland Mine closed in 1901 due to a lack of funds. The total production of gold from 1894 to 1901 was 60,282 ounces (roughly 3,768 pounds).

The Idaho-Maryland Mine's underground operations closed in February 1901 from lack of capital which, in turn, tripled ore costs, milling costs, and resulted in poor conditions of the underground workings. The closing of the underground mining operation at the Idaho-Maryland Mine ended 44 years of nonstop mining for gold within that location. Samuel P. Dorsey did keep the surface level workings intact and actively promoted the property to attract capital investors. In late 1902, a group of men from Boston expressed interest in the claim and sent a mining engineer to Grass Valley. The engineer's report returned favorable to the men, leading to the establishment of the Idaho-Maryland Development Company. The mine needed more work than estimated to reopen, and the group made some repairs to the surface level and pumped the water from the underground workings of the mine. Despite these efforts, the Idaho-Maryland Development Company ceased operations in October 1914, at the beginning of WWI, and the mine filled with water.

Errol MacBoyle, a well-known mining engineer from San Francisco, found interest in the Idaho-Maryland Mine and compiled a report. In his report, MacBoyle determined that the mine held much larger amounts of riches than the \$19 million it had generated to earlier owners. He also considered the benefits of combining all the surrounding mines with the Idaho-Maryland Mine. MacBoyle first received options from the South Idaho Consolidated Mining Company, Gold Point Gold Mining Company, and Black Hawk Mine. To further his plans to combine the mines, MacBoyle formed a syndicate to obtain the Union Hill Mine. Gold Point Consolidated Mines, Inc., was created to handle the purchases of more properties. However, in 1917, Metals Exploration Company took over Gold Point Consolidated Mines, Inc. After months of negotiations, Metals Exploration Company leased the Black Hawk, Eureka, Gold Point, Roanase, South Idaho, Union Hill mines, and several other claims with the option to buy each. Samuel P. Dorsey purchased the Idaho-Maryland Mine in late 1919 for \$187,692.50, paving the way for the Metals Exploration Company to secure the funds necessary to reopen the mines. The company named the new project the Idaho-Maryland Mines Company.

WWI and WWII (1914–1957)

This period is characterized by vacillating decades of high production costs/low gold production and low production costs/high gold production. The end of this period also marks the closing of the large lode mines in the Grass Valley Mining District, which have yet to recover. The Eureka Mine reopened in 1920 and several years of production followed the consolidation. In 1925, the Idaho-Maryland Mine closed. Errol MacBoyle sought the funds necessary to continue operating the pumps so that the mine would not fill with water. Tributers or men who leased a part of the claim to mine kept the mine operating.

In the 1930s and 1940s, the Idaho-Maryland Mine was the second-largest underground gold mine in California, behind the Empire Mine. Between 1930 and 1940, the Idaho-Maryland and Brunswick Mines yielded 2,186,381 tons of ore, equating to \$26.76 million in extracted



materials. Additionally, the Idaho-Maryland Mine developed a new method of sinking shafts and core drilling. On July 1, 1933, the Idaho-Maryland Mines Company leased the Brunswick Mine from the Idaho Consolidated Mines, Inc. for five years. By 1934, the underground workings of the Idaho-Maryland Mine extended more than 8,000 feet from the main shaft. To supply better ventilation and another exit, another shaft was created closer to the underground operations. The location for the shaft was near the intersection of Brunswick and Idaho Maryland Roads, which proved problematic from a geological standpoint. In order to operate a conventional shaft at that location would have required a vast amount of timber and constant upkeep. The shaft would not need to hoist ore or waste rock, so they tried using a 60-inch-diameter experimental, single compartment, core drill. With the use of the drill, the second shaft, called the “Round Hole” shaft, was advanced 173 feet in 1934.

The Idaho-Maryland Consolidated Mines, Inc. merged with its operating company Idaho-Maryland Mines Company in 1935 and then changed the name to Idaho-Maryland Mines Corporation. Operations, including the Idaho Mine and the New Brunswick Mine, produced 293,975 tons of ore in 1936. In 1939, the Idaho-Maryland Mines Corporation experienced the largest gold production of any quartz mine in California and remained the second-largest gold mine in the United States. The mine maintained leading numbers for several years as a direct result of the output from the Idaho-Maryland Mine, and other Grass Valley area mines they controlled, including the Brunswick Mine. The Brunswick Mine added to the Idaho-Maryland Mine’s production numbers, which peaked in 1941.

In 1940, improvements were made to the New Brunswick Mine, including deeper shafts and, in turn, an increase in ore production, which required increasing the headframe size and hoisting capabilities. The owners of the surface plant for New Brunswick bought a 1,000-horsepower water drum from the Los Angeles Metropolitan Water District. The hoist had eight-foot-diameter drums with a 60-inch face that could hold 4,800 feet of cable. The cement piers, foundations, and drum pits were constructed, and the large hoist was installed. Concrete floors were poured and an all-steel building was built over the hoist. The new hoist room was constructed north of the three-compartment shaft, and the regularly-used hoist was on the south side.

Errol MacBoyle was significant in Grass Valley history. The mines produced over two million tons of material from the time MacBoyle took over the mine in 1926 until the early 1940s. On October 8, 1942, the War Production Board issued Limitation Order L-208, closing many of the top United States gold mines, including the Idaho-Maryland Mine. Mining resumed after the war, but without the prior success under MacBoyle’s supervision.

MacBoyle contributed resources to the Grass Valley area, including an airstrip used by the National Guard for training. The government closed the airstrip during WWII. In 1936, MacBoyle formed the Grass Valley Memorial Hospital Association and built a hospital to 80 percent completion. However, when WWII began, obtaining added materials proved difficult and funding stopped. MacBoyle passed away in 1947.

For the first time in 105 years, in 1956, all Grass Valley area mines stopped running. In December 1955, the Idaho-Maryland Miners Corporation ceased gold mining operations and switched to mining only tungsten. The Empire and North Star Mines Company, Ltd. closed on July 5, 1956. The estimated worth of the total yield of the lode mines was \$300 million. The Empire-Star Mine produced \$130 million and the Idaho-Maryland Mine produced \$70 million, making them the two largest mining operations in California and among the largest in the United States. The equipment at the New Brunswick and Idaho-Maryland Mines sold at auction in



March 1957 to help offset delinquent taxes. The Grass Valley and Nevada City area mines not only transformed the local area environmentally and economically, but quartz gold from the Sierra foothills changed the nation as well.

Summary

The history of the District and lode mining reflects the broader trends and conditions of the times in local, State, and United States society from 1866 to 1957. With the discovery of gold in the area in 1848, mining changed the landscape of the Sierra foothills and made some of the Grass Valley District Mines top gold producing mines in the State and throughout the country. The General Mining Act of 1872 allowed individuals to patent mineral rights, in the same way farmers could claim settlements under the Homestead Act of 1862. The General Mining Act sparked a small boom in gold production in the later 1800s.

Most developments of new mining techniques and equipment originated in the Grass Valley and Nevada County Mining Districts, including hydraulic mining. In 1867, thirty stamp mills were operating and roughly 1,600 men were working in the mining industry in the Grass Valley area. Power drills and nitroglycerine-based dynamite replaced hand drills and black powder in 1868. A new steel headframe, a 20-stamp mill, and a cyanide plant were in place at the Idaho-Maryland Mine in 1915. By 1919, a new electric-powered hoist and Ingersoll-Rand compressor were installed. The Idaho-Maryland Mine property also housed a machine shop and carpenter shop. J. Branner Newsome fabricated a core drill in 1934 to help offset the amount of timber needed to get through the hard rock material. The new mining equipment that developed from need within the Grass Valley District mines contributed to some of the advancements of the Gilded Age. The surface level of the mine property constantly changed to remain updated and in working order to assist with the underground workings of the mine. However, the underground parts of the mine remained the same over time, except for timber replacement as needed and further digging.

The District, as well as the Idaho-Maryland Mine, experienced many fluxes from 1848 to 1957. Between 1856 and 1860, a minor nationwide economic depression occurred. Many continued mining even though the work became increasingly more complicated than simple panning or rocking for gold. Gold mining consistently increases during slow economic cycles. The decline in mining activity represents the pull of other strikes and popularity of other occupations; however, the District's gold mining influence increased from 71 percent of the population engaged in mining in 1850 to 76 percent in 1860. A worldwide economic depression from 1893 to 1896 contributed to a gold boom sparked by technological advancements, and the production of gold climbed steadily. The Grass Valley region would have suffered negative economic effects of the first depression had the mines not employed such a sizable part of the community. The Great Depression brought the final boom of historic gold mining in the Grass Valley region and, between 1930 to 1940, the Idaho and Brunswick Mines produced enormous amounts of ore. By 1941, 973 employees were working at the Idaho-Maryland and Brunswick Mines.

Gold mining not only changed the Grass Valley area, but exporting gold created ripple effects throughout California and the United States. The landscape of the Sierra foothills changed from the amount of timber used for steam power. The mines, including the Idaho-Maryland Mine, used NGRR to haul in timber from other locations, thus changing the landscape in other locations as well. The District faced wartime decreases in production and government shutdowns during both WWI and WWII. The District also reflects the same development,



decline, and resurgence patterns that the United States experienced during several economic recessions and booms throughout the ninetieth and twentieth-centuries.

Previously Recorded Cultural Resources

“Area of Potential Effects”, abbreviated as the APE, is used to describe the full extent of project limits as depicted in Figure 4.5-1. In addition, the APE includes the area of proposed/potential underground mine workings associated with the project.

Seven previously recorded historic-period cultural resources have been documented within the APE. Two of the seven resources (P-29-0839 and P-29-1495) no longer exist within the APE. The resources are summarized in Table 4.5-1 and described in further detail below.

Table 4.5-1	
Previously Recorded Cultural Resources within the APE	
Identifier	Name
P-29-0839	Segment of NCNGR
P-29-1447	Idaho-Maryland Mine (western portion not plotted by North Central Information Center)
P-29-1485	McPherson Ditch #1
P-29-1494	Brunswick Mine
P-29-1495	Two Mining Adits and Two Prospect Pits
P-29-1496	Union Hill Mine
P-29-4634	East Bennett Road
<i>Source: InContext, December 2020.</i>	

P-29-0839 – Segment of NCNGR

A section of the NCNGR was recorded within the current project APE in 1995, and described as a grade without rails or ties. Since 1995, the grade has been leveled and replaced by extensive graveled areas used by a lumber mill. Due to infrastructure removal, natural weathering, and frequent foot, bicycle, and off-highway vehicle traffic, there is little physical evidence for the NCNGR. The area was visited during the 2019 field survey, and resources associated with P-29-0839 no longer exist.

P-29-1447 - Idaho-Maryland Mine

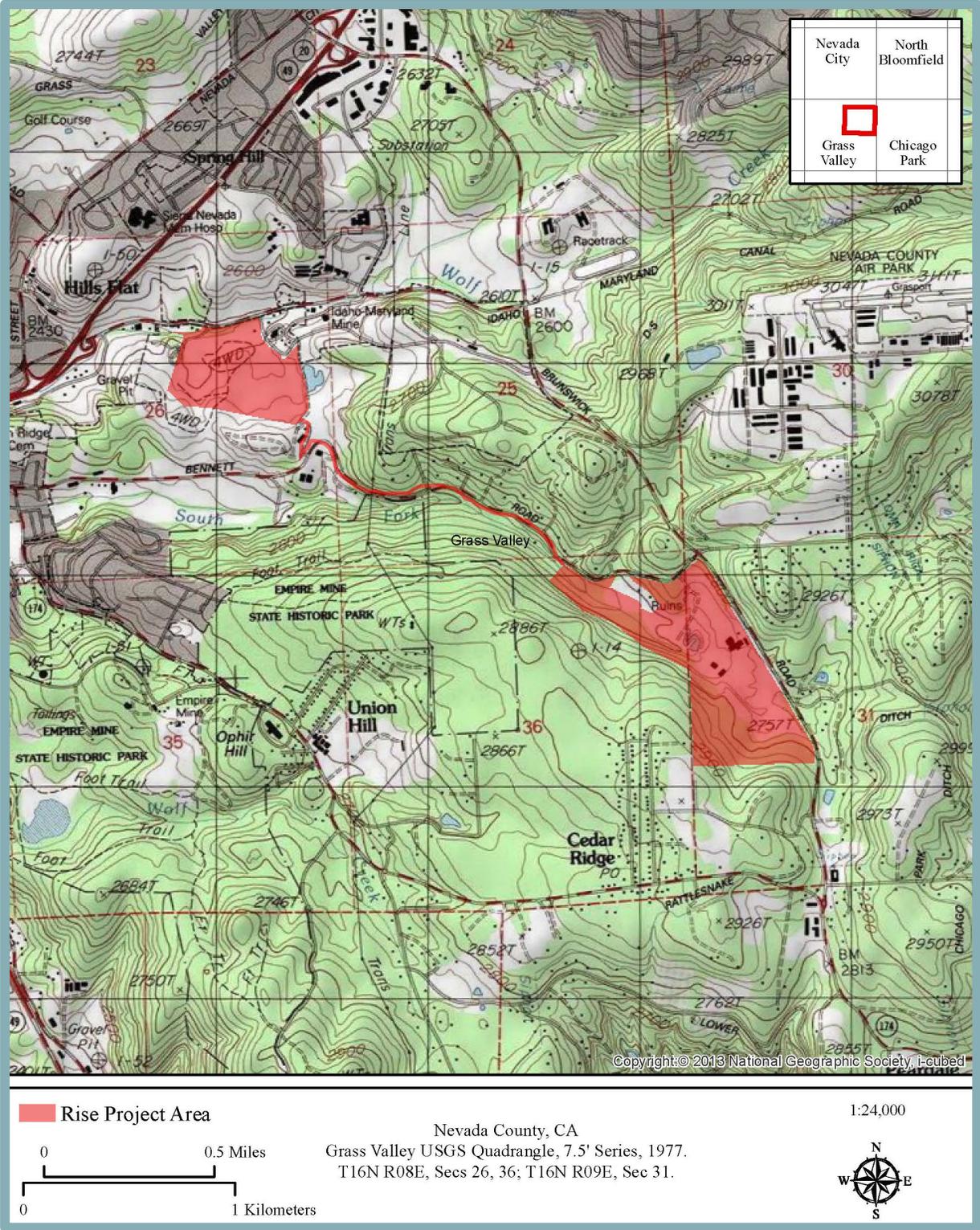
The Idaho-Maryland Mine has been recorded as P-29-1447 with three major components. One is the eastern loci, situated east of Brunswick Road and primarily south of Lower Banner Road. The second is the western loci, just east of the Elm Ridge Cemetery. The third is the Idaho-Maryland Ditch, which passes through both the eastern and western loci.

The Idaho-Maryland Mine has been subject to several recordings from 1983 to 2016. The first recording in 1983 identified resources adjacent to and north of the Centennial Industrial Site, south of Idaho-Maryland Road. Updates in 1994 added features to the eastern portion of the site, near the airport. The North Center Information Center (NCIC) identifies the site boundary to include the eastern features, but not the western features.

A field survey conducted in May 2019 confirmed that none of the previously recorded features of P-29-1447 are located within the current APE; however, the newly recorded resources (Temp-001, 005, 010, and 012), discussed in the next section, are most likely part of the western locus, as recorded in 1983.



**Figure 4.5-1
 Area of Potential Effects**



0 0.5 Miles
 0 1 Kilometers

Nevada County, CA
 Grass Valley USGS Quadrangle, 7.5' Series, 1977.
 T16N R08E, Secs 26, 36; T16N R09E, Sec 31.

1:24,000



P-29-1485 - McPherson Ditch #1

McPherson Ditch #1 was subject to one recording. The McPherson Ditch #1 was described as an unlined, bell-shaped ditch approximately four- to six-feet wide and two- to three-feet deep, which contoured the northeastern side of Union Hill and terminated at the South Fork of Wolf Creek. Known artifact concentrations or features are not associated with the ditch. As of the May 2019 field survey, the segment of the ditch in the current project site was visible on the landscape.

P-29-1494 - New Brunswick Mine

The New Brunswick Mine was subject to one thorough recording. The recording identifies ten feature loci consisting of the following:

- A. concrete footings;
- B. concrete ore bins;
- C. mine shaft capped with concrete;
- D. concrete basement foundation;
- E. concrete footings, foundations, and slurry ponds;
- F. concrete slab and foundation;
- G. concrete slab and foundations;
- H. headframe foundation and footings;
- I. concrete foundation; and
- J. concrete foundations.

The most prominent feature of the site was the tall concrete headframe (Feature H). During the field survey of May 2019, only the headframe and shaft remained. All other features appeared to have been removed from the site.

P-29-1495 - Two mining Adits and Two Prospect Pits

In 1995, this resource was described as a historic mining landscape of collapsed adits, small tailings dumps, prospects, a trail, and trench located along the south bank of South Fork Wolf Creek. The area was visited during the 2019 field survey, and resources associated with P-29-1495 no longer exist.

P-29-1496 - Union Hill Mine

The Union Hill Mine site was recorded as consisting of seven foundations/pads, one mine shaft, two tailings piles, and an access road. During the May 2019 survey, all previously recorded features were relocated, conforming to the site record and sketch map. The site is now overgrown with blackberry bushes.

P-29-4634 - East Bennett Road

East Bennett Road is part of a historic route that extends through the current project site. In 2016, East Bennett Road was recorded as a modern paved road with four features. The features consist of one concrete culvert/bridge stamped with "WPA", indicating that the culvert was constructed by the Works Progress Administration that existed from 1935 to 1943. The three other features consist of two rudimentary masonry culverts and one locus with three separate short segments of dry-laid rock wall. During the survey of May 2019, the road was observed as modern and maintained. Each of the four features was relocated and observed in the same condition as described in 2016.



Previously Unrecorded Cultural Resources

Four previously unrecorded components (Temp-001, 005, 010, and 012) of the Idaho-Maryland Mine (P-29-1447) were documented as a result of the Historic Properties Inventory and Finding of Effect document.

Temp-001

Temp-001 consists of three mining features: two concrete towers, approximately 30 and 40 feet tall, and a section of four-foot-diameter riveted pipe. Such features may be associated with the historic Idaho-Maryland Mine.

Temp-005

Temp-005 consists of two one-foot-diameter pipe segments that are partially underground, two short earthen ditch segments, and an earthen pile of unknown function. Such features may be associated with the historic Idaho-Maryland Mine.

Temp-010

Temp-010 consists of a segment of an abandoned mining ditch. The ditch was replaced by an unnamed dirt road at the west end and by Centennial Drive at the east end. The ditch is five feet wide and two feet deep, running east-to-west.

Temp-012

Temp-012 consists of a segment of an abandoned mining ditch. The ditch was replaced in an open meadow by some four-wheel-drive roads at the south end, and was undiscernible in dense vegetation at the north end. The ditch is eight to ten feet wide and three feet deep, running mostly north-to-south.

Tribal Cultural Resources

As noted in the Historical Properties Inventory, the high density of hydrological features in the project area combined with occasional winter snowpack and steep terrain subject the local soils to a high level of erosion. Such soil conditions result in a low likelihood for preservation of intact subsurface archaeological deposits, and high likelihood for surface archaeological deposits to be displaced from their original context.

Based on a search of the Native American Heritage Commission (NAHC) Sacred Lands File, as described in further detail in the Method of Analysis section below, recorded Native American sacred sites or traditional cultural properties are not known to exist within the project site. In addition to the above, the County conducted Assembly Bill (AB) 52 and Senate Bill (SB) 18 tribal consultation for the project, as described in the Method of Analysis section below. Tribal Cultural Resources were not identified for the project site.

4.5.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of cultural and tribal cultural resources under the CEQA process.

Federal Regulations

The following are the federal regulations relevant to cultural and tribal cultural resources.



National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation’s master inventory of known historic resources. The NRHP includes listings of resources, including: buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, State, or local level. Resources over 50 years of age can be listed on the NRHP. However, properties under 50 years of age that are of exceptional significance or are contributors to a district can also be included on the NRHP. Four criteria are used to determine if a potential resource may be considered significant and eligible for listing on the NRHP. The criteria include resources that:

- A. Are associated with events that have made a significant contribution to the broad patterns of history; or
- B. Are associated with the lives of persons significant in our past; or
- C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. Have yielded or may likely yield information important in prehistory or history.

A resource can be individually eligible for listing on the NRHP under any of the above four criteria, or can be listed as contributing to a group of resources that are listed on the NRHP. A resource can be considered significant in American history, architecture, archaeology, engineering, or culture. Once a resource has been identified as significant and potentially eligible for the NRHP, the resource’s historic integrity must be evaluated. Integrity is a function of seven factors: location, design, setting, materials, workmanship, feeling, and association (see Table 4.5-2 for definitions). The factors closely relate to the resource’s significance and must be intact for NRHP eligibility.

Table 4.5-2 Aspects of Historical Integrity	
Aspect	Definition
Location	The place where the cultural resource was constructed or where the historic event occurred.
Setting	The physical environment of a cultural resource as it relates to the character of the location and its surrounding features or open space as it was during the period of significance.
Design	The combination of elements that were used to purposefully create the form, plan, space, structure, and style of a cultural resource.
Materials	The physical elements that were combined or deposited in a particular pattern or configuration during the period of significance to form the cultural resource. Materials reflect choice (influenced by tradition or culture) and availability (influenced by region or trade).
Workmanship	The physical evidence of the crafts of a particular culture or people (such as construction methods or techniques) during the period of significance.
Feeling	The physical features that together express the aesthetic sense of the period of significance and the absence of physical features that detract from this aesthetic sense.
Association	The physical features that can be directly linked to an important historic event or the reasons for which a historic person is significant.
Source: InContext, December 2020.	



State Regulations

The following are the State environmental laws and policies relevant to cultural resources.

California Health and Safety Code

Section 7050.5 of the California Health and Safety Code states that when human remains are discovered, no further site disturbance shall occur until the county coroner has determined that the remains are not subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, in the manner provided in Public Resources Code (PRC) Section 5097.98. If the coroner determines that the remains are not subject to the coroner's authority, and the remains are recognized to be those of a Native American, the coroner is required to contact the NAHC within 24 hours.

California Environmental Quality Act

State historic preservation regulations affecting this project include the statutes and guidelines contained in CEQA (PRC Sections 21083.2 and 21084.1 and Sections 15064.5 and 15126.4 (b) of the CEQA Guidelines). CEQA requires lead agencies to consider the potential effects of a project on historic resources and unique archaeological resources. An "historic resource" includes, but is not limited to, any object, building, structure, site, area, place, record or manuscript that is historically or archaeologically significant (PRC Section 5020.1). Under Section 15064.5 of the CEQA Guidelines, a resource is considered "historically significant" if one or more of the following CRHR criteria have been met:

1. The resource is associated with events that have made a significant contribution to the broad patterns of California history and cultural heritage;
2. The resource is associated with the lives of important persons from our past;
3. The resource embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual or possesses high artistic values; or
4. The resource has yielded, or may be likely to yield, important information in prehistory or history.

The CEQA Guidelines also provide for other methods of determining whether a resource is a historical resource, including the following:

- 1) A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k), which states:

"Local register of historical resources" means a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution.

- 2) A resource identified as significant in an historical resource survey meeting the requirements of PRC Section 5024.1(g), which states:

A resource identified as significant in an historical resource survey may be listed in the California Register if the survey meets all of the following criteria: (1) The survey has been or will be included in the State Historic Resources Inventory; (2) The survey and the survey documentation were prepared in accordance with office procedures and



requirements; (3) The resource is evaluated and determined by the office to have a significance rating of Category 1 to 5 on DPR Form 523. (4) If the survey is five or more years old at the time of its nomination for inclusion in the California Register, the survey is updated to identify historical resources which have become eligible or ineligible due to changed circumstances or further documentation and those which have been demolished or altered in a manner that substantially diminishes the significance of the resource.

- 3) The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record (California Code of Regulations [CCR], Title 14, Division 6, Chapter 3, section 15064.5(a)).

In addition, the resource must retain integrity. CEQA requires preparation of an EIR if a proposed project would cause a “substantial adverse change” in the significance of a historical resource. A “substantial adverse change” would occur if a proposed project would result in physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired (CEQA Guidelines Section 15064.5[b][1]). Pursuant to CEQA Guidelines, the significance of an historical resource is materially impaired when a project:

- (A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
- (B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- (C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

In addition to historically significant resources, which can include archeological resources that meet the criteria listed above, CEQA also requires consideration of “unique archaeological resources.” If a site meets the definition of a unique archaeological resource, the site must be treated in accordance with the provisions of PRC Section 21083.2. Under PRC Section 21083.2(g), an archaeological resource is considered “unique” if it:

- 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 prehistoric or historic event or person.

CEQA also includes specific guidance regarding the accidental discovery of human remains. Specifically, CEQA Guidelines Section 15064.5(e) requires that if human remains are uncovered, excavation activities must be stopped and that the county coroner be contacted. If the county coroner determines that the remains are Native American, the coroner must contact



the NAHC within 24 hours. The NAHC identifies the most likely descendent, and that individual or individuals can make recommendations for treatment of the human remains under the procedures set forth in Section 15064.5 of the CEQA Guidelines.

Public Resource Code Section 5024.1

The State Historic Preservation Officer (SHPO) maintains the California Register of Historic Resources (CRHR). Properties that are listed on the NRHP are automatically listed on the CRHR, along with State Landmarks and Points of Interest. The CRHR can also include properties designated under local ordinances or identified through local historical resource surveys. Criteria to determine eligibility under the CRHR are listed above.

Public Resource Code Section 5097.98

PRC Section 5097.98 includes standards and procedures related to discovery of Native American human remains. Pursuant to Section 5097.98, in the event that Native American human remains are discovered, the most likely descendants of the deceased individual must be immediately notified. The descendants may, with the permission of the owner of the land, or their authorized representative, inspect the site of the discovery of the Native American human remains and may recommend to the owner or the person responsible for the excavation work means for treatment or disposition, with appropriate dignity, of the human remains and any associated grave goods.

Assembly Bill 52 - 2014

Approved in 2014, AB 52 amended, and added to, Section 5097.94, 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 of the PRC, relating to Native Americans. AB 52 added Tribal Cultural Resources to the categories of cultural resources in CEQA, which had formerly been limited to historic, archaeological, and paleontological resources. "Tribal Cultural Resources" are defined as either:

- (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
 - (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
- (2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Under AB 52, a project that may cause a substantial adverse change in the significance of a Tribal Cultural Resource is defined as a project that may have a significant effect on the environment. Where a project may have a significant impact on a Tribal Cultural Resource, the lead agency's environmental document must discuss the impact and whether feasible alternatives or mitigation measures could avoid or substantially lessen the impact. AB 52 (PRC Section 21080.3.1) requires lead agencies to provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if they have requested notice of projects proposed within that area. If the tribe(s) requests consultation within 30 days upon receipt of the notice, the lead agency must consult with the tribe(s). Consultation may include



discussing the type of environmental review necessary, the significance of Tribal Cultural Resources, the significance of the project's impacts on the Tribal Cultural Resources, and alternatives and mitigation measures recommended by the tribe(s).

Local Regulations

The following are the regulations pertinent to the proposed project on a local level.

Nevada County General Plan

The relevant goals, policies, and actions from the Nevada County General Plan related to cultural and tribal cultural resources are presented below.

Cultural Resources Element

Goal 19.1 Identify and protect and where economically feasible restore significant archaeological and historic resources.

Policy 19.3 Encourage and cooperate with the private sector in the implementation of innovative techniques intended to preserve archaeological and historic sites by gift, private conservancies and easements.

Policy 19.4 Incorporate cultural and historic resource management standards in the Comprehensive Site Development Standards, for use in project review of all discretionary project permits. These standards shall provide for the use of clustering and restricted building sites as techniques for the preservation of significant cultural resources.

Policy 19.6 Require all applications for discretionary project permits, and all applications for ministerial project permits except single-family residences on individual lots shall be accompanied by a Site Sensitivity Literature Review, prepared by a qualified archaeologist or entity such as the North Central Information Center, Department of Anthropology, California State University at Sacramento.

Where review indicates significant archaeological or historical sites or artifacts are, or are likely, present, on-site field review shall be required. If a site or artifacts are discovered, the find shall be evaluated and potential significance determined. If significant cultural resources may be directly or indirectly impacted by proposed development, appropriate mitigation shall be developed and implemented in accordance with California Environmental Quality Act standards, including Appendix K, prior to onset of ground disturbance. Avoidance of significant cultural resources shall be considered the mitigation priority. Excavation of such resources shall be considered only as a last resort when sufficient planning flexibility does not permit avoidance. On-site field review, evaluation of site significance, and development of mitigation



measures, as identified above, shall be performed by a qualified professional archaeologist.

- Policy 19.7 Cooperate with local historical societies and the Native American Indian community to protect significant historical, cultural, and archaeological artifacts, improve access to and interpretation of unrestricted resources and archaeological history by involving them in the development review process.

Nevada County Land Use and Development Code

The Nevada County Land Use and Development Code (LUDC) provides Site Development Standards to guide the design, location, and development of new land uses and the alteration of existing uses. Section L-II 4.3.6, Cultural Resources, includes Site Development Standards intended to preserve, protect, and manage the County's significant cultural resources. The Site Development Standards are consistent with the Nevada County General Plan provisions protecting historic resources. The Site Development Standards require the following:

1. For all applicable projects, the County shall direct the project applicant to initiate a North Central Information Center (NCIC) records search to provide the most current information about the sensitivity of the property to contain cultural resources and to assess the need for a cultural resource study. If the NCIC does not recommend a cultural resource study and if there are no recorded or known cultural properties or traditional cultural areas, the project applicant shall submit NCIC correspondence documenting such to the County, with the land use application.

Should the NCIC recommend a cultural resource study, the applicant shall retain a qualified professional to conduct a cultural resource study of the project area. This study shall document the presence or likelihood of potentially significant cultural resources. When the NCIC or the qualified professional decides that there is a high likelihood that Native American archaeological sites and/or spiritual and non-physical sites may be encountered during the inventory phase, a qualified Native American Consultant shall be consulted to incorporate their views regarding the potential importance of Native American sites in the project area. The study shall be submitted to the County with the land use application.

If no cultural resources are inventoried, or if no potentially significant cultural resources will be impacted by the project, the qualified professional will prepare a report documenting these findings to be submitted to the County.

2. Projects shall only be approved when they do not remove or disturb cultural resources, unless a Management Plan is prepared consistent with paragraph 3 below or other standards are met consistent with paragraph 4 below. Preservation and avoidance are the first priority.
3. If the above standard effectively precludes development of the project or adversely affects another environmentally-sensitive resource, a Cultural Resource Management Plan shall be prepared by a qualified professional. The Plan shall provide for the analysis and determination of the significance of the cultural resource according to the importance standards listed in CEQA. It shall describe the results of a cultural resource investigation, illustrate potential conflicts with project design, assess impacts to resources, evaluate their significance, and attempt to design measures to mitigate impacts to insignificant levels. Plans shall follow the guidelines established in the State Office of Historic Preservation "Archaeological Resource Management



Reports: Recommended Contents and Format.” The Plan shall document the results of work performed during the inventory, evaluation and/or mitigation phases of study. Research designs shall follow the guidelines established in the State Historic Preservation Office “Guidelines for Archaeological Research Designs.” Alterations made to a cultural resource or structure for its rehabilitation, preservation, restoration, or relocation shall be in accordance with the “Secretary of the Interior’s Standards for Rehabilitation,” prepared by the National Park Service, and the “State Historic Building Code.”

If the cultural resource is determined not significant, or if the resource’s potentially important information is recovered at the evaluation phase of research, the qualified professional’s report documenting these findings shall be submitted to the County.

When sufficient planning flexibility, including density reduction or a revised project, does not permit avoidance of impacts to potentially significant cultural resources, measures for mitigating impacts to the resource, which allow maximum protection of the resource and/or maximum preservation of knowledge contained within the resource, shall be further developed by the qualified professional and implemented prior to the onset of project activities and as part of the condition of project approval. Where Native American resources are involved, a qualified Native American Consultant shall be consulted to determine the potential importance of Native American resources in the project area and the appropriateness of mitigation measures. A report from the Native American Consultant, summarizing their findings should be a component of the final report. Upon completion of mitigation, the qualified professional will prepare a report documenting these findings to be submitted to the County.

4. If preservation of a significant cultural resource is not possible, data recovery of an appropriate sample of the cultural resource, as determined by the qualified professional, shall be accomplished. Scientific data recovery may include: collection of surface artifacts, archaeological excavation, intensive recordation, photo/video documentation, etc. For traditional cultural properties, other specialized means of mitigation may need to be implemented in consultation with the affected parties. Artifacts generated out of data recovery shall be permanently housed at an institution operating in accordance with the State guidelines for the curation of archaeological collections and in cooperation with local Native American entities.
5. A condition of approval shall include a provision for cultural resources discovered during development construction. Any person who, in the process of project activities, discovers any cultural resources and/or human remains within the project area, shall cease from all project activities within at least 200 feet of the discovery. A qualified professional shall be notified to assess any discoveries and develop appropriate management recommendations for cultural resource treatment. In the event that human remains are encountered, the sheriff-coroner shall be notified immediately upon discovery. In the event that Native American human remains are encountered, the Native American Heritage Commission or the most likely descendants of the buried individual(s) who are qualified to represent Native American interests shall be contacted. Specific treatment of Native American human remains shall occur consistent with State law.
6. The locations of cultural resources are confidential and are not circulated as part of public documents but are used for planning purposes only. This class of information is exempted from public access by the California Public Records Act (PRC 6254.10). It is unlawful, prohibited and a misdemeanor for any person to willfully disclose, sell or furnish to any person any map or record describing the nature of location of



cultural resources, any copy thereof, or any information pertaining thereto, which has been prepared or maintained by the NCIC of Nevada County.

4.5.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to cultural and tribal cultural resources. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, an impact related to cultural or tribal cultural resources is considered significant if the proposed project would:

- Cause a substantial adverse change in the significance of an historical resource pursuant to CEQA Guidelines, Section 15064.5;
- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines, Section 15064.5;
- Disturb any human remains, including those interred outside of dedicated cemeteries;
- Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:
 - (a) Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC 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 PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Method of Analysis

Preparation of the Historic Properties Inventory and Finding of Effect included a cultural records search, literature review, consultation with the Nevada County Landmark Commission (NCLC), consultation with the NAHC, and a field survey. The methods of analysis are described in further detail below.

Records Search Methods

A cultural resources literature search for the project area was completed at the NCIC of the California Historical Resources Information System (CHRIS) at California State University, Sacramento, on February 12, 2019. The records search was conducted to determine if prehistoric or historic cultural resources were previously recorded within the project area, the extent to which the project area had been previously surveyed, and the number and type of cultural resources within a 0.25-mile radius of the overall project site.

Nevada County Landmark Commission

Consultation with the NCLC identified the Idaho-Maryland Mine adjacent to the APE. The Idaho-Maryland Mine was designated a California Point of Historical Interest (P640) and Nevada



County Historical Landmark (NEV-33) in 1984. InContext conducted the following additional research regarding California Point of Historical Interest No. 640 and NEV-33:

- Reviewed California State Office of Historic Preservation’s (OHP) Historic Property Data file for Nevada County;
- Reviewed the OHP’s online listings of NRHP, CRHR, State Historic Landmarks (SHL), and Points of Historical Interest (POI);
- Discussed the OHP listings with OHP registration unit staff member, William Burg, and requested all documentation for the Idaho-Maryland Mine;
- Reviewed the documentation provided by OHP registration unit staff on the Idaho Maryland Mine;
- Reviewed the Nevada County LUDC (Title 3, Chapter II, Article 4, Division 4.3, Section L-II 4.3.6) regarding Cultural Resources;
- Reviewed Nevada County Board of Supervisors Resolution No. 69-102 (Nevada County 1969);
- Reviewed NCLC Constitution and Bylaws (Nevada County 2000);
- Reviewed historical NCLC meeting notes from 1984 online;
- Reviewed minutes of the NCLC meetings notes dated April 17, 2020;
- Reviewed “Exploring Nevada County: An Illustrated Guide to Local Landmarks and Historic Sites”;
- Discussed and addressed the Commission comments via phone on October 21, 2020 with Gage McKinney, local historian and consultant to the Commission;
- Reviewed results of a Public Records Act request submitted by Mitchell Chadwick, representative of Rise Grass Valley Inc.⁴

The location of NEV-33 is identified as the hillside area adjacent to Centennial Drive and Whispering Pines Lane, south of Idaho-Maryland Road. This description coincides with the western locus of P-29-1447 (Idaho-Maryland Mine), which is outside of the APE. The description of NEV-33 is:

The Idaho quartz mine was discovered in 1863. It prospered under the Coleman brothers from 1867-93, then consolidated with the Maryland and other small mines. Eventually, it became one of the “Big Three” of the Northern Mines, the other two being the Empire and the North Star. Its final years under the management of Errol MacBoyle were very productive. He developed a revolutionary method of shaft sinking, using a huge core drill called the Newsom drilling machine. World War I and government order L208 brought about the final closing.

This County-level designation was conducted under Nevada County Ordinance 69-102, establishing the NCLC, their duties, and the process for formal county designation through resolution by the County Board of Supervisors. The County-level designation qualifies the Idaho Maryland Mine as a historical resource as defined by CEQA [CCR Section 15064.5(a)(2)] and PRC Section 5020.1(k). However, NEV-33 is located outside of the project APE and, thus, would not be impacted by the proposed project. NEV-33 is appropriately not addressed as a

⁴ Two documents were provided by the County regarding designation of the Idaho Maryland Mine property as a State of California, Department of Parks and Recreation, Point of Historical Interest.



resource that needs to be documented and evaluated for the purpose of the proposed project. It is also noted that the Idaho #2 shaft (“roundhole” shaft) was confirmed by InContext to be outside the APE.

Native American Tribal Consultation

As noted previously, InContext contacted the NAHC on September 10, 2019 to request a search of the Sacred Lands File for tribal cultural resources within or near the project area. The results of the Sacred Lands File search were negative, which indicates that known cultural resources do not exist on the project site.⁵ In addition, InContext contacted each of the following Native American tribes with the potential to have knowledge of cultural resources in the project area:

- Colfax-Todds Valley Consolidated Tribe;
- Tsi Akim Maidu;
- United Auburn Indian Community of the Auburn Rancheria (UAIC); and
- Nevada City Rancheria Nisenan Tribe.

In an effort to gather data regarding cultural resources of importance to these entities that could be affected by the project, the above parties were contacted via regular mail, email, and telephone between September 16, 2019 and December 16, 2020. Responses were not received from any of the above tribes.

On November 25, 2019, Nevada County sent project notification letters with offers to consult pursuant to AB 52 to the Tsi Akim Maidu Tribal Council, Shingle Springs Band of Miwok Indians, Nevada City Rancheria Nisenan Tribe, and UAIC. The Tsi Akim Maidu Tribal Council, Shingle Springs Band of Miwok Indians, and Nevada City Rancheria Nisenan Tribe did not respond within the 30-day consultation period. The UAIC responded on December 18, 2019, and requested consultation and copies of the Cultural Impact Report, technical reports, requests for and results of records searches, and Geographic Information System (GIS) Shapefiles. The County provided such information. In addition, the UAIC noted that they are not aware of any Native American archaeological sites in or near the project site.

Historical Entities Consultation

InContext sent letters and followed up with emails and telephone calls to the entities listed below to gather information regarding the potential for the project to impact historic-period resources that might not otherwise be identified. Outreach, follow up, and subsequent communications occurred between September 20, 2019 and October 22, 2020. The results of this outreach are integrated into the findings and conclusions as presented in InContext 2020.

- Nevada County Historical Society
- North Star Mining Museum
- Empire Mine State Park
- Nevada County
- Gage McKinney, Local Historian

⁵ InContext. *Historic Properties Inventory and Finding of Effect for the Idaho-Maryland Mine Project, Nevada County, California*. December 2020.



Field Survey Methods

On May 9 and 10, 2019, InContext conducted a pedestrian survey using 20 meter transects. Approximately 80 percent of the ground surface has been disturbed as a result of previous mining and industrial activities. The remaining 20 percent of the APE is covered by vegetation or duff. As previously discussed, two of the resources previously recorded no longer exist within the APE. The two resources that no longer exist are P-29-0839 (a segment of NGRR) and P-29-1495 (adits and prospects).

Five previously recorded cultural resources were confirmed within the APE. Four previously unrecorded components (Temp-001, 005, 010, and 012) of the Idaho-Maryland Mine (P-29-1447) were also documented as a result of the Historic Properties Inventory and Finding of Effect report (see Table 4.5-3).

Identifier	Name
P-29-1447	Idaho-Maryland Mine
	Temp-001 - Concrete towers, penstock, access road
	Temp-005 - Penstocks, ditch
	Temp-010 - Mining ditch and rock feature
	Temp-012 - Mining ditch
P-29-1485	McPherson Ditch #1
P-29-1494	New Brunswick Mine
P-29-1496	Union Hill Mine
P-29-4634	East Bennett Road
<i>Source: InContext, December 2020.</i>	

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on implementation of the proposed project in comparison with the standards of significance identified above.

4.5-1 Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines, Section 15064.5. Based on the analysis below, and with the implementation of mitigation, the impact is *less than significant*.

Six cultural resources have been identified and determined to currently exist within the APE and project limits: the Idaho-Maryland Mine, New Brunswick Mine, Union Hill Mine, underground workings of the Idaho-Maryland Mine Company, McPherson Ditch #1, and East Bennett Road (see Table 4.5-4).

Under Section 15064.5 of the CEQA Guidelines, a resource is considered “historically significant” if the resource meets one or more of the California Register of Historic Resources criteria outlined in the Regulatory Context section above. A resource must be considered historically significant and possess “integrity” in order to qualify for listing in the NRHP and CRHR. The eligibility of each of the resources



to be considered historical resources pursuant to NRHP and CRHR criteria is discussed in further detail below.

Four of the resources described above—P-29-1447, P-29-1494, P-29-1496, and the Underground Workings—are part of the Idaho-Maryland Mine Company. Because of this shared association, it is most appropriate to consider these resources as part of an assumed NRHP-eligible historic district (Historic District). Many of the potential physical remains of this assumed Historic District extend outside APE. However, portions of some of these historic mines are within the APE (see Table 4.5-4).

Table 4.5-4 Summary of Known Existing Cultural Resources within APE			
Cultural Resource	Identifier	Description	Historic/ Thematic Association
Idaho-Maryland Mine	P-29-1447	Temp-001: Concrete towers, penstock, access road	Idaho-Maryland Mine Co.
		Temp-005: Penstocks, ditch	
		Temp-010: Mining ditch and rock feature	
		Temp-012: Mining ditch	
New Brunswick Mine	P-29-1494	Only the tower and shaft remain	
Union Hill Mine	P-29-1496	7 concrete foundations/pads, 1 mine shaft, 2 tailings piles, access road in an area overgrown with blackberry bushes	
Underground Workings of Idaho Maryland Mine Co.	n/a	Inaccessible shafts and tunnels, constructed supports, and associated hardware and machinery	
McPherson Ditch #1	P-29-1485	Earthen ditch	Water conveyance
East Bennett Road	P-29-4634	Historic route improved for modern use. Four historic features within APE: 1 WPA concrete culvert; 2 rudimentary masonry culverts, locus with 3 dry-laid rock wall segments	Transportation

Source: InContext, December 2020.

Documentation and evaluation of all the components that may compose the assumed Historic District or delineate its boundaries is not required for this analysis; and neither CEQA nor Section 106 require the establishment of an NRHP historic district, even if one is identified and considered eligible. However, for the purposes of the analysis for this EIR, the proposed Idaho-Maryland Mine Historic District is considered significant under all of the NRHP and CRHR criteria, as demonstrated by the application of the NRHP and CRHR criteria that follows.

NRHP/CRHR A/1: The Idaho-Maryland Mine Historic District played a prominent role as one of the major lode mines in the District that operated from 1866 to 1956.



- NRHP/CRHR B/2: The Idaho-Maryland Mine Historic District is associated with the Coleman brothers and with Errol MacBoyle, who made significant contributions to local history through their development of the Idaho-Maryland Mine, and MacBoyle's community projects.
- NRHP/CRHR C/3: The Idaho-Maryland Mine Historic District embodies the distinctive characteristics of the hard-rock mining industry between 1866 and 1956 in the District through its extant underground workings, which also embody the distinctive construction method of the timbering support system. The Idaho-Maryland Mine Historic District also represents a significant and distinguishable entity whose components lack individual distinction [NRHP].
- NRHP/CRHR D/4: The Idaho-Maryland Mine Historic District has the potential to yield information important to history of the local area, California, and the nation through its possible archaeological deposits associated with workers, who represent the working labor class of miners locally and of the industrial age nationally.

Each individual cultural resource can then be evaluated to determine whether it is eligible for listing under each criterion, which depends on the ability for each resource to convey the criterion of significance. As explained in the previous section, the ability to convey significance rests on the resource's historic integrity, which is expressed as location, design, setting, materials, workmanship, feeling, and association (explained above).

Idaho-Maryland Mine (P-29-1447)

Four components of P-29-1447 were identified within the APE, and are all part of what is referred to as the western locus. The four components consist of the following resources: two concrete towers 30 and 40 feet tall and a section of four-foot-diameter riveted pipe (Temp-001); two one-foot-diameter pipe segments, two short eastern ditch segments, and an earthen pile of unknown function (Temp-005); a segment of an abandoned mining ditch (Temp-010); and another segment of an abandoned mining ditch (Temp-012).

All but the two concrete towers and earthen pile are fragmentary remains of water conveyance features that no longer retain integrity of design, materials, or workmanship. They no longer convey water to their intended destinations; thus, integrity of design is compromised. The unnamed ditches are truncated and it is not possible to discern their intended route. Further, the ditches and piping are common examples of features that are ubiquitous across the landscape of Nevada County. National Park Service Bulletin 36 includes a reminder that "mere association with historic events or trends is not enough, in and of itself, to qualify under Criterion A – the property's specific association must be considered".⁶ While associated with

⁶ U.S. Department of the Interior, National Park Service. *Bulletin 36: Guidelines for Evaluating and Registering Archaeological Properties* [pg. 22]. 2000.



Nevada County's mining history, such common features alone do not convey the importance of that industry.

The two concrete towers are of twentieth-century construction and appear at this location on the 1949 U.S. Geological Survey (USGS) map of the area. These are most likely associated with the latest period of the mine, but do not meet the CRHR eligibility criteria. As discussed above for the New Brunswick Mine, the removal of all buildings from the mine's productive era means that the concrete towers exist in isolation rather than being in their original setting as designed by mining engineers. Setting, feeling, and design are severely impacted by the removal of most infrastructure such that the historical workings cannot be understood. Integrity of materials, workmanship, and location for the towers are clearly present, but the towers by themselves represent standard engineering and design for mining infrastructure, and thus by themselves do not convey any distinguishing engineering achievements that would meet any CRHR criteria. As a result, InContext concluded that none of the newly recorded components are recommended eligible for listing in NRHP or CRHR under any criterion.

In summary and similar to the Brunswick Mine, the Idaho Maryland Mine surface components have limited ability to convey their association with important events in California's past (criterion 1) because most of the features that could convey that significance have been removed. While the mine is associated with important people (criterion 2), again the absence of built features limits the ability to understand and appreciate that connection. Engineering achievements (criterion 3) are present in the two surviving concrete towers; however, the structures are fairly pedestrian and alone do not convey how the former industrial plant functioned. Finally, data potential (criterion 4) is limited due to the absence of information-bearing artifact deposits or built remains that could help us understand the evolution of the industry of mining.

The only component of this resource that retains historical integrity is the underground workings that are accessed through the main shaft of the New Brunswick Mine. This component is considered separately from the Idaho-Maryland Mine because it is a combination of the underground workings of the New Brunswick Mine, Idaho-Maryland Mine, Union Hill Mine, Eureka Mine, and the consolidated Idaho-Maryland Mine Company (see Underground Workings of the Idaho-Maryland Mine Company below).

New Brunswick Mine (P-29-1494)

The above-ground components of the New Brunswick Mine are part of the Idaho-Maryland Mine Company; however, as with P-29-1447, the historic integrity of these components has suffered from the destruction or dismantling of a majority of the features that existed during the period of significance (1866-1957).

According to the site records and as depicted in historic photos, in 1956 there were at least 13 buildings or structures making up the main complex, including the main stamp mill and support facilities. After the mine's closure, the structures were dismantled and the area converted to a lumber mill. The 1994 site record concluded that "these compromises to the site's integrity have essentially destroyed the means by which the property's significance can be conveyed visually" (Windmiller 1994).



The 2019 field effort documented that the only remaining built environment feature was the single concrete headframe main shaft tower and that concrete foundations and other remains had been removed in the 25 years since the site had been visited by archaeologists.

The New Brunswick Mine is clearly associated with an important industry in California history and thus could likely be eligible under all four CRHR criteria. The minimal remains on site, however, are not sufficient to convey the historical significance of that association. Integrity of location, setting, feeling, and association often work in compliment to each other. Location is the place where the historic property was constructed⁷ and the New Brunswick Mine does retain integrity of location. Setting is the physical environment of a property⁸ and “includes elements such as topographic features... and relationships between buildings and other features”.⁹ The post-1957 use of the property as a lumbermill yard destroyed those features that would have conveyed the complexity of activities that occurred at this location. Feeling is when a property can convey its historic sense during its period of significance.¹⁰ Feeling is often subjective, but a general rule of thumb is whether someone who lived or worked at the property would recognize it today. Given the absence of virtually all the buildings and structures, it appears that threshold would not be met by someone walking through what used to be the New Brunswick Mine.

Integrity of design, materials, and workmanships also work together. Design is the “patterning of structures, buildings, or discrete activity areas relative to one another”.¹¹ Materials “reveal the preferences of those who created the property and indicate variable types of materials and technologies”.¹² Workmanship is “the evidence of an artisan’s labor and skill in constructing or altering a building, structure”.¹³ Any evidence of deliberate design or layout of the mine’s industrial plant has been obliterated by the subsequent use of the property as lumbermill yard and removal of foundations, refuse deposits, and any other character defining features. The only original material remaining is the concrete tower. While imposing on the landscape, it sits alone as a twentieth-century remnant of the mine’s later period of development. It is standard construction for its day and does not exhibit any distinct engineering achievements or craftsmanship. While the tower could be described as representative of the history of mining, the absence of other buildings leaves it existing in isolation and thus unable to convey the complexity of the mining industry, particularly in contrast to nearby Empire Mine State Historic Park.

Furthermore, the tower, or silo, will not be demolished; rather, it will remain in use during the life of the proposed project. The steel structure of the headframe will be constructed over the existing concrete rock silo and building cladding will enclose the

⁷ U.S. Department of the Interior, National Park Service. *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* [pg. 44]. 1997.

⁸ *Ibid.*, pg. 45.

⁹ U.S. Department of the Interior, National Park Service. *Bulletin 36: Guidelines for Evaluating and Registering Archaeological Properties* [pg. 40]. 2000.

¹⁰ *Ibid.*, pg. 42.

¹¹ Bulletin 15, pg. 45; Bulletin 36, pg. 40.

¹² *Ibid.*

¹³ *Ibid.* See also Bulletin 36, pg. 41.



entire headframe. The headframe is a structure used to support hoisting cables to raise rock skips and cages from the underground mine to surface. Rock skips would transfer broken rock into the concrete silo for temporary storage. Gold mineralization in silo would be conveyed to the process plant and barren rock would be transferred to the truck loading building.

In summary, the New Brunswick Mine surface components have limited ability to convey their association with important events in California's past (criterion 1) because most of the features that could convey that significance have been removed. While the mine is associated with important people (criterion 2), again the absence of built features limits the ability to understand and appreciate that connection. Engineering achievements (criterion 3) are present in the concrete tower; however, the structure is fairly pedestrian and alone does not convey how the former industrial plant functioned. Finally, data potential (criterion 4) is limited due to the absence of information-bearing artifact deposits or built remains that could help us understand the evolution of the industry of mining and the people who worked in that industry. Based on the above, InContext concluded that the aboveground features of this resource are not eligible for listing in NRHP or CRHR, and the tower will not be subject to a substantial adverse change.

The only component of this resource that retains historical integrity is the underground workings. This component is considered separately from the New Brunswick Mine (see Underground Workings of the Idaho-Maryland Mine Company below).

Union Hill Mine (P-29-1496)

The Union Hill Mine consists of concrete structural remains, disturbed tailings piles, and a mining shaft. The above-ground physical components of this resource retain integrity of location only and, therefore, are not able to convey their historical significance. Accordingly, InContext concluded that the aboveground features associated with this resource are not eligible for listing in NRHP or CRHR, nor will they be impacted by the proposed project.

The only component of this resource that retains historical integrity is the underground workings. This component is considered separately from the Union Hill Mine (see Underground Workings of the Idaho-Maryland Mine Company below).

Underground Workings of the Idaho-Maryland Mine

The underground workings of the Idaho-Maryland Mine are a combination of the underground workings of the New Brunswick Mine, Idaho-Maryland Mine, Union Hill Mine, Eureka Mine, and the consolidated Idaho-Maryland Mine Company.

The character-defining feature of the resource comprises the structural components of the mine shaft, specifically the excavated cuts and timbering system. The machinery and equipment are not considered a character-defining feature, as these may be found in several other mines of the region, and are better represented via the Empire Mine State Historic Park and the North Star Mine museum. While this extensive resource has not been formally documented because of access issues and safety concerns, recent underwater videos taken of the underground workings show that



they are largely intact, albeit partially submersed by groundwater. It retains integrity of location, design, setting, materials, workmanship, feeling, and association; therefore, InContext concluded that the underground workings of the Idaho-Maryland Mine Company is recommended as a contributing element of the Idaho-Maryland Historic District under criteria A/1 and C/3.

McPherson Ditch #1 (P-29-1485)

The McPherson Ditch #1 is an earthen ditch in fair condition; however, research has been unable to associate it directly with any of the major water conveyance systems traversing the area or with any specific mine or period of use. As such, the McPherson Ditch #1 is considered a minor earthen feature lacking the association required for assigning significance and, therefore, is not eligible for listing in NRHP or CRHR under any criterion.

East Bennett Road (P-29-4634)

East Bennett Road is a modern roadway that follows and partially overlays a historic route. The historic route itself is not significant at the local, regional, or national level. In addition, the resource lacks historic integrity. As such, this resource is not eligible for listing in NRHP or CRHR.

Conclusion

Based on the above, the underground workings of the Idaho-Maryland Mine Company are recommended as a contributing element of the Idaho-Maryland Historic District under criteria A/1 and C/3. The proposed extraction efforts of the Idaho-Maryland Mine Project would alter the underground workings. Although the precise areas of the underground workings, which would be affected have not been completely determined at this time, the rehabilitation of the underground workings would occur throughout the life of the mine. For the purpose of this assessment, it is assumed the entire underground workings may be affected. As a result, the proposed project could result in a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines, Section 15064.5, and a **significant** impact could occur.

Mitigation Measure(s)

The underground workings of the Idaho-Maryland Mine Company are not currently accessible to historic preservation professionals and the public because the tunnels are flooded with groundwater. Notably, permission to study the underground geology of the Idaho-Maryland Mine Company was denied to the USGS for its 1940 professional paper on the gold quartz veins of Grass Valley. Therefore, information regarding the underground mine workings constructed after the year 1896 was never published and is not available to the public or government agencies. However, the project applicant possesses a private library of information that describes the underground mine workings of the Idaho-Maryland Mine in its entirety. A significant public and historic preservation benefit may be gained from sharing the library with the public.

Accessible and intact underground workings are an important source of information because few formal studies have been carried out regarding the underground work environment, engineering, equipment, and practices of hardrock mines. Currently,



historical references are the principal body of information that researchers rely on for studying the above aspects of mining. Documentation of underground workings will contribute material fact to this arena of inquiry.

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.5-1(a) *Following initial mine dewatering, and prior to commencement of underground mining, the project applicant shall share the historical documentation of the Idaho-Maryland Mine Company in their possession with the public through one of the following libraries: the California State Library, the California Geology and Mining Library, or the Searls Library. The library shall consist of the following information:*

- *Surface Maps (5 maps) – Approx. year at 1956, Showing topography, buildings, roads, exploration trenches and drill holes, underground workings at surface, and geology;*
- *103 Level Maps (103 maps) – Approx. year 1942, Showing mine tunnels, raises and shafts, survey stations, geology, and drill holes;*
- *Mine Geology Maps (61 maps) – Approx. year 1956, Showing geology on tunnels driven post WW2;*
- *Mine Stopping Maps (219 Maps) – Approx. year 1956, Showing mine stopping;*
- *Operation Reports 1919 to 1924 and 1926 to 1935, Providing monthly or annual reports on underground exploration and mine development;*
- *Monthly Development Reports – 1936 to 1956, Providing monthly reports on mine development;*
- *Geological Summary Reports – 1936 to 1942, Providing monthly reports on underground exploration;*
- *Underground Geology Photos – Collection of photos from 1940's of underground tunnels and geology; and*
- *A digital mine model, including a 2D and 3D digitization of historic mine tunnels available in AutoCAD dwg and dxf formats.*

Proof of submittal to one of the above-listed libraries shall be provided to the Nevada County Planning Department.

4.5-1(b) *Following initial mine dewatering, and prior to commencement of underground mining, the project applicant shall retain a qualified historian meeting the Secretary of the Interior's standards, to perform a historical study of the underground mine workings in the areas deemed safe by a certified mining geologist. The historical study shall include but not be limited to an evaluation of the underground work environment, engineering, equipment, and practices, to the maximum extent feasible. The historical study shall be deposited at the same library selected in Mitigation Measure 4.5-1(a).*



4.5-2 Cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines, Section 15064.5. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Archeological resources have not been previously recorded within the project site area. Given the project site's history of disturbance through mining beginning in 1851, as well as the grading and construction of adjacent roadways, buildings, and mining infrastructure, the potential for buried archeological deposits to occur within the APE is low. In addition, the field survey conducted by InContext did not identify any evidence of archaeological resources. InContext did not recommend monitoring of ground-disturbing activity associated with the proposed project, but did identify in its recommendations the Nevada County standard condition of approval specifying a process to address inadvertent discovery of archaeological resources or human remains during construction.

Archeological resources have not been identified in the immediate project vicinity and are not anticipated to occur within the APE, thus, the potential for the proposed project to cause a substantial adverse change to the significance of an archaeological resource is low. However, due to known occurrences in the region, the possibility exists that previously unknown resources could be discovered within the APE during construction and/or operational mining activities. Therefore, this analysis recognizes the potential for implementation of the proposed project to uncover undocumented archaeological resources and to adversely affect such resources if not properly treated. As such, the proposed project could cause a substantial adverse change in the significance of a unique archeological resource pursuant to CEQA Guidelines, Section 15064.5, and a **significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

4.5-2 *If cultural resources are discovered during construction or mining activities, pursuant to Nevada County LUDC Section L-II 4.3.6, all work shall cease within 200 feet of the find (based on the apparent distribution of cultural resources) and the County shall be immediately notified. Examples of cultural materials include midden soil, artifacts, chipped stone, exotic (non-native) rock, or unusual amounts of baked clay, shell, or bone.*

A qualified archeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology, as appropriate, shall assess the significance of the find and make recommendations for further evaluation and treatment as necessary, to the satisfaction of the County. Further evaluation and treatment recommendations shall be consistent with CEQA Guidelines Section 15126.4(3) and may include processing materials



for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, construction monitoring of further construction activities, and/or returning objects to a location within the project area where they will not be subject to future impacts.

Following a review of the find and consultation with appropriate experts, the authority to proceed may be accompanied by the addition of development requirements which provide for protection of the site and/or additional measures necessary to address the unique or sensitive nature of the site. The treatment recommendations made by the cultural resource specialist shall be documented in the project record. Any recommendations made by these experts that are not implemented, must be documented and explained in the project record. Work in the area(s) of the cultural resource discovery may only proceed after authorization is granted by the Nevada County Planning Department following coordination with cultural resources experts.

4.5-3 Disturb any human remains, including those interred outside of dedicated cemeteries. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

The APE has been previously disturbed through historic mining. However, prior to the mining era, the project area is traditionally Hill Nisenan territory. While field surveys conducted by InContext did not detect human remains, cultural sites, or artifacts of ceremonial significance within the project site, the potential for human remains to be discovered cannot be eliminated given the known prehistoric occupation of the project vicinity by Native American tribes. To address an unexpected inadvertent discovery of human remains during development construction, Nevada County LUDC Section L-II 4.3.6, Cultural Resources, requires the following condition of approval:

Any person who, in the process of project activities, discovers any cultural resources and/or human remains within the project area, shall cease from all project activities within at least 200 feet of the discovery. A qualified professional shall be notified to assess any discoveries and develop appropriate management recommendations for cultural resource treatment. In the event that human remains are encountered, the sheriff-coroner shall be notified immediately upon discovery. In the event that Native American human remains are encountered, the Native American Heritage Commission or the most likely descendants of the buried individual(s) who are qualified to represent Native American interests shall be contacted. Specific treatment of Native American human remains shall occur consistent with State law.

As noted above, ground-disturbing activities associated with the proposed project could disturb human remains, including those interred outside of dedicated cemeteries. Therefore, this analysis recognizes the potential for implementation of the proposed project to uncover undocumented human remains and to adversely affect such resources if not properly treated. As such, the proposed project could



disturb human remains, including those interred outside of dedicated cemeteries, and a **significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

4.5-3 *Any person who, in the process of project activities, discovers any human remains within the project area, shall cease from all project activities within at least 200 feet of the discovery. In the event that human remains are encountered, the sheriff-coroner shall be notified immediately upon discovery. In the event that Native American human remains are encountered, the Native American Heritage Commission or the most likely descendants of the buried individual(s) who are qualified to represent Native American interests shall be contacted. Specific treatment of Native American human remains shall occur consistent with State law.*

4.5-4 Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe. Based on the analysis below and with implementation of mitigation, the impact is less than significant.

Pursuant to AB 52 requirements, the County sent project notification letters with offers to consult to the Tsi Akim Maidu Tribal Council, Shingle Springs Band of Miwok Indians, Nevada City Rancheria Nisenan Tribe, and UAIC on November 25, 2019. The Tsi Akim Maidu Tribal Council, Shingle Springs Band of Miwok Indians, and Nevada City Rancheria Nisenan Tribe did not respond within the 30-day consultation period. The UAIC responded on December 18, 2019, and requested consultation and copies of the Cultural Impact Report, technical reports, requests for and results of records searches, and GIS SHP files. The County provided such information. In addition, the UAIC noted that they are not aware of any Native American archaeological sites in or near the project site.

As noted previously, records searches of the NAHC Sacred Lands File failed to indicate the presence of Native American sacred lands or traditional cultural properties within the project site vicinity or the proposed off-site improvement areas. Considering the results of the literature search and the prehistory and history of the area, the project site has a low probability for buried prehistoric or historic cultural resources, which could include tribal cultural resources. In addition, as discussed above, the proposed project site does not contain any known resources listed or eligible for listing in the CRHR or NRHP, or in a local register of historical resources as defined in PRC Section 5020.1(k) or determined to be significant pursuant to PRC Section 5024.1(c).



Based on the above, the project site is not associated with any existing religious or sacred uses that would be restricted by the proposed project. However, previously unknown tribal cultural resources associated with local tribes could potentially occur in the vicinity of the project site. Thus, ground-disturbing activities associated with the proposed project could have the potential to cause a physical change which would affect unique cultural values or cause a substantial change in the significance of a Tribal Cultural Resource as defined in PRC Section 21074, and a **significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

4.5-4 *Implement Mitigation Measures 4.5-2 and 4.5-3.*

Cumulative Impacts and Mitigation Measures

Detail regarding the cumulative setting is included in Chapter 5, Statutorily Required Sections, of this EIR.

4.5-5 Cause a cumulative loss of historic resources. Based on the analysis below, the cumulative impact is *less than significant*.

Based on the discussion included in Impact 4.5-1, the underground workings of the Idaho-Maryland Mine Company were determined to be eligible for listing under the NRHP and CRHR.

As noted in Chapter 5, Statutorily Required Sections, a list of cumulative 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 City of Grass Valley. A total of 20 projects were identified based on Nevada County and City of Grass Valley input. Each project is described in Chapter 5, and according to these descriptions, it can be seen that all cumulative projects are non-mining projects. Rather, all of the aforementioned projects are aboveground and, therefore, would have no combined impact on the underground workings of the Idaho-Maryland Mine Company. In addition, based upon a review of publicly available documents prepared for the cumulative list of projects, there are no known historically significant resources of any kind on the cumulative project sites that could be impacted by development of the respective sites, with the exception of potentially significant historic resources on the Loma Rica Ranch Specific Plan site and Housing Element Rezone Site 3. However, it was determined that with implementation of feasible mitigation measures, the potential impacts would be reduced to a less-than-significant level. As such, impacts related to historical resources from the proposed project would not combine with any of the reasonably foreseeable projects in the area to create a cumulatively considerable impact to historical resources.

Based on the above, the potential for impacts related to a cumulative loss of historic resources, to which implementation of the proposed project might contribute, is ***less than significant***.



Mitigation Measure(s)

None required.

4.5-6 Cause a cumulative loss of cultural resources. Based on the analysis below, the cumulative impact is *less than significant*.

Generally, while some cultural resources may have regional significance, the resources themselves are site-specific, and impacts to them are project-specific. For example, impacts to a subsurface archeological find at one project site would not generally be made worse by impacts to a cultural resource at another site due to development of another project. Rather, the resources and the effects upon them are generally independent.

Although the potential for previously unknown archaeological resources to occur on-site is considered low, Mitigation Measure 4.5-2 has been included in this EIR in an abundance of caution. Mitigation Measure 4.5-2 ensures protection in the case of inadvertent discovery of cultural and/or tribal cultural resources. Similar to the proposed project, future development projects throughout Nevada County would be required to implement project-specific mitigation and include conditions of approval to ensure any potential impacts to identified cultural resources are reduced to a less-than-significant level, where possible. Therefore, given that cultural resource impacts are generally site-specific and each future project within Nevada County would be required to mitigate such impacts, any potential impacts associated with cumulative buildout of the County would not combine to result in a cumulatively considerable impact.

Based on the above, the potential for impacts related to a cumulative loss of cultural resources, to which implementation of the proposed project might contribute, is ***less than significant***.

Mitigation Measure(s)

None required.



4.6 GEOLOGY, SOILS, AND MINERAL RESOURCES

4.6. GEOLOGY, SOILS, AND MINERAL RESOURCES

4.6.1 INTRODUCTION

The Geology, Soils, and Mineral Resources chapter of the EIR describes the geologic and soil characteristics of the Centennial and Brunswick Industrial Sites and evaluates the extent to which implementation of the proposed project could be affected by unstable earth conditions and various geologic hazards, including near-surface mine features. In addition, the chapter identifies known mineral resources on the Centennial and Brunswick Industrial Sites and any potential adverse effects of the proposed project on the availability of such resources. Paleontological resources are also discussed in this chapter.

Information from this chapter is primarily drawn from the following sources:

- NV5. *Geotechnical Engineering Report, Idaho-Maryland Mine Project – Brunswick Industrial Site*. November 18, 2019 (Appendix H.1).
- NV5. *Idaho-Maryland Mine Project – Portion of Brunswick Industrial Site: Management Plan for Potential Seismic Hazards*. January 16, 2020 (Appendix H.2). Referred to as “Brunswick Management Plan for Potential Seismic Hazards (2020)” hereafter in this chapter.
- NV5. *Idaho-Maryland Mine Project – Brunswick Industrial Site: Management Plan for Steep Slopes and High Erosion Potential*. December 21, 2020 (Appendix H.3). Referred to as “Management Plan for Steep Slopes and High Erosion Potential (Brunswick Industrial Site, 2020)” hereafter in this chapter.
- NV5. *Geotechnical Engineering Report, Idaho-Maryland Mine Project – Centennial Industrial Site*. December 20, 2019 (Appendix H.4).
- NV5. *Idaho-Maryland Mine Project – Centennial Industrial Site: Management Plan for Steep Slopes and High Erosion Potential*. December 21, 2020 (Appendix H.5). Referred to as “Management Plan for Steep Slopes and High Erosion Potential (Centennial Industrial Site, 2020)” hereafter in this chapter.
- NV5. *Idaho-Maryland Mine Project: Geotechnical Assessment of Near Surface Mine Features*. Revised September 11, 2020 (Appendix H.6).
- ECM. *Applicant Report Peer Review, Idaho Maryland Mine: Centennial and Brunswick Sites*. August 13, 2020 (Appendix H.7).
- Navo & Son, Inc. *12791 Brunswick Rd. Septic System Analysis*. October 28, 2019. (Appendix H.8)

4.6.2 EXISTING ENVIRONMENTAL SETTING

Background setting information regarding the geology, soils, seismicity, mineral resources, and paleontological resources associated with the project site and the surrounding region is provided below.

Regional Geology

The Centennial and Brunswick Industrial Sites are located within a region underlain by a complex assemblage of igneous and metamorphic rocks in the western foothills of the Sierra Nevada. The regional structure of the foothills is characterized by the north-northwest trending Foothills Fault System, a feature formed during the Mesozoic era in a compressional tectonic environment.



Project Site Characteristics

The geologic conditions characterizing the Centennial and Brunswick Industrial Sites are discussed below, including descriptions of existing site geology, soil conditions, seismicity and ground shaking, potential for earthquake-induced liquefaction, and expansive soils. In addition, this section includes a description of known mineral and paleontological resources within the project area.

Site Geology

The following section describes the geology present at the Centennial Industrial Site and the Brunswick Industrial Site.

Centennial Industrial Site

According to Saucedo and Wagner (1981), the Centennial Industrial Site location is underlain by gabbro and ultramafic rocks associated with the Lake Combie complex. Tuminas (1983) depicts the western quarter of the Site location as being underlain by ultramafic rocks and the remainder of the Site as underlain by gabbro.

Johnston (1939) depicts the historic Maryland Mine approximately 400 feet northeast of the Site, located on a gold-bearing quartz vein that dips beneath the Site at an angle of 50 to 70 degrees.

Brunswick Industrial Site

According to the Geologic Map of the Chico Quadrangle (California Department of Conservation, Division of Mines and Geology [CDMG], 1992), the northern and central portions of the Brunswick Industrial Site are underlain by massive diabase, and the southeastern portion of the Site is underlain by metavolcanic rocks. Both of these units are associated with the Mesozoic Lake Combie Complex. The south and southwestern portions of the Site are mapped as Miocene to Pliocene volcanics, predominantly andesitic pyroclastic rocks.

The Geologic Map of the Grass Valley – Colfax Area (A. Tuminas, 1983) presents the findings of a more detailed local study. According to this geologic map, four rock units are mapped as underlying the Site. The eastern portion of the Site is mapped as early Mesozoic Lake Combie metavolcanic rock; the northern and western sloping flanks are mapped as early Mesozoic Lake Combie massive diabase; the lower valley portions encompassing the South Fork of Wolf Creek are mapped as Quaternary Alluvium (i.e., water lain sediments); and tertiary clastic strata of the volcanic Mehrten formation is mapped in the south and southwestern portions of the Site.

Seismicity

The Fault Activity Map of California (2010) (<http://maps.conservation.ca.gov/cgs/fam/>), prepared by the California Department of Conservation, California Geological Survey (CGS), indicates that the overall project site is located within the Foothills Fault System. The Foothills Fault System is designated as a Type C fault zone, with low seismicity and a low rate of recurrence. The Foothills Fault System has been assigned a moment magnitude of 6.5. The nearest mapped active portion of the Foothill Fault System is approximately 25 miles northwest of the overall project site on the Cleveland Hill Fault.

NV5 also reviewed the CGS Open File Report 96-08, Probabilistic Seismic Hazard Assessment for the State of California, the 2002 update entitled California Fault Parameters, and the Official Maps of Earthquake Fault Zones delineated by the CGS through December 2010. The 1997



edition of CGS Special Publication 42, Fault Rupture Hazard Zones in California, describes active faults and fault zones (activity within 11,000 years), as part of the Alquist-Priolo Earthquake Fault Zoning Act. The maps and documents all indicate the project site is not located within an (Alquist-Priolo) active fault zone.

According to the Geologic Map of the Chico Quadrangle, California (CDMG, 1992, 1:250,000), a northwest trending liniment of the Grass Valley Fault Zone is approximately located or inferred along Brunswick Road east of the Brunswick Industrial Site.

The Geologic Map of the Grass Valley - Colfax Area (A. Tuminas, 1983) presents the findings of a more detailed local study. According to this geologic map, an inferred fault trends north-northwest through the Brunswick Industrial Site property approximately along the eastern shore of the pond and passing through the northern Site boundary.

The NV5 report, entitled *Idaho-Maryland Mine Project – Portion of Brunswick Industrial Site: Management Plan for Potential Seismic Hazards*,¹ includes a 1986 report by Anderson Geotechnical Consultants, Inc., which contains a one-inch equals 100 feet scale map dated January 1987 by A. W. Beeson and Associates. The Beeson map shows a dashed line labeled “fault line per Anderson Geotechnical Report”, likely referring to a report produced by Anderson in February 1986, although the original has not been located.

ECM, during its peer review of NV5’s Management Plan for Potential Seismic Hazards, reviewed the 1992 Geologic Map of the Chico Quadrangle (California Department of Conservation [DOC], Saucedo and Wagner) and the Special Report 164, State Map DRG SM-164, Mineral Land Classification of Nevada County, California, California Department of Conservation Division of Mines and Geology, Scale of 1:48,000, by Loyd and Clinkenbeard, 1990 (incorporates results of Tuminas, 1983). Based on their review, ECM concluded the following:²

Both of the two small-scale maps [Geologic Map of Chico Quadrangle, DOC, 1992; Special Report 164 (DOC), Lloyd and Clinkenbeard, 1990] depict an unnamed north-northwest trending fault in the vicinity of the [Brunswick] site. Both maps depict the feature as a dashed line meaning that the fault is believed to exist, but its location is approximate. This fault, as shown on the Saucedo and Wagner map, locates it only approximately somewhere within the valley formed by the South Fork of Wolf Creek. The scale of the Loyd and Clinkenbeard map is larger, and the topographic detail is sufficient to show the inferred fault to be located on the east side of Brunswick Road. Note that at the scale of a 1:250,000 map, the width of the line on the Chico map is about 600 feet, and at a scale of 1:48,000, the line width on the Loyd and Clinkenbeard map is about 150 feet. The Loyd and Clinkenbeard map shows the unnamed fault to be located east of Brunswick Road, placing it about 600 feet east of the New Brunswick Shaft and off of the property. Thus, even if the location of the fault were precisely known, its plotted location on the Loyd and Clinkenbeard map would only be within 150 feet of its actual location on the ground, and since it is shown on the maps as being inferred, the actual location might be even farther away. No other information for this feature such as measured strike, dip or relative movement has been found.

¹ NV5. *Idaho-Maryland Mine Project – Portion of Brunswick Industrial Site: Management Plan for Potential Seismic Hazards*. January 16, 2020.

² ECM. *Applicant Report Peer Review, Idaho Maryland Mine: Centennial and Brunswick Sites* [pg. 15]. August 13, 2020.



Anderson Geotechnical Consultants (May 1986 report) investigated two sites, one in the vicinity of the New Brunswick shaft (Lots 6, 7 and 8), and a second site located near the old Brunswick shaft (Lots 1 through 5). It appears that they used old historic maps to locate mining related structures including surface buildings and underground openings. They drilled six test borings on Lots 1 through 5 at the Old Brunswick shaft and referenced a February 1986 report that included details for the area around the New Brunswick Shaft. While that February 1986 report was not available for review, the NV5 report did discuss the findings in that report, and included a map dated January 1987 that was drawn up by A. W. Beeson. That Beeson map showed the location of where Anderson had believed a fault to be, and depicted it as a straight dashed line with two parallel lines located 200 feet either side, showing, presumably Anderson's suggested setback distances for building construction. The map shows the feature to strike north north-west, and to be dominantly located in Lot 8, cutting across a portion of Lot 7. Anderson stated in his May 1986 report that he had previously described it in his February report stating the fault "appears to be present on the northern part of the lot", which we interpret to mean that the presence of the fault is "inferred" and its presence and location has not necessarily been proven. The Beeson map depicts the feature as straight-line crossing through the entire length of the lot, which is slightly different than Anderson's description. ECM believes that if the feature had been mapped in any detail, and confirmed by Anderson, that it would have been depicted on the map as a solid line instead of a dashed line.

The basic definition of a fault is important for discussion. A fault is defined as a fracture on which movement has occurred. This movement might be as little as a few microns, or as large as thousands of feet as might be associated with earth scale tectonic features. Smaller displacement faults are common across the entire Earth, and can be the result of localized stress relief that occurred during the original placement of the rocks, or from other local inhomogeneities that occur during erosion, or old tectonic activity. In all of these cases, even though they might exist, they do not necessarily have to have any recent movement. A fault likely does exist somewhere in the vicinity of the three different inferred locations discussed above. The question then arises as to whether it might have been active in recent times. NV5 believes the feature formed during the Mesozoic era, at least 65 million years ago. They consider it inactive and designate it as a Type C fault zone "with a low seismicity and a low rate of occurrence". Based on ECM's knowledge of the geology of the area, we are in agreement with NV5's conclusion, and no evidence has been found that suggests there might have been any recent fault movement in the general site area. In support of NV5's and ECM's conclusion, further review of the Chico quadrangle map shows that Saucedo and Wagner's interpretation of the fault shows it to terminate at the north edge of mapped Tertiary volcanics (MPv), at a location a little over a half mile south of the New Brunswick Shaft. Since the map does not show the fault crossing the volcanic unit, we conclude that there has been no fault movement to break the overlying Miocene volcanic rock since its deposition in the Miocene Epoch 5 to 23 million years ago. If otherwise, the overlying Miocene volcanic unit would also be displaced, or at least fractured.

As the most recent evidence, both surface and underground miners have been working in the Grass Valley area at the various mines since the mid 1860's provides over 150 years of observation. We have found no records that indicate that any movement has occurred on any faults at or near the site. This conclusion is also consistent with the conclusions reached by the State of California as related to Earthquake Zones, as shown on the California Earthquake Zone Database.



Based on the information that has been presented, there is likely a fault located on or near the site within 600 feet of the New Brunswick shaft. The nearby 5 to 23 million-year-old volcanics located over the inferred location of the fault show no fracturing, thus this is indicative that no movement had occurred more recently. From a modern perspective, the existing New Brunswick shaft and its various ancillary facilities have been in place for over 150 years, and have never reported any seismic damage, nor have any historic reports been found that might indicate modern seismic activity. Whether or not a fault might exist, there is no evidence that this area is now seismically active...

Site Soil Conditions

The soil condition discussion for the Centennial Industrial Site needs to be qualified by the proposed site remediation work discussed in the Introduction chapter of this EIR. As noted therein, Rise Grass Valley Inc. entered into a Voluntary Cleanup Agreement (VCA; Docket No. HSA-FY18/19-014) with the Department of Toxic Substances Control (DTSC) for the voluntary cleanup of soil contamination on the Centennial Industrial Site. The DTSC cleanup project is separate from the Idaho Maryland Mine project and is not dependent on the approval of the Idaho Maryland Mine. Extensive site investigation, overseen by DTSC, has identified mill tailings, waste rock and affected soil at the site that contain lead, arsenic, mercury and other metals at concentrations exceeding background soil metals concentrations and regulatory benchmark concentrations. A Centennial Industrial Site Remedial Action Plan (RAP; 2020) has been prepared by NV5, on behalf of Rise, and describes the proposed procedures for conducting remedial activities needed to meet Remedial Action Objectives (RAO's).

More specifically, the remedial action includes excavation of soils within the former eastern and western tailing ponds and on-site consolidation of contaminated materials, as well as stabilization of contaminated materials within a small hot spot area by cement treatment prior to on-site consolidation. Other contaminated soils from the former tailing ponds that do not pose potential water quality impacts will be placed within the consolidation area as engineered fill without cement treatment. The 5.6-acre consolidation area would be located along the eastern boundary of the Centennial Industrial Site and capped with four feet of clean engineered soil, with the end result being an engineered fill pad.

The excavation areas would be backfilled and regraded with clean fill to promote drainage, and erosion controls will be installed. The engineered fill pad would be graded so that runoff would drain away from the fill slope into surface and subsurface drainage controls. Following completion of excavation, stabilization, and placement activities disturbed areas will be hydroseeded or broadcast seeded with an erosion-control native seed mix to reduce erosion and maintain fill slope stability.

The overall area to be remediated and regraded is currently estimated to be approximately 28 acres of the approximate 56-acre site. Such work will remove a portion of the on-site erodible soils and steep slopes (exceeding gradients of 30 percent) currently located on-site. The post-remediation acreage of highly erodible soils and steep slopes on the Centennial Industrial Site cannot be precisely established for the baseline condition given that final disturbance acreages as a result of remediation activities may vary from current estimates. DTSC, as the CEQA lead agency for approval of the RAP and its associated CEQA document, will separately require the applicant to mitigate impacts related to soil erosion and work within steep slope areas resulting from remediation activities. For example, Appendix E of the RAP contains a Storm Water Pollution Prevention Plan (SWPPP). The RAP outlines best management practices to be implemented to



reduce the potential chance of sediment discharge. After excavation, verification that RAOs have been achieved, and consultation with DTSC, the excavation areas will be re-graded to promote drainage, and erosion controls will be installed. Where appropriate, site restoration activities will include broadcasting seed, fertilizer and straw within the excavation footprint for erosion control measures. Fiber wattles and/or silt fencing will be placed along the perimeter of the down slope sides of the disturbed areas pursuant to the design drawings and the SWPPP.

Centennial Industrial Site

According to the Web Soil Survey (United States Department of Agriculture [USDA] Natural Resource Conservation Service [NRCS]), the Site location is mapped predominantly as Placer Diggings, which is described by the soil survey as “hydraulically-mined areas, placer-mined areas along stream channels, and areas of natural deposits along the stream channels.”³ (see Figure 4.6-1). The soil survey does not rate the Placer Diggings soil class for erosion hazard potential. The locations mapped as Placer Diggings are actually comprised of hardrock mine tailings resulting from historical hardrock mining activities. The Site is historically associated with the Idaho Maryland Mine, a former underground hardrock (lode) gold mining operation. Mining and milling structures associated with the former mine were generally located to the east of the Site, and the Site was used primarily for disposal of mine waste (tailings and waste rock) to land.

The majority of the Placer Diggings soils would be disturbed during remediation activities at the Centennial Industrial Site under DTSC oversight pursuant to the RAP; some portions of the Placer Diggings soil areas would be moved to the encapsulated mine waste area along the Site’s eastern boundary, and other portions would be used as borrow areas for the regrading of remediated areas. Upon removal/relocation of the aforementioned Placer Diggings soils, it is anticipated that the underlying soil would still be comprised of tailings.

Soil conditions near the southern Site boundary are mapped as Secca-Rock outcrop complex, which is described as moderately well-drained soil underlain by metabasic or basic rock. According to the soil survey, weathered rock is typically encountered at a depth of approximately four feet below the ground surface (bgs) in areas mapped as Secca-Rock outcrop complex, and rock outcrop typically comprises 10 to 40 percent of the mapped area. The soil survey rates the Secca-Rock outcrop complex soil class as having severe (2-50 percent slopes) erosion hazard potential.

Based on subsurface investigations by Engeo (2007) and Vector (1993, 1990), tailings depths are typically less than five feet bgs. Tailings depths range up to approximately 12 feet bgs in the northeastern corner of the eastern tailings pond (near Centennial Drive) and up to approximately 20 feet bgs on the northern edge of the western tailings pond. Engeo described the tailings as silt and sand with occasional gravel and clay. Bedrock underlying the tailings was typically described as weathered gabbro and diabase. In general, the gabbro was weak and highly weathered while the diabase was generally strong and moderately weathered.

³ NV5. *Idaho-Maryland Mine Project – Centennial Industrial Site: Management Plan for Steep Slopes and High Erosion Potential*. December 21, 2020.



**Figure 4.6-1
 Soil Types: Centennial Industrial Site**



High Erosion Potential

As discussed above, the USDA NRCS soil survey maps native soil in the southern portion of the Site as having severe erosion hazard potential. According to the survey, a rating of "severe" indicates that erosion is very likely in the case of soil disturbance without erosion control. For these areas, the survey advises that erosion control measures are appropriate, including revegetation of bare areas.

Although an erosion hazard potential is not listed by the NRCS, the mine tailings are predominantly sand and silt created by crushing rock, and therefore are considered to have a high erosion potential.

Brunswick Industrial Site

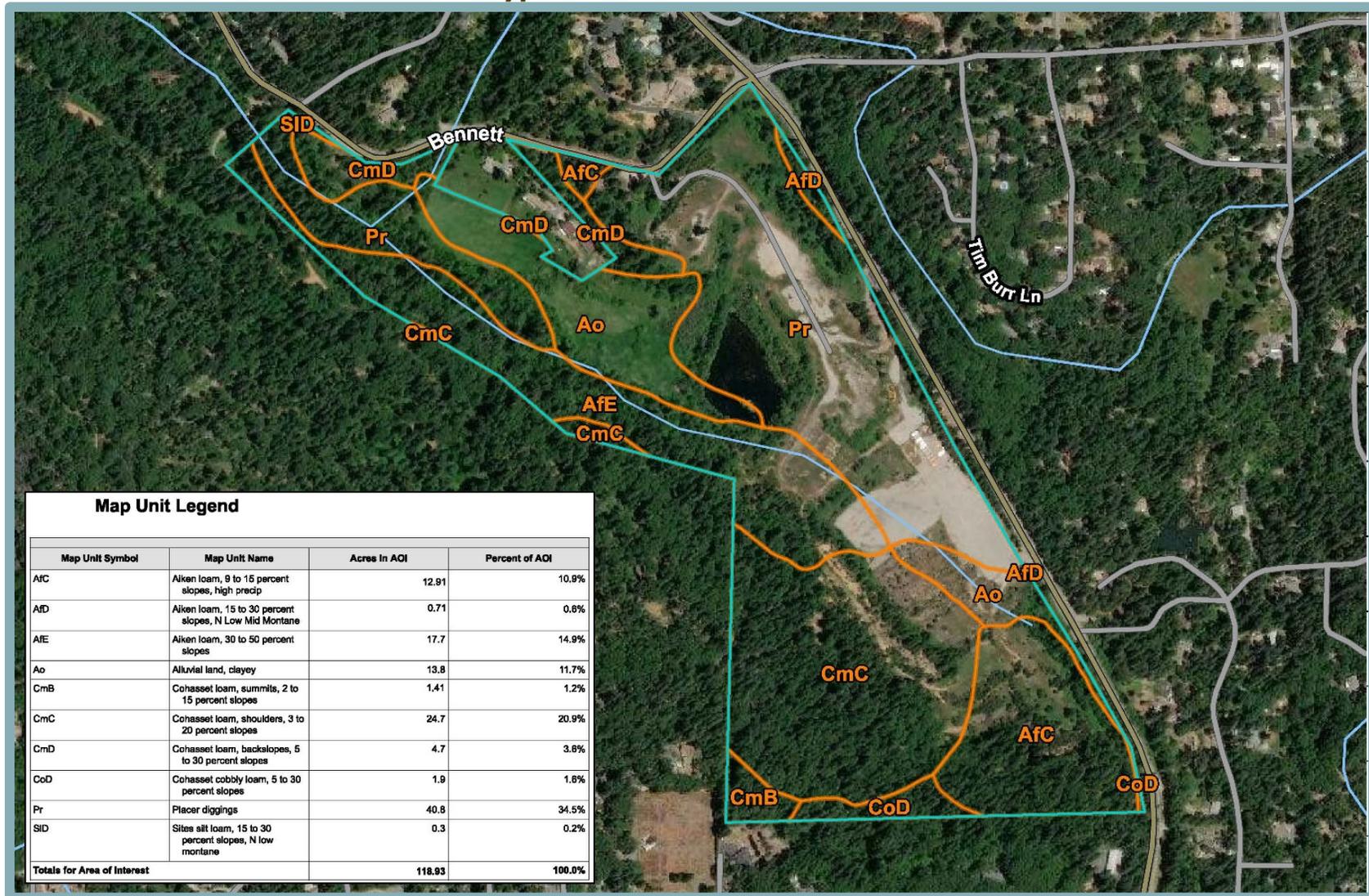
According to the Web Soil Survey (USDA NRCS),⁴ the soil survey maps four soil types at the Brunswick Industrial Site location as described below and shown in Figure 4.6-2.

1. The central-southwest and southeast portions of the Site and small isolated areas along Brunswick Road are mapped as Aiken loam. The soil survey describes the Aiken Loam as a well-drained soil that forms on the sides of andesitic flows. According to the survey, permeability of the Aiken Loam soil type is moderately slow, and weathered andesite is commonly encountered at about 64 inches bgs. The soil survey rates the Aiken Loam soil class as having moderate (9-15 percent slopes) to severe (15-50 percent slopes) erosion hazard potential.
2. The northern and southwest portions of the Site are mapped as Cohasset loam. The Cohasset series is described as well-drained soil that forms on the sides of andesitic flows. According to the survey, permeability of the Aiken Loam soil type is moderately slow, and weathered andesite is commonly encountered at about 96 inches bgs. The soil survey rates the Cohasset loam soil class as having slight (2-15 percent slopes) to moderate (3-50 percent slopes) erosion hazard potential.
3. Most of the central portion of the Site is mapped as Placer Diggings, which is described by the soil survey as "hydraulically-mined areas, placer-mined areas along stream channels, and areas of natural deposits along the stream channels." The portions of the Site location incorrectly mapped as Placer Diggings by the soil survey are actually the result of historical hardrock mining and lumber milling activities. Although these areas were historically disturbed and subject to erosion, they are presently vegetated or covered by pavement, and therefore are not considered to have a high erosion potential. The soil survey does not rate the Placer Diggings soil class for erosion hazard potential in off-road and off-trail areas.
4. The central-northwest and central-southeast portions of the Site are mapped as clayey alluvial land, which is described by the soil survey as a miscellaneous land type consisting of narrow areas of alluvial deposits. These soils are moderately well drained to poorly drained and permeability is moderately slow to very slow. The soil survey does not rate the clayey alluvial land soil class for erosion hazard potential in off-road and off-trail areas.

⁴ NV5. *Idaho-Maryland Mine Project – Brunswick Industrial Site: Management Plan for Steep Slopes and High Erosion Potential*. December 21, 2020.



**Figure 4.6-2
 Soil Types: Brunswick Industrial Site**



High Erosion Potential

As discussed above, the USDA NRCS soil survey maps the central-southwest and southeast portions of the Site and small isolated areas along Brunswick Road as Aiken loam, which is classified as having moderate (for 9-15 percent slopes) to severe (for 15-50 percent slopes) erosion hazard potential.

According to the survey, a rating of "severe" indicates that erosion is very likely in the case of soil disturbance without erosion control. For these areas, the survey advises that erosion control measures are appropriate, including revegetation of bare areas.

Areas mapped by the NRCS as "Placer Diggings" were the result of historical hardrock mining and lumber milling activities. Although these areas were historically disturbed and subject to erosion, they are presently vegetated or covered by pavement. NV5's opinion is that these relatively flat-lying areas are not considered to have a high erosion potential.⁵

East Bennet Road ROW

Several soil types are located underneath and adjacent to the East Bennett Road ROW. The majority of the area is comprised of Boomer loam, Boomer, Sites silt loam, and Cohasset loam. The erosion hazard for these soils, according to the Nevada County Soil Survey,⁶ is as follows:

- Boomer loam: moderate to high
- Boomer: high
- Sites silt loam: moderate
- Cohasset: moderate to high

Steep Slopes

The following section describes the slopes present on the Centennial Industrial Site and the Brunswick Industrial Site.

Centennial Industrial Site

The Centennial Industrial Site is typified by irregular rolling terrain. Elevations range from approximately 2,470 feet above mean sea level (AMSL) at Wolf Creek near the northwestern corner of the Site to approximately 2,580 feet AMSL in the southeastern corner of the Site. Steep slope gradients (30 percent or greater) are partially present in the following areas:

1. The west-facing downstream dam slope that runs along the eastern Site boundary;
2. Discontinuous portions of relic berms and ditches associated with the former mine tailings ponds; and
3. Discontinuous and infrequent portions of native slopes located in central and southern portions of the Site.

Impact discussion 4.6-2 in Section 4.6.4 of this chapter, Impacts and Mitigation Measures, includes an exhibit showing the steep slopes on the Centennial Industrial Site in relation to the

⁵ NV5. *Idaho-Maryland Mine Project – Brunswick Industrial Site: Management Plan for Steep Slopes and High Erosion Potential* [pg. 5]. December 21, 2020.

⁶ United States Department of Agriculture, Soil Conservation Service and Forest Service. Soil Survey of Nevada County Area, California. Available at: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA619/0/nevada_a.pdf. Accessed November 12, 2021.



proposed improvement areas. As will be further discussed, the majority of the current steep slope areas will be removed under the post-remediation baseline condition.

Brunswick Industrial Site

Brunswick Industrial Site topography varies from flat to gently sloping along portions of the developed areas, to steeply sloping in the western and southern portions of the Site. Elevations range from approximately 2,900 feet AMSL in the southwest corner of the Site to approximately 2,780 feet AMSL along the northeastern boundary. Steep slope gradients (30 percent or greater) are partially present in the following areas of the Brunswick Industrial Site:

1. The Brunswick Road fill slope along the northeastern Site boundary;
2. Fill slopes associated with the historical New Brunswick mine area in the northern portion of the Site;
3. Cut and fill slopes associated with the historical lumber pond and dam in the northern portion of the Site;
4. Terraced cut slopes associated with the historical lumber decks in the central portion of the Site; and
5. Discontinuous areas of steep native slopes above and to the southwest and south of the historical lumber terraces.

Impact discussion 4.6-2 in Section 4.6.4 of this chapter, Impacts and Mitigation Measures, includes an exhibit showing the steep slopes on the Brunswick Industrial Site in relation to the proposed improvement areas.

Liquefaction

Liquefaction occurs when saturated fine-grained sands and/or silts lose physical strength temporarily during earthquake induced shaking and behave as a liquid due to the loss of point-to-point grain contact and transfer of normal stress to the pore water. Liquefaction potential varies with water level, soil type, material gradation, relative density, and probable intensity and duration of ground shaking. The Geotechnical Engineering Reports concluded that the overall potential for liquefaction at both the Centennial and Brunswick Industrial Sites is remote.⁷

Expansive Soils

Expansive soils are characterized by their ability to undergo significant volume change due to variation in moisture content. For the Centennial Industrial Site, Engeo (2007) encountered potentially expansive clay/silt layers within the mine tailings. The laboratory test results indicated that these soils exhibit low to moderate shrink/swell potential with variations in moisture content. Moderately to highly expansive soil layers were encountered in other on-site locations. Engeo characterized their explorations as having a limited amount of potentially expansive clay.⁸

NV5 performed expansive soil testing at the Brunswick Industrial Site (2019) and determined that the potential for expansive soil hazards to affect the proposed improvements is considered to be moderate to high. Thin lenses of expansive fine-grained near-surface soils are present at the Site.

⁷ NV5. *Geotechnical Engineering Report, Idaho-Maryland Mine Project – Centennial Industrial Site* [pg. 11]. December 20, 2019; NV5. *Geotechnical Engineering Report, Idaho-Maryland Mine Project – Brunswick Industrial Site* [pg. 12]. November 18, 2019.

⁸ ENGeo Incorporated. *Geotechnical Report, Idaho-Maryland Mine, Surface Facilities and Improvements, Grass Valley, California* [pg. 12]. March 6, 2007.



Brunswick Clay-Lined Pond Dam

The existing clay-lined pond, constructed for the sawmill circa 1988, was evaluated by NV5. NV5 advanced seven exploratory borings along the south and southwestern portion of the pond dam. Generalized descriptions of the soil units encountered during the exploratory boring investigation are described in stratigraphic succession below:

- **Upper Fill - Sandy Clay/Sandy Silt:** Yellowish brown, stiff to very stiff fill encountered in all borings from the surface of the dam embankment to approximately 7.5 to 14 feet bgs.
- **Lower Fill - Clayey Gravel with Sand:** Grayish brown clay with bluish gray rock, medium dense fill, approximately 4 to 8 feet thick, was encountered in several borings. **Well Graded Gravel with Sand:** Bluish Gray, medium dense crushed mine rock fill, approximately 2.5 to 5 feet thick, was encountered in two borings. **Organic Soil:** Black, soft to medium stiff, well preserved to partially decomposed organic fill (predominantly sawdust with some bark), approximately 1 to 4 feet thick, was encountered in multiple borings.
- **Bottom of Fill – Silt with Sand/Sandy Clay:** Mottled dark brown or olive gray, soft to medium stiff to medium dense fill, approximately 1 to 3 feet thick, were encountered in several borings.
- **Native Floodplain Deposits – Silt:** Very dark grayish brown to mottled dark brown, soft to very stiff native soil below fill at least 2 to 4 feet thick, was encountered in several borings.
- **Native Residual Soil – Clay with Sand:** Reddish brown, medium stiff to stiff residual soil below fill at least 1 to 2 feet thick, was encountered in two borings.

The on-site exploratory dam borings and an interview with an equipment operator previously involved with construction of the dam, confirm that a layer of organic fill (sawdust) is present within the southwestern-most 200-foot segment of the dam. Boring logs indicate that the sawdust layer is up to 4 feet thick at the dam centerline, at a depth of approximately 12 to 18 feet bgs. Based on the original topography of the dam footprint, it is likely that the organic layer thickness decreases towards the inboard section of the pond and increases towards the downslope face of the dam.

Near Surface Features that Could Become Unstable

NV5 performed an assessment of the potential for surface impacts at the locations of known near-surface mine features resulting from dewatering of the underground mine workings as part of proposed project's underground mining operations.⁹

The Idaho-Maryland Mine was first located as the Eureka claim in 1851, targeting a gently easterly-raking ore shoot located on the eastern side of Grass Valley. In 1915, the Eureka, Idaho and Maryland claims were assembled under Errol MacBoyle and reopened. MacBoyle consolidated the Brunswick and Morehouse mines into the Idaho Maryland group in 1926. The mine was forced to close at the onset of World War II but reopened after the war and continued operations until final closure in 1957.

Subsequent land use in the area shifted toward urban development and land holdings were subdivided and rezoned for commercial, light industrial and residential use. Over this period, some near-surface mining excavations were closed, filled, or obscured by earthwork grading and

⁹ NV5. *Idaho-Maryland Mine Project: Geotechnical Assessment of Near Surface Mine Features*. Revised September 11, 2020.



development. NV5 performed record searches and located as-built documentation or records of closure for some of the near-surface features. Other features were historically closed without engineering design or agency oversight.

The current water elevation in the mine is approximately 2,500 feet AMSL and currently drains by gravity from the East Eureka Shaft. In order to recommence mining, the underground mine must be dewatered, and groundwater entering the mine must be continuously pumped during the mining operation. Approximately 2,500 acre-feet (approximately 815 million gallons) of water are expected to be pumped from the underground workings during the initial 6-month dewatering period (EMKO, 2020), lowering the water level in the mine approximately 3,200 feet from the current water elevation in the mine of 2,497 feet AMSL. When the water level in the mine workings is located near the ground surface, the drawdown of groundwater within the mine workings may increase the potential for settlement or collapse of shallow workings that were not formally closed. Near surface workings that are already in a dewatered state would generally not be significantly impacted by dewatering the mine.

NV5's assessment focuses on specific near-surface mine features because they are generally more susceptible to subsidence and collapse than are deeper mine workings. The near-surface features may be located in weaker materials (soil and weathered rock); whereas the deeper mine workings are commonly located in competent bedrock. In addition, the underground mine workings focused on removal of quartz vein materials that are generally narrow, so the collapse of a deep (e.g., 100 feet bgs) mine feature is not likely to be expressed at the ground surface.

Of the near-surface features evaluated by NV5, several were recommended for closure where the static groundwater surface is located within 100 feet of the ground surface. These features are discussed below and the locations of these features are shown in Figure 3-14 of the Project Description chapter. In their peer review of NV5's report, ECM notes that, as a margin of safety, NV5 has chosen a separation between the groundwater surface and the ground surface of 100 feet. They believe that in all areas where the separation equals or exceeds 100 feet there is no chance that ground water drawdown could affect surface structures. This water table/ground surface separation distance clearly divides the northern mines from the southern mines. The northern mine openings all have a separation of less than 100 feet, and NV5 recommends potential remediation (i.e., closure) for all of them. For the southern mines, where the separation is greater than 100 feet, they recommend no further actions. ECM is in agreement with NV5 and based on their conclusions and based on the known physical characteristics of the rock units, considers this distance to be conservative.¹⁰

East Eureka Shaft

The East Eureka Shaft is located at 815 Idaho Maryland Road beneath a commercial office building occupied by Navo and Sons. Access to the feature is limited by the existing building. Below the building, the feature is suspected to be open and supported with a concrete collar. A small steel pipe passes through the east side of the building from a sump adjacent to the feature (EMKO, 2020).

¹⁰ ECM. *Applicant Report Peer Review, Idaho Maryland Mine: Centennial and Brunswick Sites* [pg. 34]. August 13, 2020.



East Eureka Drain

The East Eureka Drain includes an approximately 24-inch diameter culvert that extends approximately 70 feet to the southwest from the East Eureka Shaft through a gravel parking lot. The drain discharges to Wolf Creek.

Idaho Drain Tunnel

The Idaho Drain Tunnel is located at 865 Idaho Maryland Road, and appears to be a horizontal excavation that was covered by previous earthwork grading. Minor seepage was observed emanating from bottom of the fill into Wolf Creek in February 2020. Water level in the mine workings is likely present near the elevation of the drain portal, which is lower than the current ground surface elevation as a result of the fill placed over the area. Based on information provided by a neighboring property owner, the boulders and fill were placed in the tunnel portal approximately 15 years ago. Closure documentation is not available.

Idaho Pump Shaft

The Idaho Pump Shaft is located in an industrial yard at 865 Idaho Maryland Road. Previous earthwork grading to construct the industrial yard resulted in the placement of fill over the Idaho Pump Shaft. The property owner indicated that the settlement at the ground surface was observed approximately 5 years ago at a location approximately 100 feet south of the mapped location of the Idaho Pump Shaft. The settlement was subsequently backfilled. Closure documentation is not available for the Idaho Pump Shaft or the nearby settlement feature. Water level in the mine workings is expected at approximately 27 feet bgs.

Idaho Shaft

The Idaho Shaft is a larger diameter incline shaft extending from the ground surface to 2,000 feet bgs. The shaft is located immediately south of a large concrete ore bin that remains from the historical mining operations. The ore bin was observed to be tilting to the south, presumably as a result of settlement around the Idaho Shaft collar, which is reportedly covered by a concrete cap and soil/rock fill.

The property owner indicated that approximately two years ago settlement of the ground surface was observed near the shaft location and was backfilled with boulders and soil. Documentation is not available. Additional settlement at the shaft location, measuring approximately four feet by five feet wide and 18 inches deep, was observed in February 2020.

Summary

Physical closure is recommended at the East Eureka Shaft, East Eureka Drain, Idaho Drain Tunnel, Idaho Pump Shaft, and Idaho Shaft, which are currently open or partially-closed. The closure activities are discussed in Section 4.6.4, Impacts and Mitigation Measures, of this chapter.

Based on NOP comments, NV5 also performed a supplemental investigation of a potential sinking airshaft at 14035 Diamond Court. After reviewing extensive documentation regarding historical mine workings, NV5 determined that the documentation did not suggest that mine features associated with the proposed mining project are located at 14035 Diamond Court.¹¹ Although NV5 cannot rule out the possibility of deep mining excavation at 14035 Diamond Court, all reviewed documents and maps of the Idaho-Maryland Mine do not provide evidence of such a feature associated with the Idaho-Maryland Mine workings. NV5 understands that air ventilation typically

¹¹ NV5. *Idaho-Maryland Mine Project: Supplemental Geotechnical Information* [pg. 3]. November 6, 2020.



followed the vein in the Idaho-Maryland Mine workings rather than extending vertically to the ground surface, and no vertical air shafts are depicted on the maps that NV5 reviewed. Historical near-surface prospecting or mining was documented in the vicinity of 14035 Diamond Court, but these features are not associated with the Idaho-Maryland Mine workings. In general, surface expressions of mining features may present physical hazards and/or unsuitable geotechnical conditions and should be assessed by a qualified professional engineer or geologist. Mine features are typically physically closed under the oversight of a licensed geotechnical engineer pursuant to a permit from the local building department.

Mineral Resources

Areas subject to Mineral Land Classification studies are divided by the state Geologist into various Mineral Resource Zone (MRZ) categories that reflect varying degrees of mineral potential. The majority of the proposed mining areas are located within MRZ 2, with some outlying areas located within MRZ 3. According to the State, MRZ 2 are those “Areas of Identified Mineral Resource Significance.” MRZ 2 is divided into two subcategories; the relevant category for the project area is -2b.

As defined by the State, MRZ-2b are areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain discovered mineral deposits that are either inferred reserves as determined by limited sample analysis, exposure, and past mining history or are deposits that presently are sub-economic. Further exploration work and/or changes in technology or economics could result in upgrading areas classified MRZ-2b to MRZ-2a.

According to Nevada County Land Use and Development Code (LUDC), Section L-II 4.3.11, *Significant Mineral Areas* are “Areas where information indicates that significant mineral deposits are likely present based on State Division of Mines and Geology’s Nevada County Mineral Classification Report Maps, referred to as Mineral Resource Zones - 2 (MRZ-2).”

According to the State, MRZ 3 are those “Areas of Undetermined Mineral Resource Significance.” MRZ 3 is divided into two subcategories; the relevant category for the project area is -3a.

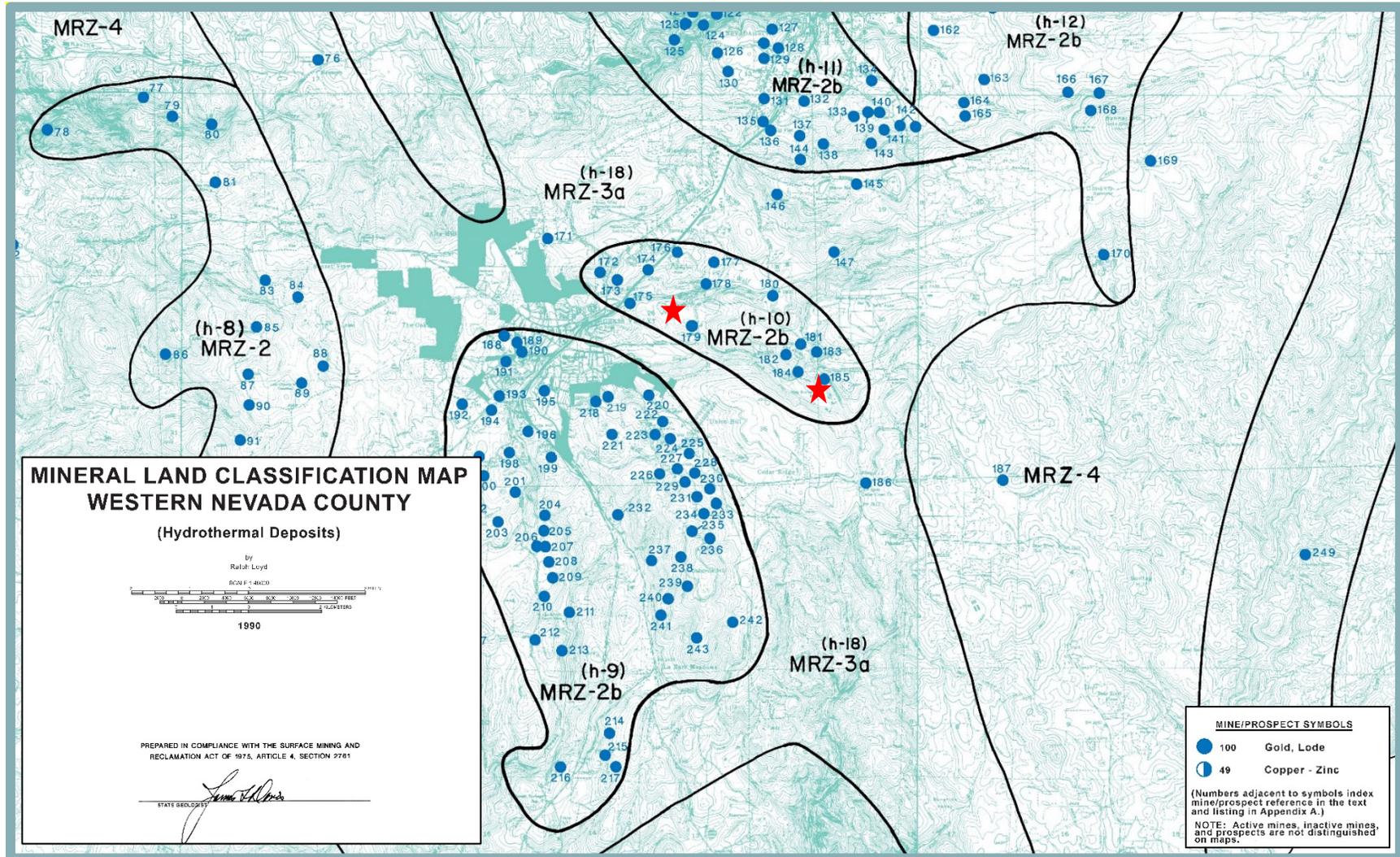
As defined by the State, MRZ-3a are areas containing known mineral occurrences of undetermined mineral resource significance. Further exploration work within these areas could result in the reclassification of specific localities into MRZ-2a or MRZ-2b categories. As shown on the California Mineral Land Classification Diagram, MRZ-3 is divided on the basis of knowledge of economic characteristics of the resources.

The *Mineral Land Classification of Nevada County, California*¹² identifies the mineral deposits in the project area as superscript ‘h’ for deposits formed by hydrothermal processes. The majority of the proposed mining areas are within MRZ-2b and have an accompanying superscript reference number of 10, which is used to identify and reference specific MRZ areas discussed in the report and displayed on the maps. For example, the Grass Valley Northeast Area is identified as MRZ-2b^(h-10) – the tenth area described in the text for deposits formed by hydrothermal processes. MRZ-2b^(h-10) is described as follows (and shown in Figure 4.6-3):

¹² California Department of Conservation, Division of Mines and Geology (Ralph Loyd and John Clinkenbeard). *Mineral Land Classification of Nevada County, California. Special Report 164.* 1990.



**Figure 4.6-3
 Mineral Resource Zones**



★ = Approximate project site locations



Grass Valley Northeast Area (lode gold): This area encompasses a complex system of cavity-filling quartz veins that occupy a network of faults and fissures situated between the Grass Valley and Weimar fault zones (Plate 1a). Historic mines in this area include the Idaho - Maryland mines (Locality Nos. 178 and 179, Plate 3a). Although many veins have been mined to great depth, significant amounts of gold are likely to exist at yet deeper levels. Also, significant gold resources are likely to exist along some sections of the vein system which were previously uneconomic or never explored. The geology, ore deposits, selected mines and the mining history of the Grass Valley district have been best described in detail by Johnston (1940) and summarized in Clark (1970).

A few outlying areas within the mineral rights boundary, which are proposed for mining, are designated MRZ-3a, specifically as MRZ-3a^(h-18) in Special Report 164, as follows:

MRZ-3a^(h-18) - Wolf Creek/Grass Valley Faults (lode gold): Cavity-filling, locally gold-bearing quartz veins occupy fractured and sheared rock along the strikes of the ancient Wolf Creek and Grass Valley faults. Some veins have yielded significant amounts of gold in past years. The Stockton Hill, Belle of France, and the Empress mines (Locality Nos. 101, 97, and 76, Plate 3a) are several of the notable gold mines located within this structural zone.

Paleontological Resources

As previously discussed, the Centennial and Brunswick Industrial Sites are located within a region underlain by a complex assemblage of igneous and metamorphic rocks in the western foothills of the Sierra Nevada. Fossils are unlikely to survive the heat and pressure involved in the formation of igneous and metamorphic rocks. The paleontology records of the University of California Museum of Paleontology do not contain any recorded occurrences of fossils in or near the project area.¹³

4.6.3 REGULATORY CONTEXT

The following section is a brief summary of the regulatory context under which soils, geology, seismic hazards, mineral resources, and paleontological resources are managed at the federal, State, and local levels.

Federal Regulations

The following are the federal environmental laws and policies relevant soils, geology, seismic hazards, mineral, and paleontological resources.

Federal Earthquake Hazards Reduction Act

Passed by Congress in 1977, the Federal Earthquake Hazards Reduction Act is intended to reduce the risks to life and property from future earthquakes. The Act established the National Earthquake Hazards Reduction Program (NEHRP). The goals of NEHRP are to educate and improve the knowledge base for predicting seismic hazards, improve land use practices and building codes, and to reduce earthquake hazards through improved design and construction techniques.

¹³ Personal communication between Patricia A. Holroyd, Ph.D., Senior Museum Scientist, Museum of Paleontology, University of California Berkeley, and Nick Pappani, Vice President, Raney Planning and Management, Inc., January 5, 2021.



Uniform Building Code

The Uniform Building Code (UBC) was first published in 1927 by the International Council of Building Officials and is intended to promote public safety and provide standardized requirements for safe construction. The UBC was replaced in 2000 by the new International Building Code (IBC), published by the International Code Council (ICC), which is a merger of the International Council of Building Officials' UBC, Building Officials and Code Administrators International's National Building Code, and the Southern Building Code Congress International's Standard Building Code. The intention of the IBC is to provide more consistent standards for safe construction and eliminate any differences between the three preceding codes. All State building standard codes are based on the federal building codes.

State Regulations

The following are the State environmental laws and policies relevant to soils, geology, seismic hazards, mineral resources, and paleontological resources.

Alquist-Priolo Earthquake Fault Zoning Act

The 1972 Alquist-Priolo Earthquake Fault Zone Act was passed to prevent the new development of buildings and structures for human occupancy on the surface of active faults. The Act is directed at the hazards of surface fault rupture and does not address other forms of earthquake hazards. The locations of active faults are established into fault zones by the Alquist-Priolo Zone Act. Local agencies regulate any new developments within the appropriate zones in their jurisdiction.

The Alquist-Priolo Zone Act regulates development near active faults so as to mitigate the hazard of surface fault rupture. The Alquist-Priolo Zone Act requires that the State Geologist (Chief of the CDMG) delineate "special study zones" along known active faults in California. Cities and counties affected by the special study zones must regulate certain development projects within the special study zones. The Alquist-Priolo Zone Act prohibits the development of structures for human occupancy across the traces of active faults. According to the Alquist-Priolo Zone Act, active faults have experienced surface displacement during the last 11,000 years. Potentially active faults are those that show evidence of surface displacement during the last 1.6 million years. A fault may be presumed to be inactive based on satisfactory geologic evidence; however, the evidence necessary to prove inactivity sometimes is difficult to obtain and may not exist.

Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (California Public Resources Code [PRC] Section 1690-2699.6) addresses non-surface rupture earthquake hazards, including liquefaction, induced landslides, and subsidence. A mapping program is also established by this Act, which identifies areas within California that have the potential to be affected by such non-surface rupture hazards. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

California Building Standards Code

The State of California regulates development within the State through a variety of tools that reduce or mitigate potential hazards from earthquakes or other geologic hazards. The 2016 California Building Standards Code (CBSC) (California Code of Regulations [CCR], Title 24) governs the design and construction of all building occupancies and associated facilities and equipment throughout California. In addition, the CBSC governs development in potentially



seismically active areas and contains provisions to safeguard against major structural failures or loss of life caused by earthquakes or other geologic hazards. The CBSC includes federal building standards in the national building code, building standards adapted from national codes to meet California conditions, and building standards adopted to address particular California concerns.

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act (SMARA) was enacted by the State in 1975, through Public Resources Code Sections 2710-2796, as a means of minimizing adverse environmental effects of surface mining, ensuring that mined lands are reclaimed to a usable condition and that the production and conservation of mineral resources are encouraged. The act establishes state policy regarding reclamation of mined lands and minerals management practices, among other things.

Public Resources Code Section 5097.5

Section 5097.5 of the PRC establishes protections for historic, prehistoric, archaeological, and paleontological features. In particular, Section 5097.5 prohibits the intentional excavation, removal, destruction, injury, or defacement of historic or prehistoric ruins, burial grounds, and archaeological or vertebrate paleontological sites on public lands. Public lands are defined as those lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, public corporation, or any agency thereof.

Local Regulations

Relevant goals and policies from the Nevada County General Plan and various other local guidelines and regulations related to soils, geology, seismic hazards, mineral resources, and paleontological resources are discussed below.

Nevada County General Plan

The following goals and policies from the Nevada County General Plan are applicable to the proposed project:

Safety Element

Goal GH-10.2 Minimize injury and property damage due to geologic and seismic hazards.

- | | |
|------------------|--|
| Policy GH-10.2.1 | Ensure that new construction meets current structural and safety standards. |
| Policy GH-10.2.2 | Continue to cooperate with the State Department of Conservation – California Geological Survey, the State Office of Emergency Services and other appropriate Federal, State and local agencies and incorporate the most current data concerning the following as the basis for the County’s Site Development Standards, and project site plan review: <ul style="list-style-type: none">a. Geologic hazards; andb. Seismic hazard data for sensitive land uses such as schools, medical facilities, high-density residential uses, and intensive commercial uses. |



As part of the project site review process, require sufficient soils and geologic investigations to identify and evaluate the various geologic and seismic hazards that may exist for all proposed development, including subdivisions. Such investigations shall be required within an area determined to be seismically active by the State Department of Conservation – California Geological Survey, or within an area having potential geologic hazards, including slope instability and excessive erosion.

Goal SF-10.6 Ensure adequate public safety services and facilities through development standards, development fees, and land use patterns.

Policy SF-10.6.3 Land use patterns and development standards shall minimize hazards resulting from wildfire, flooding, earthquake, slope failure, avalanche, and other natural occurrences.

Soils Element

Goal 12.1 Minimize adverse impacts of grading activities, loss of soils and soil productivity.

Policy 12.1 Enforce Grading Ordinance provisions for erosion control on all new development projects by adopting provisions for ongoing monitoring of project grading. Project site inspection shall be required prior to initial site disturbance and grading to ensure all necessary control measures, including proper staking and tree protection measures, are in place. The installation, maintenance, and performance of erosion and sedimentation control measures shall be monitored by County or District staff (or their designee) and completely funded by a project applicant. All County projects shall comply with this policy.

Policy 12.2 Enforce Grading Ordinance requirements for grading or vegetation removal not associated with a development project. Exempted from this requirement are actions necessary for evaluation of soils and other environmental characteristics, and for control of fire fuels, and for agricultural and timber production.

Policy 12.3 Cooperate and encourage those activities dealing with techniques and practices to minimize erosion in cooperation with Nevada County Resource Conservation District, including provision of educational materials for the general public regarding techniques and practices to minimize erosion from construction activities.



Policy 12.4 Require erosion control measures as an element of all County contracts, discretionary projects, and ministerial projects.

Mineral Management

Goal 17.1 Recognize and protect valuable mineral resources for current and future generations in a manner that does not create land use conflicts.

Policy 17.2 Exploration is conditionally permitted in compatible General Plan designations. A conditional use permit shall be required if:

- a. Overburden or mineral deposits in excess of 1,000 cubic yards are disturbed; or
- b. The operation in any one location exceeds one acre in size; or
- c. De-watering will occur or water will be discharged from the site as a result of the operation.

Exploration is conditionally permitted in incompatible General Plan designations providing:

- a. Methods of geological survey, geophysical, or geochemical prospecting are used; or
- b. Bore holes and trial pits not exceeding 100 cubic yards of overburden or other mineral disturbance per acre may be done.
- c. No explosives may be used other than geophysical; there may be no drifting or tunneling and de-watering or water discharge is not allowed.

Policy 17.3 All exploratory operations shall require a reclamation plan unless:

- a. Less than 1,000 cubic yards of overburden are disturbed; and
- b. The size of the operation in any one location is one acre or less.

In those instances where a reclamation plan is not required, an erosion control plan, approved by the Nevada County Planning Department, and a grading permit shall be required for those operations in which 50 cubic yards or more of overburden are disturbed.

Policy 17.4 All operations shall comply with the Nevada County General Plan Noise Chapter standards.



- Policy 17.5 Nevada County hereby recognizes, accepts, and adopts by reference those State Classification Reports as found in Appendix A of Ch. 17: Mineral Management providing information on the location of significant mineral deposits within the County.
- The General Plan land use map shall include a Significant Mineral Deposit identification reflecting MRZ-2 areas as determined in the Reports and similar studies. At any time a Classification Report is presented to the County, said map shall be amended to reflect the Report within 12 months. When it is necessary, due to the lack of specificity, to clarify the exact location of this identification, said Reports shall be used.
- Policy 17.6 Encourage extraction of mineral resources in compatible areas prior to intensified urbanization or conversion to other incompatible land use development.
- Policy 17.7 Use permit time limits for each project shall be established on a case-by-case basis. Time limits shall be based on the reasonably expected life of the mining operation and potential conflicts with future neighboring land uses. Each project shall have a periodic review for compliance with the use permit by the Planning Agency. In no case shall such review time period exceed five years. Said review shall be funded by the applicant.
- Policy 17.8 A reclamation plan, consistent with the State Surface Mining and Reclamation Act standards, is required for all mining operations. Reclamation shall:
- a. Prevent, mitigate, or minimize adverse effects on the environment; and
 - b. Encourage the production and conservation of minerals; and
 - c. Provide for the protection and subsequent beneficial use of mined and reclaimed land; and
 - d. Eliminate residual hazards to the public health and safety; and
 - e. Ensure that mined lands are reclaimed on a timely basis to a usable condition that is readily adaptable for alternative land uses; and
 - f. Avoid the environmental and legal problems created by improperly abandoned mines.
- Policy 17.9 Encourage the mining of previously mined land, if such land still contains economically mineable minerals, so the land can be reclaimed for alternative uses.



- Policy 17.13 The County shall require satisfactory forms of accessible security, including irrevocable letters of credit, cash deposits, escrowed negotiable securities, or performance bonds, from all mining projects to cover all such damages which may stem from the projects.
- Policy 17.14 Already existing development – commercial, residential, and community – as well as undeveloped private lands, shall be protected from adverse environmental effects caused by mining through enforced use permit conditions and mitigations measures, or denial of the projects. The County shall be the enforcement agency.
- Policy 17.24 Regardless of the General Plan designation, subsurface mining shall be conditionally permitted throughout the County. Said mining shall be allowed only after impacts on the environment and affected surface land uses have been adequately reviewed and found to be in compliance with CEQA. Of particular importance shall be the impact of the operation on surface land uses, water quantity and quality, noise and vibration, land subsidence, and traffic associated with surface access. All other related impacts shall also be addressed.
- Policy 17.25 Surface access to subsurface mining is conditionally permitted only in compatible General Plan designations as defined herein. However, vent and escape shafts are conditionally permitted in incompatible General Plan designations where surface disturbance is minimal.
- Policy 17.26 Surface plants for underground mines differ greatly in complexity and areal extent so evaluation on an individual project basis is required to assess impact on the environment. The simplest case is a mine portal or shaft collar from which ore and waste are removed from the site for treatment and disposal elsewhere. As a result, the impact on the environment could be minimal. The most complex cases involve stockpiles, crushing and grinding facilities, concentrators and other processing units, shops, warehouses and offices, waste disposal areas, tailings ponds and extended infrastructure. Such operations shall receive the same evaluation as large surface mines.

Nevada County Land Use and Development Code

The Nevada County LUDC (Title 3) includes mining regulations in Article 3 and Resource Standards within Article 4 (Comprehensive Site Development Standards). These sections are summarized in the following section.



Surface Mining Permits and Reclamation Plans

Section L-II 3.22 provides mining regulations to implement SMARA. Surface mining is allowed in the AG, FR, M1, M2, P, PD, and TPZ Districts and where the property is zoned ME, subject to approval of a Use Permit and Reclamation Plan.

All Reclamation Plans shall comply with Article 4 Site Development Standards and the provisions of SMARA (Sections 2772 and 2773) and SMARA's implementing regulations (CCR Sections 3500-3505). Reclamation activities shall be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance. Interim reclamation may also be required for mined lands that have been disturbed and that may be disturbed again in future operations. Reclamation may be done on an annual basis, in stages compatible with continuing operations, or on completion of all excavation, removal, or fill, as approved by the County. Each phase of reclamation shall be specifically described in the Reclamation Plan and shall include (a) the beginning and expected ending dates for each phase; (b) all reclamation activities required; (c) standards for measuring completion of specific reclamation activities; and (d) estimated costs for completion of each phase of reclamation.

To ensure that reclamation will proceed in accordance with the approved Reclamation Plan, the County shall require as a condition of approval Security that will be released upon satisfactory performance. The applicant may pose Security in the form of a surety bond, trust fund, irrevocable letter of credit from an accredited financial institution, or other method acceptable to the County and the State Mining and Geology Board as specified in State regulations, and which the County reasonably determines are adequate to perform reclamation in accordance with the surface mining operation's approved Plan.

Surface mining operators shall forward an annual surface mining report to the State DOC and to the County Planning Department on a date established by the State DOC, upon forms furnished by the State Mining and Geology Board. New mining operations shall file an initial surface mining report and any applicable filing fees with the State DOC within 30 days of permit approval, or before commencement of operations, whichever is sooner. Any applicable fees, together with a copy of the annual inspection report, shall be forwarded to the State DOC at the time of filing the annual surface mining report.

The Planning Department shall arrange for inspection of a surface mining operation within 6 months of receipt of the Annual Report required in subsection M, to determine whether the surface mining operation is in compliance with the approved Use Permit and/or Reclamation Plan, approved financial assurances, and State regulations. In no event shall less than one inspection be conducted in any calendar year.

Resource Standards

The primary purpose of site development resource standards is to avoid the impact of development projects on sensitive environmental resources and natural site constraints. Where avoidance is not possible, development should minimize impacts in a reasonable fashion that strikes a balance between allowing development of the project site and protecting the resource or avoiding the constraint.

According to Section L-II 4.3.3, General Provisions, Subdivision B, Standard,

The intent of these site development standards is to avoid resource impacts and natural constraints to the maximum possible. To that end, such standards will be applied successively as follows (an



applicant cannot descend to the succeeding methods until he or she has shown to the satisfaction of the County that the preceding methods are infeasible):

1. Avoiding the impact by designing or re-designing the project so that the resource or constraint is fully protected and not disturbed. Avoidance is the preferred standard unless the Planning Agency determines that implementation of this standard effectively removes the potential for the reasonable development of the parcel. Avoidance may be attained through clustering, transfer of development rights, buffering, screening, identification of building envelopes, the provision of open space, or other techniques that permanently protect the resource or avoid the constraint. Permanence shall be ensured through dedication, easements, irrevocable trusts, deed restrictions, covenants, or similar techniques running with the land. In addition, zoning techniques (i.e., "Open Space" District, setbacks, etc.) may also be used to ensure permanence. Provisions to avoid the resource or constraint shall become conditions of approval or mitigation measures of the project.
2. Minimizing the impact through preparation and implementation of a County-approved Management Plan prepared by an independent consultant approved by, or under the direction of, County staff, that limits the degree of impact to the maximum extent possible. Where the Planning Agency determines that avoidance is not acceptable or adversely affects another environmentally-sensitive resource, minimization shall be the preferred standard unless the County determines that the standard will not effectively protect the resource or avoid the constraint to an acceptable level. In such instances the County shall deny the project. Minimization may be attained through clustering, buffering, screening, identification of building envelopes, the provision of open space, or other techniques that permanently protect the resource or avoid the constraint. Permanence shall be ensured through dedication, easements, irrevocable trusts, deed restrictions, covenants, or similar techniques running with the land. In addition, zoning techniques (i.e., "Open Space" District, setbacks, etc.) may also be used to ensure permanence. Management Plan provisions to minimize impacts shall become conditions of approval or mitigation measures of the project.
3. Compensating for the impact by replacing or providing a substitute resource or environments. Compensation is appropriate where the Planning Agency determines that avoiding or minimizing the impact is not acceptable. Compensation may include the on-site or off-site provision or creation, protection, and maintenance of a resource or habitat. Management Plan provisions to compensate for impacts shall become conditions of approval of the project. Lands used as compensation for unavoidable project impacts shall be acquired through fee title or conservation easements with the express purpose of maintenance as compensation for impacts to wildlife in perpetuity. Holders of title or easements shall be restricted to mutually agreed upon agencies or private, non-profit conservation entities approved by the Planning Agency.

Realistic and effective avoidance of impacts and then minimization of impacts must first precede the use of compensatory mitigation.

Subdivision C provides additional direction on Management Plans, discussed in item 2 above. According to subdivision C,

C. Management Plan. Management Plans are a tool that can be used to minimize the impacts of development on environmentally sensitive environmental resources and/or constraints. Where avoidance is not a feasible alternative, a Management Plan may be prepared, consistent with the provisions of this subsection.

Management Plans proposed in conjunction with a discretionary project, such as the proposed project, shall be considered by the hearing body reviewing the project. Management Plans are required for certain types of resources. With respect to geology and soils, and related issues applicable to the Centennial and Brunswick Industrial Sites, these include Steep Slopes/High



Erosion Potential (Section L-II 4.3.3(A)(j)) and Earthquake Faults and Seismically Sensitive Areas (Section L-II 4.3.3(A)(e)).

Two Management Plans have been prepared to address steep slopes/high erosion potential on the Centennial and Brunswick Industrial Sites and minimization of project impacts to these constraints. One additional Management Plan has been prepared for the Brunswick Industrial Site to address earthquake faults. These plans are discussed in the sections below.

Management Plans for Steep Slopes and High Erosion Potential (Centennial and Brunswick Industrial Sites, 2020)

Management Plans for Steep Slopes and High Erosion Potential for the Centennial and Brunswick Industrial Sites (2020) were prepared pursuant to Nevada County LUDC Section L-II 4.3.13 to provide a professional site-specific inventory and analysis of steep slope (slopes of 30+ percent) and high erosion potential areas¹⁴ of the Sites, and to evaluate these constraints and recommend mitigation and/or managed alternatives to avoid or reduce the impacts. The inventory and analyses are performed for the entire Sites, including all areas of proposed disturbance.

Brunswick Management Plan for Potential Seismic Hazards (2020)

A Brunswick Management Plan for Potential Seismic Hazards (2020) was prepared pursuant to Nevada County LUDC Section L-II 4.3.8 to address potential seismic hazards associated with a previously-identified fault alignment. Section L-II 4.3.8.C requires a management plan for development projects that will result in disturbance within seismically active areas, which are defined in Section L-II 4.3.8.B as areas determined to be within a seismic hazard zone or to have the potential to suffer ground rupture from active faults by the State Division of Mines and Geology.

County of Nevada On-Site Wastewater Treatment Systems and Local Area Management Plan

The County's On-Site Wastewater Treatment Systems (OWTS) and Local Area Management Plan (LAMP) make up the County's on-site septic disposal regulations. The OWTS and LAMP is intended to protect the public health through establishment of minimum standards for design, construction, installation, operation, maintenance, replacement, alteration, enlargement, repair, and abandonment of facilities for disposal of sewage within the unincorporated area of Nevada County. With respect to design, LAMP Section T-054 provides Special Design System Requirements; Section T-058 provides pressurized distribution system requirements; and Section T-091 provides requirements for large systems with a projected daily sewage flow between 2,500 - 10,000 gallons. Section A-026 establishes a program of monitoring, operation, and maintenance of the system.

4.6.4 IMPACTS AND MITIGATION MEASURES

This section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to geology, soils, mineral resources, and paleontological resources. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

¹⁴ Pursuant to Section L-II 4.3.13(B)(2), these are "Areas determined to have highly-erodible soils based on soils surveys prepared by the U.S. Soil Conservation Service and U.S. Forest Service."



Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, a significant impact would occur if the proposed project would result in any of the following:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault;
 - Strong seismic ground shaking;
 - Seismic-related ground failure, including liquefaction;
 - Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on expansive soil, as defined in Table 18-1B of the UBC (1994), creating substantial direct or indirect risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; and/or
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Method of Analysis

The analyses of geologic and soils constraints at the Centennial and Brunswick Industrial Sites were performed by NV5 under contract with the project applicant. ECM was retained by the County's environmental consultant for the project, Raney, to perform an independent third-party review of the work performed by NV5. The methodology employed by both geotechnical and mining experts is summarized in this section.

Geotechnical Engineering Reports

For both the Centennial and Brunswick Industrial Sites, NV5 performed a review of geologic literature pertaining to the Sites, including previous site investigations (e.g., Holdrege and Kull (1997, 2004), Vector Engineering, Inc. (1989)), after which NV5 performed field investigations (2019). As part of the Brunswick Industrial Site field investigation effort, NV5 excavated exploratory trenches across the Sites, and advanced seven exploratory borings along the south and southwestern portion of the pond dam. The trenches were excavated to depths ranging from two to nine feet below the ground surface. NV5 performed laboratory tests on selected soil samples taken from the subsurface exploratory trenches and borings (Brunswick) to determine their geotechnical engineering material properties. These engineering material properties were used to develop geotechnical engineering design recommendations for earthwork and structural improvements.



Exploratory borings and excavations were not performed by NV5 for the Centennial Industrial Site due to the fact that several previous investigations have already been performed, which included subsurface investigation. These include Engeo (2007) and Vector (1990, 1993).

Management Plans for Steep Slopes and High Erosion Potential (Centennial and Brunswick Industrial Sites, 2020)

NV5 prepared the Management Plans for Steep Slopes and High Erosion Potential for both the Centennial and Brunswick Industrial Sites in accordance with Nevada County LUDC Section L-II 4.3.8. As part of the effort, NV5 reviewed the Web Soil Survey (USDA, NRCS) to identify on-site soil types, and in particular, highly-erodible soils. Areas of steep slopes (>30 percent) were also identified based on grading plan information for the proposed project provided by Nevada City Engineering, Inc. Upon identification of steep slopes and highly erodible soils, NV5 identified mitigation measures for incorporation into project plans and specifications to ensure feasibility of project development.

Brunswick Management Plan for Potential Seismic Hazards (2020)

NV5 prepared this management plan for the Brunswick Industrial Site pursuant to Nevada County LUDC Section L-II 4.3.8 to address potential seismic hazards associated with a previously-identified fault alignment. This management plan included a detailed review of published geologic literature pertaining to the Brunswick Industrial Site and the findings of NV5's geotechnical engineering report for Brunswick. Among the published geologic literature reviewed include but are not limited to the Geologic Map of the Chico Quadrangle, California (California DOC, Division of Mines and Geology, 1992; 1:250,000); the Geologic Map of the Grass Valley – Colfax Area (A. Tuminas, 1983); the Fault Activity Map of California (2010) prepared by the California DOC, California Geological Survey, etc.

After reviewing published geologic literature, NV5 concluded that the Brunswick Industrial Site is not located within an Alquist-Priolo active fault.

Geotechnical Assessment of Near Surface Mine Features

This assessment focuses on specific near-surface mine features because they are generally more susceptible to subsidence and collapse than are deeper mine workings. Rise's acquisition of the Idaho-Maryland Mine Property included a significant collection of historic records of the Idaho-Maryland Mine, such as reports, production records and data, financial statements, development reports, survey data, exploration drill results, maps showing mine workings, geological information, and assay results. The historical records have been compiled by Rise, reviewed by Amec Foster Wheeler (Amec, 2017) and were used by Rise to locate near surface mine workings.

This assessment included NV5's review of surface conditions and existing improvements at several near-surface mine features, as well as available information of the previously developed underground workings in the project area.

As a margin of safety, NV5's analysis assumed a separation between the groundwater surface and the ground surface of 100 feet, based on the professional opinion that in all areas where the separation equals or exceeds 100 feet there is no chance that ground water drawdown could affect surface structures. ECM's peer review (discussed below) is in agreement with NV5 and considers this distance to be conservative.



Independent Peer Review

ECM was retained by Raney (the County's EIR consultant) to perform an independent third-party peer review of the geotechnical documents prepared by NV5. The peer review as performed by Art Braun (Mining Geotechnical Engineer), with over 30 years of professional experience, and Donald Stevens (California Licensed Professional Engineer).

In general, ECM reviewed the following NV5's reports and independently reviewed their source materials, as determined necessary.

- Geotechnical Engineering Report, Idaho-Maryland Mine Project, Brunswick Site, NV5 Report dated November 18, 2019.
- Geotechnical Engineering Report, Idaho-Maryland Mine Project, Centennial Industrial Site, NV5 Report dated December 10, 2019.
- Brunswick Management Plan for Potential Seismic Hazards (2020).
- Management Plan for Steep Slopes and High Erosion Potential (Centennial Industrial Site, 2020).
- Management Plan for Steep Slopes and High Erosion Potential (Brunswick Industrial Site, 2020).
- Geotechnical Assessment of the Near Surface Mine Features, NV5, Report dated June 2020.

ECM's peer review did not identify any deficiencies in NV5's reports. Recommendations for further study were related to the Geotechnical Assessment of Near Surface Mine Features report. ECM recommended investigation regarding the Maslin Shaft and the 70-Level Stope. In response to these recommendations, NV5 provided Supplemental Geotechnical Information (November 6, 2020), which determined that, based on available information, these two features do not pose significant risk to future mining operations.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on implementation of the proposed project in comparison with the standards of significance identified above.

4.6-1 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, and landslides. Based on the analysis below, and with implementation of mitigation, the impact is *less than significant*.

Liquefaction is addressed in Impact 4.6-3 of this chapter. Regarding rupture of a known earthquake fault, pursuant to the significance thresholds, the first criterion is whether the proposed project would directly or indirectly cause potential substantial adverse effects involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area (refer to Division of Mines and Geology Special Publication 42). The 1997 edition of CGS Special Publication 42, Fault Rupture Hazard Zones in California, describes active faults and fault zones (activity within 11,000 years), as part of the Alquist-Priolo Earthquake Fault



Zoning Act. The maps and documents all indicate the project site is not located within an (Alquist-Priolo) active fault zone.

The threshold criterion also asks whether there is “other evidence of a known fault.” As previously discussed, according to the Geologic Map of the Chico Quadrangle, California (California DOC, Division of Mines and Geology, 1992, 1:250,000), a northwest trending liniment of the Grass Valley Fault Zone is approximately located or inferred along Brunswick Road east of the Brunswick Industrial Site.

The Geologic Map of the Grass Valley - Colfax Area (A. Tuminas, 1983) presents the findings of a more detailed local study. According to this geologic map, an inferred fault trends north-northwest through the Brunswick Industrial Site property approximately along the eastern shore of the pond and passing through the northern Site boundary.

The *Brunswick Management Plan for Potential Seismic Hazards (2020)*,¹⁵ includes a 1986 report by Anderson Geotechnical Consultants, Inc., which contains a one-inch equals 100 feet scale map dated January 1987 by A. W. Beeson and Associates. The Beeson map shows a dashed line labeled “fault line per Anderson Geotechnical Report”, likely referring to a report produced by Anderson in February 1986, although the original has not been located.

ECM, during its peer review of NV5’s Brunswick Management Plan for Potential Seismic Hazards (2020), reviewed the 1992 Geologic Map of the Chico Quadrangle (DOC, Saucedo and Wagner) and the Special Report 164, State Map DRG SM-164, Mineral Land Classification of Nevada County, California, California DOC Division of Mines and Geology, Scale of 1:48,000, by Loyd and Clinkenbeard, 1990 (incorporates results of Tuminas, 1983). As noted by ECM, both maps (1992 DOC Geologic Map of Chico Quadrangle, and 1990 DOC Special Report 164) depict the feature as a dashed line meaning that the fault is believed to exist, but its location is approximate.¹⁶

A Final Map for the previously proposed Bet Acres Subdivision, dated January 1987, was drawn up by A. W. Beeson and shows the location of where Anderson Geotechnical Consultants had believed a fault to be, based on their previous site investigations, and depicted it as a straight dashed line with two parallel lines located 200 feet either side, showing, presumably Anderson’s suggested setback distances for building construction. The map shows the feature to strike north north-west, and to be dominantly located in Lot 8, cutting across a portion of Lot 7. Anderson’s previous reporting stated that the fault “appears to be present on the northern part of the lot”, which ECM interprets to mean that the presence of the fault is “inferred” and its presence and location has not necessarily been proven.¹⁷ ECM believes that if the feature had been mapped in any detail, and confirmed by Anderson, that it would have been depicted on the map as a solid line instead of a dashed line.

¹⁵ NV5. *Idaho-Maryland Mine Project – Portion of Brunswick Industrial Site: Management Plan for Potential Seismic Hazards*. January 16, 2020.

¹⁶ ECM. *Applicant Report Peer Review, Idaho Maryland Mine: Centennial and Brunswick Sites* [pg. 15]. August 13, 2020.

¹⁷ *Ibid.*



As stated by ECM:

The basic definition of a fault is important for discussion. A fault is defined as a fracture on which movement has occurred. This movement might be as little as a few microns, or as large as thousands of feet as might be associated with earth scale tectonic features. Smaller displacement faults are common across the entire Earth, and can be the result of localized stress relief that occurred during the original placement of the rocks, or from other local inhomogeneities that occur during erosion, or old tectonic activity. In all of these cases, even though they might exist, they do not necessarily have to have any recent movement. A fault likely does exist somewhere in the vicinity of the three different inferred locations discussed above. The question then arises as to whether it might have been active in recent times. NV5 believes the feature formed during the Mesozoic era, at least 65 million years ago. They consider it inactive and designate it as a Type C fault zone “with a low seismicity and a low rate of occurrence”. Based on ECM’s knowledge of the geology of the area, we are in agreement with NV5’s conclusion, and no evidence has been found that suggests there might have been any recent fault movement in the general site area. In support of NV5’s and ECM’s conclusion, further review of the Chico quadrangle map shows that Saucedo and Wagner’s interpretation of the fault shows it to terminate at the north edge of mapped Tertiary volcanics (MPv), at a location a little over a half mile south of the New Brunswick Shaft. Since the map does not show the fault crossing the volcanic unit, we conclude that there has been no fault movement to break the overlying Miocene volcanic rock since its deposition in the Miocene Epoch 5 to 23 million years ago. If otherwise, the overlying Miocene volcanic unit would also be displaced, or at least fractured.

As the most recent evidence, both surface and underground miners have been working in the Grass Valley area at the various mines since the mid 1860’s provides over 150 years of observation. We have found no records that indicate that any movement has occurred on any faults at or near the site. This conclusion is also consistent with the conclusions reached by the State of California as related to Earthquake Zones, as shown on the California Earthquake Zone Database.

Based on the information that has been presented, there is likely a fault located on or near the site within 600 feet of the New Brunswick shaft. The nearby 5 to 23 million-year-old volcanics located over the inferred location of the fault show no fracturing, thus this is indicative that no movement had occurred more recently. From a modern perspective, the existing New Brunswick shaft and its various ancillary facilities have been in place for over 150 years, and have never reported any seismic damage, nor have any historic reports been found that might indicate modern seismic activity. Whether or not a fault might exist, there is no evidence that this area is now seismically active...

Based upon this substantial evidence in the record, the project includes a request to amend the Final Map for Bet Acres recorded in February 1987 in Book 7 of Subdivision Maps at Page 75 to remove the “200’ Building Setback From Fault”, as shown on Sheet 4 of Final Map #85.



In addition, a management plan was prepared pursuant to Nevada County LUDC Section L-II 4.3.8 to address potential seismic hazards associated with the previously-identified inferred fault alignment. Section L-II 4.3.8.C requires a management plan for development projects that will result in disturbance within seismically active areas, which are defined in Section L-II 4.3.8.B as areas determined to be within a seismic hazard zone or to have the potential to suffer ground rupture from active faults by the State Division of Mines and Geology. As noted therein, the inferred fault alignment identified by Anderson at the Brunswick Industrial Site is a trending liniment of the Grass Valley Fault Zone, a subset within the regional Foothills Fault System. The Foothills Fault System formed during the Mesozoic era (between approximately 65 million and 248 million years ago). The Grass Valley Fault Zone is not considered active, and the Foothills Fault System is designated as a Type C fault zone, with low seismicity and a low rate of recurrence. It is NV5's professional opinion that the subject fault, identified on the property in Map 85-7, does not qualify as a seismically active area as defined by Nevada County LUDC Section L-II 4.3.8.B, and the proposed project development within the designated building setback fault zone is generally feasible from a geotechnical engineering standpoint, provided that the recommendations presented in the project geotechnical engineering report (NV5; November 18, 2019) are incorporated into the project plans.¹⁸

While the analysis shows that an active fault likely does not exist, out of an abundance of caution, the County has concluded that a **significant** impact could occur with respect to exposing people or structures to the risk of loss, injury, or death involving rupture of an earthquake fault, strong ground shaking, ground failure, liquefaction, or landslides.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

4.6-1 *Prior to approval of Improvement Plans, the design recommendations from the Brunswick Industrial Site Geotechnical Report (November 18, 2019) shall be incorporated into the Plans to the satisfaction of the Nevada County Building Department. Recommendations regarding slope stability and seismic criteria are set forth in Sections 5.1 and 5.2 of the Geotechnical Report, including but not limited to:*

- *Permanent cut slopes shall not be steeper than 2:1, horizontal to vertical (H:V).*
- *Fill slopes greater than 30 feet in height shall be terraced with surface drains that restrict surface runoff from travelling more than 30 feet continuously down the fill slope face. The applicant shall retain NV5 to review fill slope configurations greater than approximately 10 feet in height, prior to fill placement.*
- *Fill shall be placed in horizontal lifts to the lines and grades shown on the grading plan. Slopes shall be constructed by overbuilding the slope face and then cutting it back to the design finished grade slope gradient. Fill shall not be constructed or extended horizontally*

¹⁸ NV5. *Idaho-Maryland Mine Project – Portion of Brunswick Industrial Site: Management Plan for Potential Seismic Hazards* [pg. 5]. January 16, 2020.



by placing soil on an existing slope face and/or compacted by track walking.

- Building footings shall be trenched into competent native soil, weathered rock or compacted fill, and reinforced with a minimum of two No. 4 rebar reinforcement, one near the top of the footing and one near the bottom.
- Slab-on-grade floors shall be used and designed by a structural engineer with regard to the anticipated loading. Interior building concrete slab-on-grade floor shall meet minimum concrete slab thickness, steel reinforcement, rebar, and crushed rock or aggregate base layer specifications in Section 5.2.3 of the Geotechnical Report.
- Rock anchors or doweling shall be used to provide lateral and uplift resistance where shallow, competent rock limits footing excavation. Rock anchors should only be installed in competent rock.

4.6-2 Result in substantial soil erosion or the loss of topsoil. Based on the analysis below and with implementation of mitigation, the impact is less than significant.

The proposed project would involve grading and construction activities at the Centennial and Brunswick Industrial Sites, as well as along East Bennett Road for installation of the potable water supply pipeline. Construction work (e.g., grading) in each of these areas would result in disturbance of more than one acre of land. Thus, compliance with the State Water Resources Control Board (SWRCB) general permit to discharge storm water associated with construction activity is required. The general permit is known as the SWRCB, Order No. 2009-0009-DWQ (as amended by Orders 2010-0014-DWQ and 2012-006-DWQ), National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit). The project applicant would be required to submit a Notice of Intent (NOI) for coverage under the Construction General Permit and prepare a construction SWPPP.

The SWPPP would need to address any project-related activities that have the potential to release pollutants, including sediment, in stormwater, such as:

- Excavation work;
- Material stockpiling;
- Waste and soil screening;
- Loading and hauling of materials; and
- Winterization of incomplete activities.

Stockpiles

When areas are graded for placement of engineered fill, facilities, and infrastructure, available topsoil would be salvaged from those areas and stockpiled on-site. Before topsoil is salvaged, the area would be cleared of woody vegetation and root balls using chainsaws and a portable excavator. Plant debris will be chipped in place and spread on the topsoil. This organic matter would be blended with the topsoil during harvest.



As outlined in the Reclamation Plan, the following actions will be implemented related to topsoil stockpiles:

- Topsoil and vegetation will not be removed more than 1 year before necessary and will be kept to a minimum.
- After topsoil is stripped, it will be hauled and stored if it cannot be used at that time for concurrent reclamation activities.
- Topsoil will be stockpiled in a manner that will not obstruct natural drainage.
- The topsoil will be compacted as little as possible. If compacting of a portion of the stockpiles is necessary for stability, compacting will occur to the minimum extent necessary. Topsoil compaction will not be such that its ability to perform as a planting medium will be compromised.
- Topsoil stockpiles will be protected from sediment transport by surface roughening, watering, and perimeter silt fencing.
- Topsoil stockpile areas will be identified and well-marked.
- Relocation of topsoil after it is stockpiled will be minimized.
- If topsoil is stored during the winter rainy season, erosion control measures will be implemented.
- A small bulldozer or similar equipment will be used to rip and blend the soil materials as necessary.
- To the extent feasible, rocks and plant material in excess of 4 inches in greatest dimension should be removed from the topsoil.
- Any topsoil stockpile remaining longer than 30 days will be seeded with a sterile temporary cover or the specified erosion-control seed mixture.

Engineered Fill Slopes

The engineered fill slopes would be 3:1 (H:V). The proposed fill material will consist of a composite of blast rock and sand tailings produced underground. The angular rock is anticipated to have good binding properties and compaction will occur by grain to grain contact, while finer grained materials will require more effort to obtain a desired level of compaction. Blending of the two materials can produce a higher density final fill given that the finer material fills in spaces between the larger fragments.

The face of the fill should be easily maintainable at a slope of 1 to 3 (rise over run) and a vegetation cover would be expected to grow well on the north and northwest facing surfaces. The fill is going to be constructed over a period of years, and while most of the surface can be maintained in a finished, or semi-finished and stable vegetated condition, during the life of the project, there will likely be areas that will be open and subject to potential erosion should a larger than expected storm occur. An important design feature shown on the grading plans are the detention ponds that are to be constructed immediately down-gradient of the fill areas. These ponds, while collecting sediments, also provide a second level of containment in the event that unanticipated erosion of an open surface occurs. Further, the design of the pond will allow any eroded material that has entered it to be recovered and reused beneficially. According to ECM's peer review, the design has been well thought out and is appropriate for the Site and project.¹⁹

¹⁹ ECM. *Applicant Report Peer Review, Idaho Maryland Mine: Centennial and Brunswick Sites* [pg. 20]. August 13, 2020.



On-site fills are proposed to be constructed at a slope ratio of 3:1. Due to the relatively mild gradient, mid-slope benches would not be required. Where slope banks are great enough in height to require mid-slope interceptor ditches, “J” Ditches will be provided. These would eliminate any likelihood of erosion occurring on the slope faces.²⁰ Additionally, the flatter 3:1 slopes would also enhance the viability of landscaping and vegetative efforts on those slopes.

The proposed detention basins at each Site are intentionally located at the downstream toe of each fill site. This would be done so that they may be constructed and made functional relatively early in the process of the fill operations. Therefore, as the fill areas rise throughout the anticipated duration of this portion of the mining operation, flows would be directed to these facilities via the drainage pipes which proceed downhill from the surface of the fill, allowing the flows to be directed to the detention basins. These pipes in the proposed 3:1 slopes, at any given point in the process of placing the fills, would be extended up slope from the detention basins to the then-current surface. Interceptor ditches and catchment sumps would be formed at the surface, as indicated on the grading plans, and would be replaced periodically as the fill operation progresses and the surface elevation rises. By this strategy, site drainage would continually be positively controlled throughout the process of the engineered fill placement.

Steep Slopes and High Erosion Potential

Potential sediment erosion is particularly important given the presence of steep slopes on both Sites and high erosion hazard areas. According to Nevada County LUDC, management plans are required for work within areas of steep slopes (having gradients of 30 percent or greater) and high erosion hazard. According to Section L-II 4.3.13(B)(2), high erosion hazard areas are “Areas determined to have highly-erodible soils based on soils surveys prepared by the U.S. Soil Conservation Service and U.S. Forest Service.” Both steep slopes and high erosion hazard areas are discussed in more detail for each Site below.

Centennial Industrial Site

For the Centennial Industrial Site, the USDA NRCS soil survey maps soil in the southern portion of the Site as having severe erosion hazard potential. Much of this area will not be disturbed by the placement of engineered fill. Existing high erosion mine tailings would be remediated under DTSC oversight pursuant to an approved RAP, and revegetated after final grading, limiting areas of high erosion potential tailings under the baseline condition.

Areas of steep slopes are depicted on Figure 4.6-4, which is based on a grading plan prepared by Nevada City Engineering, Inc. Overall, the Site is relatively gently-sloping. Nevada City Engineering, Inc. estimated that the proposed area of disturbance created from placement of engineered fill from the mine would include a maximum of approximately 4.1 acres of steep slopes. This estimate is an absolute maximum because it reflects existing physical conditions at the Centennial Industrial Site, whereas, a portion of these steep slope areas would be removed during remediation activities, which remediation activities are not part of the proposed project. The majority of the

²⁰ NCE. *Preliminary Drainage Analysis and Detention Basin Sizing for Centennial and Brunswick Industrial Sites* [pg. 4]. October 2019.



steep slope area is a result of cut and fill associated with the historical mine tailings ponds and the dam on the eastern Site boundary. Discontinuous and infrequent pockets of native slope gradients 30 percent or greater are present within an area to receive mine rock fill in the central and southern portions of the proposed disturbance area. The fill is to be placed against the native slope, resulting in a relatively flat finished grade that extends to the north, away from the native slope face, as depicted on Figure 4.6-4. During construction, drainage improvements and erosion and sediment control measures are to be implemented, as shown on Figure 4.6-4.

Brunswick Industrial Site

High erosion hazard areas on the Brunswick Industrial site are limited to the Aiken loam soil type (15-50 percent slopes), which have a severe erosion hazard potential. The Aiken loam (15-50 percent slopes) comprise approximately 15.5 percent of the overall 119-acre site, as shown in Figure 4.6-2. The soils are generally located in the central-southwest and southeast portions of the Site, and small isolated areas along Brunswick Road.

Areas of steep slopes are depicted on Figure 4.6-5, which is based on a grading plan prepared by Nevada City Engineering, Inc. Nevada City Engineering, Inc. estimated that the proposed area of disturbance created from placement of engineered fill from the mine would include approximately 6.8 acres of steep slopes. The majority of this steep slope area is a result of cut and fill associated with Brunswick Road and the historical mining and lumber operations. Discontinuous pockets of native slope gradients 30 percent or greater are present within an area to receive mine rock fill on the southwestern edge of the proposed disturbance area. The fill is to be constructed against these steep slopes, resulting in a relatively flat finished grade that extends to the southeast away from the native slope face, as depicted on Figure 4.6-5. During construction, drainage improvements and erosion and sediment control measures are to be implemented, as shown on Figure 4.6-5.

East Bennett Road ROW

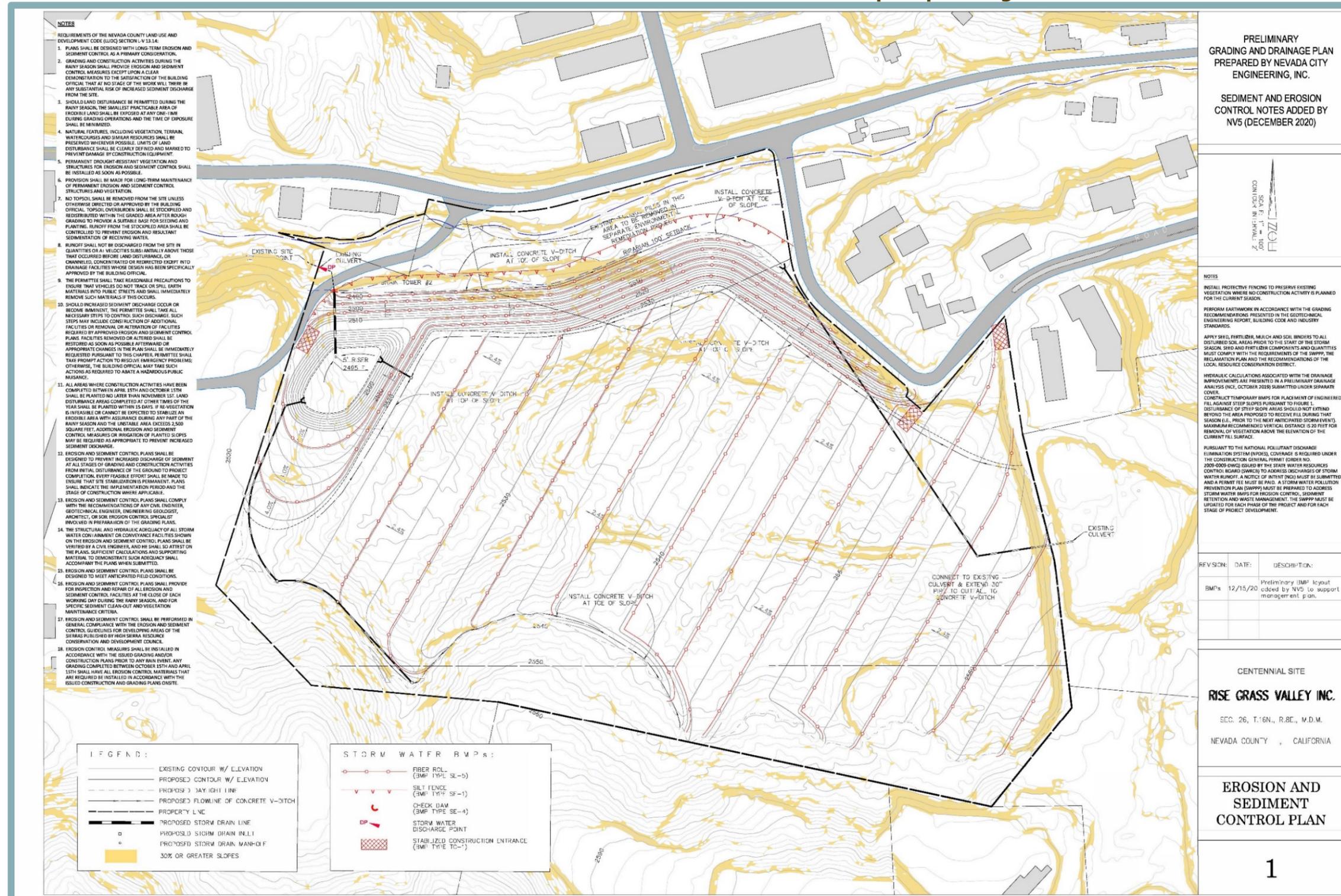
High erosion hazard areas within the East Bennett Road ROW include the Boomer soil type (BrE). The Boomer (BrE) soil type is located in the western portion of the East Bennett Road ROW area, wherein the potable water supply line would be installed by the proposed project. No steep slopes are located in the East Bennett Road ROW.

Management Plans for Steep Slopes and High Erosion Potential (Centennial and Brunswick Industrial Sites, 2020)

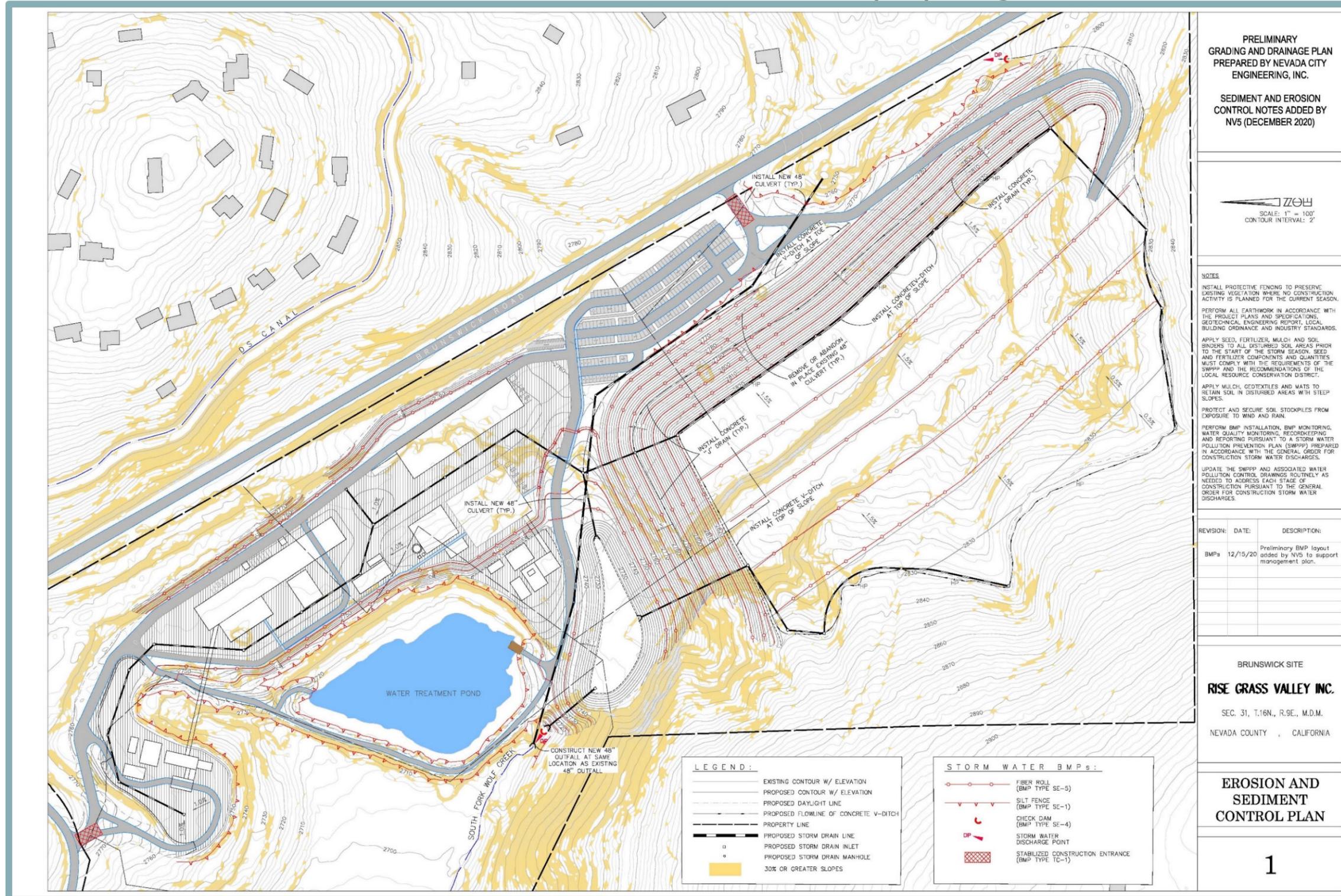
As previously discussed, these management plans were prepared pursuant to Nevada County LUDC Section L-II 4.3.13 to provide a professional site-specific inventory and analysis of steep slope (slopes of 30+ percent) and high erosion potential areas of the Sites, and to evaluate these constraints and recommend mitigation and/or managed alternatives to avoid or reduce the impacts. The inventory and analyses are performed for the entire Sites, including all areas of proposed disturbance.



Figure 4.6-4
Centennial Industrial Site Erosion Control Plan and Steep Slopes Diagram



**Figure 4.6-5
 Brunswick Industrial Site Erosion Control Plan and Steep Slopes Diagram**



Section 5 of each management plan provides mitigation measures that would ensure appropriate erosion and sediment control during disturbance within areas of steep slopes and high erosion hazard areas, including but not limited to implementation of the Erosion and Sediment Control Plans (ECP) prepared for the Centennial and Brunswick Industrial Sites (see Figure 4.6-4 and Figure 4.6-5). Pursuant to LUDC Section L-V 13.14, the ECPs were prepared with long-term erosion and sediment control as a primary consideration. The ECPs depict the long-term controls at final project development. The temporary Best Management Practices (BMPs) added to the plan are intended to provide short-term erosion and sediment controls until vegetation is established.

The management plans also outline the ongoing monitoring that would be required pursuant to the State NPDES Construction General Permit. For example, the applicant will be required to conduct post rain event visual observations to (1) identify whether BMPs were adequately designed, implemented, and effective, and (2) identify additional BMPs and revise the SWPPP accordingly.

Reclamation

For the engineered fill areas of the Centennial and Brunswick Industrial Sites, after final grading activities have been completed, planting areas would be prepared for the 3:1 engineered fill slopes. Revegetation of the final engineered fill stockpile lift/level would occur using an erosion-control native seed mix within six months and prior to the upcoming rainy season.

For the Brunswick Industrial Site, equipment, vehicles, and the general contents of all structures on-site would be removed. The structures that would be removed include the headframes for the main and service shafts and the covered conveyor associated with the main headframe. All remaining buildings and structures would remain.

Conclusion

The proposed project would involve grading and construction activities at the Centennial and Brunswick Industrial Sites, as well as along East Bennett Road for installation of the potable water supply pipeline. During construction and engineered fill placement at the Centennial and Brunswick Industrial Sites, topsoils would be disturbed and stockpiled and could be subject to increased potential for erosion and loss of topsoil. Without implementation of the mitigation measures in the Steep Slope and High Erosion Potential Management Plans, the proposed project could have a **significant** impact related to substantial soil erosion or the loss of topsoil.

It is also noted that the project will be conditioned to ensure that, if, at any time during construction, a field review by County Building Department personnel indicates a significant deviation from the proposed grading shown on the Improvement Plans, specifically with regard to slope heights, slope ratios, erosion control, winterization, and/or tree disturbance, the plans shall be reviewed by the Nevada County Planning and Building Departments for a determination of substantial conformance, pursuant to Nevada County Land Use and Development Code Sec L-V 13.15, prior to any further work proceeding.



Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.6-2 *Prior to approval of Improvement Plans, the Plans shall incorporate the Mitigation Measures and Best Management Practices (BMP) included in Section 5 of the Management Plans for Steep Slope and High Erosion Potential (Centennial Industrial Site and Brunswick Industrial Site, 2020), as approved in their final form by Nevada County. Mitigation Measures and BMPs set forth in the Management Plans include but are not limited to:*

- *Incorporating the provisions of the Erosion and Sediment Control Plans (ECPs) (December 15, 2020) into the project design, including the “Notes” on the ECPs; including but not limited to the following:*
 - *The structural and hydraulic adequacy of all storm water containment or conveyance facilities shown on the ECPs shall be verified by a civil engineer, and he/she shall so attest on the Plans, with proof provided to Nevada County prior to any project grading, clearing, or tree disturbance.*
 - *Soil stockpiling shall have proper erosion control measures applied to control runoff and prevent erosion.*
 - *All areas where construction activities have been completed between April 15th and October 15th shall be planted no later than November 1st. Land disturbance areas completed at other times of the year shall be planted within 15 days. If re-vegetation is infeasible or cannot be expected to stabilize an erodible area with assurance during any part of the rainy season and the unstable area exceeds 2,500 square feet, additional erosion and sediment control measures or irrigation of planted slopes may be required, as determined appropriate, to prevent increased sediment discharge.*
- *Obtaining coverage under the SWRQB NPDES Construction General Permit (Order No. 2009-0009-DWQ), including:*
 - *Submittal of a Notice of Intent (NOI) and payment of permit fee(s);*
 - *Preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for each Site;*
- *Performing earthwork in accordance with the grading recommendations presented in the Centennial Industrial Site and Brunswick Industrial Site Geotechnical Engineering Reports (NV5);*
- *Prohibiting disturbance of steep slopes (slopes of 30+ percent) beyond the area proposed to receive fill during that season (i.e., prior to the next anticipated storm event);*
- *Monitoring of Mitigation Measures in accordance with the Construction General Permit monitoring requirements, as set forth in Section 5.3 of the Management Plans; and*



- *Implementation of remedial measures in the event that water quality standards set forth in the Construction General Permit are not being met.*

4.6-3 Be located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, or be located on expansive soil, as defined in Table 18-1B of the UBC. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Issues associated with unstable geologic units and/or soils, including landslide, lateral spreading, subsidence, liquefaction, and collapse are discussed below.

Expansive Soils

Expansive soils are characterized by their ability to undergo significant volume change due to variation in moisture content. Near the surface, the resulting movements can heave and crack lightly loaded shallow foundations (spread footings) and slabs and pavements. The detrimental effects of expansive soils can be reduced by pre-swelling the expansive soils and covering them with a moisture fixing and confining blanket of properly compacted select fill.

For the Centennial Industrial Site, Engeo (2007) encountered potentially expansive clay/silt layers within the mine tailings. The laboratory test results indicated that these soils exhibit low to moderate shrink/swell potential with variations in moisture content. Moderately to highly expansive soil layers were encountered in other on-site locations. Engeo characterized their explorations as having a limited amount of potentially expansive clay.²¹

NV5 performed expansive soil testing at the Brunswick Industrial Site (2019) and determined that the potential for expansive soil hazards to affect the proposed improvements is considered to be moderate to high. Thin lenses of expansive fine-grained near-surface soils are present at the Site.

Liquefaction

Liquefaction occurs when saturated fine-grained sands and/or silts lose physical strength temporarily during earthquake induced shaking and behave as a liquid due to the loss of point-to-point grain contact and transfer of normal stress to the pore water. Liquefaction potential varies with water level, soil type, material gradation, relative density, and probable intensity and duration of ground shaking. The Geotechnical Engineering Reports concluded that the overall potential for liquefaction at both the Centennial and Brunswick Industrial Sites is remote.²²

²¹ ENGENEO Incorporated. *Geotechnical Report, Idaho-Maryland Mine, Surface Facilities and Improvements, Grass Valley, California* [pg. 12]. March 6, 2007.

²² NV5. *Geotechnical Engineering Report, Idaho-Maryland Mine Project – Centennial Industrial Site* [pg. 11]. December 20, 2019; NV5. *Geotechnical Engineering Report, Idaho-Maryland Mine Project – Brunswick Industrial Site* [pg. 12]. November 18, 2019.



Landslide and Lateral Spreading

Landsliding is the natural process of relatively rapid downslope movement of soil, rock, and rock debris as a mass. The potential for landsliding is affected by the type and extent of vegetation, slope angle, degree of water saturation, strength of rocks, and the mass and thickness of the deposit. According to the Nevada County General Plan Safety Element (pg. 10-7), most of the County's soils are underlain with dense bedrock formations and lack the characteristics contributing to landslide susceptibility. Such is the case for both Sites, as they are underlain by a complex assemblage of igneous and metamorphic rocks.

Lateral spreading is another form of slope failure in which gently sloping ground is displaced. Lateral spreading is caused by the accumulation of incremental displacements that develop within liquefied soil under cyclic loading. Due to limited liquefaction potential at both Sites, lateral spreading is not a significant concern.

Slope Stability

Pursuant to Section 3704(d) of the SMARA, final reclaimed fill slopes, including permanent piles or dumps of mine waste rock and overburden, shall not exceed 2:1 (H:V), except when site-specific geologic and engineering analysis demonstrate that the proposed final slope will have a minimum slope stability factor of safety that is suitable for the proposed end use, and when the proposed final slope can be successfully revegetated. The proposed fill slopes for the Centennial and Brunswick Industrial Sites would be more gradual at 3:1 (H:V). Therefore, no site-specific geologic and engineering analysis is required in order to show slope stability.

The proposed fill material would comprise a composite of blast rock and sand tailings produced underground. The predicted "critical gradient" (angle of repose/angle of internal friction) for compacted angular gravel and cobbles is 45 degrees (approximately 1:1), and for medium dense (compacted) sand it is 35–40 degrees (approximately 1.3:1 to 1.1:1 slopes). The inclusion of silt into these compacted granular materials would provide additional cohesion, and therefore would increase the friction angle of the fill. A conservative critical gradient of the proposed fill, for design purposes, would be 35 degrees. This would include the lower end of medium dense sand with no rock, or a fill comprising only the sand tailings. The proposed fill slope angle for the project engineered fill areas is 3:1, or 18.4 degrees, which is half of the conservative critical gradient estimate for the proposed fill material.

Following completion of fill activities, the fill slopes would be revegetated to control erosion and further ensure slope stability.

Undocumented Fill

Areas of undocumented fill were encountered on both Sites, each of which is discussed below.

Centennial Industrial Site

Undocumented fill is identified as the primary concern by NV5 in the Centennial Industrial Site Geotechnical Engineering Report (2019). Mining waste (tailings and waste rock) and other undocumented fill are present throughout the Centennial Industrial Site (primarily the central and northern portions). The undocumented fill is typically less



than five feet deep, but is at least 12 feet deep in the northeastern corner of the eastern tailings pond (near Centennial Drive) and up to at least 20 feet deep on the northern edge of the western tailings pond. Deeper fill is present within former retention pond berms located in the north, central, and eastern portions of the Site. The undocumented fill typically includes tailings, waste rock, and soil that were not placed in accordance with the standards of geotechnical engineering practice. It is important to note that the deeper fill areas along the northern and eastern portions of the Centennial Industrial Site are planned for remediation, grading, and for the eastern portion, placement of engineered fill, pursuant to the current version of the RAP being reviewed by DTSC. Thus, under the post-remediation baseline condition for the Centennial Industrial Site, a substantial portion of the existing undocumented fill, NV5's primary geotechnical concern for the Centennial Industrial Site, would be addressed in accordance with geotechnical recommendations under DTSC oversight during remediation. Nevertheless, areas of undocumented fill would remain on the Site after remediation.

Brunswick Industrial Site

Undocumented fill is identified as a primary concern by NV5 in the Brunswick Industrial Site Geotechnical Engineering Report. During their subsurface investigation, NV5 encountered existing fill and disturbed soil throughout the property that varied in depth up to approximately 20 feet bgs. Heterogeneous fills of unknown origin, quality, and method of placement, such as those encountered, can settle and/or heave erratically under the load of new fills, structures, slabs, and pavements. Footings, slabs, and pavements supported on heterogenous fill could also crack as a result of such erratic movements. Thus, where not removed by planned grading, heterogeneous fills should not be relied upon to support proposed improvements unless it is excavated and replaced as an engineered fill consistent with the recommendations in the Geotechnical Engineering Report (i.e., Section 5.1.3).

Service Shaft Collar Cut Slopes at Brunswick Industrial Site

A new mine service shaft would be developed on the Brunswick Industrial Site. The service shaft may be circular or rectangular, depending on the methods used in its construction. The service shaft would be approximately 1,000 feet southeast of the existing Brunswick shaft and developed to at least 3,280 feet bgs. The service shaft would connect to existing underground workings accessible from the Brunswick shaft. The service shaft would be equipped with a hoist and headframe that is approximately 80 feet high to provide movement of workers and materials underground, fresh air ventilation intake, and various services such as compressed air, electricity, and pipes.

The overburden (i.e., soil and weak rock) would be excavated from the surface and a concrete collar installed from the surface profile to the bedrock. The depth to bedrock is approximately 60 feet. The overburden material would be excavated to allow the shaft and concrete collar to be constructed, and then the overburden would be placed and compacted around the concrete collar to the original ground surface elevation.

NV5 expresses caution regarding potential slope instability of the steep temporary cut slopes proposed for construction of the service shaft collar. NV5 notes that potential slope instability can be mitigated by temporary cut slope design and/or shoring design for the proposed temporary excavations.



Clay-Lined Pond Dam

As previously discussed, the exploratory borings of the clay-lined pond dam, and an interview with an equipment operator previously involved with construction of the dam, confirm that a layer of organic fill (sawdust) is present within the southwestern-most 200-foot segment of the dam. Boring logs indicate that the sawdust layer is up to 4 feet thick at the dam centerline, at a depth of approximately 12 to 18 feet bgs. The issue can be mitigated by conventional earthwork methods, including excavation and removal of the organic materials followed by replacement and recompaction of the overlying dam fill.

Based on the original topography of the dam footprint, it is likely that the organic layer thickness decreases towards the inboard section of the pond and increases towards the downslope face of the dam. NV5 recommends that the upslope face of the dam (and associated clay liner) be preserved during the repairs by the construction of a temporary cut slope. Based on soil conditions observed in the upper fill during NV5's drilling program, NV5 anticipates that a temporary cut slope gradient of approximately 1:1 (H:V) would be feasible during the repairs, provided that the water level in the pond is managed so that seepage is not present in the cut slope. A grading plan, cross-sections, and slope stability analysis of proposed cut slopes should be prepared to describe the proposed earthwork repair prior to grading.²³

Collapse

Several near-surface mine features are located within the vicinity of the project sites, some of which have been previously closed. Near-surface mine features are generally more susceptible to subsidence and collapse than are deeper mine workings. The near-surface features may be located in weaker materials (soil and weathered rock), whereas the deeper mine workings are commonly located in competent bedrock. In addition, when the water level in the mine workings is located near the ground surface, the drawdown of groundwater within the mine workings may increase the potential for settlement or collapse of shallow workings that were not formally closed. Near surface workings that are already in a dewatered state would generally not be significantly impacted by dewatering the mine.

Potential for collapse of existing near-surface mine features as a result of the proposed project was evaluated by NV5, whose report was independently peer reviewed by ECM. Collapse, as discussed here, is not the same as "sink holes" that occur within limestone environments where a gaping hole forms that may be tens or even hundreds of feet across. These sinkholes are caused by the dissolution of the underlying limestone creating a cave, or cavern, just below the ground surface. As dissolution proceeds, the cavern becomes larger and larger, and at some point, the rock can no longer support the ground surface above it, and failure occurs. This catastrophic failure often occurs as a result of pumping related drawdown of the water table because the water had been providing some, albeit minimal buoyant support, for the overlying rock in spite of the rock's higher density.

This type of failure would not be expected of known existing mine shafts in the project area. Instead, the mine-related voids in the Grass Valley area are steeply dipping to

²³ NV5. *Geotechnical Engineering Report, Idaho-Maryland Mine Project – Brunswick Industrial Site* [pg. 11]. November 18, 2019.



vertical, features and their widths generally range from as narrow as a few inches and rarely exceed 4 feet. As a result, any caving of a vein would be limited to the width of the vein, and it would occur at the exact point at which the vein outcrops on the surface. As the area where potential failure along the vein's outcrop might occur are so small, buoyancy would not be a factor and the failure would wholly occur as a result of the breakdown of the rock itself. Typically, the length of one of these failures might be as short as a couple of feet, with the maximum length rarely exceeding 20 feet. The location of a potential collapse can usually be accurately predicted based on the location of the vein's surface outcrop.

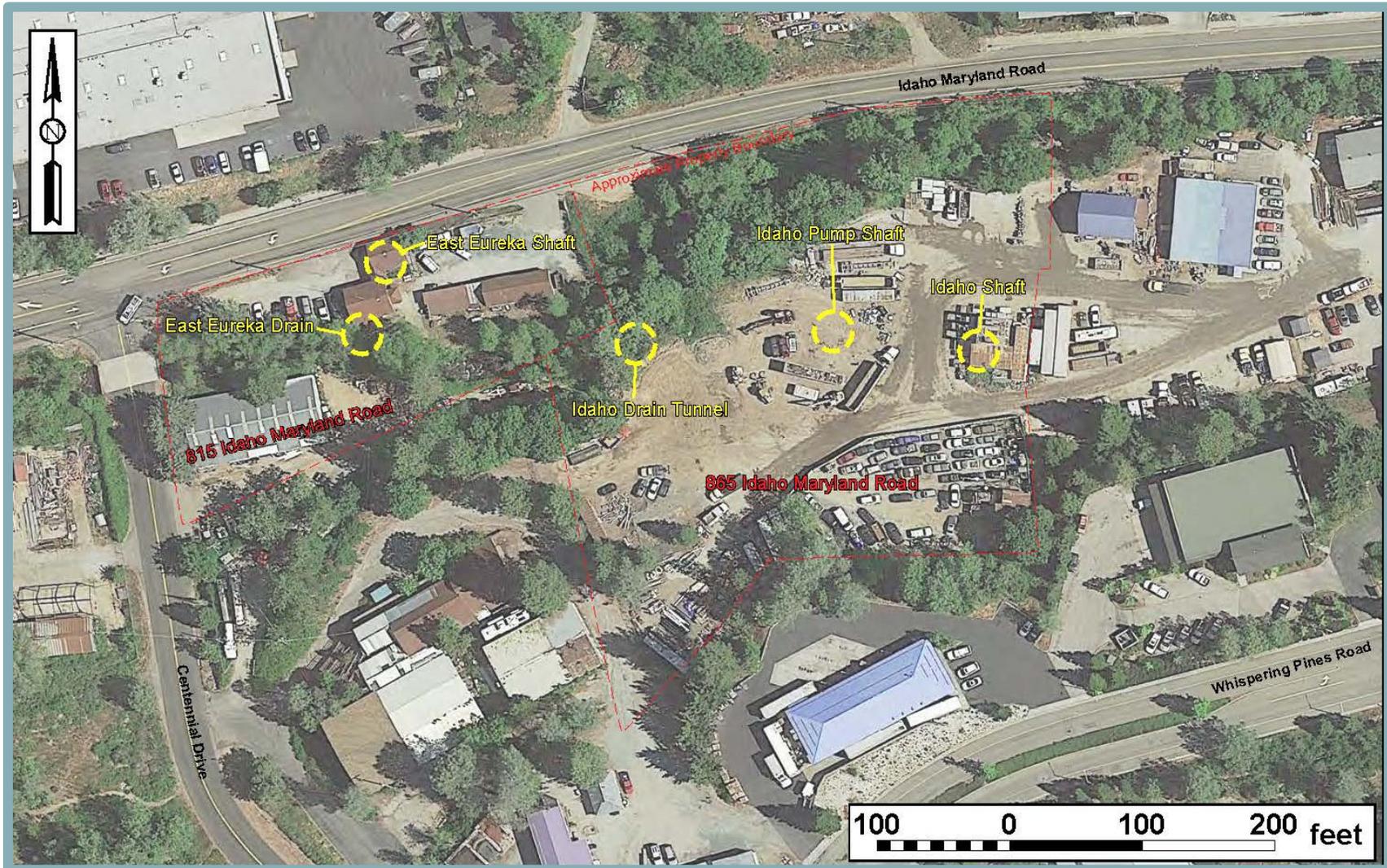
A second type of failure can occur around mine shafts, which are vertical or near-vertical openings. Some shafts are set directly into bedrock, and the collars of these features are quite stable due to the competency of the rock. At other locations, the shafts might have been sunk through surface soils and weathered rock for the first few feet, and as a result, ground support must be constructed to keep the soils and weathered rock from sluffing into the shaft. In these cases, the shafts are generally supported using wooden timbers, and when the timbers finally rot, they allow the rock and debris along the sides to cave into the shaft. This type of collapse generally produces a cone-shaped opening where the slope of the bottom of the cone is dependent on the internal angle of friction of the surrounding material.

Based on a Geotechnical Assessment of Near Surface Mine Features prepared by NV5, several near-surface features are recommended for closure as part of the proposed project. Physical closure is recommended at the East Eureka Shaft, East Eureka Drain, Idaho Drain Tunnel, Idaho Pump Shaft and Idaho Shaft, which are currently open or partially-closed (see Figure 4.6-6). In general, these near-surface features are located within developed or disturbed areas of the existing industrial complex south of Idaho Maryland Road and north of Whispering Pines Lane, east of the Centennial Industrial Site. The proposed closure measures are readily implemented, and cooperation agreements are in place between Rise and the property owners to allow Rise to assist the property owners with closure.

The expected course of action would be to overexcavate surface soil in the areas of these features to determine where competent, native soil/rock is located and attempt to identify the trend of any subsurface mining-related structures (i.e., tunnel, shaft, drift, etc.). Once the alignment and limits of the feature are established, a geotechnical engineer would provide recommendations for physical closure of the feature, including a narrative and a cross section, stamped by a licensed geotechnical engineer. The recommended closure methods are anticipated to include the use of a cast-in-place concrete cap or plug supported by temporary false work and covered to the ground surface with engineered fill. Given that groundwater discharges from several of these features, drain pipes would be incorporated to allow the continued flow of groundwater once the mine is reclaimed and allowed to flood again. Typical equipment utilized for repairs of this nature may include a large excavator (Cat 320 or equivalent), mid-size backhoe or loader, haul truck, concrete trucks and concrete pump. Typical duration for such closure activities take approximately a week to complete; however, the site accessibility, weather, contractor scheduling, and scale of the effort would govern scheduling of such work.



Figure 4.6-6
Near-Surface Mine Features Identified for Closure



Source: NV5, 2020.



The Geotechnical Engineering Report for the Centennial Industrial Site recommends closure of one additional near-surface mining feature. The historical South Idaho Shaft is mapped in the southeastern portion of the Centennial Industrial Site, near the upper, southern edge of the proposed engineered fill pad. No records of physical closure of the mine portal are known. NV5 believes the South Idaho workings are not connected to the Idaho-Maryland Mine workings. The abandoned mine feature may be unsuitable for support of future structural improvements and may present potential physical hazards. Because the historically mapped feature is located in an area of shallow fill that may be developed in the future, the portal should be located and physically closed in accordance with recommendations from a qualified geotechnical engineer.

Conclusion

Both the Centennial and Brunswick Industrial Sites have geotechnical characteristics related to undocumented fill and thin lenses of expansive soils. Additional geotechnical issues are specific to each site. For the Brunswick Industrial Site, a portion of the existing clay-lined pond dam contains a layer of sawdust, thus compromising the geotechnical stability of the dam. The proposed installation of the new service shaft collar on the Brunswick Industrial Site would require temporary steep cut slopes that could become unstable. For the Centennial Industrial Site, the presence of the South Idaho Shaft poses a safety consideration for potential future on-site development. Other near-surface mine features require closure prior to initial mine dewatering to ensure that collapse does not occur. Therefore, a **significant** impact could occur with respect to being located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, or be located on expansive soil, as defined in Table 18-1B of the UBC.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impacts to a *less-than-significant* level.

4.6-3(a) *The Improvement Plan submittals shall include final geotechnical engineering reports produced by a California Registered Civil Engineer or Geotechnical Engineer. The Improvement Plans shall include the recommendations of the Geotechnical Engineering Reports, including but not limited to the following:*

- *Grading*
- *Import Fill*
- *Existing Fill*
- *Cut Slope Grading*
- *Engineered Fill Placement*
- *Fill Slope Grading*

In accordance with the recommendations from the Geotechnical Engineering Reports (Geotechnical Engineering Report, Idaho-Maryland Mine Project – Brunswick Industrial Site. November 18, 2019; and Geotechnical Engineering Report, Idaho-Maryland Mine Project –



Centennial Industrial Site. December 20, 2019), grading plan review and construction monitoring shall occur, as follows:

- Prior to construction, a licensed geotechnical engineer shall be retained at the applicant's expense to review the final grading plans to confirm whether the recommendations from the Geotechnical Engineering Reports have been adequately incorporated in the plans, and to provide additional and/or modified recommendations, if necessary; and
- The applicant shall retain a licensed geotechnical engineer to perform construction quality assurance (CQA) monitoring during all earthwork grading performed by the contractor to determine whether the recommendations of the Geotechnical Engineering Reports have been implemented, and if necessary, provide additional and/or modified recommendations.

A CQA report demonstrating successful compliance with Geotechnical Engineering Report recommendations in all on-site earthwork shall be submitted to Nevada County periodically, but not less than once per quarter.

4.6-3(b) In conjunction with submittal of Improvement Plans for the Brunswick Industrial Site, the applicant shall submit a grading plan, cross sections, and a slope stability analysis of proposed cut slopes for the new service shaft collar and the clay-lined pond dam repair work, for review and approval of the Nevada County Building Department. The submittal shall be prepared and stamped by a licensed geotechnical engineer. The grading plan and cross sections shall depict typical temporary cut slope gradients, excavation depths, maximum water surface elevation, and earthwork volume estimates, and any additional geotechnical engineering methods, such as shoring, to mitigate potential slope instability.

4.6-3(c) In conjunction with submittal of Improvements Plans for the Centennial and Brunswick Industrial Sites, the applicant shall submit a physical closure evaluation of the following near-surface mine features to the Nevada County Building Department:

- East Eureka Shaft (shall be closed prior to initial mine dewatering)
- East Eureka Drain (shall be closed prior to initial mine dewatering)
- Idaho Drain Tunnel (shall be closed prior to initial mine dewatering)
- Idaho Pump Shaft (shall be closed prior to initial mine dewatering)
- Idaho Shaft (shall be closed prior to initial mine dewatering)
- South Idaho Shaft (shall be closed prior to placement of engineered fill at the Centennial Industrial Site)

The evaluation shall be stamped by a licensed geotechnical engineer and identify methods of physical closure, based on overexcavation of surface soil in the areas of these features to determine where competent, native soil/rock is located and to identify the trend of any subsurface mining-



related structures. Closure methods could include but not be limited to the use of a cast-in-place concrete cap or plug supported by temporary false work and covered to the ground surface with engineered fill. The closure design shall include drainage piping for those near surface features that currently discharge groundwater, and closure shall occur prior to initial mine dewatering or, for the South Idaho Shaft, prior to the placement of engineered fill at the Centennial Industrial Site.

4.6-4 Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

An on-site septic field system would be built at the Brunswick Industrial Site for the permanent toilets, sinks, and shower facilities planned. The proposed septic system would be required to comply with the County's OWTS and LAMP. In compliance with the OWTS and LAMP, a septic system permit would be required from the County in order to construct and operate the proposed septic system. As part of the permit application, an on-site soils evaluation is required to be prepared and submitted to the County for review and approval. Accordingly, a septic system evaluation was prepared for the proposed project by Navo & Sons, Inc. (see Appendix H-8). The septic system evaluation involved eight soil test pits at the proposed location of the septic system, determination of the average percolation rate around the soil test pits, estimation of the amount of wastewater associated with the proposed project operations, and determination of the appropriate size and design for the septic system to adequately handle the proposed project's wastewater generation. The percolation tests were performed under the guidelines set forth in Nevada County Sewage Disposal Technical Regulations, and testing was conducted under the supervision of the Nevada County Environmental Health Department (NCEHD).

According to the septic system evaluation, a relatively large, acceptably permeable soil area has been identified within the proposed leach field area. The evaluation concludes that the project site is suited for a Pressure Dose sewage disposal system with a minimum of 1,935 lineal feet of leach line. A minimum 10,000-gallon septic pump tank with watertight risers over each lid and outlet effluent filter would be required. The pump tank would be oversized in order to accommodate for potential power loss, backups, and surge flows in the future. The septic system evaluation recommends annual pumping of the tanks, biannual inspection of the tanks to monitor solids and pumping when the tank reaches 25 percent capacity. The evaluation includes a number of additional requirements and recommendations necessary to ensure that the design is adequate to handle the proposed project wastewater demands and obtain a permit from the County for the septic system. Without implementation of the requirements and recommendations set forth in the septic system evaluation, the proposed septic system could result in a ***significant*** impact to the environment.



Mitigation Measure(s)

Implementation of the following mitigation measure, which includes the requirements and recommendations specified in the septic system evaluation discussed above, would reduce the above potential impact to a *less-than-significant* level.

4.6-4 *In conjunction with submittal of Improvement Plans, the project applicant shall submit a complete sewage disposal design report accounting for all sewage waste water disposal per project buildout, for review and approval of the Nevada County Environmental Health Department. Unless otherwise determined in the sewage disposal design report, the Improvement Plans shall comply with the recommendations set forth in the septic system evaluation prepared for the Brunswick Industrial Site by Navo & Sons, Inc., including the following:*

- *Leach lines shall be installed 36 inches wide by 24 inches deep, with 12 inches of drain rock and 7-foot separation on center per line, installed level on contour.*
- *The leach shall be pressure dosed leach lines consisting of a minimum of four zones. The rotation of zones would allow the zones to rest in between doses and prevent over saturation of any one zone. In addition, if one zone has a problem, that zone could be isolated and repaired while other zones are working. This would result in little to no downtime and greatly reduce the possibility of sewage spills (surfacing).*
- *Duplex (two) pumps shall be used in the pump tank to ensure that if one pump fails, a backup exists. The pumps would alternate to the extent of their life, unless one fails.*
- *Due to the distance and elevation between the proposed shower and laundry area to the leach field, the pump line would be running through a low area upgradient from potentially sensitive areas. The pump line shall be sleeved in this low area to avoid potential issues related to sensitive areas if the line were to rupture.*
- *During installation, existing trees shall be maintained in place to the extent feasible to avoid the creation of large holes in the leach area, help stabilize soil, and help absorb leaching effluent.*
- *The following setbacks shall be maintained:*
 - *10 feet from developed property lines;*
 - *50 feet from undeveloped property lines;*
 - *50 feet from seasonal drainages;*
 - *25 feet from center line of swales; and*
 - *100 feet from any perennial streams or domestic wells.*
- *The pressure dose septic system shall be maintained annually for the life of the system.*
- *The septic system shall be installed by a licensed contractor (A, C-34, or C-42) familiar with installation of the proposed system.*
- *A permit to install the septic system shall be obtained from the NCEHD.*
- *The pump screen shall be removed and rinsed annually.*



- The pump, pump float, alarm float, and alarm shall be checked for proper operation annually.
- The primary and 100 percent repair area shall be protected from vehicular traffic, structures, or any other activity that may cause alterations such as grading, cuts/fills, etc.
- All drainage shall be diverted away from the septic tank, pump tank, and leach field. Irrigation in the area of the leach trenches shall be kept to a minimum to avoid saturation of the soil. Drip irrigation should be used.
- Water conservation is recommended to maximize the life expectancy of the absorption trenches.
- Any leaks shall be fixed immediately to avoid unnecessary saturation of the leach trenches.

4.6-5 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. Based on the analysis below, the impact is *less than significant*.

The Centennial and Brunswick Industrial Sites are located within a region underlain by a complex assemblage of igneous and metamorphic rocks in the western foothills of the Sierra Nevada. Fossils are unlikely to survive the heat and pressure involved in the formation of igneous and metamorphic rocks. The paleontology records of the University of California Museum of Paleontology do not contain any recorded occurrences of fossils in or near the project area.²⁴ Due to unfavorable geological conditions and the absence of any previously discovered fossil resources in the project area, the project is considered to have low or no potential to destroy a paleontological resource.

Unique geologic features have not been identified within the Centennial and Brunswick Industrial Sites, with the exception of gold-bearing quartz veins underlying portions of the mineral rights boundary, which are discussed in Impact 4.6-6.

As a result, the proposed project would have a ***less-than-significant*** impact related to Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Mitigation Measure(s)

None required.

²⁴ Personal communication between Patricia A. Holroyd, Ph.D., Senior Museum Scientist, Museum of Paleontology, University of California Berkeley, and Nick Pappani, Vice President, Raney Planning and Management, Inc., January 5, 2021.



4.6-6 Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State or of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Based on the analysis below, the impact is *less than significant*.

The majority of the proposed subsurface mining areas are located within areas designated by the state as Mineral Resource Zone (MRZ) MRZ-2, with some outlying areas located within MRZ-3. According to the State, MRZ-2 are those “Areas of Identified Mineral Resource Significance.” According to Nevada County LUDC, Section L-II 4.3.11, *Significant Mineral Areas* are “Areas where information indicates that significant mineral deposits are likely present based on State Division of Mines and Geology’s Nevada County Mineral Classification Report Maps, referred to as Mineral Resource Zones - 2 (MRZ-2).” According to the State, MRZ-3 are “Areas of Undetermined Mineral Resource Significance.”

The Resource Standards related to Mineral Areas in the Nevada County Land Use and Development Code are intended to protect significant mineral areas (MRZ 2) from incompatible land uses. If projects not associated with mineral extraction are proposed in Significant Mineral Areas they shall not be approved unless a management plan is prepared or the project is within the Industrial General Plan designation. The proposed project’s expressed purpose is to extract minerals within known Significant Mineral Areas; thus, a management plan is not required, and the project would provide availability of known mineral resources important to the State, rather than result in loss of availability of a known mineral resource. The proposed project would make these known gold mineral resources available by dewatering the Idaho-Maryland Mine and recommencing mining operations.

Therefore, the proposed project would have a *less-than-significant* impact related to resulting in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

For detail regarding the cumulative setting for this EIR analysis, refer to Chapter 5, Statutorily Required Sections, of this EIR. Project-specific impacts are not identified for paleontological resources or mineral resources; thus, the project would not have the potential to contribute to cumulative impacts on these resources.



4.6-7 Cumulative increase in the potential for geological related impacts and hazards. Based on the analysis below, the cumulative impact is *less than significant*.

The above-discussed geological constraints and hazards are localized to the specific overall project site, and potential impacts are associated with the site-specific geophysical properties and the grading and extraction characteristics of the proposed project. For example, impacts resulting from development on expansive soils at one project site are not worsened by impacts from development on expansive soils or undocumented fill at another project site. Rather, the soil conditions, and the implications of such conditions for each project, are independent. Recommendations in the Geotechnical Engineering Reports and Management Plans prepared for the proposed project would be incorporated into project plans and specifications to mitigate any potential geologic and soils impacts.

Soil erosion could be considered a cumulative effect if multiple projects are built along a waterway that could be subject to erosion/sedimentation as a result of inadequate erosion controls. Both the Centennial and Brunswick Industrial Sites are proximate to waterways (Wolf Creek and South Fork Wolf Creek, respectively), and while work would be done in close proximity to these waterways, rigorous erosion control BMPs would be implemented prior to and during construction, as required in Mitigation Measure 4.6-2 of this chapter, to ensure that substantial soil erosion and downstream sedimentation would not occur. Other projects that could contribute to cumulative soil erosion effects in the area also would be required to implement similar grading and erosion control standards by the local government jurisdictions responsible for issuing grading permits, including application of erosion control BMPs that are required elements of NPDES General Construction Permits. This 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.

As such, the potential for cumulative impacts related to geology, soils, seismicity and mineral resources, to which implementation of the proposed project might contribute, is ***less than significant***.

Mitigation Measure(s)

None required.



4.7 HAZARDS AND HAZARDOUS MATERIALS

4.7. HAZARDS AND HAZARDOUS MATERIALS

4.7.1 INTRODUCTION

The Hazards and Hazardous Materials chapter of the EIR describes existing and potentially occurring hazards and hazardous materials within the proposed project area. The chapter includes a discussion of potential impacts posed by such hazards to the environment. In addition, surrounding land uses are discussed in order to provide an assessment of whether the project could impact surrounding land uses.

The Hazards and Hazardous Materials chapter is primarily based on information drawn from a Phase I Environmental Site Assessment (ESA) prepared by ECM Consultants for the Centennial and Brunswick Industrial Sites (see Appendix I),¹ a Phase I/II ESA prepared by NV5 for the Brunswick Industrial Site (see Appendix J),² as well as information drawn from the Preliminary Endangerment Assessment³ for the Centennial Industrial Site, the Nevada County General Plan,⁴ and the Nevada County General Plan EIR.⁵

4.7.2 EXISTING ENVIRONMENTAL SETTING

The following section includes a definition of hazardous materials and descriptions of the conditions associated with the project sites related to hazards and hazardous materials. As discussed in Section 1.3, "Approach To Centennial Industrial Site Baseline," of this EIR, for the purposes of this hazards analysis, the environmental baseline for the Centennial Industrial Site has been adjusted to be consistent with anticipated site conditions at the completion of the separate Centennial Industrial Site Clean-up Project.

Hazardous Materials

The term hazardous substance refers to both hazardous materials and hazardous wastes. A material is defined as hazardous if the material appears on a list of hazardous materials prepared by a federal, State, or local regulatory agency or if the material has characteristics defined as hazardous by such an agency. The California Environmental Protection Agency (CalEPA), California Department of Toxic Substances Control (DTSC) defines hazardous waste, as found in the California Health and Safety Code Section 25141(b), as follows:

[...] its quantity, concentration, or physical, chemical, or infectious characteristics: (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; (2) pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties, or persistence

¹ ECM Consultants. *Phase I Environmental Site Assessment Idaho-Maryland Mine: Centennial and Brunswick Sites Grass Valley, Nevada County, California*. August 21, 2020.

² NV5. *Phase I/II Environmental Site Assessment Brunswick Industrial Site, APNs 006-441-003, -004, -005, -034 and 009-630-037, -039, Grass Valley, California*. June 16, 2020.

³ NV5. *Final Preliminary Endangerment Assessment Centennial M-1 Property, 10344 Centennial Drive, Nevada County, California*. June 12, 2020.

⁴ Nevada County. *Nevada County General Plan*. Updated 2014.

⁵ Nevada County. *Nevada County General Plan, Final Environmental Impact Report*. March 1995.



in the environment, when improperly treated, stored, transported, or disposed of, or otherwise managed.

The following discussion focuses on the potential Recognized Environmental Conditions (RECs) associated with the project sites. A REC indicates the presence or likely presence of any hazardous substances in, on, or at a property due to any release into the environment, under conditions indicative of a release to the environment, or under conditions that pose a material threat of a future release to the environment.⁶

Additionally, the following section includes a discussion of historical RECs (HRECs) associated with the project sites. A HREC indicates a past release of hazardous substances or petroleum products that has occurred in connection with a property and has been addressed to the satisfaction of the applicable regulatory authority. A HREC does not have any property use restrictions, and, thus, does not have any use limitations with respect to future activities on the property. The following discussion also includes controlled RECs (CRECs) associated with the project sites. A CREC is a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls.

Project Area Conditions

The project sites contain the historic Idaho-Maryland Mine underground gold mine. The mine has been inactive since closure in 1956, and was inactive for several periods during the 1866 to 1956 production period. The Idaho-Maryland Mine encompasses an extensive system of approximately 73 miles of underground tunnels, many raises, four inclined shafts, and two vertical shafts. The historic mining operation had extensive surface infrastructure adjacent to the Centennial Industrial Site and at the Brunswick Industrial Site, most of which has been dismantled and removed. Additionally, a sawmill operated on the Brunswick Industrial Site, including lumber storage and a recycling pond. Several shaft entrances are located on the Brunswick Industrial Site, including the Brunswick and Union Hill shafts; however, the shafts are covered to prevent inadvertent access. Other portions of the site include graveled or paved areas from previous land uses.

Due to the historic industrial and mining operations on the project sites, the project sites appear on a number of lists of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

The project sites are surrounded by undeveloped land, industrial, low-density residential developments, and commercial uses. Existing land uses surrounding the Centennial Industrial Site include commercial uses and the City of Grass Valley limits to the north, west, and east, and industrial uses to the north, south, and east. Existing land uses surrounding the Brunswick Industrial Site include rural residences to the north, west, south, and east; industrial uses to the north; undeveloped land to the west and south, and South Fork Wolf Creek to the west.

Further details of the existing conditions, as they pertain to hazards and hazardous materials, at the Centennial and Brunswick Industrial Sites are provided separately below.

⁶ ASTM International. *ASTM E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. 2013.



Centennial Industrial Site Conditions

The Centennial Industrial Site was historically used by the Idaho-Maryland Mine to deposit mine tailings and waste rock. Mining or milling structures are not associated with the site. A 20-stamp mill was erected near the main Idaho Shaft (east of the Centennial Industrial Site) circa 1920. Crushed ore from the mill was treated with mercury for gold recovery. The resulting sand slurry (mercury-treated tailings) were deposited in an unlined gully along the eastern Centennial Industrial Site boundary, referred to as the Eastern Tailings Pond. A ball mill was constructed near the stamp mill in 1936, and cyanide was used to recover gold from the crushed ore. The cyanide was reportedly recovered in a scrubber system and reused. The resulting sand slurry (cyanide-treated tailings) were deposited in an unlined pond with mine waste rock berms in the northwestern portion of the site, adjacent to Wolf Creek. The newer, cyanide-treated tailings pond is referred to as the Western Tailings Pond.

Extensive site investigation, overseen by DTSC, has identified mill tailings, waste rock, and affected soil at the site that contain lead, arsenic, mercury and other metals at concentrations exceeding background soil metals concentrations and regulatory benchmark concentrations. Elevated soil metals concentrations present a potential human health risk resulting from routine, long-term exposures, as well as ecological concerns in terms of impacts to plant and animal species. As a result, under existing conditions, the majority of the Centennial Industrial Site cannot be developed due to unstable soils and/or contamination.

As discussed in the Introduction chapter of this EIR, the project applicant has entered into a Voluntary Cleanup Agreement (VCA) with the DTSC for the voluntary cleanup of soil contamination on the Centennial Industrial Site. A Remedial Action Plan (RAP) has been prepared and describes the proposed procedures for conducting remedial activities needed to meet Remedial Action Objectives (RAO's). The RAOs are intended to specify contaminants and media of concern, potential exposure pathways, and remediation goals for commercial/industrial land use. The remediation goals are acceptable exposure levels that are protective of human health and the environment and do not conflict with applicable, relevant and appropriate requirements (ARARs) under federal and state environmental law. The remedial action that has been selected by DTSC is known as "Stabilization and On-Site Placement Under Land Use Controls". Generally, the remedial action is intended to reduce the potential for routine contact with soil having elevated metals concentrations, and to reduce the potential for leaching and erosion, by excavation, consolidation on-site at a designated location, capping with clean engineered fill, and establishment of land use controls. At locations of remedial excavation, post-excavation sampling and analysis are required to verify that the underlying materials meet clean-up goals and are acceptable for the intended land use (commercial and industrial).

More specifically, the remedial action includes excavation of soils within the former eastern and western tailing ponds and on-site consolidation of contaminated materials, as well as stabilization of contaminated materials within a small hot spot area by cement treatment prior to on-site consolidation. Stabilization includes mixing Portland cement with hot spot contaminated soils in the designated consolidation area to prevent potential water quality impacts. Other contaminated soils from the former tailing ponds that do not pose potential water quality impacts will be placed within the consolidation area as engineered fill without cement treatment. The 5.6-acre consolidation area would be located along the eastern boundary of the Centennial Industrial Site and capped with four feet of clean engineered soil, with the end result being an engineered fill pad.



The excavation areas would be backfilled and regraded with clean fill to promote drainage, and erosion controls will be installed. The engineered fill pad would be graded so that runoff would drain away from the fill slope into surface and subsurface drainage controls. Following completion of excavation, stabilization, and placement activities, disturbed areas will be hydroseeded or broadcast seeded with an erosion-control native seed mix to reduce erosion and maintain fill slope stability.

As previously mentioned, due to the anticipated Centennial Industrial Site Clean-Up Project that would be completed prior to and separately from the proposed project's use of the Centennial Industrial Site for engineered fill placement, this EIR does not use the existing condition at the site for the environmental baseline and instead uses an environmental baseline that reflects the anticipated condition for the Centennial Industrial Site following implementation of the RAP. Accordingly, the baseline condition for the Centennial Industrial Site consists of a 5.6-acre engineered fill pad along its eastern boundary, up to approximately 28 acres of graded, revegetated areas, and the remainder consisting of natural habitats, such as montane hardwood-conifer, chaparral, montane-riparian, and annual grassland. Accordingly, potential RECs associated with the Centennial Industrial Site do not exist under the adjusted baseline condition.

Brunswick Industrial Site Conditions

Former mining activities (predominantly lode gold mining) at the Brunswick Industrial Site included the Union Hill Mine and the Brunswick Mine. The Union Hill Mine was established circa 1854. An ore mill and hoist were constructed in 1865. Johnston (1939) maps the Union Hill Mine in the westernmost portion of the northern end of the subject property, and an inclined shaft at this location dipping to the southwest. The mine was reportedly operated until approximately 1870 to a maximum depth of approximately 300 feet below ground surface (bgs). The mine was reportedly reopened in 1900 and operated until 1911, extending the shaft to 600 feet bgs. The mine was again reopened in 1914 and operated until 1918. During this period, the shaft was extended to 800 feet bgs, tungsten-containing scheelite was also mined, and a new hoist, air compressor, Cornish pump driven by a 12-foot Pelton wheel, and a 20-stamp mill were installed. Following its closure, the 20-stamp mill was moved offsite to another mine. The Union Hill Mine was not reopened. Several small structures were historically associated with the Union Hill Mine operations.

The Brunswick Mine was established circa 1909. Johnston (1939) maps the Brunswick Vertical Shaft in the eastern portion of the northern end of the property, near the existing reinforced-concrete silo that remains at the site today. A railroad spur was added, extending from the existing East Bennett Road to the mine. In 1910, the mine was reportedly closed due to an inflow of water at a depth of approximately 443 feet bgs. The mine reportedly reopened in 1915, and water was drained with pumps via a cross-cut from the old Brunswick Mine. Johnston (1939) maps the portal of the Brunswick Inclined Shaft (associated with the old Brunswick Mine) approximately 1,000 feet north of the subject property, dipping towards the southwest. A new steel head frame, 20-stamp mill, and a cyanide plant were reportedly constructed at the Brunswick Mine on the subject property. The mine closed again in 1918, by which time the shaft extended to 1,200 feet bgs. Several corrugated metal buildings were present at the mine, including an office, assay office, hoist house, mill building, carpenter shop, drying furnace building, blacksmith and machine shop, garage, transformer house, powder magazine, and store house. The mine reopened in 1922 when the shaft was again dewatered, and operated until 1927. Idaho-Maryland Mining Corporation reportedly acquired the Brunswick Mine and began dewatering the mine in 1933. The shaft was extended to 3,300 feet bgs, and a Marcy mill and a regrind mill were reportedly installed. The



mine did not operate during World War II but reopened after the war and continued operating until 1956. Structures have been removed from the site since that time. In 1997 the remaining concrete foundations were removed except for one reinforced concrete silo (ore bin) and the shaft collar.

In addition to the historic mining operations associated with the Brunswick Industrial Site, lumber milling was performed at the central and southeastern portions of the site in the late 1950s to early 2000s. The lumber milling facility was referred to as the Grass Valley Saw Mill, Bohemia Saw Mill, and Sierra Pacific Mill. Features associated with the sawmill activities included a main sawmill building, two sorter buildings (one constructed in 1987), an office building, transformer, slot feeder, conveyors, timber racks and log storage areas. Recycle ponds were used to collect and recycle surface water runoff for irrigation of logs. Prior to 1984, pesticides were used to treat wood. All structures associated with the sawmill have been demolished. A clay-lined pond and significant paved areas remain from the sawmill operation.

The Brunswick Industrial Site currently consists primarily of undeveloped land, with remnants of the previous gold mining and sawmill operations still located on-site. The terrain of the undeveloped portion of the Brunswick Industrial Site is typical of the lower Sierra Nevada foothills, varying between flat ridges and valleys to gently and moderately sloping hillsides. The Brunswick Industrial Site is located adjacent to South Fork Wolf Creek and is dominated by mixed hardwood-conifer forests and developed areas, with smaller areas of wetlands and annual grassland.

The existing potential hazards associated with the Brunswick Industrial Site identified in the Phase I ESA prepared by ECM Consultants and Phase I/II ESA prepared by NV5 are described in further detail below.

On-Site Recognized Environmental Conditions

The Phase I ESA prepared by ECM Consultants and Phase I/II ESA prepared by NV5 identified the following potential RECs associated with the Brunswick Industrial Site. Figure 4.7-1 presents the location of the identified RECs and soil sampling locations.

Elevated Metals Concentrations in On-site Soils

Previous environmental investigations have identified metals concentrations on the Brunswick Industrial Site that exceed regulatory criteria, primarily arsenic. While mine waste rock and soil fill contain elevated levels of arsenic, the elevated concentrations may be a result of natural occurrences. Mine waste rock and tailings are present near the Brunswick Mine location and the fill placed to the south of that location. Additionally, the former Union Hill Mine and off-site mining claims near the northwestern site boundary have several piles of associated waste rock located northwest of the inclined shaft.

NV5 performed a Phase II investigation on April 16 and 17, 2020, including excavation of 36 exploratory trenches, collection of mine waste and soil samples, and laboratory analysis for metals. Figure 4.7-1 shows the location and depth of mine waste fill according to the subsurface investigation conducted by NV5. The mine waste was commonly mixed with soil. Geotextile fabric was observed at some locations between mine waste and underlying native soil, and sometimes within the mine waste fill. As shown in the figure, the mine waste fill was generally less than five feet deep, except at a location south of the Brunswick Mine shaft and in the vicinity of exploratory trench locations T11, T14, and T30 identified in Figure 4.7-1, where the depth of mine waste fill exceeded 10 feet.



**Figure 4.7-1
 Brunswick Industrial Site RECs and Soil Sampling Locations**



Source: NV5, 2020.



Arsenic concentrations detected in mine waste samples were relatively low except for the mixed soil and rock fill beneath a five-acre paved area near the Brunswick Road entrance, within approximately 300 feet southwest of Brunswick Road, as depicted in Figure 4.7-1, which contained total and soluble arsenic concentrations that exceeded regulatory benchmarks (i.e., the total threshold limit concentration [TTLC] for arsenic of 500 milligrams per kilogram [mg/kg]). The highest arsenic concentrations in the southeastern paved area were detected in mixed soil and rock fill at locations T18 (2,150 mg/kg), T23 (1,540 mg/kg), and T14 (765 mg/kg). Mine waste fill at T14 was greater than 10 feet deep, whereas fill depth at other locations generally ranged from 2.0 to 5.5 feet.

Total concentrations of metals other than arsenic were not detected at concentrations exceeding the applicable screening levels. Because previous environmental investigations identified mine tailings with acid generating potential, samples collected by NV5 were analyzed for acid base accounting (ABA) as well. Based on the ABA analysis, samples obtained were generally net acid-neutralizing. In addition, samples were tested for asbestos and significant concentrations of asbestos were not detected.

Based on the higher arsenic concentrations and anomalous ABA results, the geotextile fabric incorporated into the fill, and historical aerial photographs that suggest the grading was performed after mining operations were suspended, the material beneath the southeastern paved area was likely imported to the site and did not originate from mining operations at the Brunswick Mine shaft.

At locations other than the southeastern paved area, total arsenic was not detected at concentrations that would classify the soil as hazardous waste.

Historic Storage and Use of Petroleum Products

Past industrial operations on the Brunswick Industrial Site included the storage and use of petroleum products. According to previous environmental reporting by AC Industrial Cleaning in 1992, three areas had excavations associated with petroleum contaminated soils, which are identified as Areas A, B, and C and are shown in Figure 4.7-1. In Area A, AC Industrial Cleaning removed a buried electrical transformer and contaminated soil from a location west of the recycling pond. The excavation sidewalls contain impacted soil according to the summary report. The remaining contaminated soils are assumed to be present on-site. In Area B, AC Industrial Cleaning removed contaminated soil from the location of a former surface oil spill within an alleged drum disposal area. The summary report indicates that the contamination was removed based on the results of verification sampling and analysis. The excavation extents were verified clean by wall sampling and laboratory analysis. In Area C, AC Industrial Cleaning removed contaminated soil from a former disposal area. The summary report indicates that the contamination was removed based on the results of verification sampling and analysis.

Documentation or record of closure for the cleanup of Areas A, B, or C were not found during research conducted for the Phase I ESA prepared by ECM Consultants and Phase I/II ESA prepared by NV5. However, due to the results of verification sampling and analysis, Areas B and C would likely be considered HRECs provided that regulatory closure documentation is found or the existing records are subjected to regulatory review for confirmation of closure.

Fuel underground storage tanks (USTs) were historically present at the site. The Historical UST database lists the Brunswick Sawmill as previously containing a 1,000-gallon gasoline UST



installed in 1977, a 12,000-gallon diesel UST installed in 1977, and a 1,000-gallon UST with an unreported installation date. However, investigation reports or other information tying the USTs to a closure status or determination were not encountered during research conducted for the Phase I ESA prepared by ECM Consultants and Phase I/II ESA prepared by NV5. Similar to the cleanup of Areas B and C, the USTs would likely be considered HRECs provided that regulatory closure records are found.

Historical Recognized Environmental Conditions

The State Water Resources Control Board (SWRCB) Spills, Leaks, Investigations and Cleanups (SLIC) database indicates that the Regional Water Quality Control Board (RWQCB) issued a case closure for a past release of petroleum products at the former Grass Valley Saw Mill on December 19, 2006. Although details of the release and cleanup were not available for review, the case appears to be an HREC based on the regulatory case closure determination.

Prior to 1984, milling operations at the former saw mill included treating wood with pesticides. Wood was dipped into a pesticide solution and transported over an area of bare soil by a conveyor (referred to as the “green chain”) to a slot feeder. Pentachlorophenol (PCP) and tetrachlorophenol were active ingredients in the pesticide solution. Records research indicated that the former sawmill site was a PCP and tetrachlorophenol contaminated site. This was based in large part on analysis conducted by Emcon Associates, retained by mill operator Bohemia, Inc. Initial investigations performed in 1986 included excavating five test pits and advancing two borings in the “green chain” area (see Figure 4.7-1). Soil samples collected were analyzed for the presence of PCP and tetrachlorophenol. Based on the results of the investigation, the RWQCB requested additional investigation to further evaluate contamination in the green chain area, and to investigate groundwater quality downgradient of the green chain area. In 1987, Emcon performed additional investigations which included collecting 16 surface soil samples and collecting discrete-depth soil samples from five borings in the green chain area, installing six groundwater monitoring wells, and collecting groundwater samples to evaluate groundwater quality.

The results of analysis of surface soil samples identified PCP and tetrachlorophenol as high as 42,000 and 53,000 micrograms per kilogram ($\mu\text{g}/\text{kg}$), respectively. In groundwater, PCP and tetrachlorophenol were detected in two monitoring wells in the green chain area at concentrations as high as 3.3 and 3.9 micrograms per liter ($\mu\text{g}/\text{L}$), respectively. Emcon reported that these groundwater concentrations were below applicable cleanup levels. Emcon performed an evaluation of remedial alternatives, and concluded that treatment of soil was the preferred alternative.

Emcon performed remediation of contaminated soil at the Grass Valley Lumber Mill in 1989 in accordance with a remediation plan developed in coordination with regulatory agencies. Documentation suggests that 375 cubic yards of contaminated soil was excavated, with confirmation samples collected and analyzed to confirm that soil above the PCP remediation goal had been removed. Case closure was issued by the RWQCB for the impacted soils within the green chain area. A covenant was placed on the property to address residual groundwater contamination as described below under CRECs.

Controlled Recognized Environmental Conditions

Based on the results of groundwater monitoring, a No Further Action letter was issued by the RWQCB on December 16, 2006, which determined that all volatile organic compounds (VOCs) remaining in groundwater do not pose a risk to human health, the environment or waters of the



State, and that remaining VOCs show a downward trend and should reach nondetectable concentrations by 2015. A Land Use Covenant with the Nevada County Assessor's Office was filed affecting the Brunswick Industrial Site, and proof of monitoring well destruction was submitted. The Land Use Covenant was established to restrict groundwater use based on remaining groundwater contamination at concentrations above the Maximum Contaminant Level (MCL) for drinking water. It should be noted that an evaluation of inhalation risk to human health from residual VOC in the groundwater was performed and the results indicated that an associated significant threat to human health from vapor migration to indoor air did not exist. The Covenant states that if, after any four consecutive quarters of any year within the term of the Covenant, groundwater samples collected from the site indicate levels of VOC below the MCL, then the Covenant shall terminate with written concurrence from the RWQCB. If the Covenant is rescinded in the future, then the condition could be considered an HREC rather than a CREC.

Other Potential Environmental Concerns

The following additional potential environmental concerns were identified for the Brunswick Industrial Site:

- **Monitoring Wells:** A number of monitoring wells were observed to be present around the site; however, the location, status, and total number of remaining wells is not definitively known. For example, three monitoring wells were observed present around the property. One monitoring well is located on the southeastern portion of the property and is a stovepipe type well. It is secured with a lock; therefore, the integrity of the well cannot be confirmed at this time. Another monitoring well is located in the central portion of the property, west of the former sawmill. The well is flush mount with a PVC cap that could not be removed during the site visit. Another unnamed and undocumented well was found in the south-central portion of the property, southeast of the hillside irrigation pipelines. Existing monitoring wells on the site present conduits to groundwater.
- **Former Transformers or Above-Ground Storage Tanks (ASTs):** Previous investigations regarding former transformers or ASTs were not found as part of the Phase I ESA prepared by ECM Consultants or Phase I/II ESA prepared by NV5. An AST saddle foundation and underground piping are located near the eastern site boundary; however, the former transformer and AST appear to have been removed.
- **Undocumented Soil Fill:** Undocumented soil fill is present on the site, including deep fill located in the upper, eastern portion of the site, near the intersection of Brunswick Road; stockpiles of wood chips in the southern portion of the site near the Brunswick Road site entrance; and soil fill associated with the terraced area on the southwestern side of the former lumber operations area.
- **Historic Storage of Chemicals:** Records indicate that chemicals were historically stored at the Brunswick Mine. A warehouse inventory circa 1940 listed gasoline, butane, aviation fuels, kerosene, motor oils, drilling oils, bituminous road oil, copper sulfate, cresylic acid, cyanide, quicksilver mercury, zinc dust, and sulfuric acid.
- **Mining Features:** Two mine shafts at the Brunswick Mine and the former Union Hill Mine are covered with steel plates and secured with a lock. Unsecured mine shafts would be a physical hazard; however, adequate steps have been taken to secure the openings. A depression at the southwestern portion of the site is indicative of a shaft, as water coalesces at the location but does not appear to surface flow away. The depression is next to concrete foundations, metal cables, drill pipe, and an old timber. Adjacent to the exploratory shaft is what appears to be a potential waste rock area. The suspected shaft or pit of unknown designation or condition may present a physical hazard if unstable.



- **Undocumented Drums:** Drums near the exploratory drilling core boxes are located north of the silos in the former mine building area and southeast of the silos on the eastern edge of the paved area. The drums were marked with environmental investigation labels indicating non-hazardous material or wastes. Contents and disposition of the materials in the drums could not be determined during site assessment.
- **Refrigerators:** Two refrigerators were observed in the northeastern portion of the site east of the mine ore silos. The refrigerators were primarily intact but missing doors. The refrigerators are of potential concern due to the unknown status of possible mercury thermometers. Leaking or stains were not observed around the refrigerators, which would indicate any fluid loss or the rupture of mercury thermometers.

Nearest Airports

The closest public use airport to the project site is the Nevada County Air Park, a small aircraft airport, located east of Brunswick Road and north of Loma Rica Drive, less than one mile (approximately 4,000 feet) from the Brunswick Industrial Site. The Foothill Airport Land Use Commission (ALUC) prepared a Comprehensive Land Use Plan for the airport and designates airport safety areas adjacent to the Nevada County Air Park. A portion of the Brunswick Industrial Site appears to be located within Safety Area 5, the Airport Overflight Zone. According to the Nevada County General Plan EIR, land uses that could create hazards related to airport operations at the Nevada County Air Park include objects that exceed Federal Aviation Regulations Part 77 height standards, attract large concentrations of birds within approach/departure sectors, produce smoke, flash or reflect light, or generate electronic interference.

Emergency Response and Evacuation

Nevada County has prepared a Nevada Operational Area (OA) Evacuation Annex to the County Emergency Operations Plan, the purpose of which is to provide mass evacuation strategies for the OA's response to emergencies that involve the evacuation of people from an impacted area.

The Nevada OA uses the following guidance for evacuation orders and has adopted the following:

- **Evacuation Order** - Requires the immediate movement of people out of an affected area due to an imminent threat to life. Choosing to stay could result in loss of life. Staying may also impede the work of emergency personnel. Due to the changing nature of the emergency, this Evacuation Order may be the only warning that people in the affected area(s) receive.
- **Evacuation Warning** - Alerts people in an affected area(s) of potential threat to life and property. People who need additional time should consider evacuating at this time. An Evacuation Warning considers the probability that an area will be affected and prepares people for a potential Evacuation Order.
- **Shelter-In-Place** - Advises people to stay secure at their current location by remaining in place as evacuation will cause a higher potential for loss of life.

If an Evacuation Order is given, law enforcement personnel will not use force to remove persons who choose to remain in the affected area. Penal Code Section 409.5 does not authorize forcible evacuations, but rather authorizes officers to refuse admittance of others into the impacted area. Possible exceptions can be made for adults who will not evacuate minors from immediately dangerous environments; the children can be removed under child endangerment laws.



In the Nevada OA, an evacuation order can be given by the following:

- The Nevada County Sheriff, and/or designee
- The Local Government Chief of Police, and/or designee
- Local Incident Commander

With respect to determining an evacuation area, the current approach is typically through the incident command system, whereby an incident command center is set up at a strategic location to assess and respond to the emergency incident. For example, in the event of a wildfire, fire agencies will set up an incident command center, from which the fire agencies will notify the Sheriff's Office. The Sheriff's Office will confer with the fire agencies at the incident command center to determine the evacuation area based upon certain critical factors. While this is the current approach, it is noted that the Nevada County Office of Emergency Services (OES) recently entered into contract with Zone Haven, a company that works from a zone-based approach to emergency evacuation.⁷ In general, geographic zones are developed based on topography, population, traffic routes, etc. The Greenhorn Road area would likely have several zones because it is a relatively large area. The new system should be up and running within a year.⁸

The Nevada County OES uses the Code Red Mass Communication System to notify residents of evacuation orders, but individuals need to create an account to receive notifications. Notifications are disseminated through land lines and cell phones. In addition, through its Code Red vendor, OES can use the Wireless Emergency Alert System to send out notifications through cell phones, but this depends on cell coverage. A third backup OES can use is the Emergency Alert System (EAS), which will display an emergency alert banner across TV screens, and broadcast the alert on AM/FM radio.

Law Enforcement will be the primary agency for managing the evacuation of people in the field. In addition to the above-described notification systems, the Sheriff's Office will send out deputies to evacuation areas to broadcast an emergency siren, known as a Hi-Lo System, from their patrol vehicles, which are appropriately equipped. Deputies, and if requested, City police officers, will patrol through the neighborhoods that need to evacuate and broadcast the siren with an accompanying public address (PA) system to instruct people to evacuate.

Staging areas may be established to coordinate and receive incoming evacuation transportation resources. The appropriate emergency operations center (EOC) or designated staging area manager will be responsible for coordinating these resources with incoming support agencies and departments.

Primary evacuation routes in Nevada County consist of the major interstates, highways, and principal arterials identified on the Nevada County General Plan Land Use Map. The routes designated on the General Plan Land Use Maps as minor arterial or major collector routes shall be considered secondary evacuation routes on a Countywide basis. These routes supplement the primary evacuation routes, and provide egress from local neighborhood and communities.

⁷ Personal communication between Lieutenant Robert Jakobs, Emergency Operations Coordinator, Office of Emergency Services, Nevada County Sheriff's Office, and Nick Pappani, Vice President, Raney Planning & Management, Inc., January 5, 2021.

⁸ *Ibid.*



4.7.3 REGULATORY CONTEXT

The following discussion contains a summary of regulatory controls pertaining to hazardous substances, including federal, State, and local laws and ordinances.

Federal Regulations

Federal agencies that regulate hazardous materials include the U.S. Environmental Protection Agency (USEPA), the Occupational Safety and Health Administration (OSHA), the Department of Transportation (DOT), and the National Institute of Health (NIH). Prior to August 1992, the principal agency at the federal level regulating the generation, transport, and disposal of hazardous waste was the USEPA under the authority of the Resource Conservation and Recovery Act (RCRA). As of August 1, 1992, however, the California DTSC was authorized to implement the State's hazardous waste management program for the USEPA. The USEPA continues to regulate hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). The following federal laws and related regulations govern hazardous materials.

Occupational Safety and Health Act

Congress passed the Occupational and Safety Health Act (29 U.S.C. Section 651 et seq. [1970]) to ensure worker and workplace safety. Their goal was to make sure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. In order to establish standards for workplace health and safety, the Act also created the National Institute for Occupational Safety and Health (NIOSH) as the research institution for OSHA. OSHA is a division of the U.S. Department of Labor that oversees the administration of the Act and enforces standards in all 50 states. OSHA requires 40 hours of training for hazardous materials operators, as well as an annual eight-hour refresher course, which includes training regarding personal safety, hazardous materials storage and handling, and emergency response.

OSHA includes regulations for surface transportation of explosives, with which the project would be required to comply. Pursuant to Code of Federal Regulations (CFR) Section 1926.902:

- (a) Transportation of explosives shall meet the provisions of Department of Transportation regulations contained in 46 CFR parts 146-149, Water Carriers; 49 CFR parts 171-179, Highways and Railways; 49 CFR part 195, Pipelines; and 49 CFR parts 390-397, Motor Carriers.
- (b) Motor vehicles or conveyances transporting explosives shall only be driven by, and be in the charge of, a licensed driver who is physically fit. He shall be familiar with the local, State, and Federal regulation governing the transportation of explosives.
- (c) No person shall smoke, or carry matches or any other flame-producing device, nor shall firearms or loaded cartridges be carried while in or near a motor vehicle or conveyance transporting explosives.
- (d) Explosives, blasting agents, and blasting supplies shall not be transported with other materials or cargoes. Blasting caps (including electric) shall not be transported in the same vehicle with other explosives.
- (e) Vehicles used for transporting explosives shall be strong enough to carry the load without difficulty, and shall be in good mechanical condition.
- (f) When explosives are transported by a vehicle with an open body, a Class II magazine or original manufacturer's container shall be securely mounted on the bed to contain the cargo.
- (g) All vehicles used for the transportation of explosives shall have tight floors and any exposed spark-producing metal on the inside of the body shall be covered with wood, or other nonsparking material, to prevent contact with containers of explosives.



- (h) Every motor vehicle or conveyance used for transporting explosives shall be marked or placarded on both sides, the front, and the rear with the word "Explosives" in red letters, not less than 4 inches in height, on white background. In addition to such marking or placarding, the motor vehicle or conveyance may display, in such a manner that it will be readily visible from all directions, a red flag 18 inches by 30 inches, with the word "Explosives" painted, stamped, or sewed thereon, in white letters, at least 6 inches in height.
- (i) Each vehicle used for transportation of explosives shall be equipped with a fully charged fire extinguisher, in good condition. An Underwriters Laboratory-approved extinguisher of not less than 10-ABC rating will meet the minimum requirement. The driver shall be trained in the use of the extinguisher on his vehicle.
- (j) Motor vehicles or conveyances carrying explosives, blasting agents, or blasting supplies, shall not be taken inside a garage or shop for repairs or servicing.
- (k) No motor vehicle transporting explosives shall be left unattended.

Title 30, Code of Federal Regulations (Mine Safety and Health Administration)

The Mine Safety and Health Administration (MSHA) is responsible for enforcing the Federal Mine Safety and Health Act of 1977 (Mine Act) as amended by the MINER Act of 2006. The Mine Act gives the Secretary of Labor authority to develop, promulgate, and revise health or safety standards for the protection of life and prevention of injuries in the nation's mines. These standards are set forth in Title 30 of the CFR. Health and safety standards for underground mines enforced by MSHA include but are not limited to, fire prevention and control, air quality (underground exposure limits for airborne contaminants), explosives (transportation, storage, use), machinery, materials storage and handling, etc.

Section 103(a) of the Act requires a minimum of four inspections a year for underground mines and a minimum of two inspections a year for surface mines.

Comprehensive Environmental Response, Compensation, and Liability Act

The CERCLA (42 U.S.C. Section 9601 et seq. [1980]) provides a federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Through CERCLA, the USEPA was given power to seek out those parties responsible for any release and assure their cooperation in the cleanup. The USEPA cleans up orphan sites when potentially responsible parties cannot be identified or located, or when they fail to act. Through various enforcement tools, USEPA obtains private party cleanup through orders, consent decrees, and other small party settlements. The USEPA also recovers costs from financially viable individuals and companies once a response action has been completed. The USEPA is authorized to implement the Act in all 50 states and U.S. territories.

Superfund Amendments and Reauthorization Act of 1986

The Superfund Amendments and Reauthorization Act (SARA) of 1986, (Title III; Section 305(a)) reauthorized CERCLA to continue cleanup activities around the country. Several site-specific amendments, definitions clarifications, and technical requirements were added to the legislation, including additional enforcement authorities. In addition, Title III of SARA authorized the Emergency Planning and Community Right-to-Know Act (EPCRA). SARA, Title III provides funding for training in emergency planning, preparedness, mitigation, response, and recovery capabilities associated with hazardous chemicals. Title III of SARA addresses concerns about emergency preparedness for hazardous chemicals, and emphasizes helping communities meet



their responsibilities in preparing to handle chemical emergencies and increasing public knowledge and access to information on hazardous chemicals present in their communities.

Resource Conservation and Recovery Act

The RCRA (42 U.S.C. Section 6901 et seq. [1976]) gives USEPA the authority to control hazardous waste from the "cradle-to-grave," which includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled USEPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. The federal Hazardous and Solid Waste Amendments (HSWA) are the 1984 amendments to RCRA that focused on waste minimization and phasing out land disposal of hazardous waste as well as corrective action for releases. Some of the other mandates of this law include increased enforcement authority for USEPA, more stringent hazardous waste management standards, and a comprehensive UST program. States have the authority to implement individual hazardous waste programs in lieu of the RCRA as long as the state program is as stringent as federal RCRA requirements and is approved by the USEPA.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) of 1976 (15 U.S.C. §2601 et seq. [1976]) provides USEPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics, and pesticides. TSCA addresses the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon, and lead-based paint.

U.S. Department of Transportation

Transportation of hazardous materials is regulated by the DOT's Office of Hazardous Materials Safety. The office formulates, issues, and revises hazardous materials regulations under the Federal Hazardous Materials Transportation Law. The hazardous materials regulations cover hazardous materials definitions and classifications, hazard communications, shipper and carrier operations, training and security requirements, and packaging and container specifications. The hazardous materials transportation regulations are codified in 49 CFR Parts 100–185.

The hazardous materials transportation regulations require carriers transporting hazardous materials to receive required training in the handling and transportation of hazardous materials. Training requirements include pre-trip safety inspections, use of vehicle controls and equipment including emergency equipment, procedures for safe operation of the transport vehicle, training on the properties of the hazardous material being transported, and loading and unloading procedures. All drivers must possess a commercial driver's license as required by 49 CFR Part 383. Vehicles transporting hazardous materials must be properly placarded. In addition, the carrier is responsible for the safe unloading of hazardous materials at the site, and operators must follow specific procedures during unloading to minimize the potential for an accidental release of hazardous materials.

Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF)

Commerce in explosives, including licensing and permitting, business operations, record keeping, and storage is regulated by ATF in accordance with 27 CFR Part 555.



Asbestos Hazard Emergency Response Act

The 1986 Asbestos Hazard Emergency Response Act (AHERA) was signed into law as Title II of the TSCA, requiring the Asbestos Model Accreditation Plan (MAP) for accrediting individuals conducting asbestos inspection and corrective-action activities in schools and public and commercial buildings. The MAP provides guidance on the minimum training requirements for accrediting asbestos professionals such as, procedural entry, exit, sampling, and monitoring, safety hazards, and relevant federal, state, and local regulatory standards.

State Regulations

The CalEPA and the SWRCB establish rules governing the use of hazardous materials and the management of hazardous waste. Within CalEPA, DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the State agency, for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law (HWCL). The following discussion contains the applicable State laws.

Regional Water Quality Control Board

The CalEPA and the OES establish regulations governing the use of hazardous materials in California. Within CalEPA, DTSC has primary regulatory responsibility for hazardous waste management. Enforcement of regulations can be delegated to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of the HWCL. Along with the DTSC, the RWQCB is responsible for implementing regulations pertaining to management of soil and groundwater investigation and cleanup. The RWQCB's regulations are contained in Title 27 of the California Code of Regulations (CCR). The DTSC, RWQCB, and/or a local agency typically oversees investigation and cleanup of contaminated sites.

Department of Toxic Substances Control

The DTSC was established to protect California against threats to public health and degradation to the environment and to restore properties degraded by past environmental contamination. Through statutory mandates, DTSC cleans up existing contamination, regulates management of hazardous wastes, and prevents pollution by working with businesses to reduce hazardous waste and use of toxic materials in California. DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California. In addition, DTSC's Site Mitigation and Brownfields Reuse Program oversees the cleanup of State Superfund Sites. State Superfund sites are additionally known as Annual Workplan sites, listed sites, or Cortese List sites. Superfund sites demonstrate evidence of a hazardous substance release or releases that could pose a significant threat to public health and/or the environment. DTSC requires responsible parties to cleanup such sites. When responsible parties cannot be found or where they do not take proper and timely action, DTSC may use State funds to undertake the cleanup.

Cortese List

Pursuant to Government Code Section 65962.5(a), the DTSC shall compile and update as appropriate, but at least annually, and shall submit to the Secretary for Environmental Protection, a list of all of the following:

1. All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.



2. All land designated as hazardous waste property or border zone property pursuant to former Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
3. All information received by the DTSC pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
4. All sites listed pursuant to Section 25356 of the Health and Safety Code.

California Code of Regulations

Hazardous waste is characterized and defined in CCR, Title 22, Sections 66261.20-24. Soils that meet the descriptions of the characteristics of hazardous waste defined in Sections 66261.20-24 and contain contaminants above regulatory screening levels are considered hazardous waste and must be handled and disposed of as such. The CCR includes the California Health and Safety Code.

California Health and Safety Code

The handling and storage of hazardous materials is regulated on the federal level by the USEPA under CERCLA as amended by the SARA. Under SARA Title III, a nationwide emergency planning and response program was established that imposed reporting requirements for businesses which store, handle, or produce significant quantities of hazardous or acutely toxic substances as defined under federal laws. SARA Title III required each state to implement a comprehensive system to inform federal authorities, local agencies, and the public when a significant quantity of hazardous, acutely toxic substances are stored or handled at a facility.

The California OES regulates a wide range of acutely hazardous materials (AHMs) under the California Accidental Release Program (CalARP), the USEPA under the Risk Management Program (40 CFR 68), and the OSHA under the Process Safety Management Program (OSHA 1910.119). The California Accidental Release Program and Risk Management Program require that all facilities that store, handle, or use AHMs above a minimum quantity, known as the threshold planning quantity, are required to develop a plan and prepare supporting documentation that summarizes the facility's potential risk to the local community and identifies safety measures to reduce potential risks to the public.

The HWCL, Chapter 6.5 of the California Health and Safety Code, is administered by the CalEPA to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the USEPA approves the California program, both the State and federal laws apply in California. The HWCL lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal and transportation; and identifies some wastes that cannot be disposed of in landfills.

The handling and storage of hazardous materials is regulated by Chapter 6.95 of the California Health and Safety Code. Under Sections 25500–25543.3, facilities handling hazardous materials are required to prepare a Hazardous Materials Business Plan. The plan provides information to the local emergency response agency regarding the types and quantities of hazardous materials stored at a facility, and provides detailed emergency planning and response procedures in the event of a hazardous materials release. In the event that a facility stores quantities of specific acutely hazardous materials above the thresholds set forth by the California code, facilities are also required to prepare a Risk Management Plan and California Accidental Release Plan, which



provides information on the potential impact zone of a worst-case release, and requires plans and programs designed to minimize the probability of a release and mitigate potential impacts.

Emergency Response to Hazardous Materials Incidents

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous material incidents is one part of this plan. The plan is managed by the Governor's OES, which coordinates the responses of other agencies, including CalEPA, California Highway Patrol (CHP), California Department of Fish and Wildlife (CDFW), and Central Valley RWQCB.

Local Regulations

Relevant goals and policies from the Nevada County General Plan and various other local guidelines and regulations related to hazards and hazardous materials are discussed below.

Nevada County General Plan

The following goals and policies from the Nevada County General Plan are applicable to the proposed project:

Goal EP-10.1 Provide a coordinated approach to hazard and disaster response preparedness.

Policy EP-10.1.1 Ensure a coordinated, interagency program for disaster preparedness that will facilitate Federal and State disaster assistance by planning for the reduction of the effects of natural hazards and training for disaster management.

Policy EP-10.1.4 Provide for adequate evacuation routes in areas of high fire hazard, high potential for dam failure, earthquake, seiches, avalanche, flooding or other natural disaster.

Policy EP-10.1.6 Transportation routes that are designated on the General Plan Land Use Maps as interstates, freeways, highways, and other principal arterial routes shall be considered primary evacuation routes on a Countywide basis. Such routes provide the highest levels of capacity and contiguity and serve as the primary means for egress from the County.

The routes designated on the General Plan Land Use Maps as minor arterial or major collector routes shall be considered secondary evacuation routes on a Countywide basis. These routes supplement the primary evacuation routes, and provide egress from local neighborhood and communities.

Policy EP-10.1.8 Support the development and maintenance of Countywide and local emergency evacuation plans.

Goal HM-10.5 Protect public health, safety, natural resources, and property through regulation of use, storage, transport, and disposal of hazardous materials.



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| Policy HM-10.5.1 | Provide means for the identification, safe use, storage, transport, and disposal of hazardous materials, including household hazardous waste. |
| Policy HM-10.5.4 | The County will encourage the cleanup of sites contaminated by mine wastes or other hazardous materials. |
| Policy HM-10.5.5 | The County will actively promote prompt clean-up or remediation of properties contaminated by mine waste or other hazardous materials and shall not grant any discretionary or ministerial land use approvals to develop or change boundaries or reconfigure parcels believed to be contaminated, unless and until the nature, extent, type and location of the contamination is determined and satisfactory arrangements are made for clean-up or remediation, in accordance with Nevada County standards or State regulations. |

Nevada County Environmental Health Department

The Nevada County Environmental Health Department (NCEHD) is the Certified Unified Program Agency (CUPA) for local implementation of the California Accidental Release Prevention Program and several other hazardous materials and hazardous waste programs. NCEHD is responsible for programs focused on environmental protection and public health in Nevada County such as programs that regulate food preparation in restaurants, installation of wells and septic systems, handling hazardous materials, and other topics related to consumer protection. The NCEHD is responsible for implementing the hazardous materials program, including regulating hazardous materials business plans and chemical inventory, hazardous materials storage, hazardous materials management plans, and risk management plans. The hazardous materials business plan program requires businesses in Nevada County to prepare plans detailing facility information, a hazardous materials inventory, and an emergency response plan if hazardous materials storage equals or exceeds minimum reportable quantities, which are: 55 gallons of a hazardous liquid; 500 pounds of a hazardous solid; or 200 cubic feet of a compressed gas. The NCEHD provides access to the information in the hazardous materials business plans to emergency response agencies, including fire and police.

Nevada County Emergency Operations Plan

The Nevada County Emergency Operation Plan (EOP) delineates responsibilities of first responders (fire and law) and other response support organizations, e.g., Department of Public Works, Environmental Health, etc. for natural disasters and manmade emergency incidents in Nevada County. The EOP is intended to mitigate future disasters and emergency incidents.

The EOP includes a Mass Evacuation Annex (Annex B) that establishes County, city and other agency responsibilities and the concept of operation for support of a mass vehicular evacuation moving within or through the County that has been caused by a disaster or incident occurring outside of Nevada County. A new Nevada OA Evacuation Annex (2020) has been drafted and is set to go to the Board of Supervisors for approval. The purpose of this OA Evacuation Annex is to provide mass evacuation strategies for the OA's response to emergencies that involve the evacuation of people from an impacted area. This involves coordination and support for the safe and effective evacuation of the population, including people with disabilities and access and



functional needs, whom may need additional support to evacuate. Focus areas within the evacuation annex include public alert and warning, transportation, and evacuation terminology.

The Annex was developed as a functional support document to the Nevada County EOP, and is consistent with the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). It is coordinated with the State's emergency plan, compliant with the recommendations from the Comprehensive Preparedness Guidance (CPG) 101 v. 2.0 and is applicable to all locations and to all agencies, organizations, and personnel with evacuation and evacuation support function responsibilities within the Nevada OA.

4.7.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to hazards and hazardous materials. A discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

In accordance with CEQA Guidelines Appendix G, an impact is considered significant if the proposed project would:

- Create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; and/or
- Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires.

The proposed project is not located within one-quarter mile of an existing or proposed school. Thus, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, and impacts related to such are not discussed further in this EIR.

Impacts related to wildland fires are addressed in detail in Chapter 4.13, Wildfire, of this EIR. Thus, further discussion related to exposure of people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires is not discussed in further detail in this chapter.



Method of Analysis

The following sections describe the methods of analysis used to determine the presence of RECs associated with the proposed project.

ECM Consultants Phase I ESA

The overall purpose of the Phase I ESA was to provide Nevada County with knowledge of the full range of environmental issues and liabilities associated with the project sites and satisfy requirements of American Society for Testing and Materials (ASTM) Standard E1527-13, the CERCLA, and Innocent Landowners, Standards for Conducting All Appropriate Inquiries (40 CFR part 312). The primary objective of the ESA is to identify, describe, and document conditions indicative of releases and threatened releases of hazardous substances on, at, in, or to the subject property.

The evaluation of the project sites was based on information derived from the following sources in general accordance with guidelines set forth in ASTM Practice E1527-13:

- Interviews with past and present owners, operators, and occupants, as available.
- Examination of aspects of the historical background and operating history of the sites based upon interviews, review of aerial photographs, and other available historical documents.
- Examination of existing information regarding the sites' hydrogeological, geological, and topographical characteristics.
- Performance of a physical site inspection to observe existing conditions, business activities, and operations on the subject sites and adjoining properties. Site reconnaissance was conducted by ECM on June 9 and June 12, 2020.
- Review of federal, State, County, tribal, and local agency records/databases, as deemed appropriate by ECM, pertaining to the sites and other selected properties within the approximate minimum search distance of the sites.

For further details regarding the methodology and results of the Phase I ESA prepared by ECM Consultants for the Centennial and Brunswick Industrial Sites, please see Appendix I to this EIR.

NV5 Phase I/II ESA

NV5 performed a Phase I ESA for the Brunswick Industrial Site. The purpose of the Phase I ESA was to evaluate whether evidence of RECs exist that may have impacted or could potentially impact the site. The Phase I ESA was performed in general accordance with the ASTM E1527-13. The following tasks were performed as part of the Phase I ESA:

- Historical records such as aerial photographs, Sanborn Fire Insurance maps, historical topographic maps, city directories, and other readily-available historical sources were evaluated, as available, to research the history of the site and vicinity.
- Federal, State, and local environmental databases were reviewed to identify sites that use, store, or have released hazardous materials. The database search was performed by Environmental Data Resources, Inc. (EDR), an environmental database research firm. The EDR database report (presented as Appendix A to the Phase I/II ESA, which is included as Appendix J to this EIR) provides federal and State information intended to meet ASTM guidelines for Phase I ESAs. Regulatory files were reviewed for the identified sites, subject to the limitations of the ASTM guidance document.



- Readily available reports concerning previous environmental investigations at the site were reviewed.
- A surface reconnaissance of the site and surrounding area visible from the site boundary was performed. NV5 performed the site reconnaissance on February 27, 2020. The reconnaissance was performed on foot. The ground surface was not practically accessible in some densely forested portions of the site.
- Persons with knowledge of the site were interviewed.
- The Phase I/II ESA report was prepared describing the findings of the Phase I ESA.

In addition to the Phase I ESA, NV5 performed a Phase II investigation on April 16 and 17, 2020 to further characterize the nature and extent of mine waste on the property. The Phase II investigation included excavation of 36 exploratory trenches, collection of mine waste and soil samples, and laboratory analysis for metals. The exploratory trenches were excavated to depths up to 10 feet bgs using a Hyundai 80CR-9A track-mounted excavator. The exploratory trench locations are depicted on Figure 4.7-1.

NV5 obtained 68 samples from the 36 exploratory trenches. The samples were collected as grab samples (independent, discrete samples) using new, single-use plastic scoops. Samples were placed in laboratory-supplied, resealable plastic bags and were homogenized in the bag by shaking and kneading. New nitrile gloves were donned at each sample location and whenever the cleanliness or integrity of the gloves were compromised.

Samples were delivered by mail under chain-of-custody documentation to ACZ Laboratories, Inc. of Steamboat Springs, Colorado. The 68 samples were analyzed for total arsenic (EPA Method 6010B). A subset of eight samples was analyzed for total concentrations of Title 22 (CAM 17) metals (EPA Methods 6010/7471) and Acid Base Accounting (ABA; Modified Sobek).

For further details regarding the methodology and results of the Phase I/II ESA prepared by NV5 for the Brunswick Industrial Site, please see Appendix J to this EIR.

Centennial Preliminary Endangerment Assessment

NV5 prepared a Preliminary Endangerment Assessment (PEA) for the Centennial Industrial Site, pursuant to a VCA (Docket No. HSA-FY18/19-014) between Rise Grass Valley Inc. and the California DTSC.

The general purpose of the PEA is to investigate environmental conditions and to address potential health risks associated with the disposal of mine waste at the site from historical hard rock gold mining and ore processing on adjacent property.

The PEA included supplemental site investigation (including 48 near-surface soil samples), review of community demographics, compilation and validation of previous investigation data, delineation of assessment areas and statistical evaluation, human and ecological risk assessment (in accordance with DTSC risk assessment guidance), sensitive receptor survey and water quality evaluation.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts related to hazards and hazardous materials is based on implementation of the proposed project in comparison to the environmental baseline and the standards of significance presented above.



4.7-1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Based on the analysis below, with implementation of mitigation, the impact related to transportation, storage and use of hazardous materials is considered *less than significant*.

A significant hazard to the public or the environment could result from the routine transport, use, or disposal of hazardous materials. Projects that involve the routine transport, use, or disposal of hazardous materials are typically industrial in nature. The proposed project would be an industrial activity and would involve reinitiating underground mining and gold mineralization processing for the Idaho-Maryland Mine over an 80-year permit period. The proposed project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, specifically related to construction activities, explosives, and use and storage of various chemicals. Each of the aforementioned potential hazards are discussed in further detail below.

Construction Activities

Construction activities associated with implementation of the proposed project, including the proposed off-site improvements (e.g., East Bennett Road potable water pipeline), would involve the use of heavy equipment, which would contain fuels and oils, and various other products such as concrete, paints, and adhesives. The project contractor would be required to comply with all California Health and Safety Code and local County ordinances regulating the handling, storage, and transportation of hazardous and toxic materials.

As discussed in Chapter 4.6, Geology, Soils, and Mineral Resources, compliance with the SWRCB general permit to discharge storm water associated with construction activity is required. The general permit is known as the SWRCB, Order No. 2009-0009-DWQ (as amended by Orders 2010-0014-DWQ and 2012-006-DWQ), NPDES General Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit). The project applicant would be required to submit a Notice of Intent (NOI) for coverage under the Construction General Permit and prepare a construction Stormwater Pollution Prevention Plan (SWPPP).

The SWPPP must include procedures that effectively address hazardous and non-hazardous spills. In addition, as part of the SWPPP, a spill response and implementation element shall be developed prior to commencement of construction activities. The SWPPP shall require that:

- Equipment and materials for cleanup of spills shall be available on site and that spills and leaks shall be cleaned up immediately and disposed of properly; and
- Appropriate spill response personnel are assigned and trained.



In addition, pursuant to California Health and Safety Code Section 25510(a), except as provided in subdivision (b),⁹ the handler or an employee, authorized representative, agent, or designee of a handler, shall, upon discovery, immediately report any release or threatened release of a hazardous material to the unified program agency (in the case of the proposed project, NCEHD) in accordance with the regulations adopted pursuant to Section 25510(a). The handler or an employee, authorized representative, agent, or designee of the handler shall provide all State, city, or county fire or public health or safety personnel and emergency response personnel with access to the handler's facilities. In the case of the proposed project, the contractors are required to notify the NCEHD in the event of an accidental release of a hazardous material, who would then monitor the conditions and completion of remediation measures.

Explosives

As with the majority of hard-rock mines, the proposed project would involve the use of explosives to fragment mineralized rock so that the rock can be transported to the shaft and then to the surface for processing.

For transportation purposes, explosives are classified by DOT in accordance with 49 CFR and under these regulations all explosives are listed as Hazard Class 1 materials. The project proposes to use explosives classified as Division 1.1, 1.4, and 1.5 materials. Explosives to be used would include ammonia nitrate fuel oil (ANFO) and packaged or bulk emulsion explosives. The majority of explosives used would be ANFO, which is classified as Hazard Class division 1.5. Explosives proposed to be used by the project would be in Compatibility Groups B or D and would require separate transportation in accordance with regulations in 49 CFR 173.52. Compatibility group letters are used to specify the controls for the transportation, and storage related thereto, of explosives and to prevent an increase in hazard that might result if certain types of explosives were stored or transported together (49 CFR 173.52(a)).

Table 4.7-1 displays the proposed explosives to be used at the project with their hazard class and compatibility group, which are further described following the table.

Table 4.7-1 Explosives Proposed to be Used at Project			
Explosive type	Product Examples	Hazard Class	Compatibility Group
Detonators (shock tube or electronic)	Digishot, Driftshot, NONEL EZ, NONEL LP, i-kon, Exel Handidet	1.1B or 1.4B	B
Detonating Cord	Primacord, B-Line	1.1D	D
Emulsion Explosives	Dyno AP, DynoSplit AP, Magnafrac, Xactex	1.1D	D
ANFO	Dynomix, AMEX	1.5D	D

⁹ Subdivision (a) does not apply to a person engaged in the transportation of a hazardous material on a highway that is subject to, and in compliance with, the requirements of Sections 2453 and 23112.5 of the Vehicle Code.



Division 1.1 [49 CFR Section 173.50(b)(1)]

Explosives that have a mass explosion hazard. A mass explosion is one which affects the entire load instantaneously. Typical examples: dynamite, detonator (cap) sensitive emulsions, slurries, water gels, cast boosters, and mass detonating detonators.

Division 1.4 [49 CFR Section 173.50(b)(4)]

Explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package. Typical examples: safety fuse and certain electric, electronic, and nonelectric detonators.

Division 1.5 [49 CFR Section 173.50(b)(5)]

Explosives that are very insensitive. This division is comprised of substances which have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport. Typical examples: blasting agents, ANFO, non-cap sensitive emulsions, blends, slurries, water gels, and other explosives that require a booster for initiation.

Compatibility Group B [49 CFR Section 173.52, Table 1]

Article containing a primary explosive substance and not containing two or more effective protective features. Some articles, such as detonators for blasting, detonator assemblies for blasting and primers, cap-type, are included, even though they do not contain primary explosives.

Compatibility Group D [49 CFR Section 173.52, Table 1]

Secondary detonating explosive substance or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge, or article containing a primary explosive substance and containing two or more effective protective features.

During operations, explosives would be transported to the Brunswick Industrial Site a maximum of once a week and a minimum of once every three weeks. During initial underground construction, explosives may be transported to the site more frequently.

Explosives would not be transported with other hazardous materials in accordance with 49 CFR 177.848 and Group B explosives (detonators) would not be transported with Group D explosives in accordance with 49 CFR 173.52, Table 1.

Hauling of explosives would occur using Brunswick Road to State Routes (SR) 20/49. Explosives would be transported directly to the site by licensed explosive suppliers that possess the requisite permits, including a CHP hazardous materials transportation license and U.S. DOT hazardous materials permits. State Routes 20 and 49 are designated as explosive transport routes by the CHP¹⁰. Additionally, the explosives supplier would be required to have a sufficient insurance policy. The suppliers would transport explosives to the site via semi-trucks driven by licensed drivers. The semi-

¹⁰ See Map 6 of California Highway Patrol, *HPH 84.3 Explosive Material Shipments: Routes, Safe Stopping Places, and Safe Parking Places*. May 2021.



trucks would be conspicuously labeled, as is required by 29 CFR Section 1926.902, subdivisions (f) through (i). The suppliers would take all proper federally mandated precautions while transporting explosives, including driving on designated explosive routes, and would inspect tires at the beginning of each trip and each time the vehicle stops (49 CFR 397.17). In addition, in compliance with federal regulations, the explosives and detonators would be separated during transportation to ensure the explosives are not detonated during travel (29 CFR 1926.902, subd. (d)). Numerous additional regulations are in place to ensure safety in the transport of explosives¹¹ and a summary of these are provided below in Table 4.7-2. All companies and individuals transporting explosives to the site would be required to comply with those additional regulations provided in Table 4.7-2.

Table 4.7-2 Explosives Transport Regulations	
Subject	Regulation
Vehicle Operator Qualifications	49 CFR 391
Vehicle Operator Training	49 CFR 392.7, 396.13, 396.11, 392.60, 392.9
Vehicle Operator Fitness	49 CFR 382 / 391, 390.5
Transportation Equipment	49 CFR 393
Shipping Papers	49 CFR 172, Subpart C
Placarding	49 CFR 172, Subpart F
Inspections	49 CFR 396
Loading and Unloading	49 CFR 177, Subpart B
Explosives Segregation	49 CFR 177.848
Driver Record of Duty Status	49 CFR 395
Accidents with Vehicles and Shipments in Transit	49 CFR 177, Subpart D
Accident reporting	49 CFR 171.15, 171.16, Part 390, Subpart B
Emergency Response Information	49 CFR 172, Subpart G
Parking	49 CFR 397.7
Vehicle Attendance	49 CFR 397.5
Routes	49 CFR 397.67 (d)
Vehicle Markings	49 CFR 390.21
Railroad Crossings	49 CFR 392.10
Driver Rules	49 CFR 397.19
Insurance	49 CFR 387
Controlled Substance Testing	49 CFR, Subpart B
Training	49 CFR 172, Subpart H
Registration	49 CFR 107, Subpart G
Hazardous Material Safety Permit	49 CFR, Parts 385,386, and 390

The transportation of explosives in the United States has an excellent safety record. A review of DOT incident reports for highway transportation of class 1.1B, 1.4B, 1.1D, and 1.5D materials shows 149 incidents over the past 30 years in the United States. The majority of these incidents were vehicle accidents resulting in no release or

¹¹ Institute of Makers of Explosives. *SLP 14: Handbook for the Transportation and Distribution of Explosive Materials*. March 2019.



spillages. No fatalities were reported in any incidents and only 1 incident resulted in injuries¹².

Upon delivery to the project site, explosives and detonators would be immediately transported underground to designated storage facilities and placed in separate magazines pursuant to federal OSHA and MSHA regulations, including 29 CFR 1926.904, subdivision (b) and 30 CFR 57.6102, and California regulations, including Title 8 CCR 5251, subdivision (a). The materials would not be stored above ground. The project would use approximately 0.93 tons of explosives and approximately 257 detonators per day to facilitate mining operations. According to the Hazardous Material Inventory Statement for the Brunswick Industrial Site, a maximum of 28,000 pounds of explosives would be stored underground at any given time. Pursuant to MSHA regulations, detonators and explosives shall be stored in separate magazines made of noncombustible material with proper ventilation to control dampness and excessive heating within the magazine. MSHA also requires the magazines to be locked when unattended, and must be identified with warning signs or codes indicating the contents with markings visible from any approach. Further, MSHA (30 CFR 57.6160) requires that facilities storing detonators shall be separated at least 25 feet from other storage facilities containing explosive material, and OSHA (29 CFR 1926.904) requires that permanent underground magazines containing detonators be located 50 feet or more from any magazine containing explosives. The project would comply with the more restrictive 50-foot distance required in the OSHA regulations. The underground storage facilities would be located in an area of the underground mine suitable for such storage use, and would consist of wooden, box-type containers equipped with covers or doors, or facilities constructed or mined-out to provide equivalent impact resistance and confinement, consistent with the composition of auxiliary facilities provided in 30 CFR 57.6161, subdivision (a). The storage facilities would be located in such a way so as to ensure that escape routes are not obstructed, and would be located a safe distance from underground workings, tunneling and construction operations, shafts, electrical wiring, combustible rubbish and facilities storing detonators, as is required by 29 CFR 1926.904, 30 CFR 57.6160 and 8 CCR 5258. Further, explosives would be stored in a manner to facilitate use of the oldest stocks first and to facilitate identification of brands and grades, and stacked in a stable manner no more than 8 feet in height, as is required by 30 CFR 57.6102.

A permanent underground explosive storage facility will require the completion of the Service Shaft, to provide two modes of exit from the mine, in accordance with 29 CFR 1926.904(d). Therefore, until the Service Shaft construction is completed, deliveries would be made to the Brunswick Shaft and would be limited to the quantity of explosives needed for less than one week's use during construction. Explosives would be immediately transported underground once delivered to the site. Temporary auxiliary facilities used to store explosives near underground workplaces will be in compliance with 30 CFR 57.6161 and will be wooden box type containers equipped with covers or doors, or facilities constructed or mined-out, to provide equivalent impact resistance and confinement. Once the Service Shaft is completed in approximately six months from start of construction, and permanent underground

¹² United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration. *Incident Statistics*. Available at: <https://www.phmsa.dot.gov/hazmat-program-management-data-and-statistics/data-operations/incident-statistics>. Accessed December 2021.



magazines are constructed, deliveries of explosives would be made to the Service Shaft location, and the storage of such explosives would comply with the requirements provided in 30 CFR 57.6160. Explosive's transportation in hoist conveyances and vehicles underground is governed by safety regulations described in 30 CFR 57.6204 and 57.6202.

Permanent underground explosives magazines would be located underground at locations dependent on the mining areas in production throughout the life of the mine. Generally, there would be larger magazines on main production levels such as the 1300 ft, 2300 ft, and 3280 ft levels and smaller magazines in more remote workings areas, as necessary. The larger magazines will be stored in main facilities and would be subject to regulation pursuant to 30 CFR 57.6160, and smaller magazines located in more remote working areas would be stored in auxiliary facilities and would be subject to regulation pursuant to 30 CFR 57.6161. The location of each magazine and its maximum storage capacity would be planned by the engineering department in conjunction with a risk assessment performed by a qualified professional. The risk assessment would include compliance with all criteria of 30 CFR 57.6160, 30 CFR 57.6161, 29 CFR 1926.904, and 27 CFR part 55. Compliance with 30 CFR 57.6160(a)(2) requires that an accidental explosion in the storage facilities will not prevent escape from the mine or cause the detonation of the contents of another storage facility. Therefore, the risk assessment would ensure that the maximum quantity of explosives stored and the distance from the shaft conveyance and headframe would not damage these facilities in the highly unlikely event of a magazine detonation. The protection of the mine facilities and headframes from blast waves would therefore also protect on or offsite buildings located on the surface and the public from hazards of explosives storage. Blast waves propagate significantly further through underground tunnels than on surface¹³. Therefore, it is likely that locations of underground magazines, determined through the risk assessment, would be located further by connecting tunnels and shafts from surface than the distances specified in the American Table of Distances (ATD). It is worth noting that no fatalities or serious injuries have ever occurred within the distances specified by the ATD in the extremely rare events where a detonation of an explosive magazine has occurred¹⁴. The risk assessment would also evaluate the ground vibrations from a theoretical detonation of an underground magazine to ensure that no significant damage to structures on surface would occur based on the quantity of explosives and distance from structures on surface.

Underground use of explosives is also strictly regulated by federal and state laws. For example, MSHA (30 CFR 57.6302) requires explosives and blasting agents to be kept separate from detonators until loading of explosives into predrilled blast holes begins. The blast site shall be barricaded and posted with warning signs, such as "Danger", "Explosives," or "Keep Out". Before firing a blast, MSHA requires ample warning to be given, guarding or barricading of access routes to prevent the passage of persons or vehicles, and post-blast inspection before resuming work in the blast area. In the event of a misfire, MSHA requires a 30-minute waiting period if safety fuse and blasting caps

¹³ Western Australia Department of Mines, Industry Regulation and Safety. *Dangerous Goods Safety Guidance Note, Storage of Explosives*. 2018, page 12.

¹⁴ Institute of Makers of Explosives. *The American Table of Distances*. April 2017, page 7.



are used, or 15 minutes for any other type of detonator, after which qualified mine personnel shall resolve the misfire incident pursuant to MSHA regulations.

Blasting activities are proposed to take place twice daily with blasting between shifts at 7AM and 7PM with 3 to 4 drift rounds blasted every 12 hours between shift changes and longhole blasts of approximately 3,300 tons of rock taking place once every 3-4 days. Explosives required for loading drift rounds or longhole blasts would be transported directly from the underground magazine to the working area and therefore explosives quantities in transit underground would be a maximum of approximately 500 pounds at any given location. No mining is proposed closer than 500 feet to surface; thus, explosives in transport would be at least this distance from the surface.

The use of explosives in modern underground mines is made safe due to the many regulations and safety measures adopted in the United States. There have been only three incidents attributed to Explosives and Breaking Agents resulting in fatalities in the past 25 years (1995-2021) in all underground metal mines in the United States¹⁵. Two of these incidents (2010 and 2011) were directly related to explosives and one of the incidents was related to CO poisoning from insufficient ventilation and was unrelated to explosives. None of the incidents presented a risk to the public from the use of explosives underground.

Based on the above, the transportation, storage, and use of explosives used in furtherance of the project would be required to comply with applicable federal and State laws at all times. Compliance with such would help to ensure that a significant hazard to the public or the environment through the routine transport, use, or disposal of explosives would not occur.

Potential noise and vibration impacts associated with use of explosives is addressed in Chapter 4.10, Noise and Vibration, of this EIR.

Use and Storage of Various Chemicals

The proposed project would involve the use of a number of chemicals at the Brunswick Industrial Site during the processing of materials. Mercury or cyanide would not be used in gold mineral processing.

The warehouse building would include storage of common reagents, such as collectors, promoters, frothers, and flocculants, all of which would be used in the gold recovery process conducted in the process plant. These reagents are needed in the gold recovery process to provide a more environmentally friendly alternative to cyanide, which will not be used. According to the Hazardous Material Inventory Statement for the Brunswick Industrial Site, common names of the proposed reagent chemicals include Aerophine, Methyl Isobutyl Carbinol (MIBC), Magnafloc 10, and Soda Ash. Aerophine is known as a promoter or collector, used in flotation to increase

¹⁵ United States Department of Labor – Mine Safety and Health Administration. *Fatality Reports*. Available at: https://www.msha.gov/data-reports/fatality-reports/search?combine=&field_mine_category_tid=186&field_arep_fatal_date_value%5Bvalue%5D%5Byear%5D=&province=All&field_accident_classification_tid%5B%5D=16. Accessed December 2021.



the floatability of minerals in order to effect their separation from the undesirable mineral fraction. Flotation is an industrial process for selectively separating valuable minerals from non-valuable minerals. The applicant has selected Aerophine over xanthates as the latter can generate carbon disulfide upon decomposition, which is known to be a highly toxic and flammable compound with potential risks to the health and the environment. Magnafloc 10 is known as a flocculant, which help aggregate fine suspended particles to form larger flocs so that the solids can more easily be separated from the water. Magnafloc 10 is not expected to bioaccumulate in organisms, its chemical family (polyacrylamide) is relatively non-toxic, and it is not readily biodegradable into more environmentally problematic chemicals.¹⁶ MIBC is a frother used to create foam to facilitate froth flotation of gold minerals in the gold recovery process. Based on available data, MIBC has a low bioaccumulation potential and exhibits low toxicity to aquatic organisms.¹⁷ Soda Ash is used in gold flotation to control alkalinity. These reagents have various properties, some of which are described above. Whereas some are flammable (e.g., MIBC), others are not (e.g., Soda Ash). The reagents would be removed from the concentrate and sand tailings during the dewatering stage conducted in the process plant using filter presses. All reagents have specific storage requirements that would need to be met on-site, as verified by the Fire Marshall's Office prior to commencement of operations.

Other commonly stored chemicals at the warehouse building would include but not be limited to Oxygen, Acetylene, Argon welding gas, motor oil, hydraulic oil, and antifreeze.

The Water Treatment Plant would also store and use various chemicals, including Manganese Dioxide, Potassium Permanganate, Sodium Hypochlorite Solution, and Sulfuric Acid. These chemicals are commonly used in water treatment plant operations and said chemicals have specific storage requirements that would need to be met on-site, as verified by the Fire Marshall's Office prior to commencement of operations.

In addition, various pieces of equipment would be used, requiring the need for diesel fuel. Diesel fuel consumption would vary between 450 to 850 gallons per day, depending on the location where engineered fill is trucked. During normal operations, an average of one 7,500-gallon fuel tanker would travel to/from the sites every nine days, using Brunswick Road to SR 20/49, over the 80-year term of the Use Permit. During any public safety power shutoff events, a maximum of two fuel tankers per day would be required due to additional fuel demands associated with backup generators.

For the Brunswick Industrial Site, the diesel fuel would be stored in two 12,000-gallon, above-ground diesel storage tanks, while the majority of the other chemicals would be stored in 55-gallon drums. The tanks would be located in the industrial building complex area. Diesel fuel is considered a Class II liquid, and as such, the tanks would be regulated in accordance with Chapter 23 of the California Fire Code (CFC). Chapter 23 of the CFC includes robust design requirements for above-ground fuel storage tanks, including but not limited to requirements for overfill protection, spill containment,

¹⁶ Aarhus University. *Review on Environmental Risk Assessment of Mining Chemicals used for Mineral Separation in the Mineral Resources Industry and Recommendations for Greenland* [pg. 20]. 2016.

¹⁷ Aarhus University. *Review on Environmental Risk Assessment of Mining Chemicals used for Mineral Separation in the Mineral Resources Industry and Recommendations for Greenland* [pg. 24]. 2016.



and dispenser emergency shutoff valve. Compliance with CFC requirements, as determined by the Fire Marshall's Office, at time of improvement plan review, would reduce fire hazards, including potential leaks, related to on-site fuel storage tanks.

According to the Hazardous Material Inventory Statement for the Centennial Industrial Site, the only potential hazardous material to be stored on the site would be diesel fuel. The diesel fuel would be stored in a 1,200-gallon AST. The diesel tank use and storage would be subject to all applicable regulations, including providing secondary containment, enclosure, placement consistent with regulations within the CFC, and setback requirements.

Because the proposed project would involve the use and storage of a number of hazardous materials, the project applicant would be required to obtain a number of permits and approvals from regulatory agencies, as well as comply with all applicable federal, State, and local regulations for the handling, storage, and transportation of hazardous and toxic materials. For example, the project applicant would be required to register with the CUPA (in the case of the proposed project, NCEHD) for all applicable hazardous materials programs, including the hazardous materials business plan program and the above-ground petroleum storage program. As part of the hazardous materials business plan program, the project applicant would be required to obtain a permit from the NCEHD and prepare a hazardous materials business plan detailing facility information, a hazardous materials inventory, and an emergency response plan. As part of the above-ground petroleum storage program, a spill prevention control and countermeasures plan would be prepared, which would guide reporting, control, and cleanup activities in the event of a spill.

In addition, pursuant to California Health and Safety Code Section 25510(a), except as provided in subdivision (b),¹⁸ employees or other on-site authorized personnel shall, upon discovery, immediately report any release or threatened release of a hazardous material to the CUPA (in the case of the proposed project, NCEHD). The employee/authorized personnel shall provide all State, city, or county fire or public health or safety personnel and emergency response personnel with access to the facilities. In the case of the proposed project, the mine operator would be required to notify the NCEHD in the event of an accidental release of a hazardous material, who would then monitor the conditions and recommend appropriate remediation measures.

Compliance with the aforementioned permits and applicable federal, State, and local regulations would ensure that the proposed project would not result in a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, specifically related to the use and storage of various chemicals, including diesel fuel.

Conclusion

Based on the above, compliance with applicable federal, State, and local regulations would minimize the potential for the proposed project to result in a significant hazard to the public or the environment through the routine transport, use, or disposal of

¹⁸ Section 25510(b) states the following: "Subdivision (a) does not apply to a person engaged in the transportation of a hazardous material on a highway that is subject to, and in compliance with, the requirements of Sections 2453 and 23112.5 of the Vehicle Code."



hazardous materials, specifically related to transport, underground storage, and use of explosives. Nonetheless, because the project would include ongoing transport, underground storage and use of explosives, and because compliance with federal and State regulations is required, Mitigation Measures 4.7-1(a-d) are included out of an abundance of caution to ensure satisfaction with such standards and to minimize the potential for hazards resulting from the proposed project to the maximum extent feasible. It is conservatively concluded that the proposed project could result in a **significant** impact related to the routine transport, storage, and use of explosives.

Mitigation Measure(s)

Implementation of the following mitigation measures would minimize the risk from transport, underground storage, and use of explosives at the Brunswick Industrial Site to a *less-than-significant* level.

- 4.7-1(a) *The mine operator shall comply with all applicable federal and state regulations governing the transport, underground storage and use of explosives, including MSHA (CFR Title 30, Part 57), OSHA (CFR Title 29, Part 1910 and 1926), and CCR (Title 8, Part 5251ff. and 5291).*
- 4.7-1(b) *The mine operator shall prepare a Risk Assessment when the underground mine is accessible after initial dewatering and before storage of explosives underground, specifying the location of each magazine and its maximum storage capacity. The Risk Assessment shall be performed by a qualified professional (e.g., licensed engineer) in accordance with the Methods and Algorithms Used for Quantitative Risk Analysis of the Institute of Markers of Explosives and submitted to MSHA for their review. The Risk Assessment shall demonstrate protection of the public from hazards of explosives storage and be provided to the Nevada County Planning Department before underground storage of explosives.*
- 4.7-1(c) *The mine operator shall ensure, through the enforcement of contractual obligations, that all contractors or suppliers transport explosives in a manner consistent with all applicable regulations and guidelines. Proof of the agreement between the operator and contractor or supplier transporting explosives shall be provided to the Nevada County Planning Department before transporting explosives to the site.*
- 4.7-1(d) *Prior to the transport, storage, or use of hazardous materials or explosives at the site, the mine operator shall prepare a Hazardous Materials Business Plan (HMBP). The County shall review and approve the HMBP prior to the use or storage of hazardous materials or explosives on-site.*



4.7-2 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment or be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment. Based on the analysis below and with implementation of mitigation, the impact is less than significant.

According to the *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (CBA), the California Supreme Court held that “agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future users. In those specific instances, it is the impact of the project on the environment – and not the impact of the environment on the project – that compels an evaluation of how future residents or users could be affected by exacerbated conditions.” (*Id.* at pp. 377-378.). Therefore, the discussion below focuses on the potential for the proposed project to exacerbate the existing RECs identified for the Centennial and Brunswick Industrial Sites, respectively, including related to being located on sites identified on lists of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Centennial Industrial Site

As stated in the Existing Environmental Setting section of this chapter, the baseline condition for the Centennial Industrial Site has been adjusted for this analysis to reflect the post-remediation condition. Accordingly, potential RECs associated with the Centennial Industrial Site would not exist under the adjusted baseline condition given that such condition reasonably assumes DTSC will have issued a No Further Action letter following successful remediation in accordance with the RAP. Therefore, the proposed operations associated with the Centennial Industrial Site would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment. In addition, the Centennial Industrial Site is not listed on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

This conclusion is consistent with the conclusions of the IS/MND prepared for the RAP by DTSC, which states that “...the Project [RAP] will not create a significant hazard to the public or the environment through transport, use, or disposal of hazardous materials, and will actually reduce hazards by cleaning the site.”¹⁹

Brunswick Industrial Site

As presented in the Existing Environmental Setting section of this chapter, a number of potential RECs were identified in association with the Brunswick Industrial Site. The

¹⁹ Department of Toxic Substances Control. *California Environmental Quality Act Initial Study, Centennial M1 Property Clean-Up Project Remedial Action Plan* [pg. 50]. July 26, 2021.



potential for the proposed project to result in a reasonably foreseeable upset or accident condition related to the release of hazardous materials into the environment associated with the on-site RECs is discussed in further detail below. It is noted that the Brunswick Industrial Site is not listed on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Elevated Metals Concentrations in On-site Soils

At locations other than the southeastern paved area, the Phase II investigation did not detect total arsenic at concentrations that would classify the soil as hazardous waste. In addition, the total concentrations of metals other than arsenic were not detected in the mine waste and soil samples at concentrations exceeding the applicable screening levels, and significant concentrations of asbestos were not detected. Accordingly, the only area identified as having total and soluble arsenic concentrations that exceed regulatory benchmarks on the site is the mixed soil and rock fill beneath the southeastern paved area. According to the Phase I/II ESA, the material was likely imported to the site and did not originate from mining operations at the Brunswick Mine shaft. Thus, the material is isolated and materials obtained from the proposed mining operations on the Brunswick Industrial Site are not expected to contain elevated levels of arsenic. However, if disturbance of the mine waste beneath the southeastern paved area would occur during construction of the proposed project, the existing contaminated materials could become exposed, exacerbating a potential hazard to the public or the environment. Thus, the proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment, specifically related to the existing mixed soil and rock fill beneath the southeastern paved area.

Historic Storage and Use of Petroleum Products

According to previous environmental reporting, three areas of the site had excavations associated with petroleum contaminated soils, which are identified as Areas A, B, and C. Documentation or record of closure for the cleanup of Areas A, B, or C were not found during research conducted for the Phase I ESA prepared by ECM Consultants or Phase I/II ESA prepared by NV5. However, due to the results of verification sampling and analysis, Areas B and C would likely be considered HRECs provided that regulatory closure documentation is found or the existing records are subjected to regulatory review for confirmation of closure. However, for Area A, where AC Industrial Cleaning removed a buried electrical transformer and contaminated soil from a location west of the recycling pond, the excavation sidewalls contain impacted soil according to the summary report. The remaining contaminated soils are assumed to be present on-site. Thus, if the contaminated soils are encountered and disturbed during operation of the proposed project, the project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment, specifically related to the existing contaminated soils.

Controlled Recognized Environmental Conditions

The former sawmill site was a PCP and tetrachlorophenol contaminated site; however, contaminated soil was excavated in 1989 and remediated in accordance with a remediation plan developed in coordination with regulatory agencies. Documentation



suggests that 375 cubic yards of contaminated soil was excavated, with confirmation samples collected and analyzed to confirm that soil above the PCP remediation goal had been removed. Case closure was issued by the RWQCB for the impacted soils within the green chain area.

Based on the results of groundwater monitoring, a No Further Action letter was issued by the RWQCB on December 16, 2006, which determined that all VOCs remaining in groundwater do not pose a risk to human health, the environment or waters of the State, and that remaining VOCs show a downward trend and should reach nondetectable concentrations by 2015. A Land Use Covenant with the Nevada County Assessor's Office was filed and proof of monitoring well destruction was submitted. The Land Use Covenant was established to restrict groundwater use based on remaining groundwater contamination at concentrations above the MCL for drinking water. It should be noted that an evaluation of inhalation risk to human health from residual VOC in the groundwater was performed and the results indicated that an associated significant threat to human health from vapor migration to indoor air did not exist. The Covenant states that if, after any four consecutive quarters of any year within the term of the Covenant, groundwater samples collected from the site indicate levels of VOC below the MCL, then the Covenant shall terminate with written concurrence from the RWQCB. If the Covenant is rescinded in the future, then the condition could be considered an HREC rather than a CREC.

Other Potential Environmental Concerns

A number of monitoring wells were observed to be present on the site; however, the location, status, and total number of remaining wells is not definitely known. Any existing on-site monitoring wells would continue to act as conduits to groundwater unless assessed for reusability or removed.

Undocumented soil fill was identified in various areas of the Brunswick Industrial Site. Because the origin of the fill is unknown, the soil could be considered contaminated without evidence proving otherwise. In addition, historic storage of chemicals occurred on the Brunswick Industrial Site. Although signs of contamination related to such were not identified during the site reconnaissance performed as part of the Phase I or Phase I/II ESAs prepared for the proposed project, should any such contamination be discovered during project improvements, pursuant to Mitigation Measure 4.7-2(b) below, appropriate measures would be required to be implemented in order to ensure a significant hazard to the public or the environment related to exposure of such does not occur.

While undocumented drums were identified on the Brunswick Industrial Site, the drums would be removed and appropriately disposed of as part of project improvements. If indications of contamination related to the drums are identified during project improvements, appropriate measures would be required to be implemented in order to ensure a significant hazard to the public or the environment related to exposure of such contamination does not occur.

East Bennett Road ROW

As discussed in the Project Description chapter of the EIR, an approximately 1¼-mile-long by two feet-wide (approximately 0.30-acre) stretch of East Bennett Road would



be temporarily disturbed to bury the proposed potable water pipeline. Initially, an approximately 24-inch-wide by 42-inch-deep open trench would be developed in the existing paved ROW. Upon completion of trenching in a specific section of the route, the eight-inch pipeline would be installed. The pipe would be covered with the stockpiled soil removed during trenching or engineered fill, as required by County guidelines. The backfilled trench within the East Bennett Road ROW would then be paved consistent with County guidelines. Given that the pipeline would be installed within the existing paved ROW, the underlying soils are not observable at this time. Nevertheless, the soils underlying the East Bennett Road asphalt are not anticipated to contain materials that could pose hazards during construction, given the previous disturbance of the ROW to grade and construct the roadway. Ongoing vehicle use of the roadway would not lead to contamination of underlying soils due to the impervious nature of the asphalt surface.

Conclusion

Based on the above, implementation of the proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment, specifically related to elevated arsenic levels in the existing mixed soil and rock fill beneath the southeastern paved area, should the area be disturbed as part of the proposed project, potentially encountering contaminated soils, the potential presence of petroleum contaminated soils, and the presence of monitoring wells. As a result, impacts would be considered **significant**.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

- 4.7-2(a) *If disturbance of the mine waste beneath the southeastern paved area within the Brunswick Industrial Site is proposed as part of the project, the site-specific arsenic concentration data resulting from the Phase I/II ESA prepared by NV5 for the proposed project shall be furnished to the project contractor(s) so the contractor(s) can comply with applicable health and safety requirements accordingly. The project contractor(s) shall retain a Certified Industrial Hygienist to develop specific handling procedures for the mine waste, including dust mitigation. Mine waste shall not be removed from the site without regulatory approval by the RWQCB or DTSC. Verification of proper handling and disposal of the mine waste shall be provided to the Nevada County Planning Department.*
- 4.7-2(b) *If unidentified or suspected contaminated soil or groundwater evidenced by stained soil, noxious odors, or other factors, is encountered during site improvements, work shall stop in the area of potential contamination, and the type and extent of contamination shall be identified by a Registered Environmental Assessor (REA) or qualified professional. The REA or qualified professional shall prepare a report that includes, but is not limited to, activities performed for the assessment, summary of anticipated contaminants and contaminant*



concentrations, relevant Environmental Screening Levels for identified contaminants, whether the contaminants exceed Environmental Screening Levels, thus warranting remediation, and recommendations for appropriate handling and disposal. Site improvement activities shall not recommence within the contaminated areas until any necessary remediation identified in the report is complete. The report and verification of proper remediation and disposal shall be submitted to the Nevada County Planning Department for review and approval.

- 4.7-2(c) *Prior to commencement of any construction activities, the project applicant shall determine the location of all existing wells on the site. Prior to any ground disturbance activities within 50 feet of an identified well on the project site, the applicant shall hire a licensed well contractor to obtain a well abandonment permit from the NCEHD for any wells that will no longer be used, and properly abandon the on-site wells, pursuant to Department of Water Resources Bulletin 74-81 (Water Well Standards, Part III), for review and approval by the NCEHD.*

4.7-3 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area. Based on the analysis below, the impact would be *less than significant*.

The closest public use airport to the project site is the Nevada County Air Park, less than one-mile (approximately 4,000 feet) northeast of the Brunswick Industrial Site. The project site is partially within Zones D and E of the Nevada County Airport Land Use Compatibility Plan (NCALUCP). For Zone D, airspace review is required for objects at elevations above 3,207 feet mean sea level (msl). The tallest point of the project site (the 165-foot tall headframe building) would be at 2,912 feet msl. In addition, the project is not a noise-sensitive use, would not pose a hazard to flight, and would not exceed the density requirements; therefore, the project would comply with the requirements of the NCALUCP for Zones D and E.

Nevertheless, the proposed project would be required to be reviewed by the ALUC because it would have a building floor area of 20,000 square feet or greater, would include more than 100 people on-site, and would include new development of buildings more than 100 feet tall in Zones D and E. The purpose of the ALUC review would be to review the proposed project for consistency with the compatibility criteria in the NCALUCP, and not for the purpose of identifying potential environmental effects.

Based on the above, the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area related to the Nevada County Air Park. Therefore, impacts related to airport safety hazards and noise would be ***less than significant***.



Mitigation Measure(s)

None required.

4.7-4 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Based on the analysis below, the impact would be *less than significant*.

As stated in the Nevada County General Plan Safety Element and the Nevada OA Evacuation Annex to the County EOP, primary evacuation routes in Nevada County consist of the major interstates, highways, and principal arterials identified on the Nevada County General Plan Land Use Map. The routes designated on the General Plan Land Use Maps as minor arterial or major collector routes shall be considered secondary evacuation routes on a Countywide basis. These routes supplement the primary evacuation routes, and provide egress from local neighborhood and communities. According to the Table 4.1 of the Circulation Element of the General Plan, Brunswick Road is considered a Minor Arterial, and thus, is not a primary evacuation route for the County. Rather, Brunswick Road is considered a secondary evacuation route.

As discussed in the Project Description chapter, the average transport of engineered fill will be 1,000 tons per day. A maximum transport rate of up to 2,000 tons of engineered fill per day is required to make up for periodic weather or operational delays. Truck payloads will be approximately 20 tons per truck and therefore will require up to a maximum of 100 round trips per day and an average of 50 round trips per day, over a 16-hour period (6:00 AM to 10:00 PM). Up to 18 additional truck trips could occur per day for various operations (gold concentrate shipping, materials deliveries, etc.).

For a period of approximately five years, trucks would transport barren rock from the Brunswick Industrial Site to the Centennial Industrial Site or Brunswick Industrial Site engineered fill areas. Transport of barren rock to the Centennial Industrial Site is anticipated to occur 16 hours per day, seven days per week. At these rates, it would take approximately five years to fill the approximately 44-acre fill area of the 56-acre Centennial Industrial Site using engineered fill from the Brunswick Industrial Site. Notwithstanding the priority of placing engineered fill at the Centennial Site, the ultimate approach to engineered fill placement will need to remain flexible to address any potential unforeseen circumstances. One such scenario would be if the remediation of the Centennial Industrial Site, currently under DTSC oversight, is not complete upon commencement of mining, in which case engineered fill would be placed at the Brunswick Industrial Site and/or transported off-site to be utilized in local and regional construction markets. If the clean-up project on the Centennial Industrial Site is not completed within the 80-year permit life of the mine project, engineered fill would be placed at the Brunswick Industrial Site and/or transported off-site to be utilized in local and regional construction markets, and no material would be placed on the Centennial Industrial Site. With respect to the Brunswick Industrial Site, engineered fill would be transported from the truck-loading area to an approximately 31-acre portion of the Brunswick Industrial Site. Assuming the same rates for the



Centennial Industrial Site, it would take approximately six years to fill the Brunswick Industrial Site engineered fill area to the design elevations.

After full placement of fill at the Centennial and Brunswick Industrial Sites to the pad design elevations, the need for hauling of engineered fill would continue due to ongoing mining over the use permit term of 80 years, and thus, hauling would shift entirely to local and regional markets, with the maximum truck trips per day remaining at 100, with a daily average of 50.

Engineered fill from the Brunswick Industrial Site will be hauled to the Centennial Industrial Site via Brunswick Road and Whispering Pines Lane. Engineered fill from the Brunswick Industrial Site to other customers will be hauled using Brunswick Road to SR 20/49. Off-site haul of gold concentrate will average one truck trip per a day using Brunswick Road to SR 20/49. Hauling of fuel and other freight, including explosives, would occur using Brunswick Road to SR 20/49. Thus, over the life of the project, up to 118 haul truck round trips would occur on Brunswick Road during the hours from 6:00 AM to 10:00 PM, seven days a week. On an hourly basis, this equates to approximately 7.4 haul truck round trips per hour on Brunswick Road.

In the event of an emergency, such as a wildfire, requiring evacuation, the incident command center would direct County OES to issue the evacuation order through its Code Red Mass Communication System to notify residents and/or utilize the Wireless EAS to send out notifications through cell phones and/or utilize the EAS, which broadcasts across TV screens and AM/FM radio. In addition, the Sheriff's Office will send out deputies to evacuation areas to broadcast an emergency siren (Hi-Lo System) from their patrol vehicles.

In the event of an evacuation order in the vicinity of the proposed mine, such as an evacuation of residents off of Greenhorn Road, the incident command center would contact dispatch and direct them to contact the mine and request the mine operator to shut down the mine and cease all truck hauling operations.²⁰ While Brunswick Road is not a primary evacuation route, it would be the evacuation route used by residents of the Greenhorn Road area to evacuate to the primary evacuation route of SR 49/20. Ceasing haul truck operations during the emergency evacuation order would ensure that the proposed project would not have the potential to physically interfere with an emergency evacuation plan. Operation of the approximately 7.4 haul trucks per hour attributable to the proposed project could either be temporarily ceased and/or these trucks could pull off the road to enable residents to evacuate as quickly and expeditiously as possible. With the temporary cessation of mine operations, if directed by County dispatch, no further haul trucks would be entering Brunswick Road during an evacuation order. Accordingly, County OES has stated that the proposed project would not have a significant impact related to physically interfering with an adopted emergency evacuation plan.²¹

²⁰ Personal communication between Lieutenant Robert Jakobs, Emergency Operations Coordinator, Office of Emergency Services, Nevada County Sheriff's Office, and Nick Pappani, Vice President, Raney Planning & Management, Inc., January 5, 2021.

²¹ *Ibid.*



Therefore, impacts related to the potential for the project to impair implementation of emergency response plans would be ***less than significant***.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

For further detail related to the cumulative setting of the proposed project, refer to Chapter 5, Statutorily Required Sections, of this EIR.

4.7-5 Cumulative hazards to the public or the environment related to increases in the transport, storage, and use of hazardous materials. Based on the analysis below, the cumulative impact would be *less than significant*.

In general, hazardous materials and other public health and safety issues are site-specific and/or project-specific, and would not be significantly affected by other development within the project area. While the proposed project would involve haul of hazardous materials to and from the Brunswick Industrial Site via Brunswick Road, no other cumulative projects are anticipated to similarly haul hazardous materials along Brunswick Road on an ongoing basis. In addition, cumulative development projects would be subject to the same federal, State, and local hazardous materials management requirements as would the proposed project, which would minimize potential risks associated with increased hazardous materials use in the community.

With respect to the transport, underground storage, and use of explosives at the Brunswick Industrial Site, this EIR concludes that, compliance with applicable federal and state regulations, such as MSHA, OSHA, and CCR, as set forth in Mitigation Measures 4.7-1(a-d), would ensure that the explosive hazards associated with the ongoing operation of the proposed project would be less than significant. In conclusion, the proposed project would not combine with other cumulative projects to create significant related hazard impacts, and the cumulative impact would be ***less than significant***.

Mitigation Measure(s)

None required.



4.8 HYDROLOGY AND WATER QUALITY

4.8. HYDROLOGY AND WATER QUALITY

4.8.1 INTRODUCTION

The Hydrology and Water Quality chapter of the EIR describes the quality and quantity of existing groundwater and surface water resources within the Centennial and Brunswick Industrial Sites, including Wolf Creek and South Fork Wolf Creek. The chapter evaluates pre- and post-development drainage patterns and stormwater flows, and the potential for proposed mining operations to deplete groundwater and affect nearby domestic wells during initial and ongoing dewatering of the mine. The chapter also describes the proposed on-site water treatment system and evaluates the adequacy of the system to ensure that treated dewatered mine water would not violate water quality standards prior to discharging to South Fork Wolf Creek. The potential for treated mine water discharge to induce on- and off-site downstream flooding is also assessed within this chapter. Information used for this chapter was primarily drawn from reports prepared for the proposed project, as follows:

- Balance Hydrologics, Inc. *Geomorphic Assessment, South Fork Wolf Creek, Near Grass Valley, California*. March 2020 (Appendix K.1).
- EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project*. February 2021 (Appendix K.2).
- Itasca Denver, Inc. *Predictions of Groundwater Inflows to the Underground Mine Workings at the Idaho-Maryland Mine*. November 2020 (Appendix K.3).
- Linkan Engineering. *Idaho Maryland Water Treatment Plant Design Report*. February 2021 (Appendix K.4).
- Nevada City Engineering, Inc. *Preliminary Drainage Analysis and Detention Basin Sizing for Centennial and Brunswick Industrial Sites*. October 2019 (Appendix K.5).
- Nevada City Engineering, Inc. *Rise Grass Valley Inc. Floodplain Management Plan for Centennial Industrial Site of the Idaho Maryland Mine Project*. January 2020 (Appendix K.6).
- West Yost. *Peer Review of Groundwater Hydrology and Water Quality Analysis and Groundwater Model Reports for the Idaho-Maryland Mine Project, Nevada County, California*. August 27, 2020 (Appendix K.7).
- ECM. *Applicant Report Peer Review, Idaho Maryland Mine: Centennial and Brunswick Sites*. August 13, 2020 (Appendix H.7).
- Itasca Denver, Inc. *Groundwater Monitoring Plan, Idaho-Maryland Mine Project*. February 2021 (Appendix K.8).
- Rise Grass Valley Inc. *Well Mitigation Plan*. February 2, 2021 (Appendix K.9).

Surface water supply availability is addressed in Chapter 4.11, Public Services and Utilities, of this EIR.

4.8.2 EXISTING ENVIRONMENTAL SETTING

The section below describes regional groundwater and surface hydrology, existing drainage patterns on the Centennial and Brunswick Industrial Sites, including peak flows, existing groundwater and surface water quality, and mapped floodplains.



Regional Hydrology

The project sites are located within two watershed areas. The Centennial Industrial Site is located in the Upper Wolf Creek watershed, which encompasses approximately 2,250 acres upstream from the western end of the Centennial Industrial Site. The Brunswick Industrial Site is located in the South Fork Wolf Creek watershed, which encompasses approximately 1,450 acres and is upstream of a culvert where the creek passes underneath part of the City of Grass Valley. Figure 4.8-1 shows an overview of the Upper Wolf Creek and South Fork Wolf Creek watersheds.

Approximately 4,500 feet west of the Idaho-Maryland Mine underground workings, both Wolf Creek and South Fork Wolf Creek flow under the City of Grass Valley within culverts. South Fork Wolf Creek merges with the main channel of Wolf Creek within these culverts. Wolf Creek is tributary to the Bear River. On the downstream side of the City of Grass Valley, outflows from the City of Grass Valley wastewater treatment plant, and from the Northstar Mine water treatment system, flow into Wolf Creek. Both of these discharges occur under permits from the Regional Water Quality Control Board (RWQCB).

The average water-year rainfall from the Western Region Climate Center at Grass Valley 2 station from 1967-2017 is 52.81 inches. A water year is not a calendar year and begins on October 1 and extends to September 30 of the next calendar year. The maximum water year rainfall was 95.93 inches in 2017, while the minimum water year rainfall was 18.48 inches in 1977.

Much of the flow within Wolf Creek is due to releases of water by Nevada Irrigation District (NID) from the Deer Creek South (DS) Canal at the DS Canal Wolf Creek Release, located near the southwest end of Success Cross Road (NID, 2013). The NID Phase II Raw Water Master Plan (RWMP; NID, 2013) indicates that the average annual release of water from the DS Canal into Wolf Creek in 2007 was about 35 cubic feet per second (cfs) and is projected to increase to over 50 cfs by 2032. The DS Canal becomes the DS Canal Extension downstream of the Wolf Creek Release. NID reports that there is no consistent flow of water maintained within the DS Canal Extension (NID, 2013), so almost all of the flow from the DS Canal is discharged to Wolf Creek at the release location. The water from the DS Canal is NID "Upper Division" water sourced from higher elevations of the Deer Creek watershed above Scotts Flat Reservoir (NID, 2013). Water released by NID to Wolf Creek is eventually diverted to the Tarr Canal downstream of the City of Grass Valley.

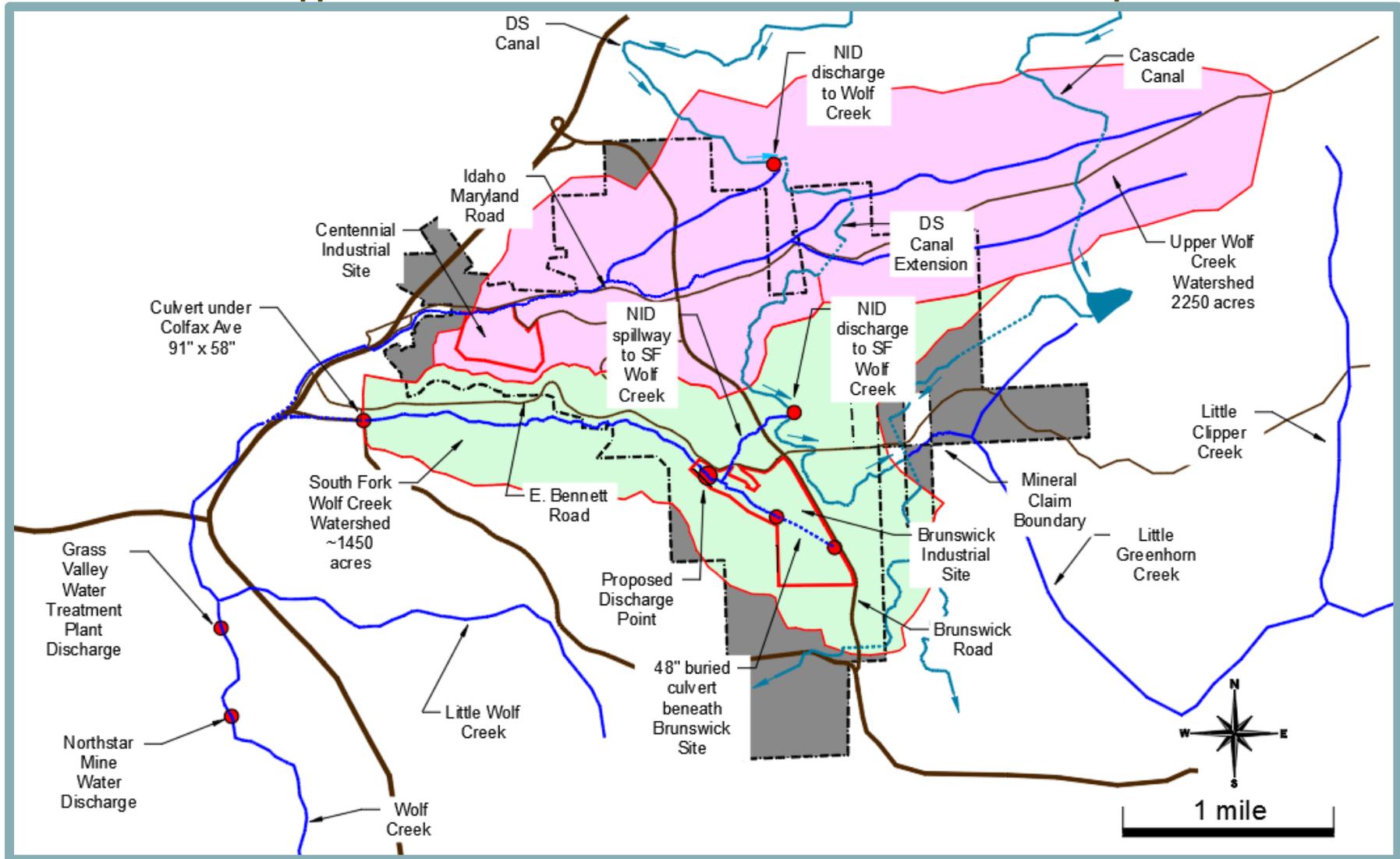
In 2018, the releases to Wolf Creek averaged approximately 36 cfs. On April 17, 2019, EMKO measured the flow in Wolf Creek at the Centennial Drive bridge (at the intersection with Idaho-Maryland Road) at approximately 50 cfs. On that date, NID reports that the flow at DC 146 was 19.36 cfs. Thus, at the time of the measurements, almost 40 percent of the flow in Wolf Creek at Centennial Drive was due to NID releases from the DS Canal and the rest was due to natural runoff and groundwater discharge.

Although NID does not maintain flows within the DS Canal Extension, water is occasionally diverted through that canal section for maintenance purposes. According to NID, water used to flush a segment of the DS Extension in 2018 was released through the DS Canal Extension Spill II into a natural creek that flows under Brunswick Road and East Bennett Road before entering South Fork Wolf Creek.¹

¹ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 16]. February 2021.



**Figure 4.8-1
Upper Wolf Creek and South Fork Wolf Creek Watershed Map**



Data provided by NID indicates that in 2018, NID made the following releases of water to South Fork Wolf Creek through the DS Canal Extension:

- March 6 to 10, 2018 – 8.78 cfs to 10.63 cfs;
- March 26 to April 4, 2018 – 6.15 cfs to 8.17 cfs; and
- April 24 to May 4, 2018 – 3.58 cfs to 13.64 cfs.

Peak flow rates for a 10-year, 24-hour storm event and a 100-year, 24-hour storm event have been reported by Cranmer Engineering, Inc. (Cranmer, 1986) as part of the development of the Storm Drainage Master Plan for the City of Grass Valley. For South Fork Wolf Creek at Hennessy School (i.e., the 2.75 square mile area of the watershed upstream of State Route [SR] 49), Cranmer (1986) calculated peak flow rates of 658 cfs for the 10-year, 24-hour storm, and 1,087 cfs for the 100-year, 24-hour storm. Thus, peak flow rates during significant storm events may be as much as two to three orders of magnitude (100 times to 1,000 times) greater than the base flow in, or the NID discharges to, South Fork Wolf Creek.

On April 17, 2019, EMKO measured the flow in South Fork Wolf Creek upstream of the natural creek discussed above at approximately 3.7 cfs, and downstream of the natural creek discussed above at approximately 6.5 cfs. Thus, the flow from the natural creek was approximately 2.8 cfs at that time. The DS Canal Extension was dry on April 17, 2019, so the flow in South Fork Wolf Creek consisted entirely of natural runoff and groundwater discharge.

On August 8, 2019, EMKO again measured the flow in South Fork Wolf Creek downstream of the natural creek. The flow on that date was less than one cfs. There was no flow in the natural creek at that time. Due to the lack of any measurable rainfall during the summer in the region, the flow in South Fork Wolf Creek at the time of the August 8, 2019 measurement is anticipated to consist entirely of groundwater discharge.

Additional evaluation of runoff from the South Fork Wolf Creek watershed has been conducted for the project by Balance Hydrologics, Inc. (Balance, 2020). In September 2019, Balance (2020) measured the flows just downstream of the natural creek described above and at Ophir Street, where the creek enters a box culvert, at 0.17 cfs and 0.40 cfs, respectively. In January 2020, Balance (2020) measured the flows at the same two locations at 1.5 cfs and 2.5 cfs, respectively. Balance (2021) installed a gaging station on the South Fork of Wolf Creek on Rise property on January 24, 2020. Measurements were recorded at 15-minute intervals to determine instantaneous flow and daily peak, average, and minimum flows. In addition, manual measurements were made 19 times between January 24, 2020 and January 20, 2021 to verify the readings from the gaging station. Based on the stream gaging data and manual measurements made in 2019 to January 2021, base flows range from 0.07 cfs in the summer to 6.5 cfs in the winter. Peak flow during the monitoring period occurred on April 5, 2020 at 33.4 cfs in response to a two-day rainfall event totaling approximately 10 inches.

Project Area Drainage

Nevada City Engineering, Inc. (2019) has conducted an evaluation of the runoff from the Brunswick and Centennial Industrial Sites using the unit-hydrograph method for estimating peak runoff and volumes, consistent with the Nevada County Land Use and Development Codes (LUDC), Chapter XVII Road Standards. The Brunswick Industrial Site storm drain systems are designed to capture flows from newly developed portions of the site and includes two catchment areas with a combined area of approximately 124 acres (see subareas B-1 & B-2 in Figure 4.8-



2). The peak flow rate, in cfs, from the combined catchment areas was evaluated by Nevada City Engineering, Inc. (2019) for storms with recurrence intervals of two years, 10 years, 25 years, and 100 years. The results of the unit-hydrograph evaluation for the point where the combined runoff from the two catchment areas discharge to South Fork Wolf Creek are provided in Table 4.8-1.

Table 4.8-1	
Existing Peak Flows from Industrial Site Areas	
Brunswick Industrial Site Storm Water Flows to South Fork Wolf Creek	
Return Period (years)	Existing Peak Runoff (cfs)
2	79
10	140
25	195
100	227
Centennial Industrial Site Storm Water Flows to South Fork Wolf Creek	
Return Period (years)	Existing Peak Runoff (cfs)
10	72
100	121

The peak runoff from the two catchments that include the Brunswick Industrial Site under existing conditions ranges from approximately 80 cfs for a two-year, 24-hour storm, up to almost 230 cfs for a 100-year, 24-hour storm (Nevada City Engineering, Inc., 2020).

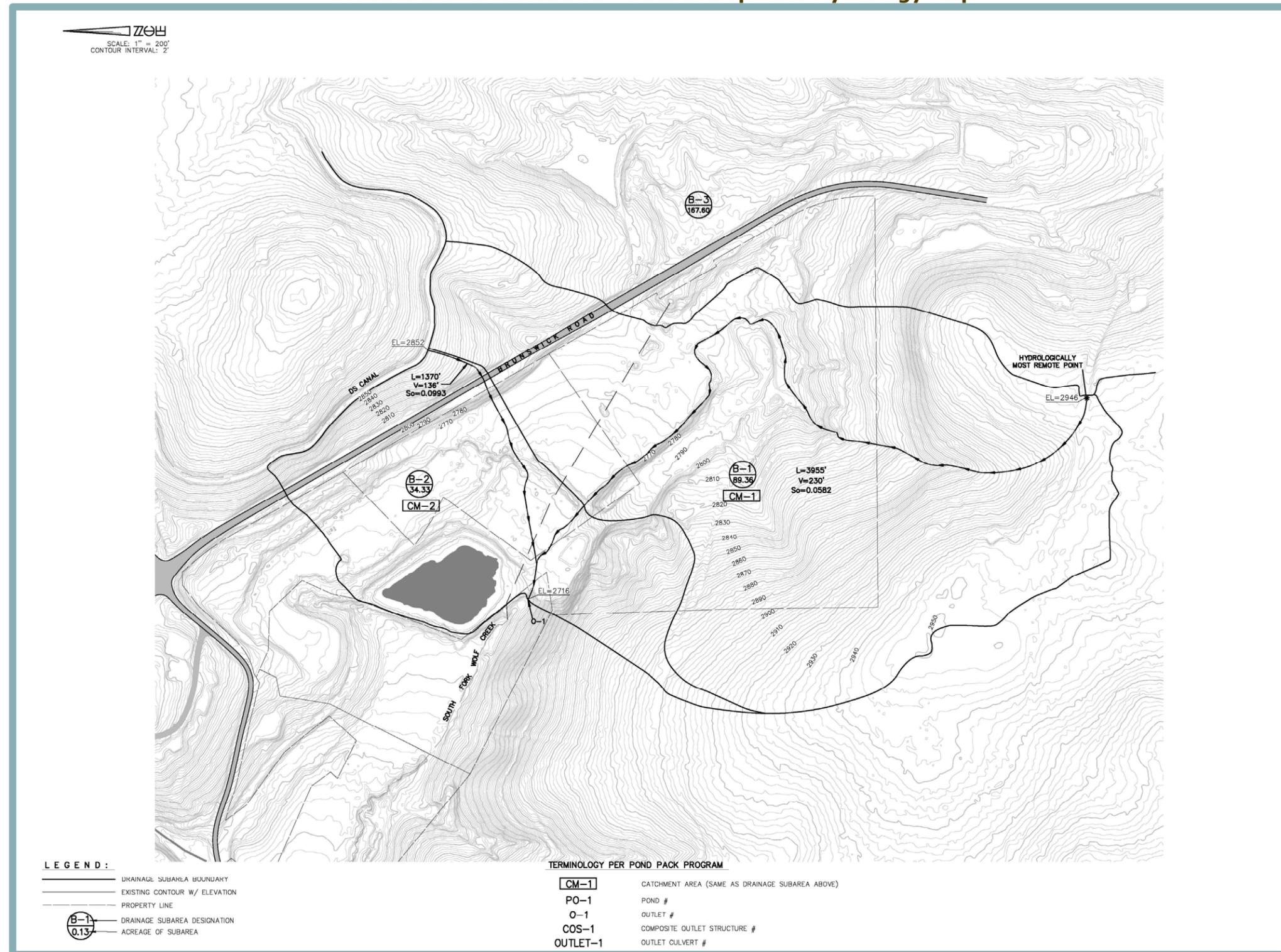
The Centennial Industrial Site storm drain systems are designed to capture flows from newly developed portions of the site and has a single catchment area that encompasses approximately 70 acres (Nevada City Engineering, Inc., 2019), as shown as subarea C1 in Figure 4.8-3. The results of the unit-hydrograph evaluation from the Centennial Industrial Site to Wolf Creek for storms with recurrence intervals of 10 years and 100 years are provided in Table 4.8-1. The peak runoff from the Centennial Industrial Site under existing conditions ranges from approximately 70 cfs for a 10-year, 24-hour storm up to slightly more than 120 cfs for a 100-year, 24-hour storm (Nevada City Engineering, Inc., 2019).

The environmental baseline for the hydrology analysis of the Centennial Industrial Site is based on the existing conditions at the site and does not reflect the post-remediation condition that would exist following completion of the separate Centennial Industrial Site Clean-Up Project, as described in Section 1.3 of Chapter 1. The reason for this is the final surface topography and drainage conveyances will be subject to the California Department of Toxic Substances Control (DTSC) and County review and approval. The use of existing conditions at the Centennial Industrial Site for the hydrology analysis provides the most conservative approach for the drainage analysis for the following reasons.

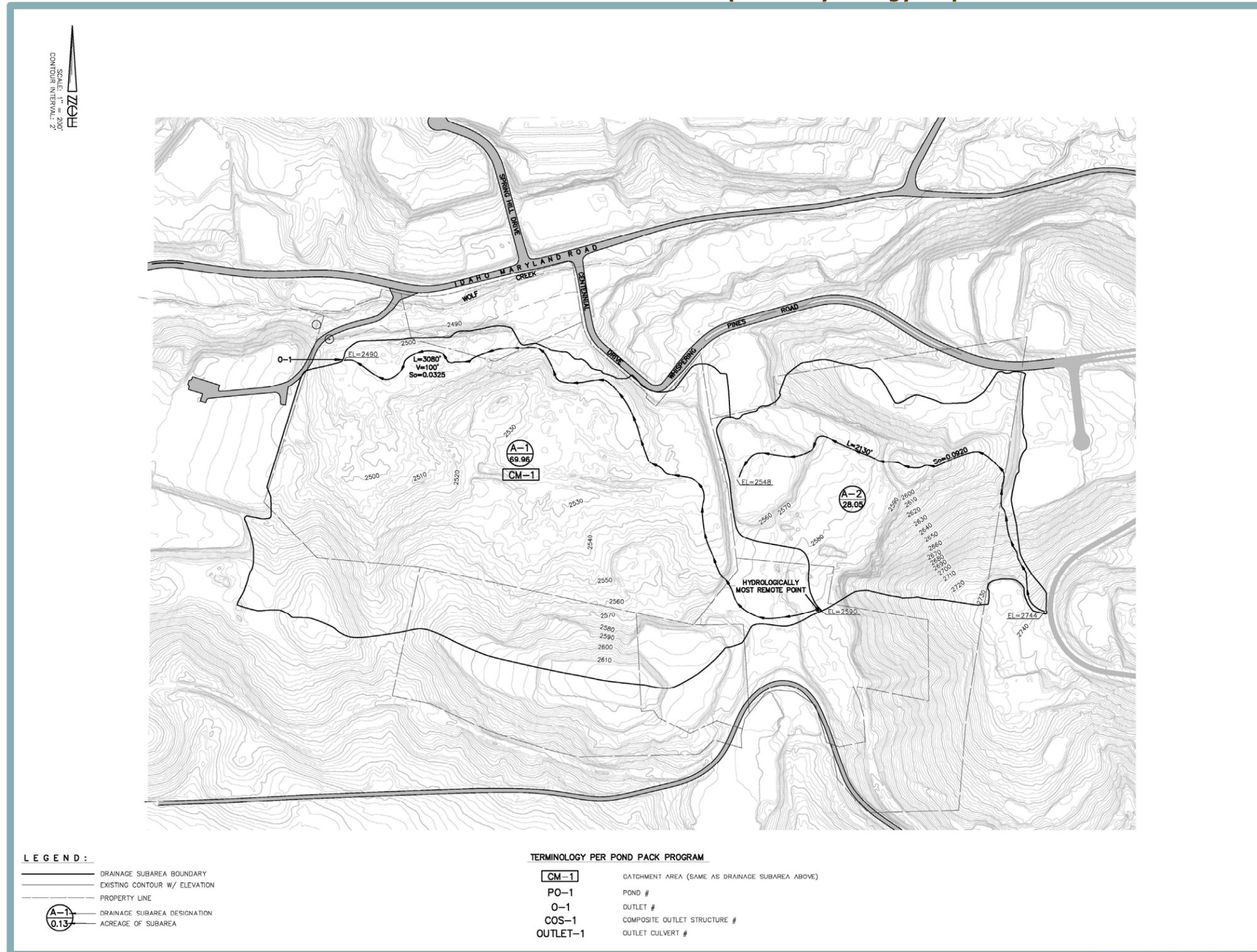
The drainage calculations for existing conditions at the Centennial Industrial Site assume heavily wooded forest and understory cover as exists on the majority of the property at this time. Generally speaking, the existing Centennial land cover types generate less runoff compared to a post-remediated condition, whereon less absorption of runoff into the soil would occur. The on-site detention pond is designed and sized to reduce post-project stormwater flows exiting the site to not greater than existing values. Using this standard, the detention pond for the Centennial Industrial Site would be required to hold back a greater amount of project runoff in order to equal the existing runoff condition of wooded forest and understory cover, as compared to holding back project runoff to equal the runoff that would be generated from the post-remediation condition.



**Figure 4.8-2
 Brunswick Industrial Site – Predevelopment Hydrology Map**



**Figure 4.8-3
 Centennial Industrial Site – Predevelopment Hydrology Map**



Therefore, using the lower existing conditions target value will result in a larger detention requirement to reduce post-development runoff to pre-development (existing condition) levels.

Groundwater

Groundwater occurs within the near surface Quaternary and Tertiary deposits and in fractured bedrock at and near the project site. According to the California Department of Water Resources (DWR) Sustainable Groundwater Management Act (SGMA) Basin Prioritization Dashboard (DWR, 2019), there are no alluvial groundwater basins in the vicinity of the project site. The nearest groundwater basin is the South Yuba portion of the Sacramento Valley groundwater basin (DWR Basin No. 5-21.61), located more than 15 miles west of Grass Valley.

Regional Groundwater Occurrence within Fractured Bedrock

EMKO's review of driller logs in the area, identified that groundwater within the fractured bedrock occurs under both unconfined and confined conditions within the project area.² The groundwater surface generally mimics the topography, but with the depth to water being somewhat greater along ridges and near drainage divides and somewhat shallower at lower elevations and near drainages. Thus, groundwater tends to flow from the ridge areas down toward the main drainages, such that the surface topography of the watersheds also defines individual groundwater flow zones within the fractured bedrock aquifer system. The primary source of recharge is percolation of local rainfall, as evidenced by seasonal fluctuations in groundwater levels. The amount of recharge each year also appears to be relatively constant because almost all of the wells maintain a consistent magnitude of seasonal fluctuation from year to year and there are no long-term trends observed in most of the wells that can be correlated to variations in annual water-year rainfall.

Several studies of groundwater conditions within fractured bedrock have been conducted in the area of the project. The U.S. Geological Survey (Page et al., 1984) conducted a study covering a 148-square mile area of southwestern Nevada County, including the segment of the Wolf Creek watershed from Grass Valley to the Bear River. The underlying bedrock consisted of similar rock types to those encountered at the project site, including hard, dense metavolcanic and igneous rocks of pre-Tertiary age. The study results found that the degree of fracturing in the bedrock, and thus the well yield, decreases with depth, with most of the available groundwater occurring above a depth of 215 feet below the ground surface (bgs). At depths shallower than 215 feet bgs, 70 percent of the wells evaluated produced more than five gallons per minute (gpm). However, at depths deeper than 215 feet bgs, 75 percent of the wells produced five gpm or less.

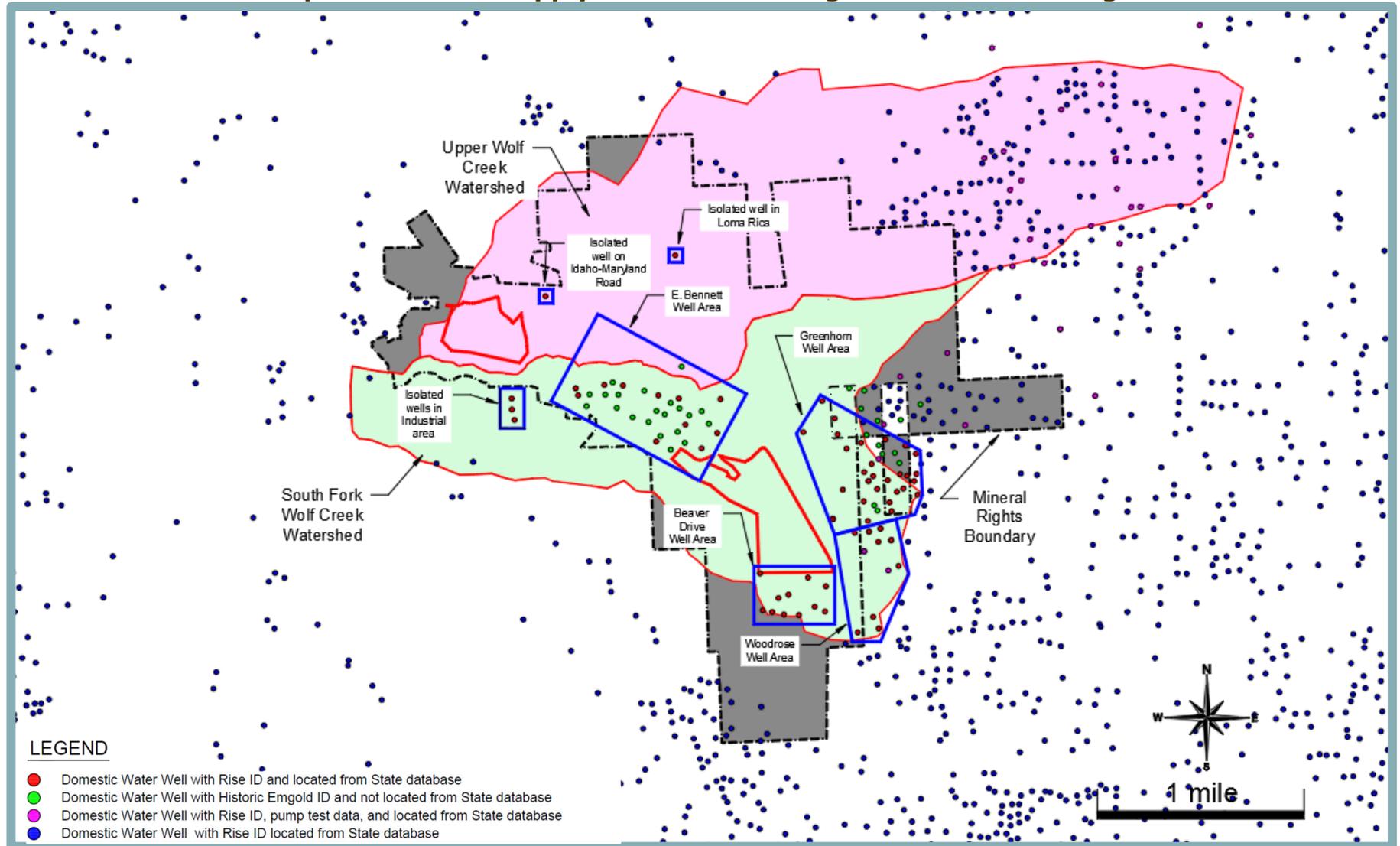
Groundwater Occurrence in Private Domestic Wells in the Project Area

As shown in Figure 4.8-4, there are relatively few domestic water wells within and to the west of the mineral rights boundary and increase in number and density east and south of the mineral rights boundary. EMKO located 38 well reports which included well draw down in pumping tests in a 1- to 2-mile vicinity of the project and compiled well report data for wells located in the project watersheds.

² EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 19]. February 2021.



Figure 4.8-4
Map of Domestic Supply Wells and Underground Mine Workings



Private Domestic Well Areas

As previously discussed, groundwater within the fractured bedrock tends to flow from the ridge areas down toward the main drainages. Due to this flow pattern, the surface topography of the watersheds also tends to define the groundwater flow zones, or local fractured bedrock groundwater “basins”. The private domestic wells that occur in the Wolf Creek and South Fork Wolf Creek watersheds are primarily located in four distinct areas, as shown on Figure 4.8-4 and described below.

- 1) East Bennett Area – A residential area located west of the Brunswick Industrial Site and adjacent to East Bennett Road. The properties in this area are currently not connected to NID’s potable water supply system. The wells along East Bennett Road are primarily within the South Fork Wolf Creek watershed, although a few of them in the northeast part of this area are within the Wolf Creek watershed. This area generally overlies the main area of underground mine workings in the project vicinity. These wells are completed in the meta-andesite that forms the Brunswick Porphyry Block. The majority of wells draw water from the fractured bedrock and the remaining wells draw water from the weathered bedrock.
- 2) Beaver Drive Area – A residential area south of the Brunswick Industrial Site. This small residential area is not served by NID’s potable water supply system. However, the residential areas to the west and south of Beaver Drive are connected to the NID potable water supply system. Eight of the eleven wells draw water from the weathered rock aquifer. The wells in this area are located over 1,700 feet laterally southeast of the main underground mine workings. However, there is one lateral drift that extends under the northwest corner of the Beaver Drive domestic well area. This drift is at the B1300 level at an elevation of approximately 1,480 feet above mean sea level (msl) and approximately 1,380 to 1,470 feet bgs in the Beaver Drive area. Many of the wells in this area encountered the Tertiary andesite at ground surface, they all extend below this unit and are completed in the meta-andesite porphyry.
- 3) Greenhorn Area – A residential and agricultural area east of the Brunswick Industrial Site on the east side of Brunswick Road. This area is zoned for residential-agricultural uses (RA-3) and most properties with wells in this area are not served by the NID potable water supply system. The wells in this area are located over 1,000 feet laterally from the main underground mine workings. However, there is one lateral drift that extends into the northern part of the Greenhorn area. This drift is at the B1100 level at an elevation of approximately 1,700 feet msl and approximately 1,100 to 1,300 feet bgs east of Brunswick Road. Although some of the wells in this area encountered the Tertiary andesite at ground surface, they all extend below this unit into the underlying bedrock units.
- 4) Woodrose Area – A residential area east of the Brunswick Industrial Site on the east side of Brunswick Road. This area is zoned for residential-agricultural uses (RA-3) and most properties with wells in this area are not served by the NID potable water supply system. The wells in the Woodrose area are located east of Brunswick Road and near the southeastern edge of the South Fork Wolf Creek watershed. The wells in this area are located over 3,000 feet laterally from the main underground mine workings. Although some of the wells in this area encountered the Tertiary andesite at ground surface, they all extend below this unit and are typically completed in the underlying bedrock.

In addition to the four main areas listed above, additional areas or isolated wells are located inside or close to the boundaries of the mineral rights where groundwater supply wells are present, as shown on Figure 4.8-4 and described below:



- 1) Isolated Wells in Industrial Area – Several wells are located on industrial-zoned land south of the Centennial Industrial Site. This area is not served by NID's potable water supply system.
- 2) Isolated Well on Idaho-Maryland Road – One well is on industrial-zoned land east of the Centennial Industrial Site. This area is in the city limits of Grass Valley and is served with potable water.
- 3) Isolated Well in Loma Rica – One well is in the Loma Rica Ranch area which lies above the Mitchell Crosscut on the Idaho-1000 level. This area is within the city limits of Grass Valley but is largely vacant land.

Water Level Monitoring in Private Domestic Wells

The Idaho-Maryland Mining Corporation and its predecessors monitored water levels in up to 79 private domestic wells from 1995-2001, and again from 2003-2007, in accordance with conditions included in Use Permit U84-107 based on mitigation program requirements identified in a 1995 Environmental Impact Report (EIR). Review of the water-level hydrographs from the mitigation monitoring program indicates the following for three of the main areas listed above.

East Bennett Area

The groundwater levels generally follow the topography but are somewhat muted, with the depth to water being greater along ridges and near drainage divides and shallow at lower elevations and near drainages. The water levels in most wells follow a seasonal pattern, with annual fluctuations typically ranging from five feet to 25 feet in different wells between dry months and wet months. Within individual wells, the magnitude of the seasonal fluctuation remains consistent throughout the monitoring period. No long-term increasing or decreasing trends are observed and there are no apparent annual variations due to drought or above-normal rainfall years.

Beaver Drive Area

Less topographic influence occurs on the groundwater levels in this area, potentially because there is less variation in topography between well locations, in comparison to the East Bennett Area and the wells east of Brunswick Road. The seasonal fluctuations in the Beaver Drive area are larger than those in the other areas, ranging from 20 feet to 50 feet per year. While there are no long-term trends observed in the hydrographs, some of the wells may show annual differences due to variations in water-year rainfall totals.

Wells along the southwest drainage divide for the South Fork Wolf Creek watershed tend to have more variable and irregular data and do not exhibit the consistent seasonal variations that are observed in other wells in this area.

Greenhorn Area

Groundwater levels in the wells in the Greenhorn area east of Brunswick Road tend to vary with the topography, as in the East Bennett Area. The hydrographs show seasonal variations, with annual water level fluctuations ranging from 10 feet to 30 feet, but remaining very consistent within individual wells. No long-term trends, nor variations with changes in annual water-year rainfall are observed. Several NID canals traverse the area east of Brunswick Road. Comparison of the hydrographs for wells adjacent to canals and wells more distant from the canals does not indicate any direct influence of the canals on groundwater elevations or on seasonal fluctuations.

The primary source of recharge is percolation of local rainfall, as evidenced both by the seasonal fluctuations in the groundwater levels and by the fact that groundwater levels in the wells



monitored are typically higher than the elevation of the nearest creek within the same watershed. Thus, the areas along ridges and near drainage divides, in addition to the slopes above the creeks, act as recharge areas while groundwater discharge may occur through fractures that are present at or near the elevation of the creeks. Groundwater recharge through fractures that are present at the ground surface in the higher parts of a watershed can produce the hydrostatic pressures that may be observed when those same fractures are encountered at depth in a well, creating the apparent confined aquifer conditions.

The water levels in the private domestic wells have seasonal fluctuations that may range from 10 feet to 50 feet between wet and dry times of the year but remain relatively consistent from year to year within each individual well. During the monitoring period, several years with below normal rainfall occurred (2001, 2004, and 2007), multiple years with above normal rainfall occurred (1995-1998 and 2006), and several years of near-normal rainfall occurred (1999, 2000, 2002, 2003, 2005). Despite large variations in annual rainfall from year to year, the seasonal water level cycles in individual wells remain consistent over time and the overall water levels shown on the hydrographs for each well do not fluctuate based on wet or dry climatic cycles.

Based on the lack of changes in the individual well hydrographs between wet and dry climatic cycles, the amount of recharge³ appears to be consistent from year to year and is not affected substantially by drought or wet cycles. The consistent annual recharge may be due to the limitations of recharge in fractured bedrock, where the annual rainfall amount may be greater than the capacity of the fractures to accept additional flow. In this situation, increases or decreases in the annual rainfall due to climatic cycles does not have an appreciable effect on the amount of water that can be recharged because the capacity of the fractures to transmit water to the subsurface is already at its maximum.

Groundwater Occurrence in Mine Workings

Two separate systems of underground mine workings occur in the project site, the Union Hill Mine and the Idaho-Maryland Mine workings. Both sets of mine workings are currently flooded with water.

Fourteen shafts or tunnels connect the underground workings of the Idaho-Maryland Mine to the ground surface. Only the New Brunswick shaft is on the Brunswick Industrial Site. The majority of the historic mine workings have been covered by road pavement or structures. Only the surface connections at an elevation of 2,502 feet msl or lower discharge water to the surface, which includes the Eureka Drain, East Eureka Shaft, and the East Eureka Drain.

Mine Water Quantities

The total amount of water currently present within the Idaho-Maryland Mine underground workings is estimated at 1,183 acre-feet. The amount of water was estimated by Rise based on the calculated volumes of mine workings. Mine tunnels or drifts were assumed to be 100 percent open voids. Mine stopes were estimated to have 75 percent of their volumes backfilled. The backfill itself is assumed to have a porosity of 40 percent.

³ Previous evaluations conducted in the region (EMKO, 2011) and estimates conducted for EMKO's study of the proposed project, suggest that the rate of groundwater recharge overall in the Grass Valley area is approximately 10 to 12 inches per year, or about 20 percent of the total rainfall amount. Thus, the total recharge over the 287,000-acre NID service area is approximately 240,000 to 290,000 acre-feet per year.



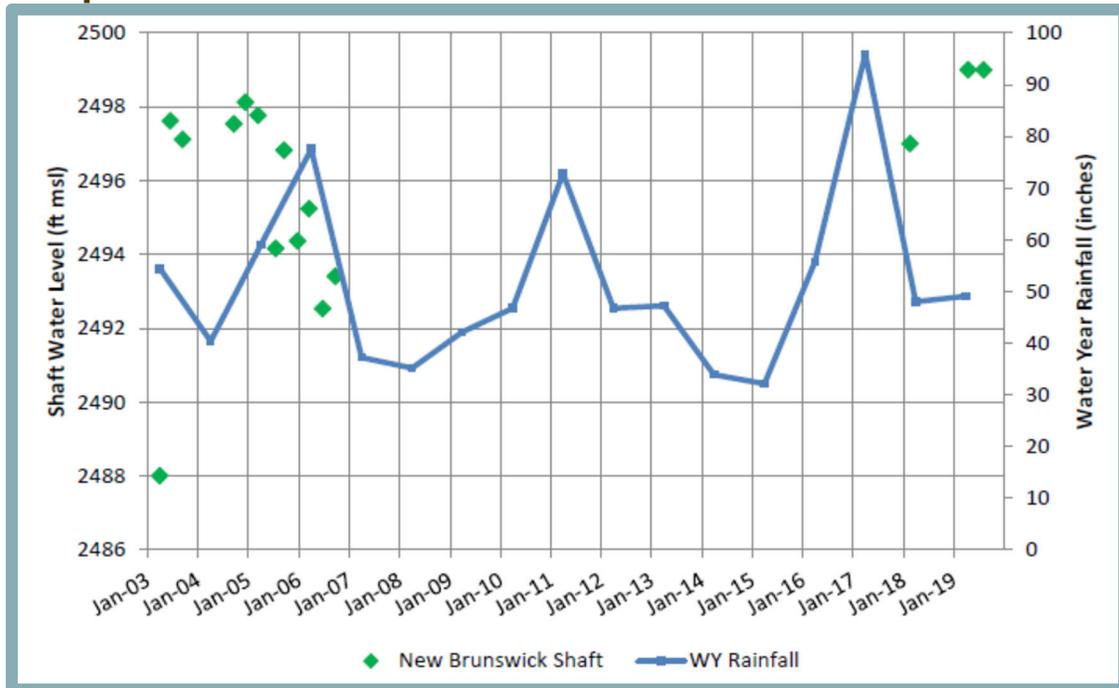
Water Levels in the New Brunswick Shaft

EMKO measured the depth to water in the New Brunswick shaft in February 2018, April 2019, and August 2019. In February 2018, the water in the shaft was 259 feet below the top of the collar (i.e., ground surface). In April 2019 and August 2019, the water in the shaft was 257 feet below the top of the collar. The collar is at an elevation of 2,756 feet msl. Thus, the water surface in the shaft was at 2,497 feet msl in February 2018 and at 2,499 feet msl in April 2019 and August 2019.

The Idaho-Maryland Mining Corporation measured water levels in the New Brunswick shaft at least 13 times between March 2003 and September 2006 (IMMC, 2007). The water level generally varied from 2,488 feet msl to 2,498 feet msl, with a median value of approximately 2,497 feet msl. Thus, over a 16-year period, the water level in the New Brunswick shaft has varied by approximately 11 feet, from 2,488 feet msl to 2,499 feet msl. These elevations are lower than the groundwater levels reported for wells along East Bennett Road, which are reported to range from 2,525 feet msl to 2,765 feet msl.

The data presented on Figure 4.8-5 demonstrate that the variations in the water level in the shaft do not occur on a seasonal basis and that there is not a consistent correlation between water levels in the shaft and rainfall. These observations from the underground mine workings contrast with those from the domestic wells, where there is a seasonal fluctuation between wet and dry parts of the year that remains consistent over many years. The differences in the magnitude and cyclicity of the water level fluctuations in the measurements from the New Brunswick Shaft versus those from the domestic wells indicate that there are not any direct connections (e.g., via fractures) between the domestic wells and any of the underground mine workings.⁴

**Figure 4.8-5
 Comparison of New Brunswick Shaft Water Levels with Rainfall**



⁴ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 30]. February 2021.



Water Levels in Union Hill Mine

The Union Hill Mine is a smaller mine than the others in the project area, that closed in 1918 and has been flooded with water since that time. The Union Hill Mine is not connected to any of the other underground mine workings in the area but is in close proximity to the workings of the Brunswick Mine on the Brunswick Industrial Site. The Union Hill Mine workings are completely within the South Fork Wolf Creek Watershed.

At the Union Hill Mine, the water level has been observed to fluctuate seasonally. On April 17, 2019, EMKO observed the water level in the Union Hill shaft to be approximately 18 inches below the top of the shaft, while on August 8, 2019, it was approximately four feet below the top of the shaft. The top of the Union Hill shaft is at approximately 2,666 feet msl, so the water level in the Union Hill Mine ranges from approximately 2,665 feet msl to 2,656 feet msl. On April 17, 2019, the water level in the Union Hill shaft was 165 feet higher than the water level in the New Brunswick shaft.

The water levels in the Union Hill Mine are within the range of the water levels observed in the wells in the East Bennett area, which range from 2,525 feet msl to 2,765 feet msl. However, the water levels in the Union Hill Mine are lower than the water levels in the wells in the Beaver Drive area and in the area east of Brunswick Road, which are all greater than 2,700 feet msl.

The elevation of the bank of South Fork Wolf Creek at a location closest to the Union Hill shaft is approximately 2,658 feet msl. The bottom of the channel is a few feet below the bank. During the rainy season, the water level in the Union Hill Mine tends to be slightly higher than the elevation of South Fork Wolf Creek adjacent to the Union Hill shaft, whereas during the dry season, the water level in the Union Hill shaft may be comparable to the water level in South Fork Wolf Creek. Thus, the groundwater in the fractures that intersect the Union Hill Mine may provide flow to South Fork Wolf Creek at certain times of the year.

The Union Hill Mine workings are within 95 feet to 180 feet of workings of the Brunswick Mine at three to four different levels. During the post WWII period, the combined Idaho-Maryland Mine workings were completely dewatered. In 1956, the water level at the Union Hill Mine was reported to be within 20 feet of the top of the shaft, suggesting that the complete dewatering of the adjacent mine workings resulted in no more than 10 to 20 feet of water level decline in the Union Hill Mine.

Groundwater Flow from Drains

Several drains have been observed along Wolf Creek in the area of the East Eureka and Idaho shafts. In February 2018, EMKO verified that groundwater is continuing to discharge from these drains.

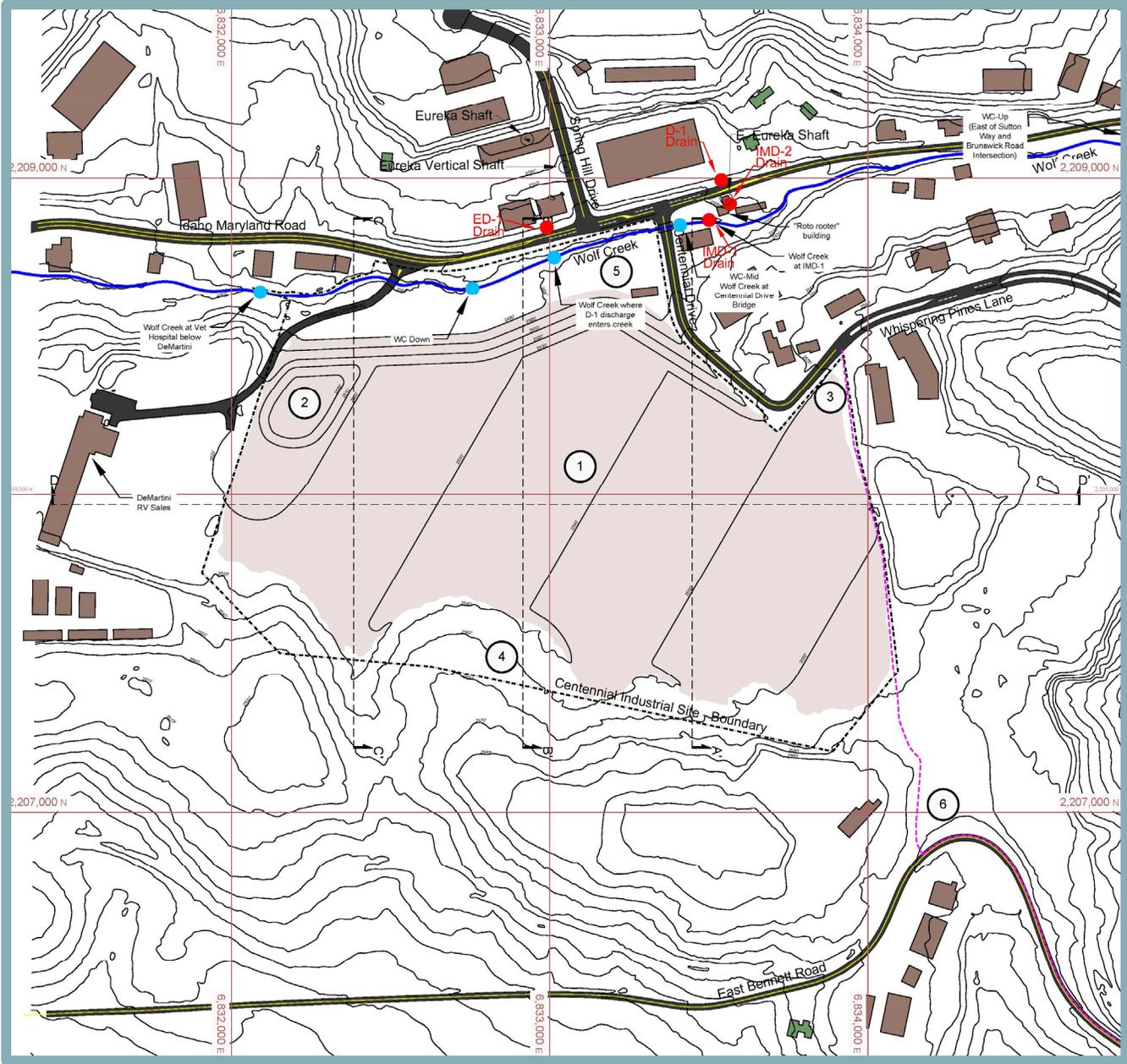
The drains present along Wolf Creek include (see Figure 4.8-6):

ED-1 – Eureka Drain

ED-1 is located at the northwest corner of Idaho Maryland Road and Spring Hill Road. Although the flow from this drain has been reported to be in the range of 100 gpm, field observations made by EMKO in February 2018 and December 2018 indicate that the drain was flowing at a rate of only a few gallons per minute at the time of those observations. On April 17, 2019, EMKO observed flows in the range of 20 to 25 gpm from this drain. The flow enters a culvert that passes under Idaho Maryland Road and discharges to Wolf Creek. It is assumed that this seep is occurring from the original Eureka shaft.



**Figure 4.8-6
Drains along Wolf Creek**



IMD-1 – East Eureka Shaft Drain

A 24-inch galvanized culvert drains water into Wolf Creek from the East Eureka shaft, which is located under the Roto-Rooter plumbing shop at 815 Idaho-Maryland Road, to the east of Centennial Drive. Todd Engineers (2007) reports the flow from this drain to be about 60 gpm. EMKO observed this drain to be flowing at a rate that was consistent with that reported by Todd Engineers (2007) on several occasions between February 2018 and December 2018. On April 17, 2019, EMKO measured the flow from this drain at approximately 100 gpm.

IMD-2 – East Eureka Shaft

A small steel pipe originates at a sump adjacent to the East Eureka shaft under the east end of the Roto-Rooter plumbing shop. EMKO observed water in the shaft at a depth of less than two feet below the top of the shaft in February 2018. Flow from this drain was minimal, in the range of 1-2 gpm, in February 2018.

D-1 – Unknown Origin

D-1 is located along the north side of Idaho Maryland Road across the street from the Roto-Rooter plumbing shop. A small box culvert allows water to discharge into the gutter from beneath the business park area up the hill from the drain. The water flows down the gutter to a drop inlet just east of Spring Hill Road, where it flows through a culvert under the road and into Wolf Creek. Field observations made in February 2018, December 2018, and April 2019 indicate that this drain flows consistently at a rate of only a few gallons per minute. Water quality data indicate that the discharge from D-1 may not be related to the underground mine workings in the area. Workings with connection to the Idaho-Maryland Mine are not noted in this area on the historic mine maps.

Bedrock Properties related to Groundwater Flow

The primary physical properties that define groundwater flow include the transmissivity and hydraulic conductivity. The transmissivity is a parameter that measures how much groundwater an aquifer may transmit for a given decrease in water level, for example when a well is pumped. The hydraulic conductivity is related to the permeability of the overall aquifer zone. The derivation of these properties primarily relates to porous media, such as sand and gravel-type aquifers, but they are often applied to fractured bedrock aquifers when there is a sufficient degree of fracturing and interconnection between fractures.

Aquifer properties are typically estimated by measuring the rate and total amount of decline in the groundwater surface elevation that occurs when a well is pumped. This decline in the groundwater surface as a result of pumping is commonly referred to as drawdown. EMKO reviewed 38 well completion reports within a 1- to 2-mile vicinity of the project, which contained information regarding the total drawdown that occurred and the pumping rate achieved during initial testing of the wells immediately after they were drilled.

A clear correlation exists between pumping rate and depth. The maximum pumping rate achieved was 125 gpm in a well with a total depth of 123 feet bgs. In contrast, at depths of 200 feet or deeper, the maximum reported pumping rate is 50 gpm. Below a depth of 300 feet, the maximum pumping rate reported was 10 gpm, and below a depth of 450 feet, the maximum pumping rate reported was only four gpm.

The information from the well completion reports can also be used to estimate the transmissivity in the fractured bedrock. As expected from the pumping rates, there is also a clear correlation between the transmissivity and depth. The two highest transmissivity values are approximately



8,780 feet²/day and 6,930 feet²/day, from wells that are 300 feet and 100 feet deep, respectively. The average transmissivity for wells shallower than 250 feet is 153 feet²/day. Between depths of 250 feet and 400 feet, the average transmissivity is 15 feet²/day. For wells between depths of 400 feet and 550 feet, the average transmissivity is 2.5 feet²/day, while below a depth of 550 feet, the average transmissivity is 0.7 feet²/day.

Similarly, Todd Engineers (2007) developed a relationship between the hydraulic conductivity and depth based on information from approximately 300 driller reports. Todd Engineers (2007) found that the hydraulic conductivity of the fractured bedrock penetrated by the domestic supply wells in their study area varied significantly with depth, with greater values at shallower depths where more fractures are prevalent, and with much lower values at deeper depths, where fractures may be either less common or have smaller aperture (open) widths.

The range of aquifer properties with depth in the fractured bedrock are part of the existing environmental setting, but can be used to estimate the effect of dewatering of the mine workings as part of the proposed project on groundwater levels in wells adjacent to and above the underground mine workings, as described in Section 4.8.4 of this chapter.

Historical Groundwater Inflow in Underground Mine Workings

The Idaho-Maryland Mine encompasses a system of underground tunnels, many raises, numerous winzes, four inclined shafts, and two vertical shafts. An estimated equivalent of 72.8 miles (117km) of underground tunnel occur at the Idaho-Maryland Mine, assuming typical drift dimensions of 7.5 feet x 8.5 feet.

The estimated groundwater inflow rate during the final years of the mines operation (i.e., the overall Idaho-Maryland Mine, including the Brunswick underground workings) prior to mine closure around 1955 is reported to have ranged from 500 gpm to 1,200 gpm seasonally, with an average of approximately 850 gpm.⁵

Several records exist of past dewatering from the Idaho-Maryland portion of the mine complex and from the Brunswick Mine. In the early part of the 1900s, mine workings at the Idaho-Maryland Mine extended to a depth of approximately 1,900 feet and were not connected to the Brunswick Mine. Maintenance dewatering is reported to have ranged from approximately 250 gpm for 10 months of the year to approximately 500 gpm for the remaining two months of the year, for an annual average pumping rate of approximately 300 gpm (Mine and Mineral Resources of Nevada County, California, 1918).

The mine was subsequently allowed to flood and again dewatered in 1919-1920. At this time the initial dewatering of the upper 1,000 feet of the mine occurred from September 24, 1919 to March 31, 1920, a period of approximately 190 days, where 89,500,000 gallons of water were handled at a dewatering rate averaging approximately 330 gpm over the period. (IMMC, 1920).

Initial dewatering of the Brunswick mine in 1933, before it was connected to the Idaho-Maryland mine, to a depth of approximately 950 feet bgs occurred at a rate of between 720-800 gpm over approximately 90 days (Clark, 2005).

⁵ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 36]. February 2021.



Conceptualization of Current Groundwater Movement

The existing geology, surface water, and groundwater conditions described above were used by EMKO to develop a conceptual model of groundwater movement in the fractured bedrock and existing underground mine workings. The conceptual model encompasses the environmental setting and provides a framework for evaluation of potential project effects with respect to hydrology and water quality, the latter of which is included in Section 4.8.4, Impacts and Mitigation Measures, of this chapter.

Groundwater Flow in Fractured Bedrock

The groundwater surface elevation in the three areas of private domestic wells in the Wolf Creek and South Fork Wolf Creek watersheds is consistently above the elevation of the creeks within the watersheds.

EMKO estimated the baseline, or existing, groundwater volumes that may flow through the fractured bedrock toward the creeks. Based on parameters evaluated by EMKO (refer to Section 3.5.1 of Appendix K.2 to this Draft EIR), the average discharge of groundwater to South Fork Wolf Creek from the three areas of domestic supply wells is approximately 1,000,000 gallons per day (gpd), or about 1.5 cfs. Using a groundwater recharge average rate of 10 to 12 inches per year in the project area, over the 1,500-acre South Fork Creek Watershed, the net groundwater recharge may be equivalent to an average annual rate of about 1.50 cfs to 1.75 cfs, which is within the range of the rate of groundwater discharge to South Fork Wolf Creek, as described above. Because the rate of groundwater discharge, and the rate of groundwater recharge, are generally within the same range, the groundwater in storage within the bedrock fractures is in balance and there should be no long-term trends of increasing or decreasing groundwater levels, outside of normal seasonal fluctuations.

The total outflow of groundwater to Wolf Creek from the project area under existing conditions is estimated by EMKO to be approximately 192,500 gpd, or about 0.3 cfs. The area that discharges to Wolf Creek parallel to and north of East Bennett Drive, overlying much of the existing underground mine workings, is about 225 acres, so that annual average groundwater recharge for this area is in the range of 185- to 225-acre feet per year. This volume of groundwater recharge is equivalent to an average annual rate of about 0.3 cfs, which is consistent with the rate of groundwater discharge to Wolf Creek within the project area. Thus, the rates of groundwater discharge and groundwater recharge are in balance in the part of the Wolf Creek watershed that includes the project area, consistent with the trends observed in the domestic supply wells.

While the rate of groundwater discharge to the creeks may remain relatively constant from year to year, the proportion of groundwater within the creeks will vary seasonally, depending on the amount of local runoff and the amount of NID canal water released to the creeks.

Groundwater Movement in Mine Workings

As previously discussed, the transmissivity and hydraulic conductivity of the fractured bedrock decrease rapidly with depth. Based on EMKO's work, at least 99 percent of natural groundwater flow in the bedrock fractures occurs above a depth of 500 feet bgs in the project area.⁶ However, the extensive underground mine workings provide another mechanism for groundwater to move through the project area.

⁶ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 64]. February 2021.



The elevation of the water in the New Brunswick shaft averages 2,497 feet msl. This elevation is about 25 feet to 265 feet below the static water level in the domestic supply wells in the East Bennett area. Thus, the underground workings connected to the New Brunswick shaft must have a connection to a point that allows the workings to be drained, resulting in a lower water level in the shaft than in the wells in the surrounding bedrock.

Groundwater in the Brunswick mine, as observed in the New Brunswick shaft, has a pathway to flow to the drains along Wolf Creek through tunnels in the B2300 and B3280 levels. Due to the direct hydraulic connection of relatively large open voids, the static water level in all the interconnected mine workings should be at approximately the same elevation. The elevations of the East Eureka drain (IMD-1) and Eureka drain (ED-1) range from approximately 2,497 feet msl to 2,502 feet msl, respectively. These elevations are comparable to the water levels measured by EMKO in the New Brunswick shaft in February 2019 and April 2019, and to the median water level for the measurements made by the Idaho-Maryland Mining Corporation from 2003 to 2006. Field observations made by EMKO in 2018 and 2019, as part of the proposed project's investigation, and descriptions by Todd Engineers (2007), indicate that the total flow from the drains may range from 60 gpm to 125 gpm (0.13 cfs to 0.28 cfs).

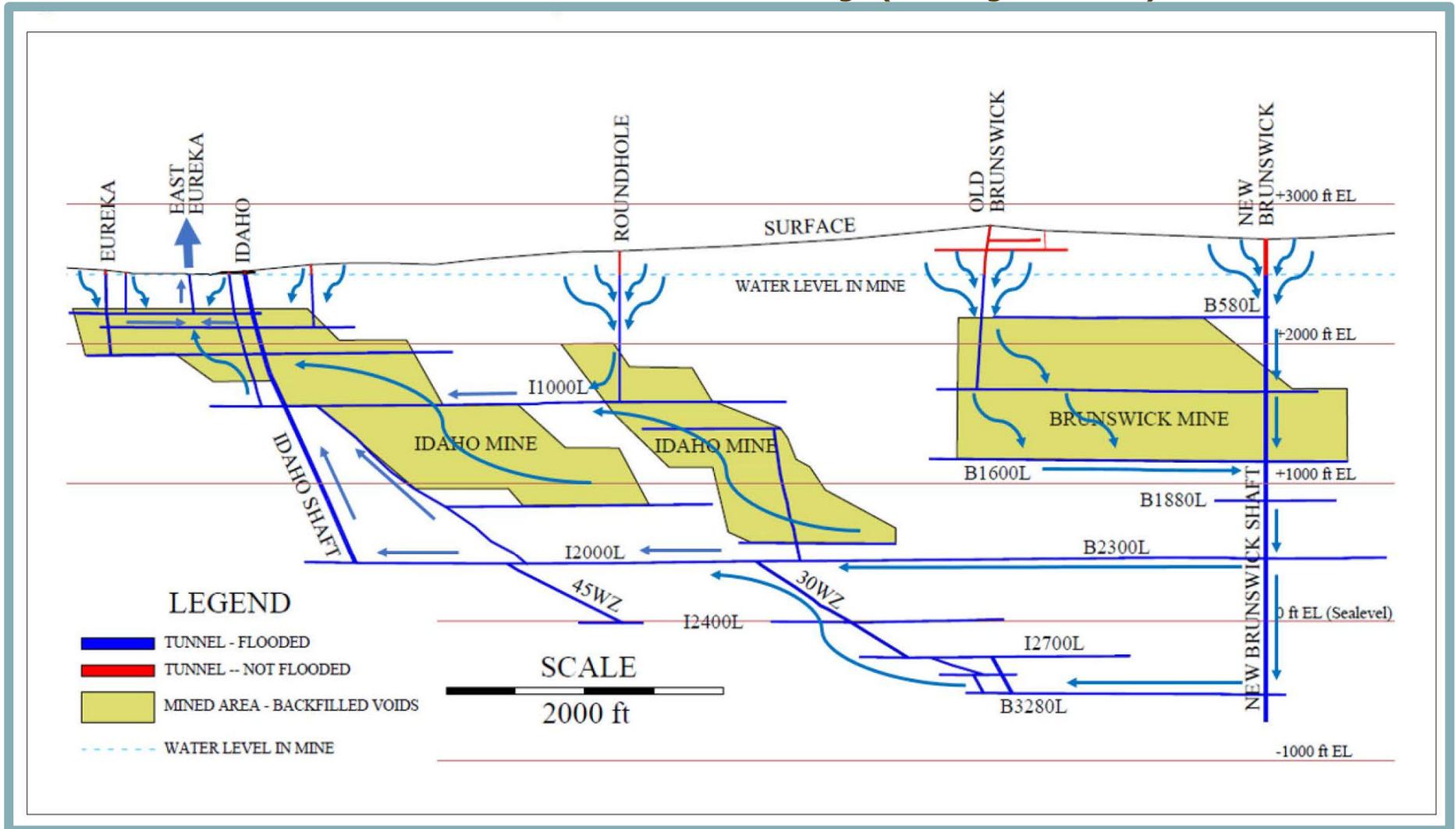
EMKO observed groundwater seeping into the New Brunswick shaft during sampling activities conducted in February 2018. To maintain a relatively constant water level in the underground mine workings, as reflected by the water level measurements reported from the New Brunswick shaft, the rate of water seepage into the shafts must be comparable to the rate that water is flowing from the drains. Otherwise, the water level in the shaft would increase or decrease over time, depending on whether the rate of inflow was greater than or less than the rate of discharge from the drains.

Several vertical shafts are part of the interconnected Eureka-Idaho-Maryland-Brunswick underground workings, as depicted on Figure 4.8-7. Todd Engineers (2007) has estimated that groundwater is seeping into each of the shafts at an average rate of approximately 20 gpm each. Observations made by EMKO in 2018 are consistent with this estimated rate of inflow for the New Brunswick shaft. If groundwater seepage is occurring from three or four shafts, as depicted on Figure 4.8-7, then the total rate of seepage into the shafts is in the same range as the outflow from the drains. Thus, groundwater that is seeping into the shafts above the water surface in the underground workings most likely migrates through the mine workings and eventually discharges at the drains along Wolf Creek.

Because the water level in the shafts appears to be consistently below the static groundwater levels in the wells in the East Bennett area, groundwater will continually seep into the shafts. As a result, the shafts act as "wells" that constantly draw groundwater from the surrounding shallow bedrock (i.e., above a depth of 500 feet, where the transmissivity is highest). The inflow of water into the shafts should create a local depression in the groundwater table surface around the shafts, referred to as a drawdown cone, or cone of depression.



**Figure 4.8-7
 Groundwater Movement in Mine Workings (Existing Condition)**



EMKO prepared an analytical model to simulate the drawdown that might occur around the New Brunswick shaft (or any other vertical or near-vertical shaft in the East Bennett area) due to the constant seepage into the shaft. Based on the properties of the fractured bedrock, the analytical model indicates that the current seepage into the shaft results in drawdowns of the water table of 20 feet at the shaft location, about 8 feet at a distance of 500 feet from the shaft, and about 3.5 feet at a distance of 2,000 feet from the shaft. The drawdown cones around the shafts are part of the existing environmental setting for the project.

Itasca Denver, Inc. (Itasca, 2020b) used a numerical model to evaluate the effects of mining on groundwater levels. As part of that effort, Itasca (2020b) simulated drawdown of the groundwater surface under current conditions due to seepage into the shafts and other underground workings and the related discharge to Wolf Creek through the drains. The model results indicate that there is a small drawdown cone in the area of the New Brunswick shaft and Union Hill Mine of between five and 10 feet, a broad area of drawdown greater than 10 feet overlying an area along Brunswick Road extending from near the intersection with East Bennett Road northward to Idaho Maryland Road, and a small drawdown cone in the area of the Idaho shaft near Centennial Drive and Wolf Creek (see Figure 4.8-8).

Water Quality

Groundwater

The primary constituents of interest in the water samples from the New Brunswick shaft and the drains are iron and manganese. Within the New Brunswick shaft, the iron concentration ranges from 1,400 micrograms per liter ($\mu\text{g/L}$) to 1,600 $\mu\text{g/L}$. While iron is not present in drain D-1, in the other three drains, the iron concentration ranges from 1,600 $\mu\text{g/L}$ up to 4,800 $\mu\text{g/L}$. The secondary drinking water maximum contaminant level (MCL) and the National Pollutant Discharge Elimination System (NPDES) effluent limit for iron are both 300 $\mu\text{g/L}$.

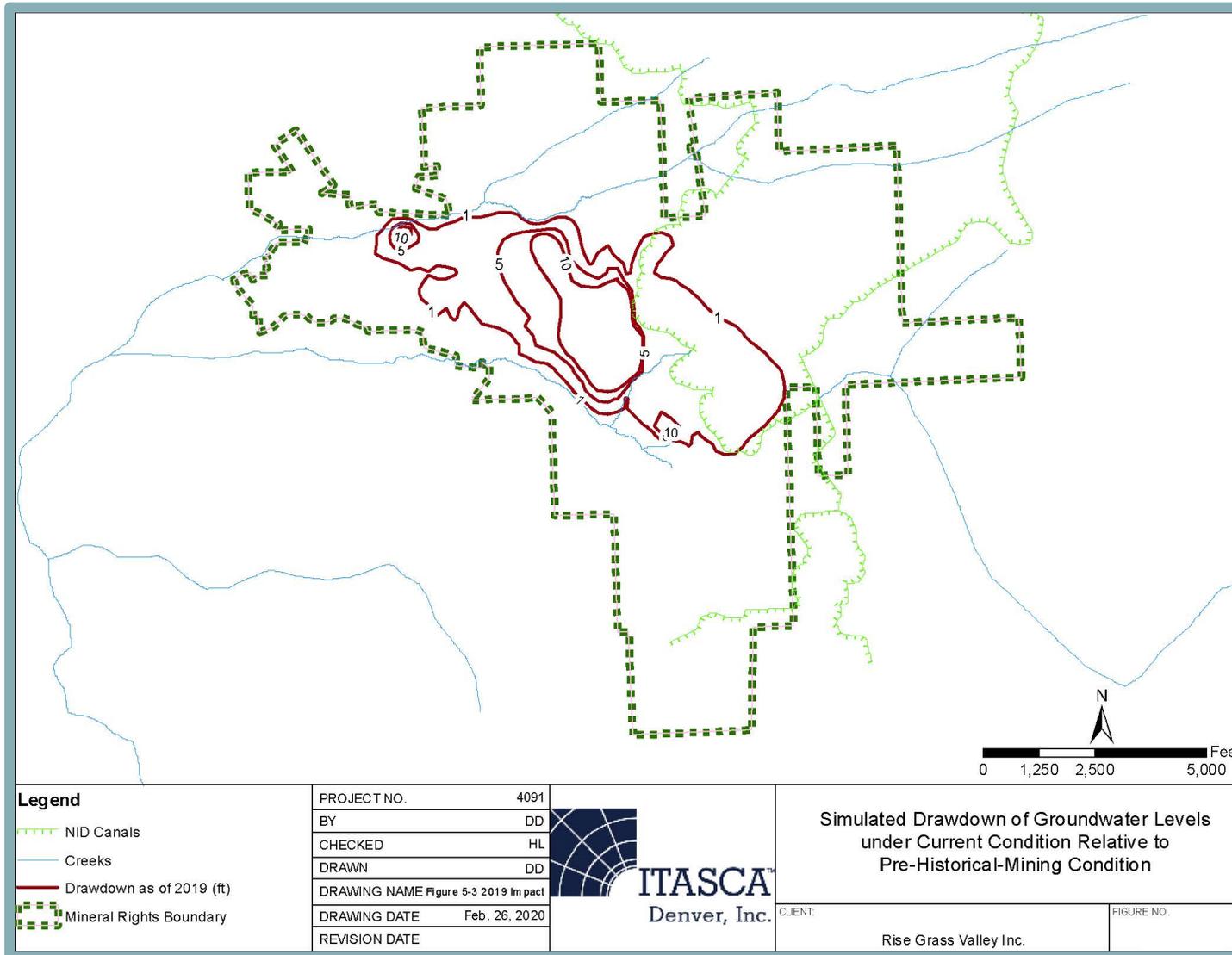
Within the New Brunswick shaft, the manganese concentration ranges from 230 $\mu\text{g/L}$ to 270 $\mu\text{g/L}$. Similar to iron, manganese is not present in drain D-1, while in the other three drains, the manganese concentration ranges from 200 $\mu\text{g/L}$ up to 310 $\mu\text{g/L}$. The MCL and the NPDES effluent limit for manganese are both 50 $\mu\text{g/L}$.

Arsenic has been detected above its MCL and NPDES effluent limit of 10 $\mu\text{g/L}$ in three of the drain samples, ranging from 37 $\mu\text{g/L}$ in IMD-2 to 41 $\mu\text{g/L}$ in IMD-1 to 59 $\mu\text{g/L}$ in ED-1. The arsenic concentration at D-1 is 6.6 $\mu\text{g/L}$. The arsenic concentration does not exceed the MCL or NPDES effluent limit in any of the samples from the New Brunswick shaft.

The compound cis-1,2-dichloroethylene (cis-1,2-DCE) is detected in all samples from the New Brunswick shaft at concentrations ranging from 1.8 $\mu\text{g/L}$ to 4.2 $\mu\text{g/L}$. This compound generally occurs as a breakdown product of the industrial solvent trichloroethylene (TCE) or the dry-cleaning solvent tetrachloroethylene (PCE). Neither of these parent compounds were detected in any of the water samples. The presence of cis-1,2-DCE in the water samples from the New Brunswick shaft could be due to two potential sources. One potential source is historic solvent use within the New Brunswick mine for equipment repair or maintenance. Any residual solvent could have broken down into cis-1,2-DCE within the reducing conditions that occur within the water in the mine. Water currently within the flooded mine workings has low dissolved oxygen levels, creating reducing conditions, as demonstrated by the reducing conditions and the dissolved oxygen levels measured in the samples from the shaft and the drains.



**Figure 4.8-8
 Simulated Drawdown of Groundwater Levels under Current Conditions**



The second potential source is seepage of shallow groundwater into the New Brunswick shaft from the adjacent former SPI Mill site, located to the southeast. The Mill site was known to have industrial solvent impacts, including cis-1,2-DCE, in shallow groundwater in the past (SPI, 1999). The shaft has a general downward flow path to allow water seeping into the shaft from shallow depths to flow toward the other mines through tunnels at greater depths. The consistent presence and relatively uniform concentration of the cis-1,2-DCE indicates that if the source was due to historic solvent use in the New Brunswick mine, then the solvent use would have had to occur primarily within the shaft above the shallowest mine workings connected to the shaft, at the 580 feet level of the mine, or occurred relatively uniformly throughout the entire mine, both of which seem unlikely. Thus, the most likely source for the cis-1,2-DCE in the New Brunswick shaft is seepage of shallow groundwater from the Mill site into the upper part of the shaft and downward movement of this seepage within the shaft.

Previous water quality sampling was conducted in 1991 from the drains and the New Brunswick shaft (Condor, 1994). In 2006, the Idaho-Maryland Mining Corporation conducted groundwater sampling at several depths from the New Brunswick shaft, as reported by Walker and Associates, Inc. (2008). The reported water quality from 1991 and 2006 is consistent with the findings presented in this report. Thus, there does not appear to be any significant change in the water quality in the shaft, drains, or creeks over the last two to three decades.

Surface Water

Surface water within Wolf Creek and South Fork Wolf Creek is from three distinct sources in varying proportions: stormwater runoff from within the respective watersheds, discharge of groundwater through fractures and drains, and transfer of water from other watersheds through the NID canal system. Each of these water sources is expected to have a different water chemistry. As a result, the water chemistry measured in the creeks may vary seasonally or over time, depending primarily on the amount of local rainfall and the magnitude and duration of NID canal releases.

For samples collected from Wolf Creek in December 2018, the iron concentration ranged from 240 µg/L in the upstream sample to 310 µg/L in the downstream sample, and the manganese concentration ranged from 15 µg/L in the upstream sample to 35 µg/L in the downstream sample. The increasing concentration from upstream to downstream is indicative of the increasing proportion of groundwater discharge and flow from the drains as Wolf Creek passes through the project site area. A downstream sample was also collected from Wolf Creek in April 2019, with iron present at 220 µg/L and manganese present at 21 µg/L. The lower iron and manganese concentrations in the downstream sample in April 2019 reflect the greater proportion of flow due to releases from the DS Canal into Wolf Creek at that time, compared to December 2018.

Within South Fork Wolf Creek, the samples from April 2019 contained iron at 940 µg/L in the sample collected from the downstream end of the culvert passing under the former Mill site and 310 µg/L in the sample collected downstream near the drill pad location. The manganese concentration ranged from 140 µg/L in the sample collected from the downstream end of the culvert passing under the former Mill site to 57 µg/L in the downstream sample. The higher iron and manganese concentration in the water flowing out of the culvert may be reflective of groundwater seeping into the “leaky” culvert, whereas the lower concentrations downstream may be due to dilution by surface water flows from the smaller creek that joins the South Fork between these two locations.



The arsenic concentration does not exceed the MCL or NPDES effluent limit in any of the samples from Wolf Creek and South Fork Wolf Creek.

Flooding

According to the Federal Emergency Management Agency (FEMA) flood hazard maps for the Project area, Maps 06057C0631E, 06057C0632E, 06057C0633E, 06057C0650E (FEMA, 2019), the only part of either project site that is located within a flood hazard zone is the northern edge of the Centennial Industrial Site along Wolf Creek. The Centennial Site includes the main stem of Wolf Creek, a perennial stream. The main stem of Wolf Creek generally runs parallel to and immediately south of Idaho Maryland Road along the northern boundary of the Centennial Industrial Site.

The FEMA Flood Insurance Rate Map (FIRM) identifies Special Flood Hazard Areas (SFHA) along the north and south sides of Wolf Creek on the Centennial Industrial Site.⁷ The SFHA encompasses 2.31 acres on the Centennial Industrial Site. Within the Centennial Industrial Site, a portion of the floodplain extends across developed and previously disturbed areas, including the former Hap Warnke Sawmill Site. In addition, the floodplain extends onto portions of the adjacent Idaho Maryland Road and Centennial Drive.

South Fork Wolf Creek Geomorphology

Given the proposed discharge of treated mine water into South Fork Wolf Creek, the geomorphology of the creek is particularly important. As a result, Balance Hydrologics, Inc. completed a geomorphic assessment of the South Fork Wolf Creek channel.⁸

At the proposed project's mine dewatering discharge location, the South Fork Wolf Creek channel banks consist of previous mining waste rock 3 to 12 inches in diameter, which is larger than the natural in-channel sediment found upstream and downstream. The waste rock serves to armor the channel making it less susceptible to erosion in response to increased flow.

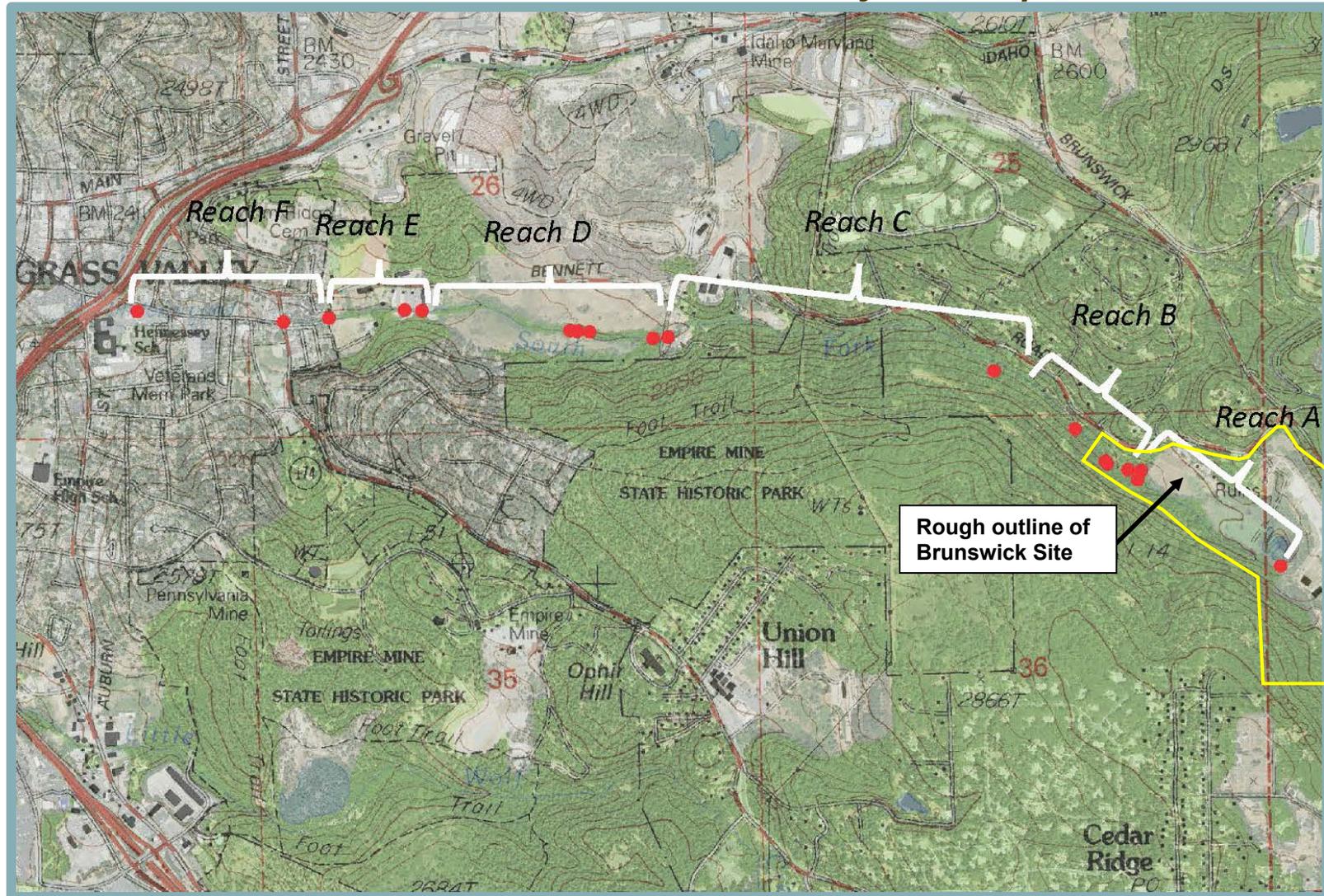
As part of their analysis, Balance Hydrologics identified six reach designations of South Fork Wolf Creek based on channel slope, morphology, locations of tributaries, and/or channel type (i.e., natural channel vs. engineered channel or culvert). Two reaches, Reaches D and E, were determined to require further investigation and evaluation of potential off-site impacts related to increases in treated mine water discharge associated with the project (see Section 4.8.4, Impacts and Mitigation Measures, of this chapter). Thus, the following existing setting section focuses on Reaches D and E, shown in Figure 4.8-9. For a discussion of why the other reaches were dismissed from further investigation, please refer to Section 5.1.2 of Appendix K.1 to this Draft EIR). In short, reasons for dismissal include such characteristics as being located upstream of discharge point (Reach A), channel armoring (Reach B), channel stability resulting from cascade and step pool morphology (Reach C), and engineered channel (Reach F).

⁷ The FIRM Panel 0631E includes the Centennial Industrial Site.

⁸ Balance Hydrologics, Inc. *Geomorphic Assessment, South Fork Wolf Creek, Near Grass Valley, California*. March 2020.



**Figure 4.8-9
South Fork Wolf Creek Reaches in Project Vicinity**



Source: Balance Hydrologics, Inc. 2020. (Note: red dots indicate locations where channel was accessed, assessed, and photographed)



South Fork Wolf Creek - Reach D

Reach D receives runoff and sediment from a watershed of approximately 2.2 square miles (U.S. Geological Survey [USGS], 2019). The average reach slope was measured to be 0.5 percent. The reach is in an unconfined valley with an active floodplain and riparian zone and exhibits pool-riffle morphology, defined by an undulating bed with a sequence of sediment bars, pools, and riffles. Bars and riffles are comprised of mostly gravel-sized sediment.

South Fork Wolf Creek - Reach E

Reach E receives runoff and sediment from a watershed of approximately 2.3 square miles (USGS, 2019). The average reach slope was measured to be 1.3 percent and exhibits pool-riffle morphology. This reach has been highly modified with evidence of fill encroaching on the floodplain and channel. Reach E also receives stormwater runoff from some residential and urban areas.

4.8.3 REGULATORY CONTEXT

The following is a description of federal, State, and local environmental laws and policies that are relevant to the review of hydrology and water quality under the CEQA process.

Federal Regulations

The following section includes federal environmental goals and policies relevant to the CEQA review process pertaining to the hydrology and water quality aspects of the proposed project.

Federal Emergency Management Agency (FEMA)

The FEMA is responsible for determining flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers (Corps) studies. FEMA is also responsible for distributing the FIRMs, which are used in the National Flood Insurance Program (NFIP). The FIRMs identify the locations of special flood hazard areas, including the 100-year floodplains.

FEMA allows non-residential development in the floodplain; however, construction activities are restricted within flood hazard areas, depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR). These standards are implemented at the State level through construction codes and local ordinances; however, these regulations only apply to residential and non-residential structure improvements. Although roadway construction or modification is not explicitly addressed in the FEMA regulations, the California Department of Transportation (Caltrans) has also adopted criteria and standards for roadway drainage systems and projects situated within designated floodplains. Standards that apply to floodplain issues are based on federal regulations (Title 23, Part 650 of the CFR). At the State level, roadway design must comply with drainage standards included in Chapters 800-890 of the Caltrans Highway Design Manual. CFR Section 60.3(c)(10) restricts cumulative development from increasing the water surface elevation of the base flood by more than one foot within the floodplain.

Federal Clean Water Act

The NPDES permit system was established in the federal Clean Water Act (CWA) to regulate municipal and industrial discharges to surface waters of the U.S. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.



Section 307 of the CWA describes the factors that the Environmental Protection Agency (EPA) must consider in setting effluent limits for priority pollutants.

Nonpoint sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff, but is not conveyed by way of pipelines or discrete conveyances. As defined in the federal regulations, such nonpoint sources are generally exempt from federal NPDES permit program requirements. However, two types of nonpoint source discharges are controlled by the NPDES program – nonpoint source discharge caused by general construction activities, and the general quality of stormwater in municipal stormwater systems. The 1987 amendments to the CWA directed the federal EPA to implement the stormwater program in two phases. Phase I addressed discharges from large (population 250,000 or above) and medium (population 100,000 to 250,000) municipalities and certain industrial activities. Phase II addresses all other discharges defined by EPA that are not included in Phase I.

Section 402 of the CWA mandates that certain types of construction activities comply with the requirements of the NPDES stormwater program. The Phase II Rule, issued in 1999, requires that construction activities that disturb land equal to or greater than one acre require permitting under the NPDES program. In California, permitting occurs under the General Permit for Stormwater Discharges Associated with Construction Activity, issued to the State Water Resources Control Board (SWRCB), implemented and enforced by the nine RWQCBs.

As of July 1, 2010, all dischargers with projects that include clearing, grading or stockpiling activities expected to disturb one or more acres of soil are required to obtain compliance under the NPDES Construction General Permit Order 2009-0009-DWQ. The General Permit requires all dischargers, where construction activity disturbs one or more acres, to take the following measures:

1. Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) to include a site map(s) of existing and proposed building and roadway footprints, drainage patterns and stormwater collection and discharge points, and pre- and post- project topography;
2. Describe types and placement of Best Management Practices (BMPs) in the SWPPP that will be used to protect stormwater quality;
3. Provide a visual and chemical (if non-visible pollutants are expected) monitoring program for implementation upon BMP failure; and
4. Provide a sediment monitoring plan if the area discharges directly to a water body listed on the 303(d) list for sediment.

To obtain coverage, a SWPPP must be submitted to the RWQCB electronically and a copy of the SWPPP must be submitted to Nevada County. When project construction is completed, the landowner must file a Notice of Termination (NOT).

State Regulations

The following section includes the State regulations relevant to the CEQA review process pertaining to the hydrology and water quality aspects of the proposed project.

State Water Resources Control Board

The SWRCB and the RWQCBs are responsible for ensuring implementation and compliance with the provisions of the federal CWA and California's Porter-Cologne Water Quality Control Act. The



project site is situated within the jurisdictional boundaries of the Central Valley RWQCB (CVRWQCB) (Region 5). The CVRWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within their jurisdiction.

Central Valley Regional Water Quality Control Board

As authorized by the Porter-Cologne Water Quality Control Act, the CVRWQCB primary function is to protect the quality of the waters within its jurisdiction for all beneficial uses. State law defines beneficial uses of California's waters that may be protected against quality degradation to include, but not be limited to: domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

The CVRWQCB implements water quality protection measures by formulating and adopting water quality control plans (referred to as basin plans, as discussed below) for specific groundwater and surface water basins, and by prescribing and enforcing requirements on all agricultural, domestic, and industrial waste discharges. The CVRWQCB oversees many programs to support and provide benefit to water quality, including the following major programs: Agricultural Regulatory; Above-Ground Tanks; Basin Planning; CALFED; Confined Animal Facilities; Landfills and Mining; Non-Point Source; Spills, Leaks, Investigations, and Cleanups (SLIC); Stormwater; Total Maximum Daily Load (TMDL); Underground Storage Tanks (UST); Wastewater Discharges (including the NPDES); Water Quality Certification; and Watershed Management.

The CVRWQCB is responsible for issuing permits for a number of varying activities. Activities subject to the CVRWQCB permitting requirements include stormwater, wastewater, and industrial water discharge, disturbance of wetlands, and dewatering. Permits issued and/or enforced by the CVRWQCB include, but are not limited to, the NPDES Construction General Permit, NPDES Municipal Stormwater Permits, Industrial Stormwater General Permits, Clean Water Act Section 401 Permits, and Dewatering Permits.

General Permit for Limited Threat Discharges to Surface Waters

The Limited Threat General Order (R5-2016-0076-01) is a general Waste Discharge Requirements permit for Limited Threat Discharges to Surface Water. The discharge of treated water from the proposed mine into South Fork Wolf Creek is anticipated to be covered as a Tier 3 discharge of hard rock mine wastewater. Under Table 3 of the Limited Threat Discharge permit, Tier 3 discharges to surface water that are greater than 250,000 gpd (greater than 175 gpm) and/or that are longer than four months are allowed if the water to be discharged (with or without treatment) meets the applicable screening levels in the permit.

Effluent limitations are listed in Section V and screening levels are listed in Attachment I of the Low Threat Discharge permit. Rise will be required to file a Notice of Intent (NOI) for coverage under the Limited Threat Discharge permit, which will include a detailed description of the dewatering, treatment, and discharge components of the project. A Monitoring and Reporting Program (MRP) will also be required pursuant to the General Order, Attachment C. The MRP will specify monitoring station locations, sampling frequencies and methods, and monitoring report submittal requirements to the Regional Board.

Mining Waste Regulations

California Water Code Section 13050(q)(1) defines mining waste as follows:



(q) (1) "Mining waste" means all solid, semisolid, and liquid waste materials from the extraction, beneficiation, and processing of ores and minerals. Mining waste includes, but is not limited to, soil, waste rock, and overburden, as defined in Section 2732 of the Public Resources Code, and tailings, slag, and other processed waste materials, including cementitious materials that are managed at the cement manufacturing facility where the materials were generated.

Title 27 of the California Code of Regulations (CCR), Sections 22470 et seq., Mining Waste Management Regulations, apply to all discharges of mining wastes and to owners/operators of a waste management unit for the treatment, storage, or disposal of mining waste. The Mining Waste Management Regulations further define "mining waste" as "waste from the mining and processing of ores and mineral commodities. Mining waste includes: (1) overburden; (2) natural geologic material which have been removed or relocated but have not been processed (waste rock); and (3) the solid residues, sludges, and liquids from the processing of ores and mineral commodities" (CCR, Title 27, § 22480(a)).

The project will discharge mining waste, which is appropriately regulated under the Title 27 Mining Waste Management Regulations.

Title 27 identifies three "groups" of mining waste. Mining wastes shall be classified as Group A, Group B, or Group C mining wastes based on an assessment of the potential risk of water quality degradation posed by each waste.

- **Group A:** mining waste of Group A are wastes that must be managed as hazardous waste pursuant to Chapter 11 of Division 4.5, of Title 22 of the CCR, provided the RWQCB finds that such mining wastes pose a significant threat to water quality.
- **Group B:** mining waste of Group B are either: (A) mining wastes that consist of or contain hazardous wastes, that qualify for a variance under Chapter 11 of Division 4.5, of Title 22 of the CCR, provided that the RWQCB finds that such mining wastes pose a low risk to water quality; or (B) mining wastes that consist of or contain nonhazardous soluble pollutants of concentrations which exceed water quality objectives for, or could cause, degradation of waters of the state.
- **Group C:** mining wastes from Group C are wastes from which any discharge would be in compliance with the applicable water quality control plan, including water quality objectives other than turbidity.

In reaching decisions regarding classification of a mining waste as a Group B or Group C waste, the RWQCB can consider the following factors: (1) whether the waste contains hazardous constituents only at low concentrations; (2) whether the waste has no or low acid generating potential; and (3) whether, because of its intrinsic properties, the waste is readily containable by less stringent measures. Table 1.1 of Title 27 sets forth Summary Requirements for New and Existing Mining Units, which among other things, exempts Group C mining waste from requiring liners and leachate removal systems.

Regulations in Title 27 are administered by the RWQCB through the issuance of Waste Discharge Requirements (WDRs). Rise will need to submit a Report of Waste Discharge (RoWD) to the RWQCB to obtain WDRs for use of the engineered fill, which is a mining waste, to create the elevated pad areas at the Centennial and Brunswick Industrial Sites. The WDRs will also be



required for use of the clay-lined pond in the treatment system for mine dewatering, as well as proposed underground backfill areas.

With respect to surface impoundments, the clay-lined pond, constructed in the 1980s, for the former Bohemia Lumbermill, was permitted by the RWQCB through WDRs as a Class II Designated Waste Management Unit, under former Title 23 of the CCR, Subchapter 15, Section 2532. According to the WDRs (Order No. 88-185 for Bohemia Incorporated Grass Valley Mill), the pond was to be lined with a two-foot-thick clay layer having a permeability not to exceed 1×10^{-6} cm/s. Vector Engineering found that the “clay liner system was constructed in substantial accordance with the SWRCB Title 23, Subchapter 15, Section 2532 regarding construction of the natural liner system for Class II Designated Waste Management Units.”⁹ It is noted that Title 23, Subchapter 15, has been repealed, and the regulations are now included in Title 27.

Liner requirements are set forth in Title 27, Section 22490(f), Liners. This section sets forth a minimum thickness for synthetic liners of 40 millimeters.¹⁰ Clay liners shall be of a minimum of two feet thick and shall be installed at relative compaction of at least 90 percent.

Title 27, Section 22510 also includes Closure and Post Closure regulations that overlap with reclamation requirements under the Surface Mining and Reclamation Act (SMARA), stating:

The RWQCB shall issue WDRs which incorporate the relevant provisions of an approved mining and reclamation plan (see California Surface Mining and Reclamation Act, Public Resources Code, Section 2770, et seq.), prescribe additional conditions as necessary to prevent water quality degradation, and ensure that there will be no significant increase in the concentration of indicator parameters or waste constituents in ground or surface water, unless requirements are waived.

Section 22510(a) states that “New and existing Mining Units shall be closed so that they no longer pose a threat to water quality...”

Industrial Storm Water General Permit – Order No. 2014-0057-DWQ

Storm water discharges from industrial sites must be managed in accordance with this permit. Stormwater runoff that comes in contact with surface mining materials, such as rock piles at the Brunswick Industrial Site, must be regulated under this permit. For the Industrial General Permit (IGP), a SWPPP must be prepared and an NOI filed using the Stormwater Multiple Application and Report Tracking System (SMARTS) online tool, similar to what is required for the Construction General Permit.

The IGP authorizes discharges of industrial storm water to waters of the United States, so long as those discharges comply with all requirements, provisions, limitations, and prohibitions in the IGP.

Basin Plans

The Porter-Cologne Water Quality Control Act provides for the development and periodic review of water quality control plans (basin plans) that are prepared by the regional water quality control

⁹ NV5. *Idaho-Maryland Mine Project, Supplemental Geotechnical Information*. November 6, 2020.

¹⁰ According to the Regional Water Quality Control Board, industry practice, as well as the liners within the region most recently approved by the Regional Board, is 60-millimeter minimum thickness. (Personal communication between Jeff Huggins, Water Resources Control Engineer, Title 27 Permitting and Mining Unit, Central Valley Water Board, and Nick Pappani, Vice President, Raney Planning & Management, Inc., January 5, 2021).



boards. Basin plans designate beneficial uses of California's major rivers and groundwater basins, and establish narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a water body (i.e., the reasons why the water body is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses. Basin plans are primarily implemented through the NPDES permitting system and by issuing waste discharge regulations to ensure that water quality objectives are met.

The RWQCB has adopted the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) (RWQCB, 2018). The Basin Plan establishes: (a) the beneficial uses of water within the region; (b) the water quality objectives necessary to protect those uses, including an antidegradation policy; (c) the prohibitions, policies, and action plans, by which protections are implemented; and (d) the monitoring requirements, conducted to demonstrate attainment of water quality standards.

The Basin Plan does not specifically identify beneficial uses for South Fork Wolf Creek or its tributaries. The Basin Plan also does not name beneficial uses or regulatory criteria for Wolf Creek, to which South Fork Wolf Creek is tributary. The existing Basin Plan does identify present and potential beneficial uses for the Bear River (to which Wolf Creek flows), specifically naming:

- municipal and domestic supply;
- agricultural supply, including stock watering;
- hydropower generation;
- water contact recreation;
- non-contact water recreation, including aesthetic enjoyment;
- warm and cold freshwater habitat; and
- wildlife habitat.

Certain formally designated beneficial uses, such as cooling water, spawning or rearing habitat, are not named for the Bear River, and do not apply to South Fork Wolf Creek.

Discharges must comply with the state Antidegradation Policy (State Water Board Resolution 68-16) to maintain the highest water quality possible consistent with the maximum benefit to the people of California. Historical and on-going discharges of mercury related to mining in the Sierra Nevada foothills has resulted in the development of a TMDL for mercury. As documented by EMKO (see Tables 3-6, 3-7, and 3-9 of Appendix K.2 to this Draft EIR), mercury has not been detected in any of the water samples from the New Brunswick shaft, and has not been detected in any of the drains, nor in Wolf Creek, nor in South Fork Wolf Creek. Mercury was also not detected in the DI-WET leachate samples from the barren rock and tailings samples.

Dewatering Permits

General Construction

The proposed project is likely to include construction dewatering to be discharged to land; thus, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage



under the General Order or Waiver must file a NOI with the CVRWQCB prior to beginning discharge.

Mine Dewatering

As previously discussed, the proposed project includes mine dewatering and discharge of the treated groundwater to the South Fork Wolf Creek. Thus, the proposed project will require coverage under a NPDES permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for Limited Threat Discharges to Surface Water (Limited Threat General Order), discussed above. A complete NOI must be submitted to the CVRWQCB to obtain coverage under the Limited Threat General Order.

Sustainable Groundwater Management Act

The DWR has developed a Strategic Plan for its Sustainable Groundwater Management (SGM) Program. DWR's SGM Program will implement the new and expanded responsibilities identified in the 2014 SGMA. The expanded responsibilities include the following:

- 1) Developing regulations to revise groundwater basin boundaries;
- 2) Adopting regulations for evaluating and implementing Groundwater Sustainability Plans (GSPs) and coordination agreements;
- 3) Identifying basins subject to critical conditions of overdraft;
- 4) Identifying water available for groundwater replenishment; and
- 5) Publishing best management practices for the sustainable management of groundwater.

The SGMA applies to the 127 High and Medium Priority groundwater basins, which account for approximately 96 percent of groundwater use in California. The only groundwater basin regulated under the SGMA within Nevada County is the Martis Valley Groundwater Basin. The project site is not located near Martis Valley.

Local Regulations

Relevant goals and policies from the Nevada County General Plan and various other local regulations related to hydrology and water quality, are discussed below.

Nevada County General Plan

The following policies from the Nevada County General Plan related to hydrology and water quality are applicable to the proposed project:

Public Facilities and Services Element

Goal 3.1 Provide for public facilities and services commensurate with development type and intensity.

Policy 3.19A For all discretionary development, increases in stormwater runoff due to new development, which could result in flood damage to downstream residences, commercial, industrial, active natural resource management uses (i.e. farming, ranching, mining, timber harvesting, etc.), public facilities, roads, bridges, and utilities shall not be permitted. Required retention/detention facilities, where necessary, shall be designed such that the water surface returns to its base elevation within 24 hours after the applicable storm event.



- The sizing of such facilities, when needed, shall be based upon the protection of downstream facilities.
- Policy 3.19B The County shall strongly encourage the use of geographically limited independent or dependent entities (Community Service Area, County Service Area, special district or equivalent entities) for the purpose of maintaining drainage facilities to handle stormwater runoff.
- Policy 3.19C For all discretionary projects, the County shall require that maintenance of all onsite drainage facilities and all offsite facilities constructed as part of the project is assured through a permanent legally-enforceable mechanism such as, but not limited to, a CSA or CSD.

Safety Element

Goal FH-10.3 Reduce the potential for injury, property damage, and environmental damage from flooding.

- Policy FH-10.3.1 Implement development standards to ensure new construction does not result in increased peak run-off or flood potential.
- Policy FH-10.3.2 Avoid increases in downstream flooding potential by protecting natural drainage and vegetative patterns through project site plan review, application of Comprehensive Site Development Standards, use of clustered development and project subdivision design. The Comprehensive Site Development Standards shall include measures applicable to all discretionary and ministerial projects to avoid downstream flooding resulting from new development. Such measures, shall include, but not be limited to:
- a. Avoidance of stream channel modifications; and
 - b. Avoidance of excessive areas of impervious surfaces; and
 - c. Use of on-site retention or detention of stormwater.
- Policy FH-10.3.3 Nevada County shall continue to work with appropriate local, State, and Federal agencies, and in particular, FEMA and the National Flood Insurance Program in maintaining the most current flood hazard and floodplain information as a basis for project review in such areas in accordance with Federal, State, and local standards.

Water Element

- Goal 11.1 Identify, protect and manage for sustainable water resources and riparian habitats.
- Policy 11.4 Cooperate with State and local agencies in efforts to identify and reduce to acceptable levels all sources of existing and



potential point- and non-point-source pollution to ground and surface waters, including leaking fuel tanks, discharges from storm drains, auto dismantling and dump sites, sanitary waste systems, parking lots, roadways, logging and mining operations.

Policy 11.6A New development shall minimize the discharge of pollutants into surface water drainages by providing the following improvements or similar methods which provide equal or greater runoff control: (a) include curbs and gutters on arterials, collectors, and local roads consistent with adopted urban street designs; and (b) oil, grease, and silt traps for subdivisions creating five or more parcels and commercial and industrial development of one acre or greater size. Maintenance of such facilities shall be assured through a legally enforceable mechanism.

Policy 11.9A Approve only those grading applications and development proposals that are adequately protected from flood hazards and which do not add flood damage potential. This may include the requirement for foundation design which minimizes displacement of flood waters, as well as other mitigation measures.

Policy 11.9C When constructed within a floodplain, require elevation of the habitable portions of residential structures to be above the 100-year flood level. Require flood-proofing or elevation of non-residential structures. Require that foundations do not cause floodwater displacement except where necessary for flood-proofing.

Also see: Chapter 1: Land Use Policy 1.22

Mineral Management

Goal 17.1 Recognize and protect valuable mineral resources for current and future generations in a manner that does not create land use conflicts.

Policy 17.11 Recognize the importance of water conservation and quality for the present and future needs of the County by:

- a. Requiring the conservation of on-site water during mining operations; and
- b. Requiring that off-site water discharge complies with State water quality standards; and
- c. Requiring that any increase or decrease of off-site discharge is not detrimental to the downstream environment or downstream water users.

Policy 17.15 Surface mining is conditionally permitted only in compatible General Plan designations as defined herein and on parcels



zoned ME. Said mining shall be allowed only after impacts on the environment and nearby land uses have been adequately reviewed and found to be in compliance with CEQA.

Of particular importance shall be the impact of the operation on nearby land uses, water quantity and quality, noise and vibration impacts, and traffic associated with the operation. All other related impacts shall also be addressed.

Policy 17.24

Regardless of the General Plan designation, subsurface mining shall be conditionally permitted throughout the County. Said mining shall be allowed only after impacts on the environment and affected surface land uses have been adequately reviewed and found to be in compliance with CEQA. Of particular importance shall be the impact of the operation on surface land uses, water quantity and quality, noise and vibration, land subsidence, and traffic associated with surface access. All other related impacts shall also be addressed.

Nevada County Land Use and Development Code

The Nevada County LUDC, Chapter II: Zoning Regulations, Sec. L-II 4.3.10 requires that for projects with development located within 100 feet of the limits of the 100-year floodplain, a Floodplain Management Plan prepared by a registered professional engineer and consistent with FEMA standards, shall be prepared that minimizes impacts to the floodplain. The purpose is to mitigate the impact of development on floodplains and to protect development and downstream users from potential hazards associated with flooding.

Nevada County LUDC, Chapter XII: Floodplain Management Regulations provides the floodplain management criteria for all development in areas of special flood hazard within the unincorporated areas of Nevada County.

The FEMA has identified the 100-year frequency floodplain along Wolf Creek, a perennial stream, in Nevada County. While FEMA does not exercise any jurisdiction over, or interest in lands outside the floodway and flood fringe, the County of Nevada has mandated that in certain instances as defined in its LUDC, Chapter XII, a Floodplain Management Plan must be prepared when development is within 100 feet of the 100-year floodplain boundary in order to minimize impacts to the floodplain.

Delineation of the 100-year floodplain (from the Flood Insurance Rate Map) on the Centennial Site Plan shows that the project footprint is outside the SFHA (100-year floodplain). However, approximately 0.55-acre of the engineered fill placement encroaches into the County of Nevada mandated 100-foot zone beyond the 100-year floodplain limit, necessitating a Floodplain Management Plan. A Floodplain Management Plan has been prepared for the Centennial Industrial Site in conformance with the requirements of the County of Nevada.



4.8.4 IMPACTS AND MITIGATION MEASURES

This section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to hydrology and water quality. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, a significant impact would occur if the proposed project would result in any of the following:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - Result in substantial erosion or siltation on- or off-site;
 - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
 - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff either during construction or in the post-construction condition; or
 - Impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

The proposed project's impacts associated with topsoil erosion related to grading and excavation activities are discussed in Chapter 4.6, Geology, Soils, and Mineral Resources, of this EIR, whereas the potential channel erosion effects of treated mine discharge in South Fork Wolf Creek are evaluated in this chapter in the following section.

The project's potable water demand and effects on surface water supplies are addressed in Chapter 4.11, Public Services and Utilities, whereas effects on groundwater supplies is addressed in this chapter in the following section.

Method of Analysis

The impacts analysis for this chapter is based primarily on the Itaska and EMKO technical reports for the proposed project. As discussed below, these reports were peer reviewed by an independent third-party expert, under contract with the County.

Groundwater Flow Model

The groundwater flow model that was constructed for this investigation utilizes the numerical code *MINEDW*, which was developed by Itasca (2012) to solve 3-D groundwater flow problems with an unconfined (or phreatic) surface using the finite-element method. *MINEDW* is a commercial software that was thoroughly reviewed by Sandia National Laboratories (Corbet et al. 1998) and



is approved by the Nevada Division of Environmental Protection for use in permitting applications (NDEP 2018). *MINEDW* has been used successfully at more than 100 mine sites located throughout the world and in diverse hydrogeologic and climatic conditions. The code has been in use for approximately 30 years, and its predictions have been validated by field data collected over many years.

The eastern boundary of the hydrologic study area (HSA) is a watershed divide (Sierra crest), while the other three sides are rivers/creeks. The western boundary is the Feather River, the northern boundary is the North Yuba River and South Fork Feather River, and the southern boundary is the Rubicon River and Raccoon Creek. The dimensions of the HSA are approximately 40 miles from north to south and 60 miles from east to west.

The bottom elevation of the model in the mine area is -3,445 feet msl, which is approximately 1,200 feet below the proposed project. The groundwater model domain encompasses approximately 2,810 square miles.

The conductivity, or *K*, values of the geologic units decrease with depth. Vertically, six main sub-units were assigned in the model for each geologic unit to simulate the decrease of the *K* values along the depth.

1. Fractured rocks – from the ground surface to 215 feet bgs;
2. Transition zone – from 215 to 300 feet bgs;
3. Upper bedrock – from 300 to 2,000 feet bgs;
4. Middle bedrock – from 2,000 to 4,000 feet bgs;
5. Lower bedrock – from 4,000 to 5,000 feet bgs; and
6. Deep bedrock – lower than 5,000 feet bgs.

The long-term average precipitation for the project area was estimated to be 53 inches per year based on precipitation records summarized by the Western Regional Climate Center. Groundwater recharge was estimated to be 10 to 12 inches per year in the project area (EMKO, 2021, pg. 18). In the HSA, the precipitation is high in the high-elevation areas to the east and low in the valley (west); however, due to the variation in geologic units and the depth of weathering, the proportion of the precipitation that recharges to the groundwater system is probably much higher to the west than that to the east, suggesting that the recharge is not directly proportional to the precipitation. Therefore, in the groundwater flow model, a uniform rate of 12 inches per year was assigned to the entire model domain.

Simulation of Underground Mine Workings

The underground mine workings evaluated include the previously operated Idaho-Brunswick Mine (including the Old Idaho, Old Brunswick, New Idaho, and New Brunswick Mines) and the proposed project. The existing mine workings comprise drifts, raises, and shafts. The extents are from the ground surface to a depth of 3,300 feet bgs. The vertical distance between levels is approximately 100 feet. The existing mine workings were simulated using 9,344 drain nodes, and the proposed project mining operation was simulated with 3,888 additional drain nodes. Drain nodes that were associated with the mine drifts and shafts remain numerically active until the end of mining. The starting times of the drain nodes were assigned gradually based on mine schedules and the elevations (from shallow to deep). Backfilling of the mined areas with cemented-paste backfill (CPB) was not simulated. Based on Itasca's other similar project experience, backfilling using CPB will likely reduce the amount of groundwater seepage into the underground mine



workings. As such, Itasca's model could overestimate the amount of inflows and drawdowns; and therefore, may overestimate the impact on groundwater wells in the project vicinity.

Predictive Simulations

The predictive numerical simulations were conducted to assess the potential inflows to the mine workings, the effect on nearby domestic wells, and the potential effects on the creeks in the Mine area during mine development and production between the assumed years of 2020 and 2045 (Year 1 to Year 25), which is the current mine plan.

The simulation of future mining was assumed to start with the initial condition of when the underground mine workings were pumped dry, which would be similar to the hydraulic condition in 1956, when the historical Idaho-Brunswick Mine operation ended. Therefore, the simulated groundwater levels in 1956 were used as the initial condition for the predictive numerical model simulations.

The modeling effort (Itasca, 2020b) evaluated the base case conditions (i.e., 2019 water level) with 25 years of mining, along with following scenarios:

- 1) Sensitivity analysis evaluating increasing the hydraulic conductivity in the transition zone between the weathered zone and the underlying bedrock by a factor of five;
- 2) Sensitivity analysis evaluating increasing the hydraulic conductivity of the fault zones by a factor of 10;
- 3) Sensitivity analysis excluding the fault zones from the model;
- 4) Sensitivity analysis increasing recharge rate by 50 percent (18 inches per year);
- 5) Sensitivity analysis decreasing the recharge rate by 50 percent (6 inches per year); and
- 6) Expanded mining scenario with additional mining occurring in certain areas below a depth of 1,000 feet for an additional 40 years. The expansions in Scenario 6 would represent a major discovery of parallel veins, similar to those mined historically in the Brunswick mine, within the known mineralized system.

Water Quality Sampling

EMKO has conducted water sampling on three separate occasions for the proposed project. In February 2018, water sampling was conducted to identify overall water quality parameters, including general mineral and metal concentrations. EMKO collected water samples from the drains and directed collection of water samples from various depths in the New Brunswick shaft at that time. Samples were labeled based on their level below ground surfaces (samples NBS-265 through NBS-2300). Field parameters were also measured in Wolf Creek, South Fork Wolf Creek, and from the pond on the Brunswick Industrial Site.

Additional measurements are as follows:

- In December 2018, EMKO conducted water sampling to obtain data to support a NPDES discharge permit application for the dewatering program. Additional water samples were obtained from, and field parameters measured in, the New Brunswick shaft and Wolf Creek.
- In April 2019, EMKO measured field parameters and conducted water sampling on South Fork Wolf Creek, the East Eureka Drain (IMD-1), and on Wolf Creek.
- In August 2019, EMKO measured field parameters at the Centennial Drive bridge on Wolf Creek and at two locations on South Fork Wolf Creek.



- In September 2019, December 2019, and January 2020, Balance Hydrologics, Inc. (2020) measured water temperature, conductance, pH and turbidity in two reaches of South Fork Wolf Creek. The upstream measurements were made at the location of the proposed discharge point of the treated water from the mine. The downstream measurements were made at the location where the creek enters a box culvert at Ophir Street in the City of Grass Valley.

South Fork Wolf Creek Geomorphic Assessment

The geomorphic assessment of South Fork Wolf Creek completed by Balance Hydrologics, Inc. consists of several methodological steps, several of which are outlined here. For a full review of the employed methodology, refer to Section 4 of Appendix K.1 to this Draft EIR.

Delineation and Classification of SF Wolf Creek

Based on review of available maps, historical aerial photographs, and a reconnaissance of the channel, Balance characterized channel-reach morphology using a classification system presented by Montgomery and Buffington (1997). Balance delineated South Fork Wolf Creek into different reaches based on: (a) slope, (b) channel morphology, (c) stream order or proximity to other tributaries, and (d) land-use, including influence of urban infrastructure or channel modification. The classification system synthesizes stream morphologies into distinct channel types, which allows for assessment of conditions and potential response to watershed perturbations. Reach classifications allowed Balance to identify channel environments that may be most susceptible to changes in flow from the proposed dewatering program.

Hydrology

South Fork Wolf Creek is an un-gaged tributary; therefore, information about the hydrology is limited to existing studies, indirect calculations, interpretations of channel condition, land uses, and observations and measurements completed as part of this study. Estimates of common recurrence floods can be computed according Nevada County's Hydrologic Manual, and are important for flood planning and infrastructure design and protection projects; however, these estimates do not address the more frequent but lower magnitude flows that move sediment and do work on the channel (i.e., "geomorphic flows"). Peak flow calculations from runoff modeling also do not typically account for seasonal or annual variability (i.e., wet year vs. dry year ambient conditions). Therefore, Balance conducted streamflow measurements and made observations of sediment transport during a low to moderate runoff event according to USGS standard practice for measuring discharge and sediment transport at a gaging station.

In addition to field observations and measurements, Balance staff estimated flows in the 1- to 10-year recurrence range by way of indirect field measurements, published regression equations, and unit-discharge from regional gaging stations.

Turbidity

Turbidity is a measure of relative clarity of the water or the scattering of light passing through water and is measured in nephelometric turbidity units (NTU). The higher the turbidity, the more light has been inhibited from passing through the water and sediment mixture. Material that causes water to be turbid includes clay, silt, inorganic and organic matter, algae, and plankton and other microscopic organisms. Turbidity is commonly used as a surrogate for measuring suspended-sediment concentration. Balance measured turbidity during multiple site visits to gain a better understanding of baseline turbidity conditions.



Channel Reconnaissance

Balance conducted a channel reconnaissance of accessible segments of the creek between September 25, 2019 and October 3, 2019. These visits occurred during an extended dry period that reflected summer baseflow conditions after an above-average precipitation year [WY2019: 67.3 inches; WRCC, 2020; NCDC, 2020]. During each visit, Balance evaluated channel and bed conditions, collected sediment samples, characterized bed sediment size and delineated South Fork Wolf Creek into distinct reaches based on geomorphic metrics. Observations during baseflow preceded observations and measurements made during elevated flows in January 2020. For the purposes of the assessment, “baseflow” is defined as the flow of water in the perennial creek during periods of no rainfall. Baseflow in perennial creeks can vary seasonally and from year to year.

Concurrent Monitoring Program: Streamflow and Sediment Transport

Sediment transport is usually considered in two parts: suspended sediment and bedload sediment. Suspended sediment consists of clay, silts, fine sands, and forest-floor duff such as seeds and pine needles and is suspended and transported by turbulence in the water column. Bedload sediment includes coarser sands, fine gravels, coarse gravels, cobbles, and (sometimes) boulders.

Balance initiated a baseline streamflow and sediment transport monitoring program in January 2020 at two different locations on South Fork Wolf Creek: 1) South Fork Wolf Creek upstream of the proposed point of discharge; and (2) South Fork Wolf Creek at Ophir Street. At each location, Balance installed fixed datums (staff plates) and near-continuous water-level recorders. Measurements were recorded at 15-minute intervals to determine instantaneous flow and daily peak, average, and minimum flows. In addition, manual measurements were made 19 times between January 24, 2020 and January 20, 2021 to verify the readings from the gaging station.

Preliminary Drainage Analysis and Detention Basin Sizing

Nevada City Engineering, Inc. prepared a preliminary drainage analysis and detention basin sizing for the Centennial and Brunswick Industrial Sites. Nevada County drainage requirements indicate that new storm drain systems and channels shall be designed to convey the 10- and 100-year, 24-hour storm event. Furthermore, SMARA states that erosion control methods shall be designed for the 20-year, 1-hour storm and shall control erosion and sedimentation during operations, as well as after reclamation is complete (see CCR, Title 14, Section 3706). The 2-, 10-, 25-, and 100-year, 24-hour storm events were analyzed in Nevada City Engineering’s report, which more than satisfies the Nevada County requirements. Given that the 100-year, 24-hour event is greater than the SMARA required 20-year, 1-hour event, the 100-year, 24-hour results would provide a greater factor of safety in the drainage design.

Independent Peer Reviews

West Yost was retained by Raney to perform an independent third-party peer review of EMKO’s Groundwater Hydrology and Water Quality Analysis Report,¹¹ Itasca’s report entitled Predictions

¹¹ West Yost. *Peer Review of Groundwater Hydrology and Water Quality Analysis and Groundwater Model Reports for the Idaho-Maryland Mine Project, Nevada County, California*. August 27, 2020.



of Groundwater Inflows to the Underground Mine Workings at the Idaho-Maryland Mine,¹² Linkan's Water Treatment Plant Design Report,¹³ and Itasca's Groundwater Monitoring Plan.¹⁴

West Yost found that Itasca's groundwater model was acceptably calibrated pursuant to industry practices. Itasca conducted a sensitivity analysis, which included separate model runs with increased hydraulic conductivity, adjusted fault structure, increased groundwater recharge rate and increased duration of planned mining operations by 40 years. In West Yost's professional opinion, the numerical model development, calibration and sensitivity analysis are adequate for the purpose of estimating the range of dewatering flow rates. West Yost concurs with the estimated flow rates used to evaluate the effects of dewatering conducted as part of the proposed project. Based on West Yost's peer review, the Itasca groundwater modeling report was updated to include an additional sensitivity analysis which considered decreasing the simulated recharge rate by 50 percent.

West Yost also peer reviewed the EMKO report and concurred with the findings and conclusions.

West Yost's technical peer review of Linkan's Water Treatment Plant Design Report confirmed that the proposed method of treatment would be adequate to successfully treat the mine water to comply with RWQCB effluent limitations, and identified items for Linkan Engineering to consider during the detailed design phase.

West Yost peer reviewed the proposed Groundwater Monitoring Plan (GMP) prepared by Itasca Denver and found that the 15 dedicated monitoring wells proposed in the GMP and Well Mitigation Plan provide adequate groundwater monitoring capability for the proposed project. West Yost recommended at least one year of baseline monitoring prior to initiating dewatering operations, rather than Itasca's original proposal of six months. The GMP was updated to include one year of baseline monitoring in accordance with West Yost's recommendation.

ECM was retained by Raney to perform an independent third-party peer review of the Geomorphic Assessment, South Fork Wolf Creek, prepared by Balance Hydrologics, Inc. ECM found the report to be adequate, and noted that it would be useful to acquire some additional flow and channel information in the future. This information has been collected since the preparation of the original report, and subsequently incorporated into the EMKO report.

Project Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in comparison with the standards of significance identified above.

4.8-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Based on the analysis below and with implementation of mitigation, the impact is less than significant.

¹² *Ibid.*

¹³ West Yost. *Peer Review of Water Treatment Plant Design Report for the Idaho-Maryland Mine Project, Nevada County, California.* November 25, 2020; West Yost. *Peer Review of Final Water Treatment Plant Design Report for the Idaho-Maryland Mine Project, Nevada County, California.* March 18, 2021.

¹⁴ West Yost. *Idaho Maryland Mine – Review of Groundwater Monitoring Plan and Well Mitigation Plan.* January 11, 2021; West Yost. *RE: Idaho-Maryland GMP.* March 1, 2021.



As stated above, the proposed project's impacts associated with topsoil erosion related to grading and excavation activities are discussed in Chapter 4.6, Geology and Soils, of this EIR. Thus, the following section pertaining to construction will focus on the initial mine dewatering and the potential need to dewater areas where groundwater is encountered during grading and excavation activities.

Construction Dewatering

The Geotechnical Reports indicate that dewatering at the Brunswick Industrial Site and Centennial Industrial Site during earthwork grading would not be necessary, but identify the potential need to dewater the utility trench excavations and any other excavations if perched water or the groundwater table is encountered during winter operations.

If dewatering of utility trenches is required, temporary sediment basins would be constructed on-site in areas of planned disturbance to which the groundwater can be pumped. To receive coverage for these activities, the project applicant would apply for coverage under SWRCB General Water Quality Order (Low Threat General Order) 2003-0003, or the CVRWQCB's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Dischargers seeking coverage under the General Order or Waiver must file a NOI with the CVRWQCB prior to beginning discharge.

Mine Dewatering

The proposed project will include initial dewatering of the mine and subsequent ongoing mine dewatering during the life of the underground mining operations.

Initial Mine Dewatering

Initial dewatering of the underground workings would be accomplished using submersible and staged centrifugal pumps. Initial dewatering of the Idaho-Maryland mine would occur at a rate of 2,500 gpm, or 5.6 cfs. If this rate of dewatering is achieved it would take approximately 160 days (5.3 months) to dewater the underground workings, assuming an average groundwater inflow rate into the existing mine workings of 850 gpm and total water currently in the mine workings of 385 million gallons. The groundwater would be pumped through a new pipeline to an existing clay-lined settling pond for water treatment. The clay-lined pond has a total capacity of approximately 40 acre-feet.

Groundwater sampling conducted by EMKO Environmental has identified two constituents of concern, iron and manganese, above RWQCB discharge standards. As described above, groundwater will be pumped from underground workings to the existing 40-acre-foot, clay-lined settling pond. The settling pond would be used for water storage and removal of total suspended solids. An aeration system would be installed in the settling pond to oxygenate the water, which would precipitate (i.e., create a solid from a solution) a significant portion of dissolved iron and manganese. A small dose of chemical oxidant [sodium hypochlorite (NaOCl) or potassium permanganate (KMnO₄)] will also be added to enhance the kinetics of the reaction under all surface conditions, such as seasonal variations. Settled solids and precipitated iron and manganese would be contained in the clay-lined settling pond, which would be removed approximately every 10 years. The solids removed from the pond would be hauled to an appropriate and approved landfill off-site.



Water would then be pumped to the proposed on-site water treatment plant (WTP) and filtered to remove the remaining iron and manganese. More specifically, filtration through natural, mined manganese dioxide (MnO_2) media would be the first step in the WTP. MnO_2 was identified as the preferred, primary form of treatment due to its efficient removal characteristics for iron and manganese, whereby it filters solids that are precipitated during the oxidation process (occurring in the pond), and will also act to catalytically oxidize and adsorb any residual soluble iron and manganese remaining in water conveyed to the WTP for treatment. According to the Water Treatment Plant Design Report, mined MnO_2 will remove the contaminants of concern (iron and manganese) to compliant levels, specified in the California RWQCB's NPDES permit No. CAG995002.¹⁵ Based on current groundwater quality conditions, this level of treatment is sufficient to meet State discharge standards; however, the WTP design includes secondary treatment using granular activated carbon (GAC) vessels to add robustness in the event that influent water quality worsens during periods of active mining. GAC is an effective barrier for many water pollutants and can be reused. GAC can also serve to remove organics such as those found in drilling fluids and other mining-related additives. With the proposed treatment described in this chapter, and more fully in the Linkan Engineering Water Treatment Plant Design Report, all parameters would meet the screening levels and effluent limitations, as shown in Table 4.8-2.

The treatment process would also reduce the concentrations of arsenic and ammonia, both of which have been detected in low concentrations in surface seeps near the mine. Oxidized arsenic will be adsorbed by precipitated iron and then adsorbed by the MnO_2 filter media. The low concentrations of ammonia (NH_3) will be removed by the aeration process occurring in the pond.

As a contingency, sodium hydroxide, commonly used in water quality treatment processes to adjust pH, will be included in the State permitting efforts for the WTP should it become necessary to treat NH_3 in higher concentrations than have been previously detected. This may occur as a result of explosives used during periods of active mining.

Periodic backwashes of the MnO_2 and GAC media vessels, which would release filtered and adsorbed solids, would be directed to a mechanical solids separation process, such as centrifugation, or belt or drum filters, in order to segregate the solids from the pyrolusite media backwash stream that will be returned to the clay-lined pond. In this manner, the pond will remain unaffected by the solids generated by backwash events.

The water stored in the finish water tank would provide the final effluent which would be pH adjusted to meet regulatory compliance standards prior to being discharged to the South Fork Wolf Creek. It is anticipated that this pH adjustment, if necessary, would be performed by adding a small dose of sulfuric acid, commonly used in municipal treatment systems, to the treated effluent. Only fully treated water, meeting the State's discharge requirements, would be routed to South Fork Wolf Creek for discharge.

Consistent with NPDES Permit requirements, the WTP would have backup power source (i.e., generators) in the event of electric power failure or outage.

¹⁵ Linkan Engineering. *Idaho Maryland Water Treatment Plant Design Report* [pg. 2-10]. February 2021.



**Table 4.8-2
Low Threat Discharge Permit Limits, Current Concentrations,
and Treatment Goals**

Tier 3 Constituent	Units	Screening Level	Tier 3 Effluent Limit		Existing Shaft	After Treatment
			Average Monthly	Maximum Daily		
Aluminum	ug/L	200	310	620	16	
Ammonia, as N	ug/L	NA	25	25	<100	<25
Iron	ug/L	300	470	930	1400	<300
Manganese	ug/L	50	80	160	230	<50
Nitrate + Nitrite	mg/L	10	10	20	<0.40	
pH	std units	6.5-8.5	6.0-9.0	6.0-9.0	6.8	
Settleable Solids	mL/L	0.1	--	0.1	NM	<0.1
Specific Conductance (EC)	umhos/cm	900			400	
Total Dissolved Solids (1)	mg/L	500	1000	1500	210	
Total Suspended Solids	mg/L	10	20	30	NM	<10
Turbidity	NTU	5			NM	<5
Antimony	ug/L	6	6	12	<5	
Arsenic	ug/L	10	10	20	2.1	<10
Beryllium	ug/L	4	4	8	<1.0	
Cadmium	ug/L	3.4	50	100	<0.25	
Chrome +3	ug/L	290	270	540	0.32	
Chrome +6	ug/L	10	8	16	NM	
Copper	ug/L	13	150	300	0.4	
Lead	ug/L	5.3	300	600	<0.50	
Mercury	ug/L	0.05	1	2	<0.050	
Nickel	ug/L	74	69	140	<5.0	
Selenium	ug/L	5	4.1	8.2	<5.0	
Silver	ug/L	8.2	3.1	6.3	<1.0	
Thallium	ug/L	1.7	1.7	3.4	0.12	
Zinc	ug/L	170	750	1500	5.5	
Cyanide	ug/L	5.2	4.3	8.5	2.2	
cis-1,2-DCE	ug/L	--	--	0.5	4.2	<0.5

NOTES: Source: EMKO, February 2021

Notes:

- Screening Levels and Effluent Limits are for Receiving Waters with Municipal and Domestic Supply Beneficial Use (MUN)
- TDS levels are part of the salinity standard. The values shown are the secondary MCL, upper level, and short-term maximum.
- For hardness-dependent metals, limits are based on the measured hardness of 180 mg/L from the pumped sample from the shaft (NBS Pump)
- pH, TSS, cadmium, copper, lead, mercury, and zinc effluent limits are based on Table 12 of the Low Threat Discharge Permit
- After Treatment levels only shown for constituents that currently exceed screening levels or effluent limits



Ongoing monitoring of influent and effluent (i.e., treated water) will be required by the State, in order for the applicant to receive coverage under the State's Limited Threat Discharge Permit (General Order R5-2016-0076; NPDES No. CAG995002). Monitoring of treated water would occur at a location specified by the State prior to the point of discharge at South Fork Wolf Creek. The owner will be required to submit quarterly monitoring reports to the State RWQCB, demonstrating compliance with the maximum daily effluent limitations specified in Section V of the NPDES permit. Compliance with the water quality standards and waste discharge requirements in Order No. R5-2016-0076 would prevent any degradation of surface water quality due to dewatering.¹⁶

Clay-Lined Pond

The clay-lined pond, constructed in the 1980s, for the former Bohemia Lumbermill, was permitted by the RWQCB through WDRs as a Class II Designated Waste Management Unit, under former Title 23 of the California Code of Regulations, Subchapter 15, Section 2532. According to the WDRs (Order No. 88-185 for Bohemia Incorporated Grass Valley Mill), the pond was to be lined with a two-foot thick clay layer having a permeability not to exceed 1×10^{-6} cm/s. Vector Engineering found that the "clay liner system was constructed in substantial accordance with the SWRCB Title 23, Subchapter 15, Section 2532 regarding construction of the natural liner system for Class II Designated Waste Management Units."¹⁷ It is noted that Title 23, Subchapter 15, has been repealed, and the regulations are now included in Title 27.

Liner requirements are set forth in Title 27, Section 22490(f), Liners. This section sets forth a minimum thickness for synthetic liners of 40 millimeters.¹⁸ As stated in the Project Description, the project includes installation of a synthetic liner over the existing clay liner, originally constructed in accordance with RWQCB specifications. The synthetic liner will meet the specifications in Title 27, Section 22490(f).

Ongoing Mine Dewatering

During mining, groundwater inflow into the underground workings would require dewatering. The dewatering would continue at a rate equal to the groundwater inflow into the mine, ranging from approximately 500 gpm to 1,200 gpm seasonally and averaging approximately 850 gpm or about 1.9 cfs. The maximum discharge rate permitted would be 2,500 gpm, which would allow flexibility for unexpected seasonal inflows, operational issues, and increased groundwater inflows from the expansion of the mine during operations. The treatment process for the ongoing mine dewatering would be as described above such that it would be covered under the State's Limited Threat Discharge Permit and treated at the WTP to meet maximum daily effluent limitations specified in the NPDES permit prior to discharge to South Fork Wolf Creek.

¹⁶ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 114]. February 2021.

¹⁷ NV5. *Idaho-Maryland Mine Project, Supplemental Geotechnical Information*. November 6, 2020.

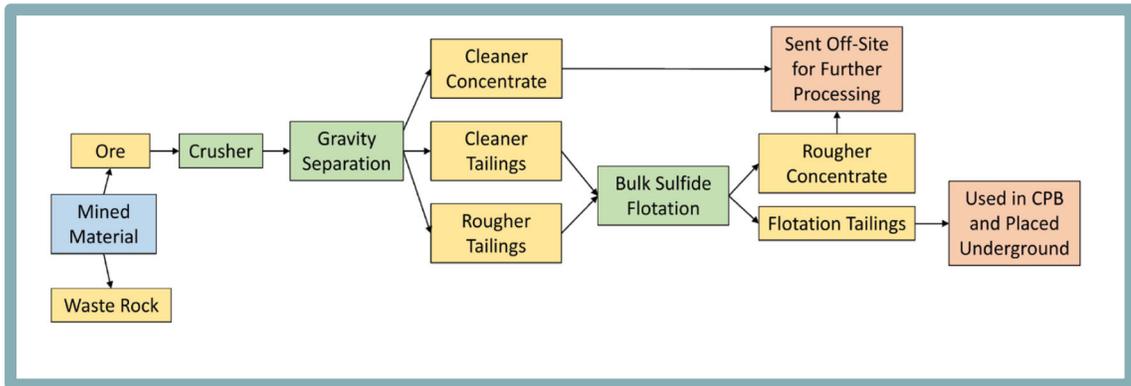
¹⁸ According to the Regional Water Quality Control Board, industry practice, as well as the liners within the region most recently approved by the Regional Board, is 60-millimeter minimum thickness. (Personal communication between Jeff Huggins, Water Resources Control Engineer, Title 27 Permitting and Mining Unit, Central Valley Water Board, and Nick Pappani, Vice President, Raney Planning & Management, Inc., January 5, 2021).



Water Within Underground Mine Workings

Approximately 50 percent of the sand tailings generated at the Process Plant would be used to backfill the underground workings. The backfill would be placed as cemented-paste backfill (CPB).

The process to create CPB at the project site would be generally as follows (see below diagram). The mined material would be separated into ore and waste rock. The ore would be crushed and then would undergo gravity separation to remove particulate gold. The gravity separation would yield fine-grained ore material called cleaner concentrate, intermediate grain size tailings called middlings or cleaner tailings, and tailings of a larger grain size called rougher tailings.



The cleaner tailings and rougher tailings then both undergo bulk sulfide flotation. The bulk sulfide flotation process is designed to separate the gold and associated sulfides from the rest of the tailing materials. The bulk sulfide flotation yields rougher concentrate and flotation tailings. The cleaner concentrate and rougher concentrate are both shipped offsite for further processing and gold recovery. The CPB used in the proposed project would be composed of flotation tailings (tailings that have had ore concentrate, sulfide, and trace metals removed by flotation), Portland cement as the binder material, and water.

Based on metallurgical and geochemical testing on mineralized drill core samples taken at the site, flotation tailings at the site were observed to have low sulfide content. As listed in Table 1 of the Desktop Study of Cemented Paste Backfill,¹⁹ the unprocessed sample contained 1.6 percent sulfide sulfur, whereas the flotation tailings samples contained approximately 0.06 to 0.12 percent sulfide sulfur; the sulfide sulfur recovery was approximately 93 to 96 percent. Thus, only a trace amount of sulfide sulfur remains in the flotation tailings, effectively eliminating potential water quality issues associated with the use of high- sulfide tailings in CPB.

ECM peer reviewed Itasca’s CPB study and noted that Itasca retained two companies to perform the tests of drill core samples to determine if underground paste backfill would be feasible at the project site. ECM has worked with both companies (McClelland Laboratories, Inc. in Reno, Nevada and ACZ Laboratories, Inc. in Steamboat Springs, Colorado), whom they note have excellent reputations for their quality work. Itasca

¹⁹ Itasca Denver, Inc. *Desktop Study of Cemented Paste Backfill* [pg. 4]. February 24, 2020.



Denver Inc. is well qualified to review the McClelland and ACZ technical information and to produce their summary report.

According to ECM, there are two important considerations concerning the use of paste backfill. The first is that the mill can produce a product that has the proper physical characteristics. The second is that the material to be used to make the paste backfill is environmentally benign. McClelland and ACZ laboratory testing shows that the material is chemically benign and physically suitable to produce paste backfill. Based on ECM's review of Itasca's summary of both the flotation results and the analytical results, ECM believes that the results look reasonable and are consistent with what would be expected at this mine.²⁰

More specifically, the acid-based testing performed by ACZ shows that there is actually a large excess of natural carbonate in the tailings, which results in acid neutralization potential ratios for this material that exceed 100 to one. This means that the rock that would be used as backfill will have a large excess calcium carbonate content as compared to the amount needed to neutralize sulfur that might remain in the tailings paste. This high neutralization ratio suggests that the insertion of the material back into the mine openings can be environmentally beneficial, given that the excess calcium carbonate content can serve to provide some localized neutralization of even the naturally occurring free sulfur that might remain within adjacent unmined portions of the vein.

Use of CPB for the project is an environmentally favorable method for tailings disposal because it can significantly reduce any potential release of metals from the tailings and would minimize the area of surface disturbance needed for tailings disposal. It is ECM's opinion that, based on the testing that has been performed, the material is suitable for paste backfill, and that the material can be successfully manufactured and transported to the intended location. Notwithstanding, Itasca has identified "site specific factors" that include selection of the proper binder (dominantly Portland cement with a low hexavalent chromium [Cr^{+6}] content), and the need for testing of the material, both as it is produced, and again after it has cured. The presence of chromium in cement has been identified as a potential water quality concern related to the use of CPB.

Chromium is a naturally-occurring trace component of the materials used to make cement. Hexavalent chromium (Cr^{+6}) is typically less than two percent of the total chromium content in cement,²¹ while the total chromium itself is a very small component in the finished cement (approximately 200 ppm²²). Thus, the fraction of Cr^{+6} in cement is usually only about 0.000004 (or 0.0004 percent) of the total mass of the cement before forming any admixtures (e.g., concrete or CPB). Studies also show that the amount of

²⁰ ECM. *Applicant Report Peer Review, Idaho Maryland Mine: Centennial and Brunswick Sites* [pg. 26]. August 13, 2020.

²¹ National Center for Biotechnology Information, U.S. National Library of Medicine, National Institutes of Health. *Study on Cr(VI) Leaching from Cement and Cement Composites*. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5923866/>. Accessed December 2021.

²² ScienceDirect. *Analysis of the Chromium Concentrations in Cement Materials*. Available at: <https://www.sciencedirect.com/science/article/pii/S1877705812028020?via%3Dihub>. Accessed December 2021.



Cr⁺⁶ that leaches from admixtures, such as CPB, is much lower than that which leaches from neat cement.²³

It is important to emphasize that the project's strategy for addressing the potential leaching of Cr⁺⁶ from CPB is not reactive (i.e., removal at the WTP), but rather proactive, whereby, as part of obtaining WDRs from the RWQCB for use of CPB, test work would be completed on CPB samples to verify that leaching of Cr⁺⁶ would not be an issue and use of the selected cement and CPB admixture would meet applicable regulatory requirements. In this way, the potential water quality effects related to chromium would be addressed through selection of the appropriate cement source and product, along with the proper CPB mixture, rather than by water treatment.

Nevertheless, it is only during the mining phase that Cr⁺⁶ could have any potential to leach from CPB, because that is when there would be air (oxygen) in the mine workings (Cr⁺⁶ can only form under oxidizing conditions). Once the mine re-floods, reducing conditions (very low dissolved oxygen levels creating a negative oxidation reduction potential) would return in the mine workings, which would prevent any leaching of Cr⁺⁶. However, during mining, if there were any Cr⁺⁶ in the water within underground workings due to groundwater inflow, it would be reduced to Cr⁺³ (due to low oxygen levels in the water), which is relatively immobile in water and has a much lower impact on water quality than Cr⁺⁶.²⁴ Once the water was pumped from the mine any Cr⁺³ would generally precipitate out of the water in the pond or be removed by the physical filtration unit in the WTP.

Blasting or backfilling with CPB would be conducted exclusively within the underground mine workings. Thus, any water that contacts those components would be present only within the mine workings and would be pumped out of the mine workings by the dewatering system. As a result, that water would not have the potential to flow into the fractured bedrock and flow toward any domestic supply wells. The dewatering causes a low pressure area around the underground workings such that groundwater inflow is toward the mine, not from the mine toward the domestic wells. The primary residual components of the ammonium nitrate-fuel oil (ANFO) used for blasting, ammonia and nitrate, are very soluble and mobile in water. This means that any blasting residuals would be continually removed from the mine over time through the dewatering system. The proposed WTP is designed to treat ammonia and other blasting residuals that might occur due to incomplete detonation. Thus, when the mine is allowed to flood again following the completion of mining, there is no reasonable potential that residuals from former blasting activities would cause a violation of any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

In addition, the proposed new mining activities would all occur at depths that are comparable to or much deeper than the historic mine workings. Most of the proposed additional mining, and potential exploration and expansion into new areas, would occur below depths of 1,000 feet (1,600 feet msl), a depth below the levels of the existing

²³ National Center for Biotechnology Information, U.S. National Library of Medicine, National Institutes of Health. *Study on Cr(VI) Leaching from Cement and Cement Composites*. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5923866/>. Accessed December 2021.

²⁴ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 115]. February 2021.



domestic supply wells (see Table 2-2, Itasca, 2020).²⁵ The substantial reduction in hydraulic conductivity at those depths, compared to the depths of the domestic supply wells, is further evidence that the proposed project would not adversely affect water quality in domestic wells.

Water currently within the flooded mine workings has low dissolved oxygen levels, creating reducing conditions, as demonstrated by the reducing conditions and the dissolved oxygen levels measured in the samples from the shaft and the drains.²⁶ The low oxygen levels and reducing conditions prevent the oxidation of sulfide minerals, such as pyrite, that are exposed within the surfaces of the underground workings. After dewatering, though, oxygen would be available from the air within the underground workings, potentially resulting in oxidation of sulfide minerals. Any acid generated during the oxidation would be quickly neutralized by the carbonate minerals in the host rock. However, the process of sulfide oxidation and subsequent neutralization would potentially create elevated total dissolved solids (TDS) levels in the water that would seep into the mine and be removed by the maintenance dewatering. The percentage of the mine workings that may encounter altered and mineralized rock is anticipated to be only a small fraction of the volume of the new underground workings to be constructed as part of the project. In addition, backfilling of stopes and other mineralized areas with CPB would reduce the number of exposed surfaces that may contain sulfide mineralization within the dewatered mine workings. If elevated TDS levels are generated during dewatering, the treatment system would need to be adjusted to meet applicable discharge standards and antidegradation requirements. The RoWD submitted to RWQCB would address this potential issue, provide a quantitative analysis of its potential, and define monitoring requirements and the measures that would mitigate such an occurrence if identified during operation of the treatment system.²⁷

Post-Construction Stormwater Runoff within Brunswick Industrial Area

On-going operations at the New Brunswick shaft, the WTP, and the ore processing area would also require compliance with the Industrial General Permit, known as SWRCB Order No. 2014-0057-DWQ, NPDES General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Industrial Activity.

The Brunswick Industrial Site currently has approximately nine acres of impervious asphalt paving from previous land uses. Some of the existing asphalt areas would be removed and some would be reused. After completion of construction, the impervious surfaces and buildings would cover a total of approximately 15 acres of the Brunswick Industrial Site.

Rise would be required to submit a NOI for coverage under the Industrial General Permit and prepare an industrial Stormwater Pollution Prevention Plan (I-SWPPP). The I-SWPPP would address any activities that would have the potential to release pollutants to stormwater, including material and chemical storage, vehicle operation and

²⁵ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 92]. February 2021.

²⁶ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [Table 3-5]. February 2021.

²⁷ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 108]. February 2021.



maintenance, and material handling and transport. In general, stormwater runoff from these industrial areas would be routed to the proposed detention basin for water quality and detention purposes, as further discussed in Impact 4.8-3 below.

Post-Construction Stormwater Runoff within Engineered Fill Areas

The project would involve creating fill areas at the Brunswick and Centennial Industrial Site areas. The engineered fill material would consist of 50 percent barren rock and 50 percent sand tailings from the primary ore processing operations. Ore processing would not involve the use of mercury or cyanide. Acid-base accounting analyses conducted by ACZ Labs demonstrates that the barren rock and the sand tailings have a net acid neutralization capacity such that the fill areas would not create acid mine drainage.

DI-WET leach tests conducted on the barren rock and sand tailings material extracted from the mine indicate that the bulk material proportions in the fill would not leach metals at concentrations above applicable water quality standards.²⁸ The conductivity and TDS in the water that leaches through the fill material is projected to be relatively low, based on the DI-WET tests. The DI-WET tests suggest that the pH of the water that percolates through the engineered fill could be above 9.0. This relatively high pH value, however, is inconsistent with the pH values measured in the New Brunswick shaft, the drains, and in surface water, which range from 5.78 to 7.8. The elevated pH from the DI-WET analyses may be a result of the fine crushing of the samples for the leaching tests. Whatever the reason, the pH results from the DI-WET tests are not consistent with site-specific measurements made under actual field conditions. Rise will be required as part of the project to submit a RoWD and obtain WDRs from the RWQCB for construction of the engineered fill areas. It is anticipated that the engineered fill would be a Group C mining waste.²⁹ Additional testing may be necessary as part of the RoWD to evaluate the expected pH of any rainfall that might percolate through the engineered fill. However, percolation is expected to be minimal because the engineered fill would be graded and compacted to allow runoff to be conveyed rapidly to the proposed stormwater detention ponds at both the Centennial and Brunswick Industrial Sites. The side slopes would be vegetated and have drainage channels at appropriate spacings. In any case, the WDRs will specify appropriate monitoring and limitations to prevent the discharge of water containing pH levels outside of applicable water quality standards.

Reclaimed Condition

Once mining is completed, dewatering ceases, and the underground workings are allowed to flood with groundwater, the same reducing conditions that occur under existing conditions within the mine workings would develop again, preventing oxidation of sulfide minerals. Water quality in the re-flooded mine workings would then have the same general pH, TDS, and other water quality conditions that occur under existing conditions. The underground workings are anticipated to refill over the next several years. Thus, any seepage from drains and fractures within the bedrock would have a comparable water quality to the discharge from the drains along Wolf Creek under existing conditions.

²⁸ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 108]. February 2021.

²⁹ *Ibid.*



After mining is completed, and as underground mine workings fill with groundwater, water from the underground mine workings would begin to seep from the existing drains.³⁰ The water that would seep from the underground workings is anticipated to have similar water quality to the water that currently discharges from the existing drains. Specifically, it may contain elevated levels of iron and manganese. Therefore, the conditions after mining is completed would be similar to existing, or baseline, conditions, such that re-activation of the seeps would not represent a potentially significant impact under CEQA. Although part of the existing environmental setting, some of the seeps have elevated arsenic levels that could pose a threat to human health or the environment. However, despite these existing discharges from the drains, the reported concentrations of all metals and other constituents in the Wolf Creek samples are well below the NPDES water quality standards.³¹

The proposed mining areas would primarily be at equivalent or deeper depths than the existing underground mine workings, while the potential future expansion areas all involve mining at greater depths, typically more than 1,000 feet below the surface and deeper.³² At those greater depths, the hydraulic conductivity is several orders of magnitude lower than it is at the depths of the domestic supply wells, due primarily to the lack of open fractures as a result of the large pressures exerted by the overlying rock mass (i.e., the lithostatic pressure). Given that the new mining activity would occur at equivalent or greater depths than the proposed mining, there is little or no potential for the proposed mining and mining in the future expansion areas to affect the quality of the groundwater in the domestic supply wells that are completed at much shallower depths.

Conclusion

The proposed project's construction and operations involve multiple activities that could result in adverse effects to water quality, including but not limited to the discharge of mine water containing iron and manganese, discharge of construction area dewatering water, erosion and sedimentation associated with the placement of engineered fill at the Centennial and Brunswick Industrial Sites, and use of CPB in the underground workings. However, as discussed above, all of these sources are proposed to be managed in a manner that would minimize potential water quality impacts. Furthermore, these activities would be regulated and monitored through permitting by the RWQCB, which would be required prior to the onset of mine dewatering and construction. Although the project's proposed water management and treatment, and adherence to permit requirements, would avoid significant impacts to water quality, the impact is considered **significant** for the purposes of this analysis and mitigation, specifying requirements for regulatory compliance, is identified as necessary to reduce the impact to less than significant.

³⁰ While the Eureka Drain, East Eureka Drain, and East Eureka Shaft, from which groundwater discharges, would be closed prior to initial mine dewatering, as discussed in the Geology and Soils chapter, the closure design would still allow groundwater to discharge from the near-surface features once the mine is allowed to flood during reclamation.

³¹ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 116]. February 2021.

³² I.e., Expansion areas would represent a major discovery of parallel veins, similar to those mined historically in the Brunswick Mine, within the known mineralized system.



Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

- 4.8-1(a) *The applicant shall submit a Notice of Intent (NOI) to the Central Valley Regional Water Quality Control Board (RWQCB) for coverage under the Limited Threat Discharge permit (General Order R5-2016-0076; NPDES No. CAG995002), at least six months prior to construction of the water treatment system; and the Notice of Applicability (NOA) shall be received before initial mine dewatering can begin and provided to Nevada County Planning Department. The NOI shall include evaluation of potential constituents of concern, including ammonia, arsenic, hexavalent chromium, iron, manganese, pH, total suspended solids, TDS, and cis-1,2-DCE, and demonstrate that water treatment plant (WTP) design shall successfully treat mine water to meet the water quality standards and treatment goals identified in the Limited Threat Discharge Order. Upon construction of the WTP, sampling shall be provided to the RWQCB demonstrating that the treated water meets the water quality standards and treatment goals specified in the Order. Ongoing monitoring of treated water shall occur at a location specified by the State prior to the point of discharge at South Fork Wolf Creek. The owner shall be required to submit quarterly monitoring reports to the State Regional Water Quality Control Board, demonstrating compliance with the maximum daily effluent limitations specified in Section V of the NPDES permit. The applicant shall submit to the County a copy of the NOI and evidence of the applicant's receipt of the NOA specified above prior to initial mine dewatering. The applicant shall submit copies of sampling and monitoring reports to the County at the time such reports are submitted to the RWQCB.*

The applicant shall also submit a Report of Waste Discharge (RoWD) and obtain Waste Discharge Requirements (WDRs) for use of the surface impoundment (i.e., Brunswick clay-lined pond) in the mine water treatment process. At a minimum, the liner of the clay-lined surface impoundment shall be upgraded to include a synthetic liner meeting the specifications in Title 27, Section 22490(f), of the California Code of Regulations. Prior to initial mine dewatering, the applicant shall submit to the Nevada County Planning Department a copy of the RoWD and evidence of the applicant's receipt of WDRs, as well as evidence of the completion of modifications to the clay-lined pond in compliance with the requirements.

- 4.8-1(b) *Prior to commencement of construction activities, the applicant shall submit a Notice of Intent (NOI) to the Central Valley RWQCB for coverage under the Construction General Permit applicable for any site on which construction is to occur and prepare a Construction Stormwater Pollution Prevention Plan (C-SWPPP). The applicant shall submit a copy of the NOI and C-SWPPP to the Nevada County Planning Department prior to the initiation of construction activities at a given site. C-SWPPP(s)*



shall be maintained and all BMPs and reporting requirements complied with until such time as terminated as a result of the completion of construction and permanent site stabilization or until an Industrial SWPPP becomes applicable to the site pursuant to Mitigation Measure 4.8-1(c).

- 4.8-1(c) *Prior to commencement of operations at the Brunswick Industrial Site, the applicant shall submit a Notice of Intent (NOI) to the Central Valley RWQCB for coverage under the Industrial General Permit for the Brunswick Industrial Site and prepare an Industrial Stormwater Pollution Prevention Plan (I-SWPPP). The applicant shall submit a copy of the NOI and I-SWPPP to the to the Nevada County Planning Department prior to termination of the C-SWPPP.*
- 4.8-1(d) *Prior to placement of CPB in the mine, the applicant shall conduct strength, rheological, and geochemical testing using the final CPB formulation in order to confirm that no constituents (e.g., pH values or chromium) release above water quality standards from the final selected CPB formulation, as a result of the binder composition or the interaction between the binder and the tailings material. The applicant shall submit a RoWD to the Central Valley RWQCB for the use of CPB at least six months prior to the proposed initial use of CPB. The WDR permit shall be received by the applicant prior to initiating any mine backfilling using CPB. The applicant shall submit to the Nevada County Planning Department a copy of the RoWD and evidence of the applicant's receipt of WDRs prior to the use of CPB.*
- 4.8-1(e) *The applicant shall submit a RoWD and obtain WDRs from the Central Valley RWQCB for construction of the engineered fill areas. The WDR permit shall be received by the applicant prior to initiating any engineered fill placement activities at the Centennial or Brunswick Industrial Sites. Proof of coverage shall be provided to the Nevada County Public Works Department. As part of this process, the RWQCB will determine the appropriate mining waste classification for the proposed engineered fill, and will consider the following factors: (1) whether the waste contains hazardous constituents only at low concentrations; (2) whether the waste has no or low acid generating potential; and (3) whether, because of its intrinsic properties, the waste is readily containable by less stringent measures. The engineered fill areas shall be constructed in accordance with the Title 27 specifications, pursuant to the mining waste classification determined by the RWQCB. The applicant shall submit to the Nevada County Planning Department a copy of the RoWD and evidence of the applicant's receipt of WDRs prior to the placement of fill or fill site preparation disturbance at the Brunswick Industrial Site and Centennial Industrial Site.*



4.8-2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. Based on the analysis below, with the implementation of mitigation the impact is *less than significant*.

The project site is not located within a groundwater basin that has been identified by DWR, and the nearest groundwater basin is located more than 15 miles to the west. Sustainable groundwater management programs must be implemented in groundwater basins that DWR has designated as medium or high priority, or that exhibit critical conditions of overdraft. Thus, the project could not impede sustainable groundwater management within a groundwater basin, because no such basin exists in the project vicinity.

Groundwater is present within fractured bedrock throughout the region and there are numerous private supply wells in the area. The existing shafts act as passive wells such that groundwater in the fractures that intersect the shafts flows downward into the mine workings and eventually is discharged from the drains along Wolf Creek. The current inflow of water into and out of the mine workings is approximately 60 gpm to 70 gpm. As shown in Figure 4.8-8, the inflow of groundwater into the shafts creates a small amount of drawdown in the groundwater surface in areas overlying the underground mine workings. Under existing conditions, the effect of this drawdown is limited to the East Bennett Road area.

Before exploration and mining can proceed, the water within the underground workings must be removed. Removal of the static water within the flooded mine workings is referred to as the “initial dewatering”. As the water level in the mine is lowered during the initial dewatering, groundwater would flow into the mine workings through fractures and contribute to the volume of water that must be pumped during the initial period. Thus, the initial dewatering rate, reported in gpm, is a combination of removal of the static water and removal of groundwater that flows into the newly-dewatered mine workings. Once the initial dewatering is completed, continued pumping is necessary to remove the groundwater that would constantly flow into the mine through fractures within the bedrock and maintain a dry mine. For the purposes of this analysis, this is referred to as “maintenance dewatering”. The estimated maintenance dewatering rate for the combined and expanded mines (i.e., the overall Idaho-Maryland mine including the Brunswick underground workings) prior to mine closure around 1955 is reported to have ranged from 500 gpm to 1,200 gpm seasonally, with an average of approximately 850 gpm.³³ The groundwater flow model prepared by Itasca predicts that the maximum and the stable min-inflow rates are approximately 1,100 and 900 gpm, respectively, based on the future mine plan the Rise provided.

As dewatering begins at the initial rate of up to 2,500 gpm (5.6 cfs), water from the surrounding fractured bedrock would also flow into the mine workings at approximately 850 gpm. Thus, the net dewatering rate would be approximately 1,650 gpm (2,500 gpm outflow/pumping – 850 gpm inflow). At this net initial dewatering rate, it would take 162

³³ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 72]. February 2021.



days to dewater the underground mine workings. After that time, pumping of groundwater that seeps into the mine workings would continue at the inflow rate averaging 850 gpm.

As dewatering occurs, the water level within the underground workings would decrease from its current depth of approximately 250 feet bgs down to the maximum depth of the New Brunswick shaft at about 3,460 feet bgs. These depths are equivalent to elevations of approximately 2,500 feet msl and -700 feet msl, respectively. Thus, the water level within the mine workings would eventually decrease as much as 3,200 feet due to the project. As previously discussed, the transmissivity of the fractured bedrock decreases by several orders of magnitude at deeper depths, due to a reduction in the number of fractures and a decrease in the width of the fracture openings caused by increased lithostatic pressures at depth. As a result, dewatering of deeper tunnels and drifts would have less impact on groundwater levels in the fractured bedrock than would dewatering of shallower mine workings.

Dewatering Effects in East Bennett Area

A substantial number of underground mine workings exist within the East Bennett area. Figure 4.8-10 shows the mine workings within 600 feet of the ground surface. The shallower (within 600 feet of ground surface) workings are concentrated in the Brunswick Mine area, the Union Hill Mine area, and between the East Eureka Shaft and the Idaho Shaft in the Idaho #1 mine area near Wolf Creek. Based on historical accounts of dewatering, it appears that approximately two-thirds of the maintenance dewatering would come from the Brunswick Mine area, while one-third of the maintenance dewatering would come from the Eureka-Idaho-Maryland Mine area. In addition, based on the variation in the transmissivity and hydraulic conductivity of the fractured bedrock, 99 percent of groundwater inflow would occur within 550 feet of the ground surface, as previously discussed.

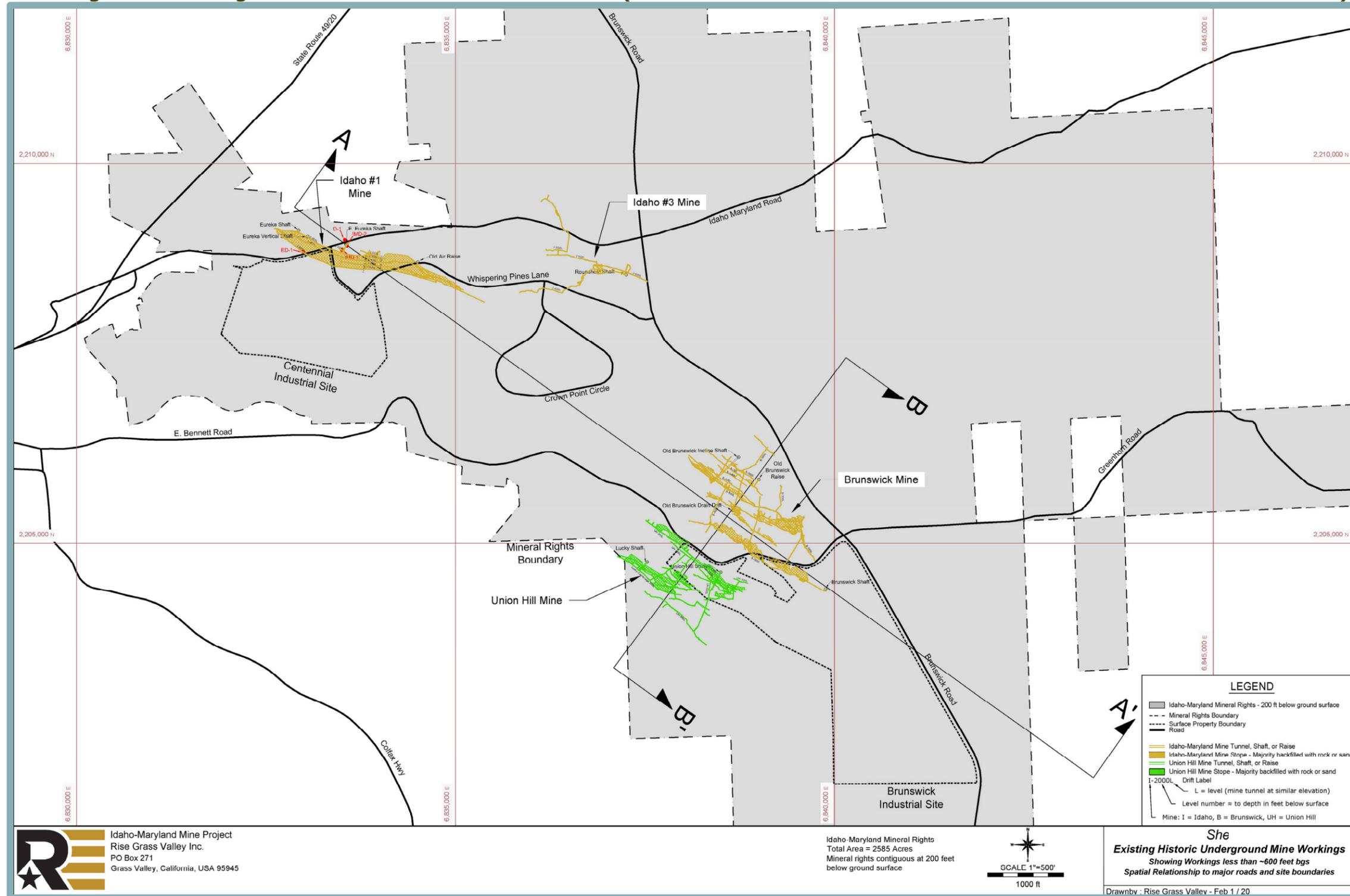
Based on the fractured bedrock aquifer properties and the maintenance dewatering rates, it is anticipated that the drawdown near the mine area would cause the water levels in several of the wells in the East Bennett area to be affected.

The range of the drawdown and the effect on the well would vary depending on well depth, distance from the mine workings, and the current well productivity (e.g., pumping rate in gpm).³⁴ Figure 4.8-11 shows the modeled drawdown that is predicted to occur at the end of the proposed mining period under the modeled Base-Case scenario (2045). The proposed mining plan, or “Base-Case” scenario evaluated by Itasca represents the exploration target over a 25-year period based on historic mapping and drill core sampling conducted to date.

³⁴ The water levels in the private domestic wells have seasonal fluctuations that may range from 10 feet to 50 feet between wet and dry seasons of the year but remain relatively consistent from year to year within each individual well. During the monitoring period, several years had below normal rainfall (2001, 2004, and 2007), multiple years had above normal rainfall (1995–1998 and 2006), and several years had near normal rainfall (1999, 2000, 2002, 2003, and 2005). Despite large variations in annual rainfall from year to year, the seasonal water-level cycles in individual wells remain consistent and the overall water levels for each well do not fluctuate based on wet or dry climatic cycles.



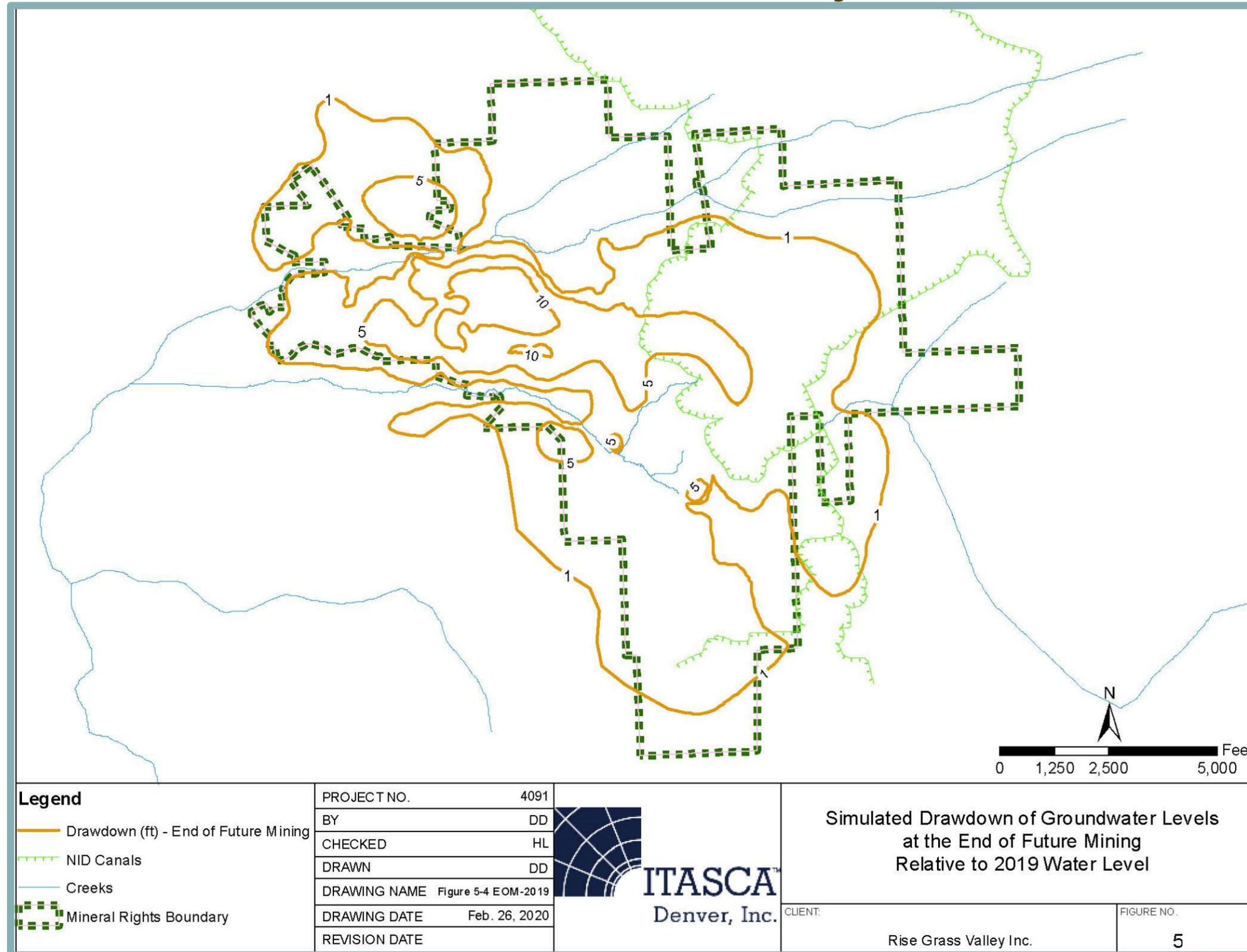
Figure 4.8-10
Existing Mine Workings within 600 Feet of Ground Surface (Where 99% of Groundwater Inflow into the Mine is estimate to occur)



R Idaho-Maryland Mine Project
 Rise Grass Valley Inc.
 PO Box 271
 Grass Valley, California, USA 95945



Figure 4.8-11
Simulated Drawdown of Groundwater Levels at End of Future Mining Relative to 2019 Water Level



The predicted drawdowns shown in Figure 4.8-11 are those that would occur in addition to the existing drawdown due to groundwater inflow to the mine under existing conditions, as previously discussed and shown in Figure 4.8-8. As shown in the figure, the drawdowns of the water table are generally within the mineral rights boundary. This is due to the low-*K* rocks where the deep mining would occur

Throughout the East Bennett area, the predicted drawdowns range from approximately five to 10 feet. Table 4.8-3 lists the known wells in the East Bennett area (including the Bennett Industrial area), along with the surface elevation, well depth, well yield, and water column height. Table 4.8-3 also specifies the predicted drawdown from the Itasca (2020b) model for each well, under the base case scenario and maximum drawdown under the most sensitive case. The predicted drawdown ranges from one foot to 10 feet in the East Bennett area, or from less than one percent of the total water column height to 40 percent of the total water column height.³⁵ It is also reiterated that backfilling of the mined areas with CPB was not simulated in the model. Based on Itasca's other project experience, the effect of CPB backfilling would likely reduce the amount of groundwater seepage into the underground mine workings. As such, Itasca's analysis may overestimate the amount of groundwater inflows and drawdowns.

Importantly, Itasca's groundwater modelling accounts for continual groundwater inflow into the underground mine workings (i.e., maintenance dewatering) as well as recharge into the fractured bedrock system, such that the groundwater drawdown levels shown in Figure 4.8-11 generally reflect a new state of equilibrium after initial dewatering of the mine. Further, the modelling shows that the new equilibrium is little affected by changes in the amount of recharge. For example, Itasca's Scenario 5 shows that the simulated groundwater inflows to the mine workings would decrease by approximately three percent to 870 gpm if the recharge rate in the model domain is decreased by 50 percent from average observed recharge for the area. The extent of the five-foot drawdown isopleth is larger than in the Base-Case Scenario, as decreased recharge impacts the shallow water-bearing zones more than the deep zone; however, the five-foot drawdown isopleth is generally still within the mineral-rights boundary.

Drawdowns within wells completed in unconfined aquifer conditions are sensitive to the amount of drawdown that occurs as a percent of the total water column. This sensitivity is due to the reduction in the effective transmissivity that occurs as the height of the water column decreases in unconfined aquifers. EMKO's analysis indicates that reductions in the water column of 20 percent to 40 percent could cause the production rate of the well to become unstable by incrementally decreasing the water column much more than would occur under existing conditions. For EMKO's analysis, a 100 percent factor of safety is applied to the potential reduction resulting in unstable conditions, such that a criterion of 10 percent of the water column is used to define wells that might be substantially affected by dewatering of the underground mine workings. Of the approximate 36 wells in the East Bennett and Bennett Industrial areas, there are three wells that have at least 10 percent reduction in the water column, under either the base case or most sensitive case, as highlighted in yellow in Table 4.8-3.

³⁵ However, the maximum predicted drawdown does not necessarily correlate with the highest percent of the total water column because wells with smaller water columns may have a higher percent effect than wells with large water columns.



**Table 4.8-3
Well Parameters and Potential Effects of Mine Dewatering, East Bennett Area**

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Yield (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)	Drawdown - Sensitivity Max (%)
1		1 - E. Bennett Area	2,747	420	0.5	400	8	8	2.0%	2.0%
2	WS33	1 - E. Bennett Area	2,690	700	3	625	7	8	1.1%	1.3%
5	WS30	1 - E. Bennett Area	2,644	230	10	155	5	5	3.2%	3.2%
6	WS31	1 - E. Bennett Area	2,685	320	3	215	8	8	3.7%	3.7%
7	WS80	1 - E. Bennett Area	2,797	100	30	17.4	7	7	40.2%	40.2%
8	WS45	1 - E. Bennett Area	2,769	300	6.5	218	5	6	2.3%	2.8%
9	WS32	1 - E. Bennett Area	2,747	400	6	295	9	9	3.1%	3.1%
15		1 - E. Bennett Area	2,829	400	0	315	4	4	1.3%	1.3%
16		1 - E. Bennett Area	2,826	140	30	80	5	6	6.3%	7.5%
17		1 - E. Bennett Area	2,684	150	20	70	1	1	1.4%	1.4%
18		1a - Idaho Maryland Area	2,530	560	3	555	2	2	0.4%	0.4%
19	WS122	1 - E. Bennett Area	2,779	220	40	90	2	4	2.2%	4.4%
	WS116	1 - E. Bennett Area	2700	208	15	125.4	2	3	1.6%	2.4%

(Continued on next page)



**Table 4.8-3
Well Parameters and Potential Effects of Mine Dewatering, East Bennett Area**

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Yield (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)	Drawdown - Sensitivity Max (%)
	WS113	1 - E. Bennett Area	2645	55	ND	54.5	1	1	1.8%	1.8%
	WS114	1 - E. Bennett Area	2710	208	ND	125.4	1	3	0.8%	2.4%
	WS119	1 - E. Bennett Area	2780	145	15	60	3	5	5.0%	8.3%
	WS44	1 - E. Bennett Area	2810	225	4.5	42	3	5	7.1%	11.9%
	WS29	1 - E. Bennett Area	2788	425	10	342.4	5	10	1.5%	2.9%
	WS233	1 - E. Bennett Area	2640	90	ND	56.7	1	1	1.8%	1.8%
	WS235	1 - E. Bennett Area	2805	200	20	81	2	4	2.5%	4.9%
	WS236	1 - E. Bennett Area	2635	199	ND	168	1	1	0.6%	0.6%
	WS240	1 - E. Bennett Area	2650	199	ND	164	4	5	2.4%	3.0%
	WS242	1 - E. Bennett Area	2695	155	15	97	4	4	4.1%	4.1%
	WS121	1 - E. Bennett Area	2690	155	15	72.4	1	3	1.4%	4.1%
	WS201	1 - E. Bennett Area	2860	425	3.5	151	5	5	3.3%	3.3%
	WS216	1 - E. Bennett Area	2770	199	ND	117	8	8	6.8%	6.8%

(Continued on next page)



**Table 4.8-3
Well Parameters and Potential Effects of Mine Dewatering, East Bennett Area**

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Yield (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)	Drawdown - Sensitivity Max (%)
	WS90	1 - E. Bennett Area	2590	72	ND	39.75	2	2	5.0%	5.0%
	WS124	1 - E. Bennett Area	2730	208	4	103	10	10	9.7%	9.7%
	WS125	1 - E. Bennett Area	2670	120	13	53	5	5	9.4%	9.4%
	WS243	1 - E. Bennett Area	2640	131	20	49	5	5	10.2%	10.2%
	WS118	1 - E. Bennett Area	2665	200	5	115	6	6	5.2%	5.2%
	WS237	1 - E. Bennett Area	2620	200	5	126	1	2	0.8%	1.6%
	WS110	1 - E. Bennett Area	2830	208	9	125.4	6	6	4.8%	4.8%
129		2 - E. Bennett Industrial Area	2515	140	50	130	1	1	0.8%	0.8%
130	WS95	2 - E. Bennett Industrial Area	2510	100	8	90	1	1	1.1%	1.1%
135		2 - E. Bennett Industrial Area	2535	200	6	180	2	2	1.1%	1.1%

- Notes:
- Well Parameter Data Compiled from Well Completion Reports
 - Bright yellow highlight indicates drawdown percentages greater than 10 percent of the existing water column in the well
 - Pale yellow highlight indicates drawdown percentages between 7.5 percent and 10 percent of the existing water column in the well
 - See discussion in Section 4.2.1 of Emko's *Groundwater Hydrology and Water Quality Analysis Report* for explanation of the effects of these drawdown percentages
 - Downloaded from California Department of Water Resources Database: <https://data.cnra.ca.gov/dataset/well-completion-reports>



In addition, four wells are predicted to have a reduction in the water column of between 7.5 percent and 10 percent. These four wells are highlighted in pale yellow in Table 4.8-3, to identify wells that could be marginally affected. Figure 4.8-12 shows locations of wells in the East Bennett and Bennett Industrial areas, including affected wells and marginally affected wells.

It is also noted that public concerns have been expressed regarding a scenario in which mining operations encounter a fractured bedrock aquifer and drain out the water, thus, impacting groundwater supply wells. Fractures or geologic discontinuities decrease with depth due to the weight of overlying geologic materials. The mining would occur in the deeper geologic units where the fractures, if present, are closed or have smaller apertures, which would not transmit significant quantities of water. The scenarios addressed in the Itasca modeling cover a wide range of probable situations that may be encountered and the potential impacts to groundwater levels.

In other areas around the perimeter of the mine workings, the projected maximum drawdown in private wells is less than two feet. In all cases, based on the information available through the well completion reports, the maximum potential additional drawdown in the perimeter areas is less than 10 percent of the available water column in individual wells. The maximum drawdown is also substantially less than the normal seasonal fluctuation in the groundwater levels of 10 feet to 30 feet or more.

Thus, in the perimeter areas and including a safety factor of 100 percent in calculations, the project would not have any significant impact on groundwater supplies.³⁶

Potential Future Exploration and Mining

Additional, deeper exploration and mining may occur as part of the project within the mineral rights boundary owned by Rise. The Itasca (2020b) finite element 3-D computer modelling was used to assess a range of possible future mining scenarios. The future scenarios would extend from 26 years to 60 years after project approval, if they were implemented. The majority of the potential future mining would occur at depths greater than 1,000 feet bgs, or approximately 1,600 feet msl.

At these depths, the hydraulic conductivity and transmissivity of the fractured bedrock is very low, and would not result in substantial additional dewatering (Itasca, 2020b). With only one minor exception, the predicted drawdowns from the potential future mining fall within the area of the maximum drawdowns under the worst-case sensitivity analysis for the Base-Case. In the one area that falls outside of the maximum sensitivity contours (North Brunswick rea), the additional drawdown due to future mining ranges from zero to one foot, or no more than 1.7 percent of the total water column height in the four wells in the area, which would not be considered significant.

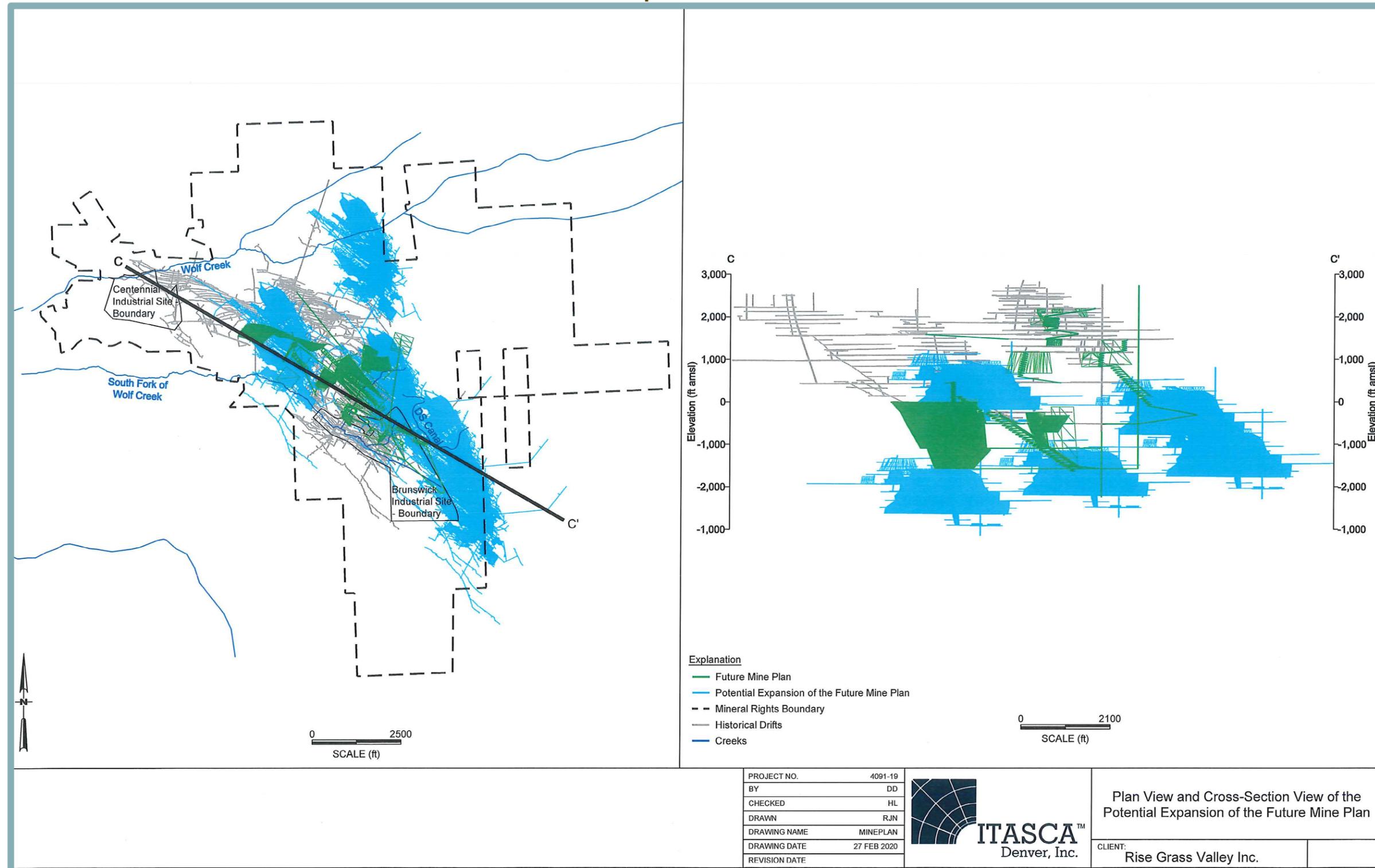
The model simulations of the rate of groundwater inflow into the mine generally stabilize over the last 10 to 15 years of the 65-year model analysis³⁷. This stabilization is because the additional mining occurring after 50 years is primarily progressing deeper (see Figure 4.8-13).

³⁶ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 119]. February 2021.

³⁷ See Itaska Report, Figure 5-11.



Figure 4.8-13
Potential Expansion of Future Mine



The deeper mining would be occurring in areas where the hydraulic conductivity of the fractured bedrock, and thus the incremental additional volume of groundwater entering the mine, would be decreasing by several orders of magnitude compared to those at shallower depths where mining had been completed. Thus, any additional mining beyond year 65 would not measurably increase the rate of groundwater pumped from the mine and would not affect groundwater levels in wells in the area.

Post-Mining/Reclamation Groundwater Conditions

Once mining is completed, dewatering would cease and groundwater would begin to accumulate again within the underground mine workings. Given that the drains that currently exist along Wolf Creek would not be sealed while the mine is dewatered, water from within the mine would begin to discharge from those drains again once the water level in the mine reaches an elevation of approximately 2,500 feet msl. While substantial additional underground workings are anticipated to be constructed as part of the project, these new workings will be below 2,500 feet msl. Thus, once the mine fills with water again, the additional underground workings would be below the water level and would not contribute inflow into the mine as a passive “well”. As a result, the rate of drainage would be expected to be the same as the current rate at which the drains flow, which is approximately 60 to 70 gpm, or 0.13 cfs to 0.16 cfs. Groundwater levels in the wells would recover to their approximate pre-project levels.

Groundwater Recharge

The development of new operating facilities at the New Brunswick shaft, the water treatment system, and fill areas would occur on land that has already been disturbed and partially paved for previous industrial activities on the mining site and the former Mill property. Therefore, the actions that would occur as part of the project in these areas would not result in the compaction of soils or installation of impermeable surfaces (e.g., pavement) in areas where those effects have not already occurred due to past activities. Installation of the potable water line would occur within East Bennett Road, consisting of paved, disturbed, and previously compacted soils due to the long history public right-of-way uses along the potable water line route. Thus, the project would not result in any appreciable new areas of compacted soils or impermeable surfaces that could substantially restrict or otherwise interfere with groundwater recharge.

Baseflow in South Fork Wolf Creek and Wolf Creek

Numerical modeling also indicates that dewatering could lower groundwater levels sufficiently to reduce the base flow in South Fork Wolf Creek by as much as 0.1 cfs, while dry season base flows in South Fork Wolf Creek have been measured at rates less than one cfs. However, the water that is pumped from the mine would be treated and then discharged to South Fork Wolf Creek at rates ranging from 5.6 cfs during initial dewatering to 1.9 cfs during maintenance dewatering. Thus, lowering of the groundwater table would not result in a reduction in base flows within South Fork Wolf Creek as a result of the project. Stream gage measurements conducted by Balance throughout 2020 and into 2021 confirm that any effects of dewatering on the base flow rate in South Fork Wolf Creek would be inconsequential because the proposed treated water discharge rate to the creek is much larger than the base flow rate and the modeled reduction in base flow.



Dewatering of the mine would also eliminate seepage from the drains and base flow in Wolf Creek. The base flow within Wolf Creek is approximately 25 cfs to 30 cfs. However, NID releases an average of approximately 35 cfs from the DS Canal to Wolf Creek on an annual basis. Itasca estimates that mine dewatering would reduce base flow in Wolf Creek by 0.75 cfs due to reduction in groundwater discharge. Dewatering would also eliminate flow from the drains, which ranges from 60 gpm to 125 gpm (0.13 cfs to 0.28 cfs). It is anticipated that surface water from Wolf Creek would be used for temporary dust control water for the Centennial Industrial Site during engineered fill placement, requiring approximately 125 gpm, or 0.28 cfs. Thus, the total reduction in base flow to Wolf Creek could be as much as 1.3 cfs. This flow reduction is minimal and would be barely perceptible compared to the base flow rate of 25 cfs to 30 cfs, the NID releases averaging 35 cfs, and winter storm flows from the upstream watershed. Although the number of measurements is limited, the observed baseflow in Wolf Creek at the Centennial Drive bridge ranges from about 40 to 100 times greater than the projected decrease in baseflow of 0.75 cfs.

Conclusion

The proposed mining operations could result in adverse effects to seven domestic water supply wells in the East Bennett area during the life of the mining operation. After reclamation, when the mine is allowed to flood, groundwater levels in the wells would recover to their approximate pre-project levels. As discussed in the Project Description chapter, pursuant to Nevada County General Plan Policy 17.12, the project would address this by installing a potable water supply line in East Bennett Road and providing individual well owners with a connection to the potable water line. While only seven wells are projected to be adversely affected, the applicant has prepared a Well Mitigation Plan (February 2, 2021) that would connect up to 30 properties in the East Bennett area to the NID potable water system. The properties would have the option to be connected to the potable water system prior to commencement of initial mine dewatering. The Well Mitigation Plan will obligate the applicant to fund the engineering, permitting, construction, and installation of main water piping and water meters to each property, as well as NID water charges for ongoing water supply. Property owners of vacant land or who are currently supplied by NID would not be eligible for reimbursement of NID water charges.

In addition, consistent with Itasca's recommendations, a rigorous GMP will be implemented by the applicant to assess how the hydrogeologic system responds to mining, whether the measured results are within those modeled under the various scenarios discussed above. The GMP will select locations of the monitoring wells in order to provide spatial coverage throughout the project and adjacent areas. Monitoring well locations will range from within areas of higher predicted drawdowns to outlying areas with minimal predicted drawdowns. Monitoring wells in closer proximity to the mine will generally experience drawdowns before wells farther away. The measurements of water levels in the monitoring wells can be used to verify the groundwater drawdowns as dewatering progresses to provide sufficient time to predict adverse impacts to domestic wells before they occur so that appropriate mitigation measures can be implemented.

Without implementation of a groundwater monitoring program and Well Mitigation Plan, the project could result in a **significant** impact to groundwater supplies.



Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.8-2(a) *The project applicant shall implement the Groundwater Monitoring Plan (GMP) prepared by Itasca Denver, Inc. (February 2021), as approved by the County. Implementation of the GMP shall be initiated prior to the dewatering of the mine and on an ongoing basis. Pursuant to the GMP, a network of monitoring wells shall be installed to the satisfaction of the Nevada County Environmental Health Department. Prior to construction of any monitoring wells within the County or City right-of-way, the applicant shall obtain an encroachment permit from the Public Works Department of the respective agency. Groundwater-level information shall be obtained from the project groundwater monitoring wells and collected on a quarterly basis, and submitted in report form to the Nevada County Environmental Health Department, and used to generate the following information:*

- 1) *Water-level monitoring data for a minimum of 12 months before commencement of dewatering of the mine.*
- 2) *Water-level hydrographs for each well showing the water-level variations over the monitoring period and a comprehensive well hydrograph showing long-term water levels for each well over the entire monitoring period.*
- 3) *Potentiometric-surface contour maps showing the groundwater elevations across the site. These may be produced for a subset of the shallow wells and a second subset for the deeper wells if it is judged that the shallow and deep well systems are in separate water-bearing zones. Alternatively, a combined potentiometric map that includes both shallow and deep well pairs may be constructed if it is judged that the shallow and deep wells are installed within the same water-bearing zone.*
- 4) *A projected water-level impact assessment for individual domestic wells shall be performed once dewatering of the underground mine workings commences, based on responses of the measured groundwater levels of the project monitoring wells. The projected groundwater drawdown shall be estimated for each domestic well in the project area. This impact assessment shall be performed by tabulating the variation of the measured water levels from the project monitoring wells over the monitoring period and during the dewatering of the underground mine workings and mining operations. For each domestic well, a projected and seasonally averaged water level shall be estimated based on the domestic well location and the background potentiometric conditions, which will serve as a baseline groundwater level and shall be developed prior to the initiation of dewatering of the underground mine workings.*



- 4.8-2(b) *If, based on the GMP, it is determined that mining operations are resulting in a significant impact to any well(s) (i.e., a 10 percent or greater reduction of the water column of any well), pursuant to Nevada County General Plan Policy 17.12, the project applicant shall be responsible for providing a comparable supply of water to such homes or businesses whose wells are significantly impacted, and if necessary, providing an immediate water supply until the source of the problem is determined and rectified. The comparable supply of water shall be provided to the satisfaction of the Nevada County Environmental Health Department. Such action could include extension of NID potable water or deepening of domestic water wells, in all cases paid for by the project applicant.*
- 4.8-2(c) *Prior to commencement of initial mine dewatering, the project applicant shall implement the Well Mitigation Plan (February 2, 2021, Rise Grass Valley, Inc.) by connecting 30 properties in the East Bennett area to the NID potable water system (see Figure 1 and Table 1 of the Well Mitigation Plan for specific property locations). The project applicant shall be responsible for fully funding the following for each property connection:*
- 1) Engineering and Permitting*
 - 2) Construction of main water piping*
 - 3) Construction of service lateral piping*
 - 4) Installation of water meters at property line*
 - 5) Connection of water meters to house (If requested and authorized by property owner)*
 - 6) Closure of domestic water wells (If requested and authorized by property owner)*
 - 7) NID installation and capacity charges for a 5/8-inch meter connection.*
 - 8) Reimbursement for water charges, for monthly fixed service charges and use of up to 400 gallons per day, will continue until the sooner of the following occurs: 1) The property is sold by the owner after the NID connection is accomplished and paid for by Rise. 2) The property is annexed into the City of Grass Valley.*
 - 9) Of the 30 properties, it is anticipated that only APN 009-600-012 is not eligible for water cost reimbursement as it is currently vacant. Existing NID customers will not be eligible for reimbursement of NID water charges and will be confirmed through consultation with NID during the design process.*

Proof of satisfaction of this measure shall be provided to Nevada County Environmental Health Department for each property identified in the Well Mitigation Plan.



4.8-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

- i) Result in substantial erosion or siltation on- or off-site?***
- ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?***
- iii) Create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?***
- iv) Impede or redirect flood flows?***

Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Item 'i' pertains to substantial erosion or siltation on- or off-site. As discussed above, the proposed project's impacts associated with topsoil erosion related to grading and excavation activities are discussed in Chapter 4.6, Geology, Soils, and Mineral Resources, of this EIR, whereas the potential channel erosion effects of treated mine discharge in South Fork Wolf Creek are evaluated in this chapter in the following section.

Surface Water Runoff (items ii and iii)

Surface water runoff could be affected by the construction of buildings, pads, and other impermeable surfaces, by the placement of waste rock and tailings in and around the Brunswick and Centennial Industrial Sites, and by dewatering of the underground mine workings. In general, storm flows would be collected on-site by new storm drain systems and routed to proposed stormwater detention basins, which would be constructed as part of the project improvements for the Brunswick and Centennial Industrial Sites.

The fill areas at the Centennial Industrial Site and the Brunswick Industrial Site would be graded to minimize runoff. Stormwater conveyance channels would be constructed in accordance with Nevada County hydrology and hydraulics standards to convey the runoff from up to a 100-year storm event. Runoff from the fill areas would be conveyed to stormwater detention basins. The proposed detention basins at each site are intentionally located at the downstream toe of each engineered fill site, so that they may be constructed and made functional early in the process of the fill operations. Therefore, as the fill areas rise throughout the anticipated duration of this portion of the mining operation, flows would be directed to these facilities via the drainage pipes which proceed downhill from the surface of the fill, allowing the flows to be directed to the detention basins. These pipes in the proposed 3:1 slopes, at any given point in the process of placing the fills, would be extended up slope from the detention basins to the then current surface. Interceptor ditches and catchment sumps would be formed at the



surface, and would be replaced periodically as the fill operation progress and the surface elevation rises. By this strategy, site drainage would continually be positively controlled throughout the process of the engineered fill placement operation.

The proposed detention basins would hold back the peak flows and release the water at a lower rate and at a later time than currently occurs from those site areas. As a result, the project would reduce peak storm flows in both Wolf Creek and South Fork Wolf Creek. The specific parameters and reductions in peak flows are discussed in the following sections.

Centennial Industrial Site

As previously discussed, the environmental baseline for the hydrology analysis of the Centennial Industrial Site is based on the existing conditions at the site and does not reflect the post-remediation condition that would exist following completion of the separate Centennial Industrial Site Clean-Up Project, as described in Section 1.3 of Chapter 1. The reason for this is the final surface topography and drainage conveyances will be subject to the California Department of Toxic Substances Control (DTSC) and County review and approval. The use of existing conditions at the Centennial Industrial Site for the hydrology analysis provides the most conservative approach for the drainage analysis, as discussed in Section 4.8-2, Existing Environmental Setting, of this chapter (see “Project Area Drainage” section).

Subsequent to remediation, as part of the proposed project improvements at the Centennial Industrial Site, a detention basin would be constructed at the downstream toe of the site, above Wolf Creek (see Figure 4.8-14). The detention basin is designed to contain stormwater runoff from the 100-year, 24-hour storm event and would have a surface area of 0.94-acre, a maximum depth of 7.7 feet, and a working volume of 6.2 acre-feet, with a minimum freeboard of 6.3 feet. The basin design incorporates an outlet structure connecting to an existing piped outfall into Wolf Creek, which would allow the pond to completely drain between storms (Nevada City Engineering, Inc., 2019). Table 4.8-4 shows the design peak flows from the outlet structure for the 10-year and 100-year storm events, compared to the existing runoff to Wolf Creek from the Centennial Industrial Site. The detention basin and outlet structure would reduce the peak discharge to Wolf Creek by 27 cfs for the 10-year storm and by 44 to 45 cfs for the 100-year storm.

Brunswick Industrial Site

At the Brunswick Industrial Site, a detention basin would be constructed at the downstream toe of the engineered fill placement slopes, above South Fork Wolf Creek (see Figure 4.8-15). The detention basin for the Brunswick Industrial Site is sized to detain storm flows to compensate for the quantity of treated mine water discharged to South Fork Wolf Creek, in addition to compensating for increased runoff from potential future industrial development of the site.³⁸

³⁸ Nevada City Engineering, Inc. *Preliminary Drainage Analysis and Detention Basin Sizing for Centennial and Brunswick Industrial Sites* [pg. 2]. October 2019.



Figure 4.8-14
Centennial Industrial Site Post-Development Hydrology Map

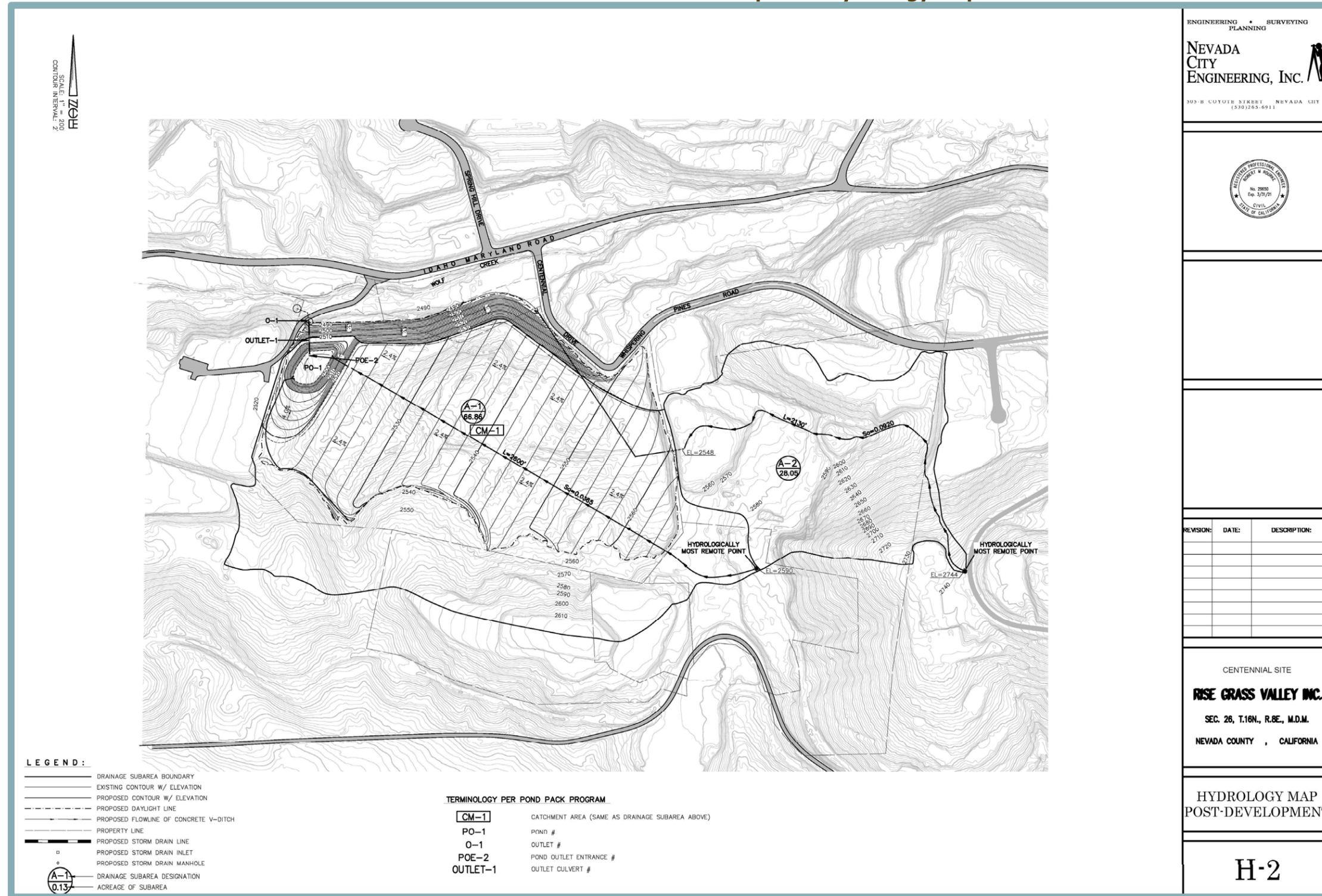


Figure 4.8-15
Brunswick Industrial Site Post-Development Hydrology Map

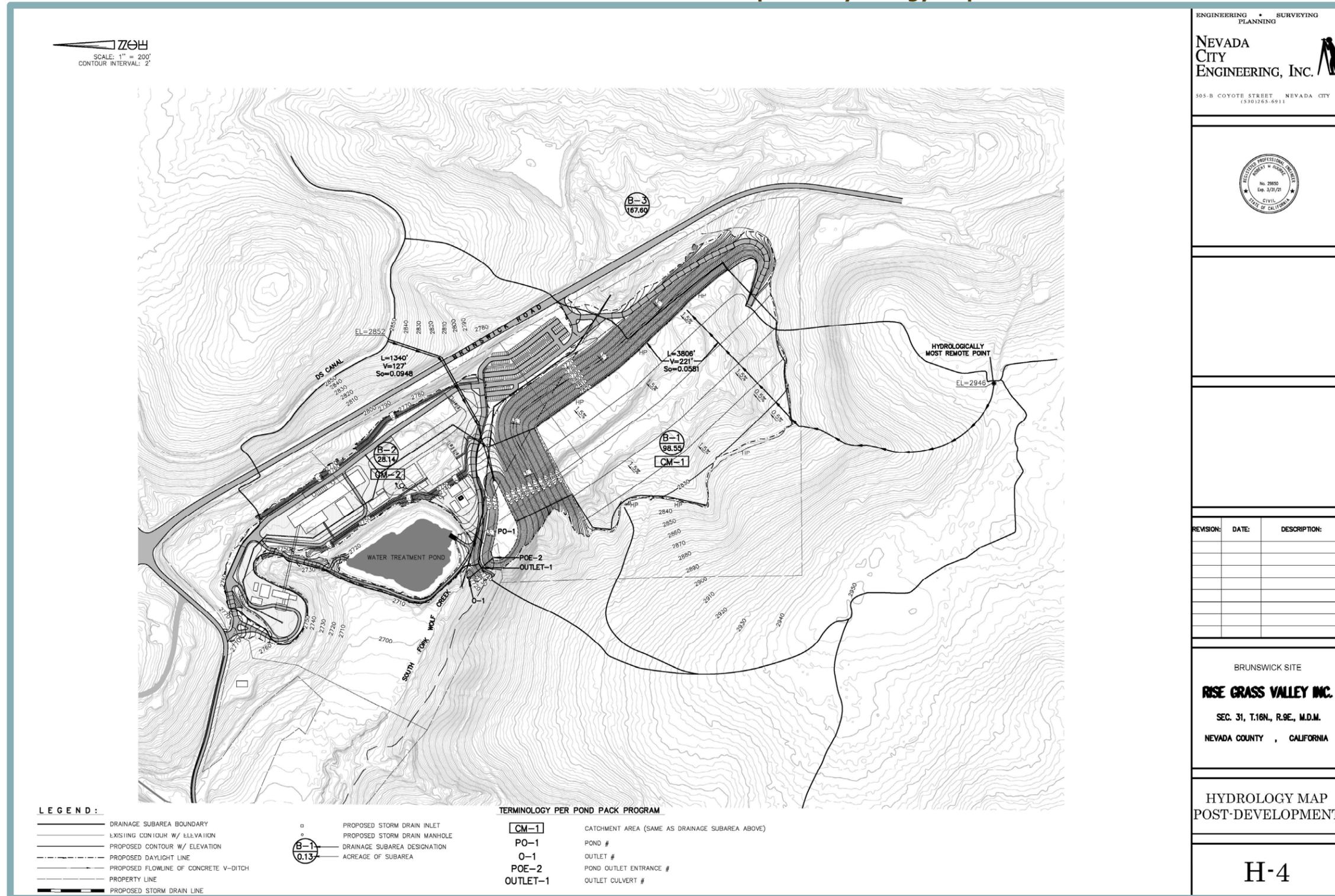


Table 4.8-4 Existing and Project Peak Flows from Industrial Site Areas			
Brunswick Industrial Site Storm Water Flows to South Fork Wolf Creek			
Return Period (years)	Existing Peak Runoff (cfs)	Project Peak Runoff (cfs)	Reduction Due to Project (cfs)
2	79	31	48
10	140	79	61
25	195	153	42
100	227	201	26
Centennial Industrial Site Storm Water Flows to Wolf Creek			
Return Period (years)	Existing Peak Runoff (cfs)	Project Peak Runoff (cfs)	Reduction Due to Project (cfs)
10	72	45	27
100	121	76	45

The hydrologic calculations and detention studies for both sites anticipate runoff at potential future industrial development levels, though industrial development is not proposed at this time, and separate environmental review and permitting through the County would be required prior to any on-site industrial development. Therefore, the sizing of the detention basins is conservative.

The detention basin would have a surface area of 1.45 acres, a maximum depth of 10.6 feet, and a working volume of 12.1 acre-feet with a minimum freeboard of 3.4 feet. The basin design incorporates an outlet structure that would allow the pond to completely drain between storms (Nevada City Engineering, Inc., 2019). Table 4.8-4 shows the design peak flows from the outlet structure for the two-year, 10-year, 25-year, and 100-year storm events, compared to the existing runoff to South Fork Wolf Creek from the same catchment areas. The detention basin and outlet structure reduce the peak discharge to South Fork Wolf Creek by over 48 cfs for the 2-year storm, by over 60 cfs for the 10-year storm, by over 40 cfs for the 25-year storm, and by over 25 cfs for the 100-year storm.

It is also noted that the deteriorated 48-inch buried culvert that runs underneath the Brunswick Industrial Site would be replaced and upgraded as part of the proposed project. South Fork Wolf Creek daylights from this existing 48-inch diameter culvert, which is approximately 1,600 feet long (RWQCB Order No. 88-185, December 18th, 1990). The 48-inch culvert is fed by surface drainage and road runoff on both the east and west sides of Brunswick Road. Additionally, perennial surface drainage from the west side of Brunswick Road drains north to the 48-inch culvert inlet. This drainage pattern would continue after implementation of the proposed project due to culvert replacement.

Clay-Lined Pond Capacity

For the dewatering operations, the water would initially be pumped to an existing clay-lined pond to the southeast of the shaft. The water would then be treated by a series of oxidation and filtration steps before being discharged. Based on a 2019 survey by Nevada City Engineering, Inc., the volume of the pond with two feet of freeboard below the elevation of the emergency overflow spillway is 23 acre-feet. The freeboard volume is 6.6 acre-feet. The spillway is also two feet below the lowest point on the berm



surrounding the pond. At the maximum mine dewatering rate of 2,500 gpm, the pond has the capacity to hold the volume of water that would be dewatered during two days of pumping. At the maintenance dewatering rate of 850 gpm, the pond has the capacity to hold the volume of water that would be pumped over more than six days. The total runoff from the 6.4 acre watershed for the pond resulting from a 100-year, 24-hour storm would be approximately 5.7 acre-feet. Thus, the freeboard volume is more than adequate to retain the runoff from an extreme storm event. Overall, the existing clay-lined pond has more than adequate capacity to accommodate operational flexibilities for dewatering and water treatment, and to retain stormwater runoff from the area surrounding the pond.³⁹

Impede or Redirect Flood Flows (item iv)

Placement and grading of materials to create the usable industrial areas would occur outside of any flood hazard zones. The dewatering discharge outfall would also be constructed in an area that is outside of a mapped flood hazard zone in South Fork Wolf Creek. The outfall, however, would be within waters of the U.S. so it would have to be constructed in accordance with the requirements of a CWA Section 404 permit from the Corps for dredge and fill activities within waters of the U.S. and a Fish and Game Code Section 1600 Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW). A CWA Section 401 water quality certification would also be required from the RWQCB, in connection with the Corps' issuance of a CWA Section 404 permit. Under these permits, the outfall would need to be constructed in a manner that would not measurably reduce the capacity of the stream channel or flood plain of South Fork Wolf Creek. Therefore, the project would not impede or redirect flood flows.

Flows in South Fork Wolf Creek (item i)

After treatment, the water pumped from the mine would be discharged to South Fork Wolf Creek, downstream of the natural creek that NID uses to discharge water from the DS Canal Extension.

As previously discussed, base flow in South Fork Wolf Creek may range from 0.07 cfs in the summer to 6.5 cfs in the winter between storm events, at the location of the proposed discharge of the treated mine water.⁴⁰ During field monitoring in January 2020, Balance noted that small to moderate storm flows of 11 cfs upstream of the proposed discharge location and 17.3 cfs downstream of the proposed discharge location did not produce any evidence of bed sediment transport, meaning that there was no erosion or sedimentation occurring in the stream bed during the monitored storm flows. Sediment pebble count analysis conducted by Balance (2020) indicate that the flow rate at which sediment within the channel may become mobilized ranges from 20 cfs to 90 cfs.

With the addition of the maximum proposed discharge of 5.6 cfs and increasing measured baseflows by a 50 percent safety factor, post-project baseflows during non-storm periods would be expected to range between approximately 5.8 cfs and 15 cfs. These estimates are less than 23 cfs, the threshold for bedload sediment mobility and well below flows that commonly exhibit significant work on the channel (i.e., 1- to 2-year

³⁹ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 106]. February 2021.

⁴⁰ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project* [pg. 72]. February 2021.



flood). Balance therefore concludes that discharges during baseflow periods would not result in substantial erosion or siltation on site in South Fork Wolf Creek.⁴¹ ECM is in agreement with Balance that the addition of 5.6 cfs to the South Fork of Wolf Creek drainage basin would have no significant effect on the stream channel or banks, or to the turbidity of the South Fork Wolf Creek.⁴²

During larger storm events, the proposed detention pond on the Brunswick Industrial Site would reduce the peak flows within South Fork Wolf Creek by much more than 5.6 cfs, as shown in Table 4.8-4. Thus, under project conditions the overall peak storm flows would be lower than they are under existing conditions, resulting in less potential for erosion and sediment transport than under existing conditions.

The project would not discharge water to existing or planned drainage systems. Downstream of the project site, South Fork Wolf Creek flows into existing drainage improvements at Ophir Road that extend under the City of Grass Valley. The base flow plus the maximum project dewatering rate of 5.6 cfs would not exceed the capacity of the existing drainage facilities. During storm events, the detention basin at the Brunswick Industrial Site would reduce peak storm flows on South Fork Wolf Creek, thus providing additional capacity within the current drainage facilities under Grass Valley.

Conclusion

The drainage analyses discussed above conclude that the project would not significantly alter the drainage patterns of the sites in a manner which would result in substantial erosion or siltation on- or off-site, nor substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, nor create or contribute to runoff water which would exceed the capacity of existing stormwater drainage systems, nor impede or redirect flood flows. West Yost's independent peer review concurs with this conclusion.⁴³ The combined flows from the treated water discharge and existing base flow in South Fork Wolf Creek would be below the levels that could potentially result in erosion or sediment transport. Peak storm flows at both the Centennial and Brunswick Industrial Sites would be reduced to levels less than existing conditions peak storm flows due to the detention basins that would be constructed below the engineered fill areas. The reduction in peak storm flows would reduce the potential for erosion and sedimentation within South Fork Wolf Creek and reduce utilization of existing capacity of storm drain systems under the City of Grass Valley. Although the project's proposed stormwater facilities design would avoid significant impacts associated with the potential to result in or contribute to runoff water in excess of storm drain system capacity, the impact is considered **significant** for the purposes of this analysis and mitigation, specifying requirements for regulatory compliance, is identified as necessary to reduce the impact to less than significant.

⁴¹ Balance Hydrologics, Inc. *Geomorphic Assessment, South Fork Wolf Creek, Near Grass Valley, California* [pg. 40]. March 2020.

⁴² ECM. *Applicant Report Peer Review, Idaho Maryland Mine: Centennial and Brunswick Sites* [pg. 5]. August 13, 2020.

⁴³ West Yost. *Peer Review of Groundwater Hydrology and Water Quality Analysis and Groundwater Model Reports for the Idaho-Maryland Mine Project, Nevada County, California* [pg. 15]. August 27, 2020.



Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

- 4.8-3 *As part of the Improvement Plan submittal process, the applicant shall submit a Final Drainage Report to the Nevada County Planning Department for review and approval. The Final Drainage Report may require more detail than that provided in the preliminary report, and will be reviewed in concert with the Improvement Plans to confirm conformity. The report shall address the Centennial and Brunswick Industrial Sites, be prepared by a Registered Civil Engineer, and shall, at a minimum, include: narrative describing existing conditions, the effects of the proposed improvements, all appropriate calculations, watershed maps, changes in flows and patterns, and proposed on- and off-site improvements to accommodate flows from this project, including treated mine water discharge and stormwater runoff. The Final Drainage Report shall demonstrate that the on-site storm drain systems are sized such that site runoff (in addition to treated mine discharge for the Brunswick Industrial Site) under the post-development condition will not exceed pre-development levels in the downstream channel(s) during the design storm events.*

4.8-5 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation. Based on the analysis below, and with implementation of mitigation, the impact is less than significant.

Due to its distance from the ocean and other large enclosed bodies of water, the project is not located in an area that would be subject to tsunamis or seiches.

According to the FEMA flood hazard maps for the project area, Maps 06057C0631E, 06057C0632E, 06057C0633E, 06057C0650E (FEMA, 2019), the only part of the project site that is located within a Special Flood Hazard Area (SFHA) is the northern edge of the Centennial Industrial Site along Wolf Creek. This SFHA encompasses 2.31 acres on the Centennial Industrial Site, as shown on Figure 4.8-16.

Development at the Centennial Industrial Site (disturbance and engineered fill placement) would be avoided on approximately 12 acres, which includes the main stem of Wolf Creek and an undisturbed zone containing Pine Hill flannelbush, a special-status plant species protected under the federal Endangered Species Act. In addition, as shown in Figure 4.8-16, the project footprint has been designed to remain outside the SFHA (100-year floodplain) of Wolf Creek. However, approximately 0.55-acre of the engineered fill placement encroaches into the County of Nevada mandated 100-foot zone beyond the 100-year floodplain limit, necessitating a Floodplain Management Plan. Limited use of heavy equipment for engineered fill placement within the 100-foot floodplain setback could result in a risk of release of pollutants should leaks from heavy equipment occur and the area becomes inundated.



The Nevada County LUDC, Chapter II: Zoning Regulations, Section L-II 4.3.10 requires that for projects with development located within 100 feet of the limits of the 100-year floodplain, a Floodplain Management Plan prepared by a registered professional engineer and consistent with FEMA standards, shall be prepared that minimizes impacts to the floodplain. As a result, a Floodplain Management Plan was prepared pursuant to Section L-II 4.3.3.C of the Nevada County LUDC. The Floodplain Management Plan includes recommended mitigations and conditions that must be complied with to ensure that the operations at the Centennial Industrial Site would not result in adverse effects to the 100-year floodplain associated with Wolf Creek.

With respect to flood flows in Wolf Creek, as discussed in Impact 4.8-4, the Centennial Industrial Site design incorporates a stormwater detention pond, which has been sized to ensure that, under the post-project condition, the project would result in a net decrease in flows exiting the project site into Wolf Creek during the storm events analyzed.

Nevertheless, the proposed ground disturbance within the 100-foot buffer zone from the SFHA 100-year floodplain could result in **significant** impact.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.8-5 *The applicant shall implement the Floodplain Management Plan prepared for the Centennial Industrial Site, as approved in its final form by Nevada County. Specifically, the applicant shall implement the mitigation measures and conditions identified in the Floodplain Management Plan, which include measures designed to mitigate the impact of development on the floodplain. Such measures generally include, but are not limited to, the following and shall be implemented in accordance with their specified timing (e.g., either prior to, during, or after ground disturbance activities within the 100-foot floodplain buffer):*

- *Grading and land disturbance within the limits of the SFHA (100-year floodplain) of Wolf Creek shall be avoided.*
- *Prior to commencing construction, the 100-year floodplain boundary shall be delineated by appropriate means on the Centennial Industrial Site to ensure that construction activities remain outside the 100-year floodplain.*
- *As early as practicable once the engineered fill development has begun, the detention basin proposed in the Preliminary Drainage Analysis & Detention Study by Nevada City Engineering, Inc. shall be installed and made operational. During the grading operation, erosion control measures should be maintained in place on the fill pad to avoid silt and runoff from the pad proceeding down the fill slope towards Wolf Creek, and to direct all runoff to the detention basin which is to be constructed at the northwest corner of the fill area. During this time all potential runoff from the engineered fill*



pad area shall concurrently be directed to this basin for both its detention and de-siltation benefits.

- *No significant increase in impermeable surfaces shall occur within 100 feet of the 100-year floodplain. The only added impervious surface shall be approximately 520 lineal feet of concrete V-ditch at the toe of the engineered fill slope. This will have no measurable impact on drainage runoff or flooding.*
- *Areas within 100 feet of the 100-year floodplain, which are disturbed due to construction activity, shall be regraded to a smooth, natural contour resembling their pre-development configuration, with the exception of approximately 0.55-acre of engineered fill located on the northeast corner of the proposed Centennial Industrial Site. Grading shall be done in such a manner as to smoothly convey flows through the property without accelerating their transit to downstream areas. All disturbed areas shall be subject to erosion control measures and protection during and after the engineered fill placement operation in order to stabilize any disturbed soil, thus eliminating the likelihood of increased erosion exiting the site toward downstream properties.*
- *Temporary disturbance of vegetation within 100 feet of the 100-year floodplain due to construction shall be remediated by appropriate replacement plantings as recommended by the project biologist and as pursuant to the project Reclamation Plan.*

4.8-6 Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? Based on the analysis below, the impact is less than significant.

The current water quality control plan for the region is the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, which is also referred to as the Basin Plan (CVRWQCB, 2019). The project would be required to operate under an applicable WDR permit from the CVRWQCB for placement of any waste material on land. The dewatering discharge to South Fork Wolf Creek would also need to comply with the requirements of the applicable NPDES permit Order R5-2016-0076 (NPDES No. CAG995002) for Limited Threat Discharges to Surface Water as a Tier 3 discharge. The WDR and NPDES requirements ensure that the project would not conflict with or obstruct implementation of the Basin Plan.

Discharges must comply with the state Antidegradation Policy (SWRCB Resolution 68-16) to maintain the highest water quality possible consistent with the maximum benefit to the people of California. Historical and on-going discharges of mercury related to mining in the Sierra Nevada foothills has resulted in the development of a TMDL for mercury. As documented by EMKO (see Tables 3-6, 3-7, and 3-9 of Appendix K.2 to this EIR), mercury has not been detected in any of the water samples from the New Brunswick shaft, and has not been detected in any of the drains, nor in Wolf Creek, nor in South Fork Wolf Creek. Mercury was also not detected in the DI-WET leachate samples from the barren rock and tailings samples.



As previously discussed, the project is not located in or near a DWR-designated groundwater basin. Therefore, there would be no sustainable groundwater management plans developed for groundwater in the project area. However, installation of the potable water supply line along East Bennett Road, prior to the initiation of mine dewatering, and offering hookup at no cost to well owners, would address any potentially significant decrease in groundwater supplies to existing groundwater users in the project vicinity.

Based on the above, the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, resulting in a **less-than-significant** impact.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

For detail regarding the cumulative setting for this EIR analysis, refer to Chapter 5, Statutorily Required Sections, of this EIR.

4.8-7 Cumulative impacts related to the violation of water quality standards or waste discharge requirements, groundwater quality, management, and recharge, and impacts resulting from the alteration of existing drainage patterns. Based on the analysis below, the project, in combination with other cumulative development, would result in a less-than-significant cumulative impact.

Impacts related to stormwater quality, groundwater, and drainage patterns are discussed separately below.

Stormwater Quality

Construction activities have the potential to affect water quality and contribute to localized violations of water quality standards if stormwater runoff from construction activities enters receiving waters. Runoff from additional construction sites within the project area could carry sediment from erosion of graded or excavated surface materials (addressed in Cumulative Impact 4.6-7 of the Geology, Soils, and Mineral Resources chapter), leaks or spills from equipment, or inadvertent releases of building products, which could result in water quality degradation if runoff containing such sediment or contaminants should enter receiving waters in sufficient quantities. Thus, construction activities associated with the proposed project, in combination with construction activities associated with other reasonably foreseeable projects in the Wolf Creek and South Fork Wolf Creek watersheds, could result in cumulative impacts related to water quality. However, all construction projects resulting in disturbance of more than one acre of land are required to comply with the most current Construction General Permit requirements. Conformance with the Construction General Permit would require preparation of SWPPPs for all such projects, and subsequent implementation of BMPs to prevent the discharge of pollutants. In addition, projects disturbing surfaces less than one acre, while not required to obtain coverage under the State's Construction General Permit, would be required to comply with their respective jurisdiction's regulations



regarding stormwater quality during construction. Considering the existing permitting requirements for construction activity in the project area, cumulative construction within the Wolf Creek and South Fork Wolf Creek watersheds would be heavily regulated and impacts related to the degradation of water quality would be minimized to the extent feasible.

Regarding the potential for cumulative projects to impact stormwater quality during long-term operations, it is noted that industrial sites are required to have ongoing Industrial permits with the RWQCB that provide permanent water quality protection. Any new projects with Use Permits or Development Permits are required to record a stormwater maintenance covenant on their property prior to operations in conformance with General Plan Policy 3.19C. This provides a legally enforceable mechanism for long-term storm water facility maintenance. If the projects are one-acre or larger, they are also required to provide oil, grease and silt traps on the property pursuant to GP Policy 11.6A. These traps are maintained by the aforementioned storm water facility maintenance covenant.

With respect to potential cumulative projects within the City of Grass Valley, the City is covered under the State's Small (Phase II) MS4 General Permit NPDES No. CAS000004 Order No. 2013-0001-DWQ. As such, the City's Storm Drainage Design Standards require post construction storm water management for new development, including water quality treatment measures for projects creating and/or replacing more than 5,000 square feet of impervious surface.⁴⁴ Regulated projects under the City's Phase II MS4 are required to divide the project area into Drainage Management Areas and implement and direct water to appropriately-sized Site Design Measures and Baseline Hydromodification Measures to each drainage management area. Source control measures must be designed for pollutant-generating activities or sources consistent with recommendations from the California Stormwater Quality Association (CASQA) Stormwater BMP Handbook for New Development and Redevelopment, or equivalent manual, and must be shown on Improvement Plans.

Compliance with the foregoing regulations would ensure that potential impacts related to the discharge of pollutants are minimized to the extent feasible.

Groundwater

NID would provide potable water to the majority of cumulative projects. All cumulative projects within the City of Grass Valley would be served either by the City's water supply system, which relies on raw water purchased from NID (and treated by the City), or NID directly. As previously discussed, water supply for NID is currently derived from rain and mountain snowpack from Northern California's Sierra Nevada Mountains. Groundwater is not an existing nor is it a planned source of water available to the District. As a result, cumulative projects developed within the City of Grass Valley would not utilize groundwater, and thus, could not result in effects to groundwater depletion that could combine with the proposed project's effects to produce a cumulative impact.

NID also maintains extensive potable water systems within the areas east of Grass Valley where the majority of Nevada County cumulative projects are located (refer to

⁴⁴ City of Grass Valley. *City of Grass Valley Design Standards, Storm Drainage (SD)*. Available at: https://www.cityofgrassvalley.com/sites/main/files/file-attachments/section_9_storm_drainage.pdf?1566489346. Accessed February 5, 2021.



Figure 2-2 of the 2015 NID Urban Water Management Plan [UWMP]). While a small subset of cumulative projects could utilize well water, the incremental increase in groundwater use would not be expected to combine with the project's groundwater effects because the increase would be small (due to the small size of cumulative projects within outlying areas) and the nature of the fractured bedrock aquifer system (e.g., localized water-bearing fractures rather than one interconnected aquifer basin).

Drainage Patterns

As previously discussed, in general, storm flows would be collected on-site by new storm drain systems and routed to proposed stormwater detention basins, which would be constructed as part of the project improvements for the Brunswick and Centennial Industrial Sites.

The fill areas at the Centennial Industrial Site and the Brunswick Industrial Site would be graded to minimize runoff. Stormwater conveyance channels would be constructed in accordance with Nevada County hydrology and hydraulics standards to convey the runoff from up to a 100-year storm event. Runoff from the fill areas would be conveyed to stormwater detention basins. The proposed detention basins at each site are intentionally located at the downstream toe of each engineered fill site, so that they may be constructed and made functional relatively early in the process of the fill operations.

The proposed detention basins would detain peak flows and release the water at a lower rate over a longer duration than currently occurs from those site areas. As a result, the project would reduce peak storm flows in both Wolf Creek and South Fork Wolf Creek. It is also noted that the hydrologic calculations and detention studies for both sites conservatively anticipate runoff at potential future industrial development levels, though industrial development is not proposed at this time, and separate environmental review and permitting through the County would be required prior to any on-site industrial development.

For the Centennial Industrial Site, the detention basin would reduce the peak discharge to Wolf Creek by over 27 cfs for the 10-year storm and by over 44 cfs for the 100-year storm when compared to existing storm flows leaving the Site. At the Brunswick Industrial Site, the detention basin is sized to detain storm flows to compensate for the quantity of treated mine water discharged to South Fork Wolf Creek, in addition to compensating for increased runoff from potential future industrial development of the site. The Brunswick detention basin would reduce the peak discharge to South Fork Wolf Creek by over 48 cfs for the two-year storm, by over 60 cfs for the 10-year storm, by over 40 cfs for the 25-year storm, and by over 25 cfs for the 100-year storm, when compared to existing storm flows leaving the Site.

With little exception (e.g., Cumulative Projects #10 and #11), the cumulative projects identified in Figure 5-1 of the Statutorily Required Sections chapter, are located within either the Wolf Creek or South Fork Wolf Creek Watershed. Thus, stormwater runoff from these reasonably foreseeable projects, upon entering Wolf Creek or South Fork Wolf Creek, could combine with flows from the runoff from the Centennial and Brunswick Industrial Sites. However, similar to the proposed project, each cumulative project would be required to reduce its potential increase in peak flows to pre-development levels. For example, Nevada County LUDC Section L-II 4.3.10, requires the following:



Projects that may result in flood damage to downstream land uses shall not be allowed. Where determined necessary, retention/detention facilities shall be designed to protect downstream users and ensure that the water surface returns to its base elevation within 24 hours after the storm event.

Based on this standard, the County requires all new development to have no additional runoff (pre- vs post-development).

Similarly, the City of Grass Valley Development Code, Section 17.62.100 requires projects to include design provisions to retain off-site natural drainage patterns, and limit the quantities and velocities of peak runoff to predevelopment levels.⁴⁵ For example, in accordance with these requirements, the Dorsey Marketplace Project was designed to include three detention facilities sufficient to reduce post-development stormwater runoff rates to pre-development levels.⁴⁶ Similarly, the first residential tentative map for the Loma Rica Ranch Specific Plan was conditioned to include stormwater measures (e.g., site design, source control, runoff reduction) in accordance with City of Grass Valley standards.

As a result, not only would the project's incremental increase in stormwater runoff be reduced to a level below pre-development levels before entering Wolf Creek and South Fork Wolf Creek, but all other cumulative projects, whether in unincorporated Nevada County, or the City of Grass Valley, would be designed to reduce their incremental increase in stormwater flows prior to discharge to downstream waterways. As a result, the cumulative effect would not be considered significant.

Conclusion

As discussed throughout this chapter, implementation of the proposed project would result in reduction in stormwater flows due to on-site detention, minimization of effects to stormwater quality through incorporation of temporary and permanent stormwater BMPs, and while groundwater would be drawn down due to ongoing dewatering of the mine during the operational life of the project, the project includes installation of a new potable water line along East Bennett Road to supply potable water that would offset potential impacts to domestic wells from mine dewatering. Other cumulative development would similarly not be anticipated to adversely affect stormwater quality or lead to increases in stormwater runoff and downstream flooding due to compliance with state and local regulations governing stormwater treatment and reduction in peak flows.

Given the analysis presented in this chapter, the project, in combination with the cumulative list of projects, would result in a **less-than-significant** cumulative impact to water quality, drainage patterns and groundwater resources.

Mitigation Measure(s)

None required.

⁴⁵ City of Grass Valley. *Grass Valley Development Code*. March 2007. Available at https://www.cityofgrassvalley.com/sites/main/files/file-attachments/deveelopment_code_2020_website.pdf?1601573922. Accessed February 4, 2021.

⁴⁶ Dudek. *Dorsey Marketplace Draft EIR* [pg. 13-13]. March 2019.



4.9 LAND USE AND POPULATION AND HOUSING

4.9. LAND USE AND POPULATION AND HOUSING

4.9.1 INTRODUCTION

The purpose of the Land Use and Planning/Population and Housing chapter of the EIR is to examine the proposed project's compatibility with existing land uses in the area and identify any incompatibilities with applicable land use plans, policies and regulations adopted by the County for the purpose of avoiding environmental effects, namely the Nevada County General Plan¹. In addition, the chapter assesses the compatibility of the proposed project with the surrounding land uses. Furthermore, the chapter includes discussion of the potential for the project to induce substantial population growth in the project area, either directly or indirectly. The reader is referred to the various environmental resource evaluations presented in the other technical chapters of this EIR for a discussion of potential physical/environmental effects that may result from the proposed land use changes.

4.9.2 EXISTING ENVIRONMENTAL SETTING

This section describes the baseline conditions on the overall project site and within the surrounding area at the time the Notice of Preparation (NOP) was published on July 17, 2020, as well as the existing plans and policies that guide the development of the project site. In addition, the Existing Environmental Setting section describes current population and housing trends in the project region.

Project Site Characteristics and Surrounding Land Uses

The proposed project consists of two separate project sites: the Brunswick Industrial Site and the Centennial Industrial Site, totaling 175.34 acres, as well as a portion of East Bennett Road, where a new potable water line would be installed, and proposed areas of underground mining within the 2,585-acre mineral rights boundary owned by the applicant. The potable water pipeline easement would be located within the existing right-of-way (ROW) of East Bennett Road. The majority of the project site contains the historic Idaho-Maryland Mine underground gold mine. The mine has been inactive since closure in 1956 and was allowed to flood. In 1941, the Idaho-Maryland Mine employed approximately 1,000 workers and was California's largest lode gold mine and the second-largest lode gold mine in the U.S., based on annual production. The Idaho-Maryland Mine encompasses an extensive system of approximately 73 miles of underground tunnels, many raises, four inclined shafts, and two vertical shafts. The historic mining operation had extensive surface infrastructure adjacent to the Centennial Industrial Site and at the Brunswick Industrial Site, most of which has been dismantled and removed.

The Idaho-Maryland Mine has three distinct sections (Idaho #1, Idaho #3, and Brunswick Mines), which are connected by underground workings. The Union Hill Mine is a smaller mine that was closed in 1918 and has been flooded with groundwater since then. The Union Hill Mine is not connected to the Idaho-Maryland Mine, but is near the Brunswick portion of the Idaho-Maryland Mine. The gold-quartz veins of the Union Hill Mine are believed to be part of the Brunswick vein

¹ Nevada County. *Nevada County General Plan*. Updated 2014.



system. The property owner, Rise Grass Valley, is proposing to dewater the Idaho-Maryland Mine, but not the Union Hill Mine.

The Centennial Industrial Site was historically used by the Idaho-Maryland Mine to deposit mine tailings and waste rock. Such mine tailings were never compacted. Some of the materials used to build the tailings berm and small quantities of mineralized rock contain elevated metals. As a result, under existing conditions, the majority of the Centennial Industrial Site cannot be developed because of unstable soils and/or contamination. As discussed in the Introduction chapter of this EIR, the project applicant has entered into a Voluntary Cleanup Agreement with the California Department of Toxic Substances Control (DTSC) for the voluntary cleanup of soil contamination on Centennial Industrial Site. A Remedial Action Plan (RAP) has been prepared and approved by DTSC. Additional detail regarding existing contamination issues is provided in Chapter 4.7, Hazards and Hazardous Materials, of this EIR. Substantial evidence exists to support adjusting the existing conditions baseline for the Centennial Industrial Site to the post-remediation condition, as such adjustments will give the public and decision makers the most accurate and understandable picture practically possible of the project's likely near-term and long-term impacts (CEQA Guidelines Section 15125(a)).

The Brunswick Industrial Site consists primarily of undeveloped land, with remnants of the previous gold mining and sawmill operations still located on-site. The terrain of the undeveloped portion of the Brunswick Industrial Site is typical of the lower Sierra Nevada foothills, varying between flat ridges and valleys to gently and moderately sloping hillsides. The Brunswick Industrial Site is located adjacent to South Fork Wolf Creek and is dominated by mixed hardwood-conifer forests and developed areas, with smaller areas of wetlands and annual grassland. Vegetation communities present within the site are discussed in further detail in Chapter 4.4, Biological Resources, of this EIR.

The Centennial Industrial Site, under the above-described baseline condition, consists of a 5.6-acre engineered fill pad along its eastern boundary, up to approximately 28 acres of graded, revegetated areas, and the remainder consisting of natural habitats, such as montane hardwood-conifer, chaparral, montane-riparian, and annual grassland.

As discussed previously, underground gold mining occurred below the majority of the project sites, while aboveground portions of the sites were used for various gold mining and processing activities. Several shaft entrances are located on the Brunswick Industrial Site, including the Brunswick and Union Hill shafts. The shafts are covered to prevent inadvertent access. Other portions of the site include graveled or paved areas from previous land uses.

The project sites are surrounded by undeveloped land, industrial, low-density residential developments, and commercial uses. Existing land uses surrounding the Centennial Industrial Site include commercial uses and the City of Grass Valley limits to the north, west, and east, and industrial uses to the north, south, and east. Existing land uses surrounding the Brunswick Industrial Site include industrial uses to the north, undeveloped land to the west and south, South Fork Wolf Creek to the west, and rural residences scattered around the site. Table 4.9-1 below provides a summary of the locations of the surrounding land uses and the receptors closest to the project site.



**Table 4.9-1
Surrounding Land Uses and Closest Receptors**

Direction	Land Use	Zoning	Closest Land Use
Brunswick Industrial Site			
North	East Bennett Road, rural residential, industrial	Residential Agriculture (RA-1.5)	Residential
West	Undeveloped land, rural residential, South Fork Wolf Creek	Residential Agriculture (RA -3-PD)	Residential
South	Undeveloped land, rural residential	Single-Family Residential (R-1) and Residential Agriculture (RA-X)	Residential
East	Brunswick Road, undeveloped land, rural residential	Residential Agriculture (RA-3) and Residential Agriculture (RA-5)	Residential
Centennial Industrial Site			
North	Grass Valley city limits, commercial, industrial, Idaho-Maryland Road	Grass Valley city limits – Commercial/Industrial (M-1 Grass Valley city limits), Grass Valley city limits – Special Districts (SP1-B Grass Valley city limits)	Commercial/Industrial
West	Grass Valley city limits, commercial	Grass Valley city limits – Commercial/Industrial (C-3 Grass Valley city limits) and Business Park (BP)	Commercial
South	Undeveloped land, East Bennett Road, industrial	Light Industrial (M1) and Open Space (OS)	Industrial
East	Grass Valley city limits, Centennial Drive, industrial, commercial	Grass Valley city limits – Special Districts (SPA1-A Grass Valley city limits)	Industrial/Commercial

Land Use and Zoning Designations

Both project sites are located within unincorporated western Nevada County (see Table 4.9-2). The 119-acre Brunswick Industrial Site (APN's, 006-441-003, -004, -005, -034; and 009-630-037, -39) is located southwest of the intersection of East Bennett Road and Millsite Road, and is accessible from Brunswick Road or East Bennett Road. The 56.41-acre Centennial Industrial Site (APN's 009-550-032, -037, -038, -039, -040; and 009-560-036) is located southwest of the intersection of Idaho Maryland Road and Centennial Drive. The majority of the project is located on the Brunswick Industrial Site, which is partially located within the City of Grass Valley's long-term sphere of influence and designated Urban Low Density on the Grass Valley General Plan Land Use Diagram. The southern portion of the Brunswick Industrial Site is outside of the City's sphere of influence. The Centennial Industrial Site is located within the City of Grass Valley's near-term sphere of influence and designated Business Park and Urban Medium Density on the Grass Valley General Plan Land Use Diagram. While the majority of the Sites are located in the City's sphere of influence and assigned General Plan land use designations by the City, the Sites are located within unincorporated Nevada County and are not proposed to be annexed to the City of Grass Valley.

The Nevada County General Plan divides the County into Community Regions and Rural Regions. Within the Rural Regions, growth is limited to those types and densities of development which are consistent with the open, rural lifestyle, pastoral character and natural setting and surrounding land use patterns which exists in these areas. Within the Community Regions, balanced growth is encouraged to provide managed housing, community, located for



convenience, efficiency and affordability. The overall project site is mostly in the Community Region, and the southern portion of the Brunswick Industrial Site is in the Rural Region. All proposed buildings on the Brunswick Industrial Site are located within the Community Region.

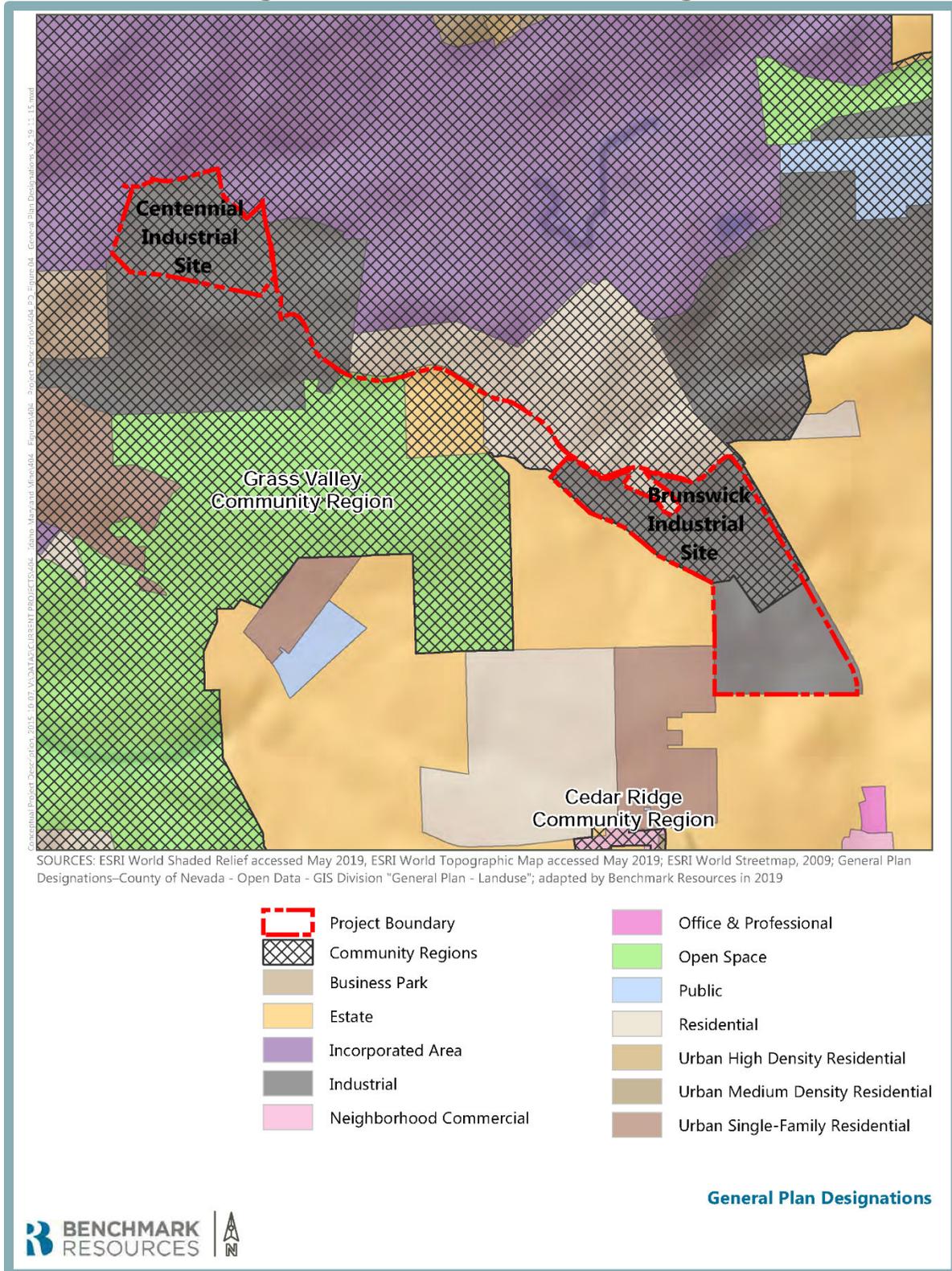
As seen in Table 4.9-2, the Brunswick Industrial Site, Centennial Industrial Site, and the off-site water pipeline areas are located in the Nevada County Industrial (IND) land use category (see Figure 4.9-1). In addition, the Brunswick Industrial Site is zoned as Light Industrial, Site Performance Combining District (M1-SP) and both the Centennial Industrial Site and the off-site water pipeline areas are zoned as Light Industrial (M1) (see Figure 4.9-2).

Table 4.9-2 Project Site Summary				
Project Site	Assessor Parcel Numbers	Acreage	Existing Zoning	Existing General Plan Designations
Brunswick Industrial Site	009-630-037	21.80	M1-SP ¹	IND ²
	009-630-039	15.07	M1-SP	IND
	006-441-003	15.19	M1-SP	IND
	006-441-004	0.85	M1-SP	IND
	006-441-005	50.01	M1-SP	IND
	006-441-034	16.01	M1-SP	IND
	<i>Brunswick Industrial Site Subtotal:</i>	<i>118.93</i>	--	--
Centennial Industrial Site	009-550-032	0.48	M1 ³	IND
	009-550-037	4.47	M1	IND
	009-550-038	40.1	M1	IND
	009-550-039	0.98	M1	IND
	009-550-040	0.13	M1	IND
	009-560-036	10.25	M1	IND
	<i>Centennial Industrial Site Subtotal:</i>	<i>56.41</i>	--	--
Project Sites Total:		175.34	--	--
Potable Water Pipeline Easement	009-560-045	--	M1	IND
	009-560-016	--	M1	IND
	Off-Site Total:	0.30	--	--
<ol style="list-style-type: none"> 1. M1-SP is defined as Light Industrial with Site Performance Combining District, pursuant to the County's Land Use and Development Code. 2. IND is defined as Industrial, pursuant to the County's General Plan. 3. M1 is defined as Light Industrial, pursuant to the County's Land Use and Development Code. 				

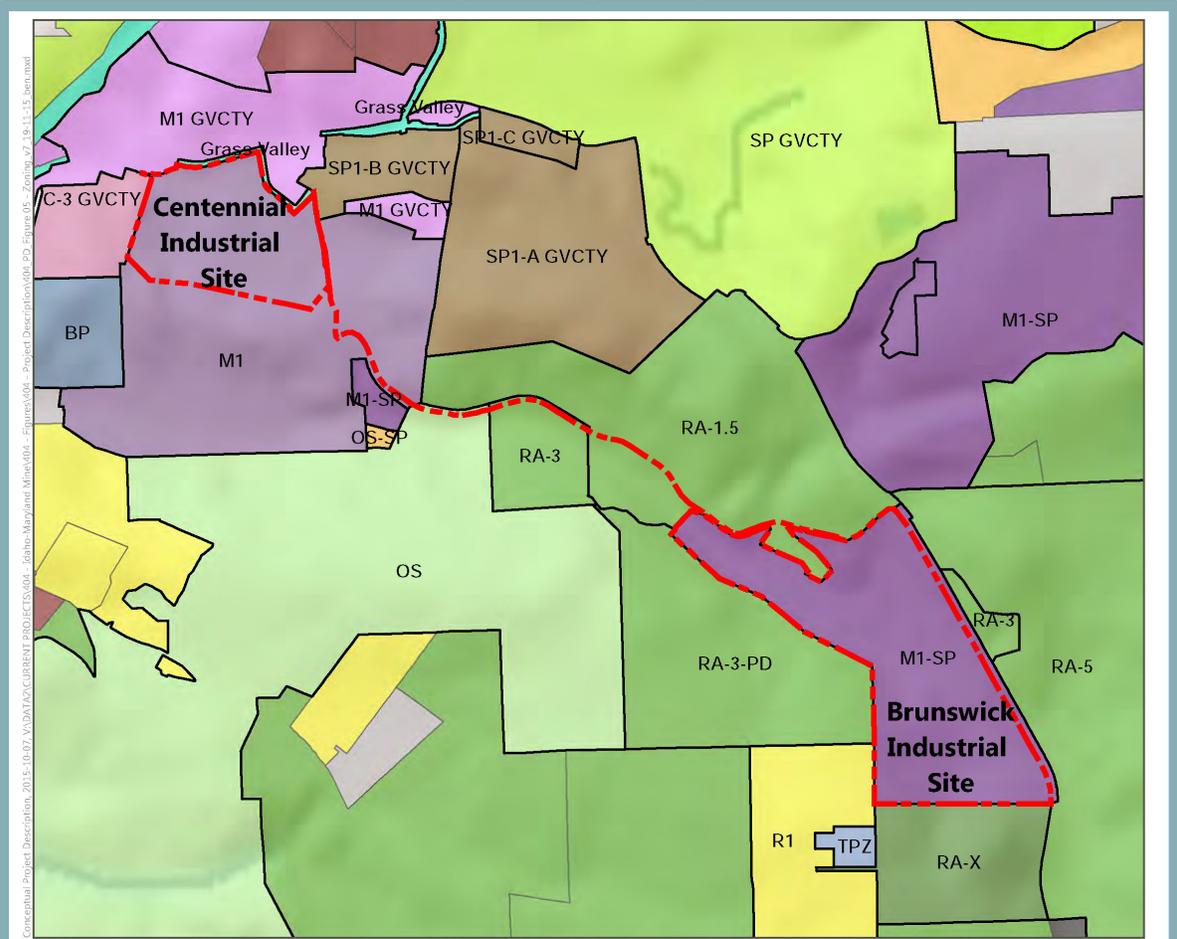
Nevada County Ordinance No. 1853, adopted by the Board of Supervisors on January 18, 1994, created the SP Zoning District for an approximately 80-acre portion of the Brunswick Industrial Site. The remaining approximately 40 acres was subsequently rezoned to the same M1-SP. The Ordinance established design standards and land use regulations for an 80-acre portion of the Brunswick Industrial Site. The purpose of the design standards is to achieve design consistency for the overall development, including minimum standards for buildings, landscaping, off-street parking, signs, lighting, noise, air pollution, hazardous material, and circulation. The land use regulations identify three distinctive subareas for the Brunswick Site, namely, Business Park (5.4 acres); Service Business Light Manufacturing (18.6 acres); and Industrial (18.3 acres).



**Figure 4.9-1
 Existing General Plan Land Use Designations**



**Figure 4.9-2
 Existing Zoning Designations**



Conceptual Project Description, 2015-10-07, V:\DATA\CURRENT PROJECTS\004 - Idaho-Maryland Mine\004 - Figures\004 - Project Description\004_PD_Figure 05 - Zoning 07_19_11-15_benchmark

SOURCES: ESRI World Shaded Relief accessed May 2019, Zoning—County of Nevada - Open Data - GIS Division "Zoning Districts" (10-17-2018); Nevada County Zoning Ordinance (Article 2; Section L-II 2.1 Establishment of Zoning Districts); adapted by Benchmark Resources in 2019

NOTES:

1. "GVCTY" refers to City of Grass Valley Zoning Ordinance descriptions.
2. Zoning descriptions pulled from "ZONEDETAIL" field attributes for areas under Nevada County Zoning Ordinance; descriptions pulled from "ZONETYPE" field attributes for areas under City of Grass Valley Zoning Ordinance.
3. Labels pulled from "ZONECODE" field with some labels combined in legend for simplicity.

 Project Boundary	 OS-SP—Open Space, Site Performance Combining District
 BP—Business Park	 R1—Single-Family Residential
 C-3 GVCTY—Heavy Commercial GVCTY	 RA-(1.5;3;3-PD;5)—Residential Agricultural
 Grass Valley	 RA-X—Residential Agricultural, Subdivision Limitation Combining District
 M1—Light Industrial	 SP GVCTY—Specific Plan GVCTY
 M1 GVCTY—Light Industrial GVCTY	 SP1-(A;B;C) GVCTY—Whispering Pines Specific Plan
 M1-SP—Light Industrial, Site Performance Combining District	 TPZ—Timberland Production Zone
 OS—Open Space	

Zoning



Land Use Designation Definitions

The following sections provide definitions of the land use designation noted above, as summarized from the Nevada County General Plan.

Nevada County General Plan Designation

The Nevada County General Plan defines the IND land use designation as follows:

Industrial (IND)

The IND land use category is intended to provide for areas in which goods are produced, distributed and warehoused, along with supporting business and service uses. Locations within this designation should be able to provide buffering from adjacent land uses to minimize incompatibility, and should have convenient, controlled access to arterial or major collector roads without passing through residential areas.

Zoning Designation Definitions

The following sections provide definitions of the zoning designations noted above, as summarized from the Nevada County Land Use and Development Code (LUDC) (Title 3 of the Nevada County Code). It is noted that subsurface mining activities are an allowed use in all base zoning districts, subject to the approval of a Use Permit as required by Nevada County LUDC, Section L-II 3.21 – Subsurface Mining. In addition, pursuant to Section L-II 3.22, surface access to subsurface mining activities, including vent and escape shafts, are allowed in the AG, FR, M1, M2, P and PD base zoning districts, subject to the approval of a Use Permit.

Nevada County Land Use and Development Code

The Nevada County LUDC defines the M1 and M1-SP zoning designations as follows:

Light Industrial (M1)

The M1 District provides areas for the production, repairing, distribution, and warehousing of goods and equipment, along with supporting businesses and services. Uses should provide for buffering from adjacent land uses to minimize incompatibility and should have convenient, controlled access to arterial or major collector roads without passing through residential areas.

Light Industrial, Site Performance Combining District (M1-SP)

The M1-SP District provides for refinements in the site development standards and/or the permitted uses in the base zone district with which the SP District regulations are combined. Such refinements shall ensure consistency with, and further the intent of, all General Plan policies. The SP District shall restrict the use of land and/or structures and establish all other conditions in accordance with the specific ordinance establishing the zone district for the affected property or land area. The ordinance shall have the ability to establish the permitted and prohibited uses of the land, site development standards, public service and utility requirements, and the size, height and use of structures provided that the land usage provisions of the SP District are not less restrictive than the base zone district.

Population and Housing

Population growth assumptions, average household sizes, and vacancy rates for Nevada County are discussed below.



Historical and Current Population

Since the year 2010, Nevada County has seen an increase in its overall population. Consistent with population trends in the three incorporated areas within the County, the unincorporated area of Nevada County has seen a slight increase in population over the last three years as shown in Table 4.9-3.

Year	Unincorporated Nevada County	Nevada County Total
2010	66,656	98,764
2014	65,671	97,842
2015	65,822	98,217
2016	66,075	98,613
2017	65,375	97,019
2018	66,207	99,155
Average Annual Change		
Number	107	236
Percent	0.2	0.3

Source: Nevada County. 2019-2027 Housing Element Update. Adopted June 24, 2019

As shown in Table 4.9-3, the Nevada County Housing Element estimates that in 2018, Nevada County had a population of 99,155 people and has experienced an annual percent change increase of approximately 0.3 percent over the last five years.²

Average Household Size

The average size of households is a function of the number of residents living in households within a given area divided by the number of occupied housing units within the given area. As shown in Table 4.9-4, average household sizes in California slightly increased between 2010 and 2018, with average household sizes increasing by approximately 0.11 persons/household. Concurrently, the average household size within Nevada County remained the same between 2010 and 2018.

Area	2010	2018
California	2.87	2.98
Unincorporated Nevada County	2.38	2.39
Nevada County Total	2.35	2.35

Source: Nevada County. 2019-2027 Housing Element Update. Adopted June 24, 2019

Vacancy Rate

The residential vacancy rate is a good indicator of the balance between housing supply and demand in a community. When the demand for housing exceeds the available supply, the vacancy rate will be low. In a healthy market, the vacancy rate is between five and eight percent. If the vacant units are distributed across a variety of housing types, sizes, price ranges, and locations throughout the County, there should be an adequate selection for all income levels.

² Nevada County. 2019-2027 Housing Element Update [page 8-18]. Adopted June 24, 2019.



As shown in Table 4.9-5, the overall housing vacancy rate in Nevada County, including incorporated areas is at 22.5 percent, which is an increase of approximately 6.6 percent over 2010 levels. Each jurisdiction in the County has seen a similar increase in the overall number of vacant units within their jurisdiction with the unincorporated area going from 12.3 percent in 2010 to 14.4 percent in 2018.³

Area	Total Housing Units	Single-Family	Multi-Family	Mobile Homes	Occupied	Vacant Units	Vacancy Rate
Grass Valley	6,696	3,214	3,043	436	6,157	539	8.0%
Nevada City	1,545	1,283	250	12	1,422	123	8.0%
Truckee	13,322	11,414	1,466	442	6,531	6,691	51.0%
Unincorporated Nevada County	32,182	29,464	435	2,283	27,537	4,645	14.4%
Nevada County Total	53,745	45,375	5,194	3,176	41,647	12,098	22.5%

Source: Nevada County. 2019-2027 Housing Element Update. Adopted June 24, 2019

4.9.3 REGULATORY CONTEXT

Federal laws or regulations pertaining to land use and planning or population and housing are not applicable for this analysis. However, the existing State and local laws and regulations are listed below, as applicable.

State Regulations

The following are applicable State regulations related to land use and planning and population and housing.

Title 14 California Code of Regulations Section 15131

Title 14, California Code of Regulations (CCR) Section 15131 provides that economic or social information may be included in an EIR, but those economic or social effects shall not be considered significant effects on the environment. In an EIR, the lead agency is responsible for researching economic or social changes resulting from a project, which may eventually lead to physical changes in the environment. Such economic or social changes can be used to determine the significance of physical changes on the environment.

Local Regulations

Relevant goals and policies from the Nevada County General Plan and various other local guidelines and regulations related to land use and population and housing, are discussed below.

Nevada County General Plan

Applicable land use-related policies from the Nevada County General Plan that have been adopted for the purpose of avoiding or mitigating an environmental effect are listed below. The

³ Nevada County. 2019-2027 Housing Element Update [page 8-22]. Adopted June 24, 2019.



remaining chapters of this EIR address additional Nevada County General Plan goals and policies that are resource/topic (e.g., noise, transportation) specific and applicable to the proposed project. Please refer to Chapters 4.1 through 4.13 of this EIR.

Policy 1.1.2 The General Plan divides the County into Community Regions and Rural Regions. All of the land area of the County is placed in one of these regions. Within the Rural Regions, growth is limited to those types and densities of development which are consistent with the open, rural lifestyle, pastoral character and natural setting and surrounding land use patterns which exists in these areas. Within the Community Regions, balanced growth is encouraged to provide managed housing, community, located for convenience, efficiency and affordability.

The General Plan Land Use Maps delineate specific boundaries for Community Regions. All portions of the County not within a Community Region shall be considered to be in a Rural Region.

Policy 1.1.3 Within Nevada County, the Community Regions are established as the areas of the County within which growth should be directed to provide compact, areas of development where such development can be served most efficiently and effectively with necessary urban services and facilities.

The Community Regions are defined by Community boundaries generally based upon the following criteria:

- a. Existing development patterns reflecting higher intensity and density of use and need to provide land area to accommodate a balanced pattern of development in the County;
- b. Existing and potential service areas for major services such as public sewer and water;
- c. Location of major topographic patterns and features;
- d. Major transportation corridors and travel patterns;
- e. Ability to provide and maintain appropriate transitions at Community boundaries.

In addition to the Town of Truckee, Grass Valley and Nevada City, Community Regions are established for Higgins Corner/Lake of the Pines, Lake Wildwood and Penn Valley. Boundaries for the Community Regions are shown on the General Plan Land Use Maps.

In addition, The New Town Reserve, as provided in Policy 1.4.4, shall be considered as a Community Region upon approval of a specific plan designating the community boundary.

Policy 1.2.2 The County will review innovative land use measures that promote the preservation of open space and environmentally-sensitive



areas. Such concepts as transferable development credits, clustering incentives, and site analysis requirements will be considered.

Policy 1.2.4 The General Plan provides for future development in accordance with the following criteria for the various land use designations: ...

- n. Industrial (IND) is intended to provide for areas in which goods are produced, distributed and warehoused, along with supporting business and service uses. Locations within this designation should be able to provide buffering from adjacent land uses to minimize incompatibility, and should have convenient, controlled access to arterial or major collector roads without passing through residential areas...

Policy 1.5.1 Establish a land use pattern which provides for open space, environmentally sensitive land, resource management areas and appropriate transitions.

Policy 1.5.3 The adopted Comprehensive Site Development Standards, contained in the Land Use and Development Code (Chapter II, Article 4), were established and are implemented as directed by Action Policy 1.17 of the 1995 General Plan. These standards are used during the “project site review process” to provide a consistent approach for addressing the presence of sensitive environmental features and/or natural constraints, clustering and provisions of open space as a part of development, the potential for land use conflicts between uses, and the potential for public health hazards. Applicable to all development projects in the County, the Comprehensive Site Development Standards have been designed to be protective of the County’s unique character, providing guidance for:

- a. Protection of environmentally sensitive resources;
- b. Provision of open space as part of site development;
- c. Prevention and reduction of fire hazards;
- d. Maintenance and enhancement of vegetation and landscaping;
- e. Prevention and reduction of flood hazards;
- f. Transitions between uses and multiple-use site development;
- g. Community design;
- h. Buffering and screening to mitigate adverse effects;
- i. Incentives to provide for access to public resources and
- j. open space; and
- k. Protection of important agricultural, mineral, and timber resources.

These standards shall identify the basic requirements for site development in the County, including, at a minimum, standards to



mitigate the impact of development on the following environmentally sensitive resources:

- Wetlands (as delineated in the U.S. Fish and Wildlife Service National Wetlands inventory);
- Major deer migration corridors, critical range, and critical fawning areas (as defined by the State Department of Fish and Wildlife's Migratory Deer Range Maps);
- Landmark oaks, (defined as any oak 36" or greater at dbh);
- Landmark oak groves, (defined as areas with 33+% canopy closure based on the State Department of Forestry and Fire Protection's Hardwood Rangeland Maps);
- Rare and endangered species, (as found in the California Natural Diversity Database and the California Native Plant Society Inventory of Rare and Endangered Vascular Plants of California);
- Riparian corridors within 100 feet of intermittent or perennial water courses (as shown the U.S. Geological Survey Quadrangle Topographic Maps);
- Significant cultural resources (as may be defined based upon recommendations by the Native American Heritage Commission or recognized Native American Group, Nevada County Landmarks Commission, or the Nevada County Historical Society);
- Floodplains precluding development and land disturbance within floodways and restricting development within the floodway fringe, through the establishment of floodplain setbacks and associated development regulations (as defined by the Federal Emergency Management Agency's Flood Insurance Rate Maps);
- Important agricultural lands, (as defined by the State Department of Conservation's Important Farmlands Map);
- Significant mineral areas, (as defined by the State Division of Mines and Geology 's Nevada County Mineral Classification Report Maps referred to as Mineral Resource Zones -2);
- Earthquake faults, (as defined by the State Division of Mines and Geology's Fault Map of California the United States Bureau of Reclamation's Seismotectonic Study of the Truckee/Lake Tahoe Area);
- Avalanche hazards (as defined by the Norman Wilson Avalanche Hazard Study);
- Steep slopes (30+%);
- Areas with high erosion potential (as determined by the United States Department of Agriculture's Soil Surveys of Nevada County and the Tahoe National Forest);
- Areas subject to fire hazards, (as defined by the State Department of Forestry and Fire Protection's Fire Hazard Severity Map); and



- Visually important ridgelines and viewsheds, (as defined by standards developed by Policy 18.3 of the General Plan).

Policy 1.5.4 Where such resources are present, the standards shall require that professional field inventory and review shall be undertaken to delineate the extent of the resource and determine the impact of the proposed development. The following siting and design measures shall be implemented as appropriate to meet the performance criteria:

- Identification of building envelopes;
- Conservation easements/deed restrictions;
- Use of common vs. individual driveways;
- Specification of location and type of fencing;
- Identification of setbacks and/or buffers;
- Development restrictions;
- Use of Transfer of Development Rights; and
- Offsite mitigation/mitigation banking.

The County shall approve a project for a discretionary permit only if it can be demonstrated that the project, as designed and sited, meets the intent of the Comprehensive Site Development Standards.

Policy 1.10.1 Implement the adopted Airport Land Use Compatibility Plans for the Nevada County and Truckee Tahoe Airports to maintain compatible land use development patterns within the identified airport influence zones.

Policy 1.10.2 Refer all land use actions which always require Airport Land Use Commission (ALUC) review and other major land use actions affecting property within an airport influence area, to the appropriate ALUC, as listed in accordance with the policies set forth in the applicable Airport Land Use Compatibility Plan, as those standards are in effect and may be hereafter amended.

Policy 6.9 Development standards for project design, grading, construction and use, established through the Comprehensive Site Development Standards, shall be used in project review of all discretionary project permits to determine open space requirements for each project.

These standards shall provide for consideration of non- disturbance of, and open space setbacks from identified sensitive environmental, biological, or cultural resources, e.g. 100-year floodplains, wetlands, slopes in excess of 30% (excepting access across slopes up to 30%), lakes, ponds, significant historic or archaeological sites/resources, critical wildlife areas, minimization of land disturbance, consistency with the landforms and aesthetic



context of the site, temporary and permanent erosion and sedimentation controls, and vegetation retention, replacement and enhancement.

Policy 11.2 Encourage the protection of resources which produce water for domestic and agricultural consumption.

Policy 11.6 The County shall continue to enforce its regulations concerning the installation and operation of private sanitary waste disposal systems in order to protect the quality of surface and ground water. The location of septic tanks and leach fields and their appropriate setbacks from water courses shall be in accordance with the guidelines of the Lahontan Regional Water Quality Control Board (eastern County) and the Central Valley Regional Water Quality Control Board (western County).

Policy 11.9B Require new utilities, critical facilities and non-essential public structures to be located outside the 100-year flood plain unless such facilities are necessary to serve existing uses, there is no other feasible location, and construction of these structures will not increase hazards to life or property within or adjacent to the floodplains.

Policy 17.9 Encourage the mining of previously mined land, if such land still contains economically mineable minerals, so the land can be reclaimed for alternative uses.

Policy 17.12 In approving mining projects which according to expert opinion may threaten the existing quality or quantity of surface or subsurface water which supply adjacent homes and businesses, the County shall require the operator to guarantee a comparable supply of water to such homes or businesses through accessible forms of security or alternate sources of water.

Where water quantity and quality problems occur, an immediate water supply shall be provided by the operator until the source of the problem is determined. The burden of proof shall be on the operator to show that the mining operation did not create the water problem. If it is determined that the operator is at fault, impacted owners shall be compensated by the operator.

Policy 17.14 Already existing development - commercial, residential, and community - as well as undeveloped private lands, shall be protected from adverse environmental effects caused by mining through enforced use permit conditions and mitigations measures, or denial of the projects. The County shall be the enforcement agency.

Policy 17.17 The County shall use the "ME" Mineral Extraction Combining District as a means to provide for the public awareness of the



potential for surface mining to occur where it has been established that important minerals are present. The "ME" District shall be used only on those lands which are within any of the compatible General Plan designations and which are not residentially zoned.

Policy 17.25 Surface access to subsurface mining is conditionally permitted only in compatible General Plan designations as defined herein. However, vent and escape shafts are conditionally permitted in incompatible General Plan designations where surface disturbance is minimal.

Policy 18.1 The County shall prepare Community Design Guidelines applicable to the various General Plan Designations and zoning classifications, and adopt such guidelines as part of Comprehensive Site Development Standards, to be used in the project site review of all discretionary and ministerial project permits. The guidelines may include, but not be limited to the following:

- a. Community identity
- b. Preservation of natural landforms
- c. Protection and management of viewsheds
- d. Protection and management of river corridors and other significant streams

These Guidelines shall be the base design standards applicable to all projects. Area-specific Design Guidelines, where adopted by the County pursuant to Policy 18.2, shall be applicable in addition to the base guidelines within the specified area.

Policy 18.3 The County shall establish standards for the protection of large-scale views and viewsheds and shall incorporate such standards in the Comprehensive Site Development Standards. The standards shall provide an inventory of sensitive views and viewsheds within Nevada County, and specify protective measures and impact controls applicable through the project site review process.

Policy AH-10.4.1 Maintain land use and development patterns in the vicinity of airports that reflect and are consistent with policies for the different airport land use compatibility zones within the defined Airport Influence Areas as set forth by the Nevada County and Truckee Tahoe Airport Land Use Compatibility Plans (ALUCPs).

Nevada County Land Use and Development Code

The following sections of the Nevada County LUDC are applicable to the proposed subsurface and surface mining operations.



Subsurface Mining (Section L-II 3.21)

Subsurface mining is allowed in all base districts subject to approval of a Use Permit. Surface access to subsurface mining, including vent and escape shafts, is allowed in the AG, FR, M1, M2, P, and PD base districts subject to approval of a Use Permit. Small vent and escape shafts disturbing not more than 100 cubic yards of overburden are allowed in all other base districts subject to approval of a Use Permit.

Surface Mining Definition (Section L-II 3.22 [B.19])

Surface Mining - All, or any part of, the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open-pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine. Surface mining operations include, but are not limited to, combination, concentration, processing, in-place distillation or retorting or leaching, the production and disposal of mining waste, borrow pitting, streambed skimming, and segregation and stockpiling of mined materials (and recovery of same). Said process shall not include the processing and use of on-site aggregate for on-site construction (see Section L-II 3.13).

Surface Mining (Section L-II 3.22 [D.3])

Surface mining is allowed in the AG, FR, M1, M2, P, PD, and TPZ Districts and where the property is zoned ME, subject to approval of a Use Permit and Reclamation Plan. Within the TPZ Districts, surface boulder collection only is allowed, and is limited to exposed rocks within areas of historic, previously mined lands where no significant impacts to sensitive resources occur, and no additional roads are constructed, subject to a Use Permit and Reclamation Plan.

Mineral Extraction Combining District (ME)

The purpose of the ME Combining District is to allow for surface mining and to provide for public awareness of the potential for surface mining to occur where adequate information indicates that significant mineral deposits are likely present. The ME Combining District is intended to inform the public of the existence of minerals and the potential for mineral extraction and shall be used only on those lands that are within any of the compatible Nevada County General Plan designations and which are not in a residential zone.

4.9.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to land use and planning and population and housing. A discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, a significant impact would occur if the proposed project would result in any of the following:

- Physically divide an established community;
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect;
- Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure); or



- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

Method of Analysis

The following section describes the method of analysis used to evaluate potential impacts of the proposed project related to land use and planning and population and housing.

Land Use and Planning

This chapter analyzes the compatibility of the proposed project with surrounding land uses and compliance of the proposed project with adopted plans and policies. Environmental impacts resulting from the proposed project are discussed in the respective technical environmental chapters. This discussion complies with Section 15125(d) of the CEQA Guidelines, which requires that EIRs discuss inconsistencies with adopted local plans as part of the environmental setting. The ultimate determination of consistency rests with the Nevada County Board of Supervisors.

Consistency with the Applicable Land Use Regulations

The proposed project is examined for consistency with the Nevada County General Plan based on the relevant policies adopted for the purpose of avoiding or mitigating an environmental effect contained within the document. The project's consistency with the LUDC is also discussed.

Population and Housing

The level of significance of the impacts related to population and housing is determined by evaluating whether the proposed project, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure), would induce substantial unplanned population growth in the project area.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on implementation of the proposed project in comparison to existing conditions and the standards of significance presented above.

4.9-1 Physically divide an established community. Based on the analysis below, the impact is *less than significant*.

The proposed project would reinstate underground mining and gold mineralization processing for the Idaho-Maryland Mine over an 80-year permit period, and would operate on land designated for industrial use and currently used to store industrial materials on both the Brunswick and Centennial Industrial Sites. The project would not affect access to the nearby roadways and would not change access to a nearby community from these roadways. In addition, following completion of mining and processing activities, the project sites would be reclaimed to undeveloped land suitable for future industrial uses. The proposed project would not cut off any existing or proposed transportation route that provides connectivity in the area. The proposed potable water pipeline along East Bennett Road would be underground and would not affect circulation or divide an established community. Therefore, the proposed project would not physically divide an established community. Thus, a ***less-than-significant*** impact would occur.



Mitigation Measure(s)

None required.

4.9-2 Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Based on the analysis below, the impact is *less than significant*.

The General Plan Guidelines published by the State Office of Planning and Research (OPR) defines consistency as follows, “An action, program, or project is consistent with the general plan if, considering all its aspects, it will further the objectives and policies of the general plan and not obstruct their attainment.” Therefore, the standard for analysis used in this EIR is in general agreement with the policy language and furtherance of the policy intent (as determined by a review of the policy context). The determination that the project is consistent or inconsistent with the Nevada County General Plan policies or other County plans and policies is ultimately the decision of the Nevada County Board of Supervisors. Furthermore, although CEQA analysis may identify some areas of general inconsistency with County policies, the County has the ability to impose additional requirements or conditions of approval on a project, at the time of its approval, to bring a project into more complete conformance with existing policies. A discussion of the project’s general agreement with policy language and furtherance of policy intent is discussed in further detail below. The LUDC carries out the policies of the Nevada County General Plan by classifying and regulating the uses of land and structures within the unincorporated County, consistent with the General Plan.

The proposed project includes subsurface mining activities which are an allowed use in all base zoning districts, subject to the approval of a Use Permit as required by Nevada County LUDC, Section L-II 3.21 – Subsurface Mining. In addition, pursuant to Section L-II 3.21, surface access to subsurface mining activities, including vent and escape shafts, are allowed in the AG, FR, M1, M2, P and PD base zoning districts, subject to the approval of a Use Permit. Thus, as proposed, both the subsurface mining activities and the surface access to subsurface mining activities uses are allowed within the M1 Zoning District, subject to the approval of a Use Permit, and would therefore be consistent with the M1 Zoning District allowed uses pursuant to Nevada County LUDC. LUDC Section L-II 3.22 (B.19) includes processing as a surface mining operation and LUDC Section L-II 3.22 (D.3) allows surface mining, which includes processing plant operations, in the M1 zone district, and where the property is zoned ME, subject to the approval of a Use Permit and Reclamation Plan. The proposed project includes a subsurface estate of approximately 2,585 subsurface acres, to which the applicant retains the mineral rights and which is comprised of many different types of base zoning districts. However, as previously demonstrated, subsurface mining activities are allowed in all base zoning districts, subject to the approval of a Use Permit, as allowed by Nevada County LUDC, Section L-II 3.21 – Subsurface Mining.

The proposed project includes the requested rezone of the parcels located at the Brunswick Industrial Site from M1-SP to Light Industrial with Mineral Extraction



Combining District (M1-ME) (Figure 4.9-3). Pursuant to Section L-II 2.7.3, the primary purpose of the ME Combining District is to allow for surface mining and to provide for public awareness of the potential of the existence of minerals and the potential for surface mining to occur where adequate information indicates that significant mineral deposits are likely present. While the primary mining activities would be subsurface, which is a conditionally allowed use in the M1 Zoning District, the proposed activities at the Brunswick site include activities defined as surface mining and require a ME zoning under LUDC Section L-II 3.22. In addition, the rezoning of the Brunswick Industrial Site to remove the Site Performance Combining District is also necessary because it was added as part of Ordinance No. 1853 in 1994 when the project site was owned by Sierra Pacific Industries and proposed as the Nevada County Business and Industrial Center. Given that the Nevada County Business and Industrial Center is no longer proposed, it would be appropriate to rezone the subject site to remove the SP Combining District.

In establishing the ME Combining District, one or more of the following standards must be met:

1. Said lands have been designated as MRZ-2 based on State of California Classification Reports.
2. It has been clearly demonstrated that significant mineral deposits are likely present on said lands based on data similar in nature to the State Classification Reports.

As shown in Figure 4.6-3 in the Geology, Soils, and Mineral Resources chapter of this EIR, the project sites are located on land designated MRZ-2b, and historic gold mining of the project site and recent exploratory drilling clearly demonstrates that significant mineral deposits are accessed from the Brunswick Industrial Site. Therefore, both standards are met. With the rezone, the proposed use would be consistent with the permitted uses for the zoning designation and allowed with a conditional use permit.

In addition, to ensure consistency with all other applicable plans and policies, the project includes several other entitlements, including the request for a Use Permit for the following uses over the 80-year permit life:

- Operation of pumps and a water treatment facility to dewater the underground mine workings;
- Construction of a water pipeline to transport treated water to an outfall located in South Fork of Wolf Creek;
- Construction of the necessary aboveground facilities at the Brunswick Industrial Site (to include but not limited to, headframes and hoists, surface structures, a mineral processing plant) to support underground mining and mineral processing;
- Underground mining, including drilling, blasting, and gold mineralization removal;
- Gold mineralization and rock processing at the Brunswick Industrial Site including off-site transport of gold concentrate;



- Transport of engineered fill from the Brunswick Industrial Site and placement at the Centennial Industrial Site;
- Transport of engineered fill from the Brunswick Industrial Site to off-site construction projects;
- Placement of engineered fill at the Brunswick Industrial Site; and
- Construction of a potable water pipeline to supply residences along a portion of East Bennett Road.

The project also includes the approval of a Reclamation Plan and financial assurance mechanism to reclaim project-related surface disturbance to a condition suitable for industrial uses as allowed by Nevada County LUDC, Section L-II 3.22A.3.

To be able to execute the activities allowed on-site with the zone change, certain structures must be taller than 45 feet. Thus, a variance to the building height limits is requested to allow for the construction of structures up to a height of 165 feet, where 45 feet is currently required in the M1 Zoning District. Specifically, the Variance would apply to the proposed 64-foot-tall process plant, the proposed 165-foot-tall headframe for the Brunswick shaft, the proposed 80-foot-tall headframe for the proposed service shaft, and the proposed 50-foot-tall hoist buildings associated with the two mine shafts. The increased building heights would be designed, constructed, and operated in compliance with the Occupational Safety and Health Administration (OSHA) requirements, zoning standards, the County building code, the health and safety code, Nevada County Consolidated Fire District rules, and other applicable County and state regulations. In addition, the project building heights would comply with the Nevada County Airport Land Use Compatibility Plan (NCALUCP). The Brunswick Industrial Site is partially within Zones C, D, D-Urban Overlay, and E of the NCALUCP. For Zone D, airspace review is required for objects greater than 3,207 feet above mean sea level (msl).

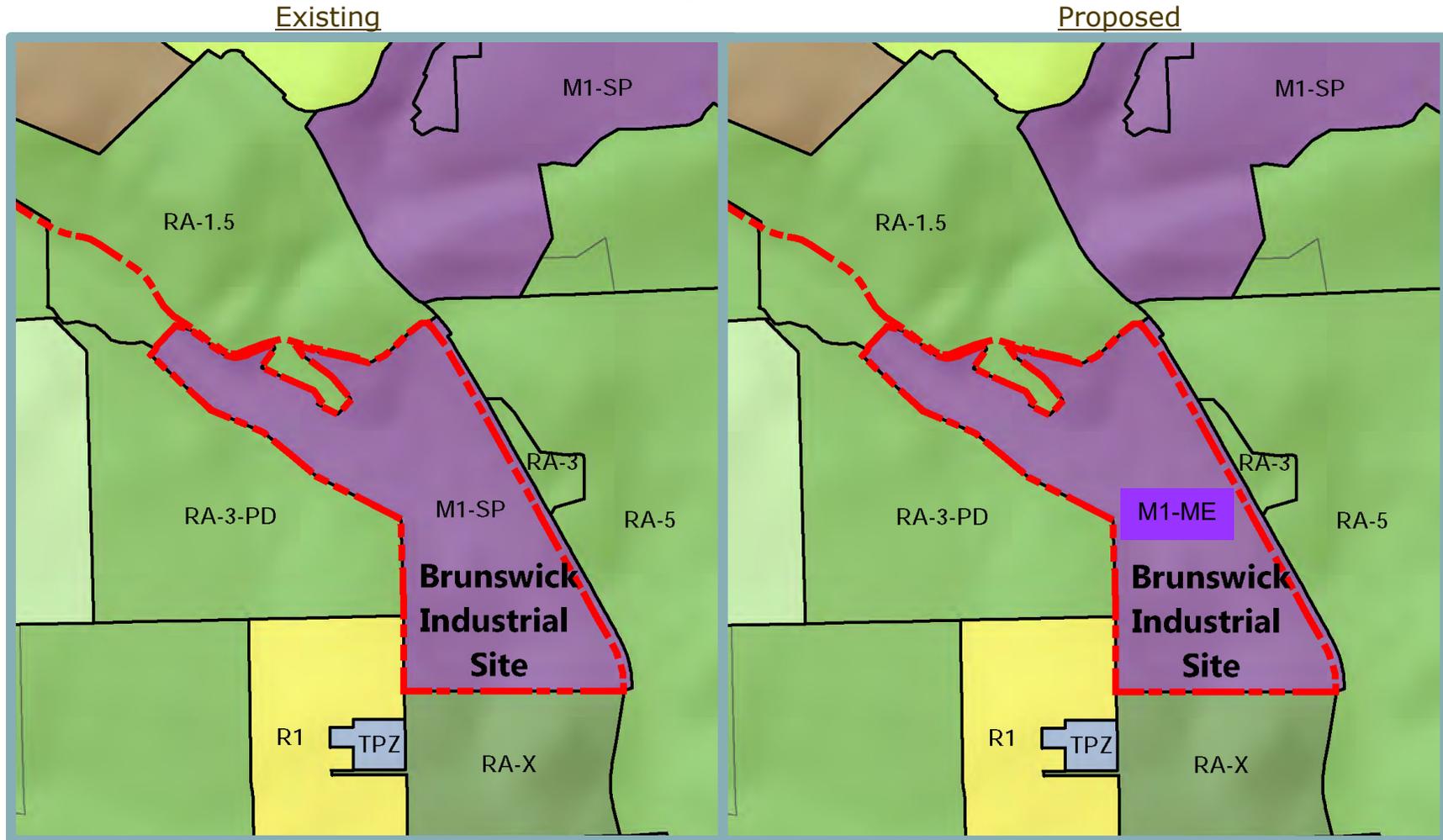
The top of the tallest proposed feature at the Brunswick Industrial Site (the 165-foot-tall headframe building) would be at 2,912 feet msl, and is therefore not subject to air space review under the NCALUCP and would not create the potential to conflict with airport operations.

The project is not a noise-sensitive use, would not pose a hazard to flight, and would not exceed the density requirements; therefore, the project would comply with the requirements of the NCALUCP for Zones C, D, D-Urban Overlay, and E. According to the Nevada County Airport Land Use Commission (NCALUC), the proposed project does not contain characteristics likely to result in inconsistencies with the compatibility criteria set forth in the Nevada County Airport Land Use Compatibility Plan and the NCALUC gives approval of the project.⁴

⁴ Daniel Landon, Executive Director, Nevada County Transportation Commission. Email correspondence to Matt Kelley, Senior Planner, Nevada County, January 27, 2020.



Figure 4.9-3
Existing and Proposed Zoning Designations of the Brunswick Industrial Site



General Plan Policy 18.1 states that the County shall prepare Community Design Guidelines applicable to the various General Plan Designations and zoning classifications. The Western Nevada County Design Guidelines were adopted by the Board of Supervisors on March 19, 2002. The Guidelines provide direction regarding building heights, such as “Design building heights to relate to adjacent open spaces to allow maximum sun and ventilation, and to minimize obstruction of views,” and “Use a height and scale for new development that is compatible with that of surrounding development.” Development surrounding the Brunswick Industrial Site, where the mine-related structures would be located, is relatively limited. While the 12836 Greenhorn Road project, north of the Brunswick Industrial Site, is under construction, and would result in the construction of five light-industrial buildings ranging in size from 2,452 square feet to 4,118 square feet, the limited surrounding development primarily consists of rural residential dwellings. Given the former and existing mine-related structures on the Brunswick Industrial Site, such as the current day 85-foot-tall concrete silo, the setting is already one where the height and scale of features on the Brunswick Industrial Site are not compatible with the surrounding rural dwellings. Nevertheless, the proposed project would double the height of the silo to create the headframe structure, and introduce additional structures exceeding the height limit of the M1 Zoning District (64-foot-tall process plant, 80-foot-tall headframe for the proposed service shaft, and 50-foot-tall hoist buildings), and thus require a Variance. Thus, from an aesthetics perspective, the proposed project could be considered incompatible with surrounding development, and as discussed in more detail in Chapter 4.1, Aesthetics, of this EIR, the proposed project would be considered to have a significant and unavoidable impact, after mitigation, related to substantially degrading the visual character or quality of the site and its surroundings.

A boundary line adjustment at the Brunswick Industrial Site is also requested as part of the Project to transfer approximately 46.27 acres for three separate parcels (APN: 009-630-039, 006-441-034, 006-441-003) to reconfigure the parcels in a manner that would allow for the proposed building configuration, while avoiding buildings crossing property lines within the Brunswick Industrial Site.

The project also includes a request to amend the Final Map for the formerly proposed Bet Acres Subdivision recorded in February 1987, in Book 7 of Subdivision Maps at Page 75, to remove the “200’ Building Setback From Fault”, as shown on Sheet 4 of Final Map #85. Sheet 4 of the Final Map includes a portion of the Brunswick Industrial Site. The Final Map shows the location of where Anderson Geotechnical Consultants had believed a fault to be, based on their previous site investigations, and depicted it as a straight dashed line with two parallel lines located 200 feet either side, presumably showing Anderson’s suggested setback distances for building construction. Substantial evidence is provided in the Geology, Soils, and Mineral Resources of this EIR (Chapter 4.6, see Impact 4.6-1), indicating that the area is not seismically active, and thus, building setbacks are not required. Sec. L-IV 2.18 of the County Subdivision Ordinance allows for corrections and amendments to an approved tentative map, recorded final map or a parcel map, if the amendments have a cumulatively minor effect on the subdivision and its impacts. The proposed changes to the map or to conditions of approval must be considered at a public hearing by the original approval body.



The County LUDC requires preparation and implementation of management plans when certain on-site conditions exist and/or the project would disturb certain habitat types and land uses, in order to avoid or mitigate environmental effects. A management plan is required by the County to minimize the impacts of development on environmentally sensitive environmental resources and/or constraints. The County LUDC establishes site development standards for sensitive resources, providing successive methods to protect the resource. Therefore, management plans for this project have been prepared for the following environmentally sensitive resource areas:

- Allow for development within the required 100-foot setback from the Riparian Area of a Perennial Watercourse, pursuant to the Nevada County LUDC, Section L-II 4.3.17, at the Brunswick and Centennial Industrial Sites;
- Minimize the direct impact to special-status plant species, pursuant to the Nevada County LUDC, Section L-II 4.3.12, at the Centennial Industrial Site;
- Allow development within locations of areas of steep slopes that are in excess of 30 percent and high erosion potential at both the Brunswick and Centennial Industrial Sites, pursuant to the Nevada County LUDC, Section L-II 4.3.13; and
- Allows limited grading within the County's 100-foot buffer from the Wolf Creek 100-year floodplain boundary, subject to mitigations and conditions that must be complied with to ensure that the operations at the Centennial Industrial Site would not result in adverse effects to the 100-year floodplain associated with Wolf Creek.

Please refer to the respective technical chapters of this EIR for detailed discussions regarding how these management plans avoid or mitigate the project's environmental effects.

Another General Plan Policy adopted for the purpose of avoiding/mitigating environmental effects is Policy 17.12 concerning water quality and quantity. According to Policy 17.12, when approving mining projects which according to expert opinion may threaten the existing quality or quantity of surface or subsurface water which supply adjacent homes and businesses, the County shall require the operator to guarantee a comparable supply of water to such homes or businesses through accessible forms of security or alternate sources of water.

Potential impacts to water quality are discussed in Chapter 4.8 at Impact 4.8-1 and potential effects on groundwater wells and water quantity are discussed in Chapter 4.8 at Impact 4.8-2. The analysis of potential effects on groundwater wells (Impact 4.8-2) identifies potential adverse effects to seven domestic water supply wells in the East Bennett area during the life of the mining operation. To address this potential effect, the project proposes the extension of the NID potable water system to connect up to 30 properties to the NID water supply system, funded by the proponent, to guarantee a supply of water in this area. Residences on the streets of Cordell Court, Miskin Court, Amethyst Court, Emerald Court, Diamond Court, and Old Mine Road and several private driveways would be offered the opportunity to connect to a new potable water line provided by the project. Residential connection to a new potable water line that would be installed by the project would be voluntary and at the property owner's discretion. The pipeline would be installed within the right-of-way in the above-stated streets and stubbed at the property owner's property boundary. If the property owner



decides to connect to the potable water line, the applicant would fund the permitting, construction, and ongoing service costs. This project component is defined in a Well Mitigation Plan that would be implemented by the applicant pursuant to Mitigation Measure 4.8-2(c) of this EIR.

General Plan Policy 17.14 states that existing development - commercial, residential, and community - as well as undeveloped private lands, shall be protected from adverse environmental effects caused by mining through enforced use permit conditions and mitigations measures, or denial of the projects. The project requires County approval of a conditional use permit for the proposed mining operations, and this EIR includes mitigation measures to protect the surrounding community from the project's potential physical environmental impacts.

General Plan Policy 1.2.4 provides criteria for the various land use designations, including Industrial, with direction to provide buffering from adjacent land uses to minimize incompatibility. Visual compatibility was discussed previously, but compatibility concerns also typically include noise and lighting. These issues are addressed in Chapters 4.1 and 4.10 of this EIR, respectively. The EIR concludes that the proposed project has been designed to ensure operational noise and lighting would result in less-than-significant impacts to nearby receptors. However, short-term noise increases due to initial construction of the potable water pipeline in East Bennett Road would result in a significant and unavoidable impact, after mitigation, thus, creating a short-term incompatibility. With respect to lighting, all exterior lighting within the Brunswick Industrial Site would comply with Section L-II 4.2.8, Lighting, of the Nevada County LUDC, and Section E, Lighting, of the Western Nevada County Design Guidelines. As shown in the photometric exhibits included in Chapter 4.1 (see Figures 4.1-2 through 4.1-5), the proposed outdoor light fixture designs would prevent light spillover onto any of the nearest sensitive receptors.

Conclusion

A CEQA analysis of land use plan consistency does not require that a project strictly conform with all General Plan policies.⁵ Instead, a project is to be evaluated for potential conflicts with General Plan policies that serve to avoid or mitigate an environmental effect. As demonstrated throughout this EIR and with implementation of mitigation measures identified in this EIR, the proposed project would avoid or otherwise mitigate the majority of its potentially significant environmental impacts, while furthering County policies regarding mineral resources, such as General Plan Policy 17.9, which encourages the mining of previously mined land, if such land still contains economically mineable minerals, so the land can be reclaimed for alternative uses. Overall, the proposed project would not cause a significant environmental impact due to conflicts with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect; therefore, this impact is **less-than-significant**.

Mitigation Measure(s)

None required.

⁵ Stephen L. Kostka and Michael H. Zischke, *Practice Under the California Environmental Quality Act, Second Edition (Continuing Education of the Bar: California)*, March 2020, Section 12.33.



4.9-3 Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure). Based on the analysis below, the impact is *less than significant*.

Growth can be induced in a number of ways, including through the elimination of obstacles to growth or through the stimulation of economic activity within the region. Examples of projects likely to have growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or office complexes in areas that are currently only sparsely developed or are undeveloped. The following sections describe potential effects related to direct and indirect population growth associated with implementation of the proposed project.

Direct Population Growth

The proposed project includes underground mining operations and above-ground operations and does not include proposed residential development. In addition, the proposed off-site potable water line would serve existing residences only. Therefore, the proposed project would not result in direct population growth in the area.

Indirect Population Growth

The proposed project would reinitiate underground mining and gold mineralization processing for the Idaho-Maryland Mine over an 80-year permit period. The total workforce when the Idaho-Maryland Mine Project reaches commercial production is estimated at 312 persons. Therefore, the number of jobs required during operation of the proposed project could draw more people to the area and result in indirect population growth as a result. Table 4.9-6 shows the breakdown of the operations workforce by working schedule and area. The majority of workers (268 employees) would work 12 hour shifts with seven days of work followed by seven days of rest. The remaining workforce (44 employees) would work regular eight hour shifts with five days of work followed by the weekend of rest.

As discussed previously and shown above in Table 4.9-5, as of 2018, Nevada County has 53,745 total housing units with a 22.5 percent vacancy rate (12,098 vacant housing units). The unincorporated area of Nevada County has a total of 32,182 housing units with 4,645 vacant housing units (14.4 percent vacancy rate). Therefore, it is reasonably anticipated that the addition of 312 persons as a result of increased employment generated by the proposed project could be accommodated by existing housing stock in Nevada County.



Workforce	Shift	Total Employees	Employees Per Shift
Management and Technical Staff	8 hours a day, 5 days a week - dayshift	36	36
Assaying and Construction	8 hours a day, 5 days a week - dayshift	4	4
Underground Mine	12 hours a day, 7 days on, 7 days off	202	50
Mineral Processing	12 hours a day, 7 days on, 7 days off	64	16
Truck Transport of Engineered Fill	12 hours a day, 7 days on, 7 days off	2	1
Placement and Compaction of Engineered Fill	8 hours a day, 5 days per week - dayshift	4	4
Total Workforce		312	111

Source: Rise Grass Valley, Inc. Idaho-Maryland Mine Project Employment Details. November 2020

Additionally, substantial economic incentives exist to maximize employee recruitment from the local Nevada County area. Rise Grass Valley estimates that approximately two-thirds of the workforce can be recruited locally. Rise has established local recruitment targets to be achieved through the implementation of a training program. A total of 162 positions have been designated for trainees with no previous experience. Rise estimates that approximately 51 additional workers, with previous experience and training in mining, engineering, electrical or other trades, are available for local area recruitment. Therefore, at least 213 workers (approximately 68 percent of the mine's workforce) are estimated to be sourced from the immediate Nevada County area. It is anticipated that approximately 99 workers (32 percent of workforce) would be recruited from outside the local area; these positions require extensive experience in underground mining which are less likely to be possessed by persons currently residing in the immediate local area.

Considering that the average metal miner in the U.S. is 41.5 years of age, it is reasonable to assume that many employees would have families.⁶ Conservatively assuming that each of the 99 workers recruited from outside the local area would have a family, the total new population introduced to the local Nevada County area from these 99 workers would be approximately 240 people.⁷ The addition of 240 persons as a result of the proposed project would not impact the existing housing stock for Nevada County, given the existing vacancy rates.

As discussed in Chapter 3, Project Description, of this EIR, the proposed project includes a Reclamation Plan, which upon completion of aboveground gold processing and off-site sale of engineered fill, the Brunswick Industrial Site would be reclaimed to open space and industrial uses. A majority of the aboveground facilities and structures

⁶ National Institute for Occupational Safety and Health. *National Survey of the Mining Population, Part I: Employees.* Information Circular 9527, 2012, pg. 75; available at: <https://www.cdc.gov/niosh/mining/UserFiles/works/pdfs/2012-152.pdf>; accessed January 26, 2021.

⁷ Assuming 2.42 persons per household, consistent with the Nevada County 2019-2027 Housing Element, pg. 8-23.



including access roads, parking areas, and driveways, would remain to support future post-mining industrial uses on the site; however, any future industrial use would require separate environmental review and discretionary approvals by Nevada County.

Conclusion

As discussed above, the proposed project would provide employment opportunities that would result in indirect population growth. However, population growth resulting from the proposed project would not exceed the current housing stock in the area. Therefore, the proposed project would not induce substantial unplanned population growth, and this impact would be **less-than-significant**. Potential impacts related to growth inducement are discussed further within Chapter 5, Statutorily Required Sections, of this EIR.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

Detail regarding the cumulative setting is included in Chapter 5, Statutorily Required Sections, of this EIR.

4.9-4 Cause a significant cumulative environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Based on the analysis below, the cumulative impact is less than significant.

As discussed in Impact 4.9-2, the proposed project would be generally consistent with relevant policies in the Nevada County General Plan. As discussed in Section 5.3 of this Draft EIR, Cumulative Impacts, the cumulative projects considered in this EIR are generally considered to be consistent with the General Plans of their respective land use agency (i.e., Nevada County and City of Grass Valley). Therefore, similar to the proposed project, the projects would not be expected to conflict with any land use plan, policy, or regulation adopted by the respective land use agency.

In addition, land use plans or policies and zoning generally do not combine to result in cumulative impacts. The determination of significance for impacts related to such issues is whether the project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Such a conflict is site-specific, and, thus, is typically addressed on a project-by-project basis.

Based on the above, the proposed project would not cause a significant cumulative environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and the cumulative impact would be **less than significant**.



Mitigation Measure(s)

None required.

4.9-5 Cumulative unplanned population growth. Based on the analysis below, the cumulative impact is *less than significant*.

The proposed project would reinstate underground mining and gold mineralization processing for the Idaho-Maryland Mine over an 80-year permit period, and the total workforce when the Idaho-Maryland Mine Project reaches commercial production is estimated at 312 persons. Due to Nevada County's current vacancy rates, Nevada County has sufficient available housing stock to accommodate the entire estimated workforce for the project, and while the cumulative list of projects considered in this EIR could add just under 600,000 square feet of non-residential uses to the surrounding communities, an additional 1,209 residential units is also projected, which could provide needed housing for indirect growth related to increased employment opportunities. For example, the 600,000 square feet of non-residential use could be anticipated to result in around 1,600 additional employees, using industry standard generation rates. This indirect growth, in combination with the project, could be accommodated by the additional residential growth projected in the cumulative scenario along with vacant units within the region.

Considering the above, implementation of the proposed project, in combination with development of the cumulative projects identified in this EIR, would result in a ***less-than-significant*** cumulative impact related to unplanned population growth.

Mitigation Measure(s)

None required.



4.10 NOISE AND VIBRATION

4.10. NOISE AND VIBRATION

4.10.1 INTRODUCTION

The Noise and Vibration chapter of the EIR describes the existing noise environment in the project vicinity, and identifies potential impacts and mitigation measures related to noise and vibration associated with construction and operation of the proposed project. The method by which the potential impacts are analyzed is discussed, followed by the identification of potential impacts and the recommended mitigation measures designed to reduce significant noise and vibration impacts to less-than-significant levels, if required. The Noise and Vibration chapter is primarily based on the Noise and Vibration Analysis prepared for the proposed project by Bollard Acoustical Consultants (BAC) (see Appendix L),¹ the Technical Blasting Report prepared for the proposed project by Precision Blasting Services (see Appendix M),² the Nevada County General Plan,³ the Nevada County General Plan EIR,⁴ and the Whispering Pines Specific Plan.⁵

The technical noise and vibration reports listed above reflect the versions of the reports that were updated, as necessary, to address the comments included in the third-party independent peer review performed by Saxelby Acoustics under contract with Raney.⁶

4.10.2 EXISTING ENVIRONMENTAL SETTING

The Existing Environmental Setting section provides background information on noise and vibration, a discussion of acoustical terminology and the effects of noise on people, existing sensitive receptors in the project vicinity, existing sources and noise levels in the project vicinity, and groundborne vibration.

Fundamentals of Noise

Decibels (dB) are logarithmic units that compare the wide range of sound intensities to which the human ear is sensitive. The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the typical range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting network. A-weighting of sound levels best reflects the human ear's reduced sensitivity to low frequencies, and the use of A-weighted sound level, expressed as dBA, has become the standard tool of environmental noise assessment. Noise levels associated with common noise sources are provided in Figure 4.10-1.

¹ Bollard Acoustical Consultants, Inc. *Noise and Vibration Analysis, Idaho Maryland Mine, Nevada County, California BAC Job #2018-203*. March 8, 2021.

² Precision Blasting Services. *Environmental Factors of Blasting Report for the Proposed Idaho-Maryland Project Nevada County, CA*. September 27, 2019.

³ Nevada County. *Nevada County General Plan*. Updated 2014.

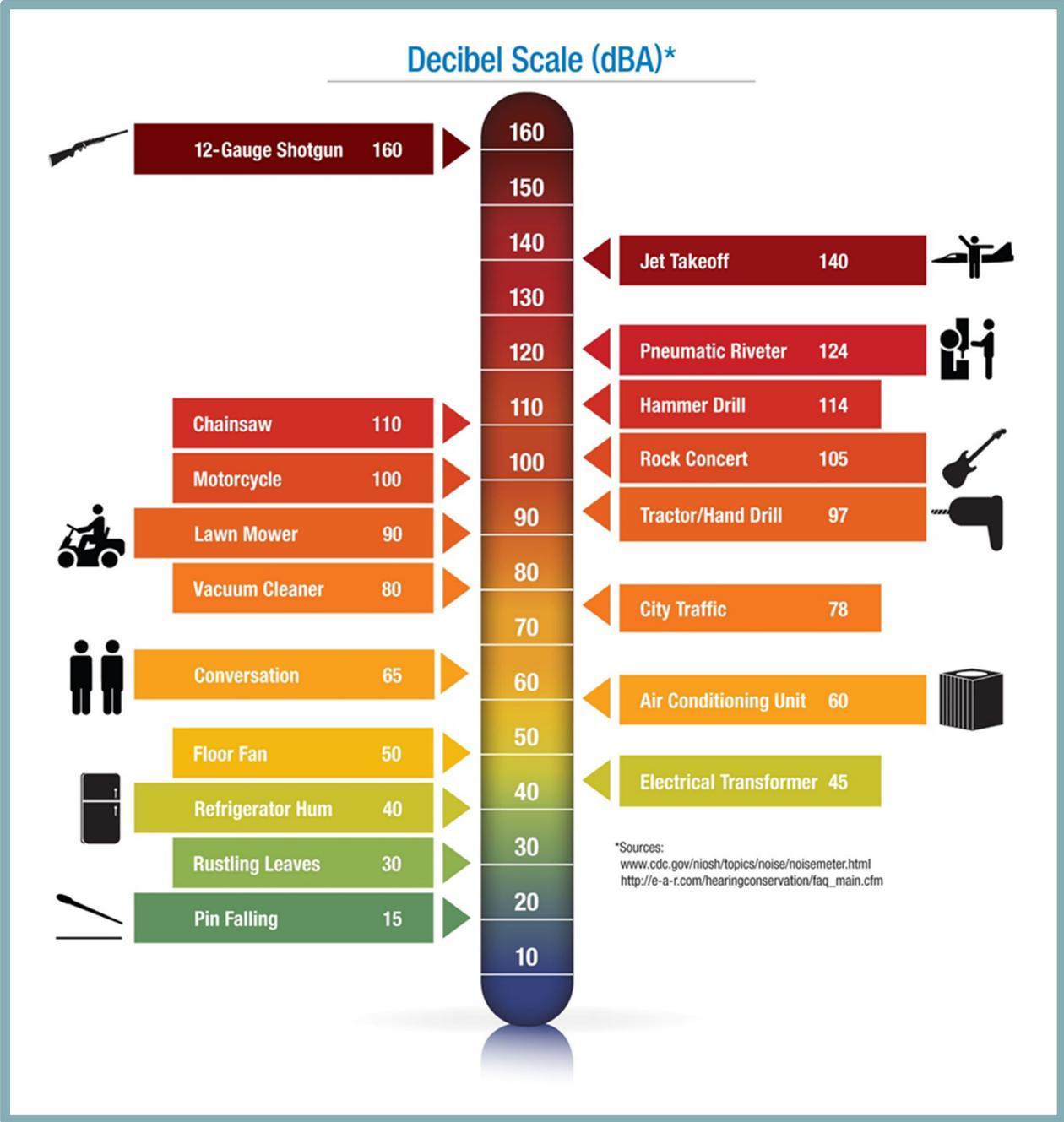
⁴ Nevada County. *Nevada County General Plan, Final Environmental Impact Report*. March 1995.

⁵ City of Grass Valley. *Whispering Pines Corporate Community Specific Plan/Master Environmental Impact Report*. February 1984.

⁶ Saxelby Acoustics. *Noise study peer review for the Idaho-Maryland Mine EIR – Nevada County, California*. July 2, 2020.



**Figure 4.10-1
 Noise Levels Associated with Common Noise Sources**



Source: *Bollard Acoustical Consultants, Inc. (2021).*



Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool used to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}). The L_{eq} is the foundation of the day-night average noise descriptor, or L_{dn} , and represents a correlation with community response to noise.

The L_{dn} is based on the average noise level over a 24-hour day, with an additional 10 dB weighting applied to noise that occurs during nighttime (10:00 PM to 7:00 AM) hours. The 10 dB nighttime penalty is applied to account for the assumption that people are more sensitive to nighttime noise exposures as compared to daytime noise exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment. L_{dn} based noise standards are commonly used to assess noise impacts associated with traffic, railroad and aircraft noise sources.

The Nevada County noise standards, which are discussed in detail later in this chapter, are expressed in terms of the hourly average and single-event maximum noise level performance standards. In addition to applying the County's noise standards to the proposed project, CEQA requires that noise impacts be assessed relative to ambient noise levels that are present without the project. As a result, ambient noise surveys were conducted, and comparisons of Project to No-Project noise levels were used to assess noise impacts (in addition to comparison to Nevada County noise standards). Specifically, individual maximum (L_{max}) noise levels and hourly average (L_{eq}) noise levels, both with and without the project, were compared so that the assessment of noise impacts was not based solely on an assessment of project-generated noise in terms of 24-hour averages (L_{dn}), but also on short-term fluctuations in the ambient noise environment.

Fundamentals of Vibration

Vibration is similar to noise in that both involve a source, a transmission path, and a receiver. However, while noise is generally considered to be pressure waves transmitted through air, vibration is usually associated with transmission through the ground or structures. As with noise, vibration consists of an amplitude and frequency.

Seismic waves are waves that travel through the earth. Common sources of man-made seismic waves include explosions, blasting, pile driving, and mechanical excavation of rock. When these man-made seismic waves are perceptible, they are called vibration. Blasting creates seismic waves that radiate along the surface of the earth and downward into the earth. If close enough to the blasting location, these surface waves can be felt as ground vibration. A person's perception to the vibration depends on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Ground vibration is monitored using a seismograph, which is specially built to measure the high frequencies of blasting ground vibration. A seismograph records ground vibration in three different directions, giving three distinct wave traces: vertical, longitudinal, and transverse. A common practice is to monitor vibration measures in terms of peak particle velocities (PPV, inches/second [in/s]), or Velocity Decibels in terms of root-mean-square levels (VdB RMS). Standards pertaining to perception as well as potential damage to structures have been developed for vibration in terms of PPV as well as RMS.



Existing Sensitive Receptors

Certain land uses are more sensitive to ambient noise levels than others due to the amount of noise exposure (in terms of both exposure time and shielding from noise sources) and the type of activities typically involved. Noise-sensitive land uses typically include residences, schools, child care centers, hospitals, long-term health care facilities, convalescent centers, retirement homes, and recreation areas.

Sensitive receptors in the project vicinity primarily consist of single-family residences. Residences near the Centennial Industrial Site are limited, and are located to the north and northeast of the site. Several residences are located around the Brunswick Industrial Site and along the proposed haul route.

While it is recognized that there are several residences surrounding the Brunswick Industrial Site, it is not necessary to assess potential project impacts at each and every individual residence. Rather, standard industry practice is to assess impacts at receptors which are representative of the nearest potentially affected residences to the project site (including residences located adjacent to project haul routes).

For the purposes of this analysis, 30 receptors were selected as representative of the nearest potentially affected receptors to the project sites (see Figure 4.10-2). The receptors consist of the following locations:

- 17 residences surrounding the Brunswick Industrial Site.
- 3 residences near the Centennial Industrial Site.
- 1 residence along Whispering Pines Lane between Brunswick Road and Centennial Drive.
- 5 residences along Brunswick Road, north of East Bennett Road.
- 4 residences along East Bennett Road.

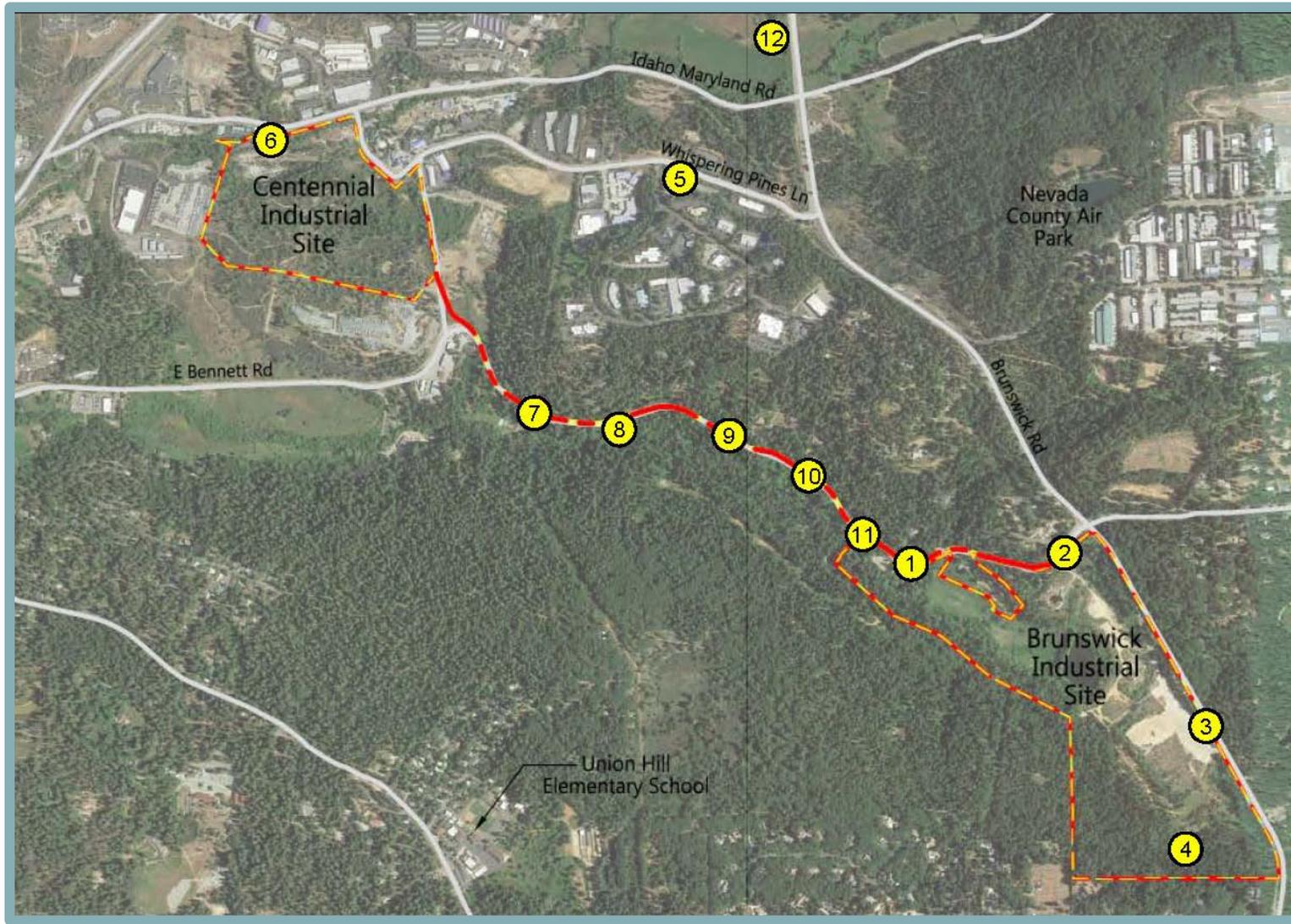
Receptors 1 and 2 are located north of the Centennial Industrial Site and were selected because they represent the nearest residences to the Centennial Industrial Site. It is noted that noise generated at the Brunswick Industrial Site is expected to be inaudible over background noise at these locations. This occurs at other receptor locations as well, in that not all project noise sources would affect each of the representative receptors selected for analysis. Receptors 9 through 12 were selected to represent exposure of existing residences to noise generated during construction of the potable water pipeline along a portion of East Bennett Road. Receptors 3 through 7 were selected to represent residences exposed to project truck traffic noise, with Receptor 4 representing future residences in the Loma Rica development. Receptors 13 through 30 were selected for analysis of on-site noise generation at the Brunswick Industrial Site, with Receptors 17 through 23 also used to assess potential truck traffic noise impacts.

Ambient Noise Levels

To quantify the existing ambient noise environment in the project vicinity, BAC conducted continuous noise level measurements at 11 locations in the project vicinity. The noise measurement locations were selected to be representative of ambient noise conditions at receptors nearest to both the Brunswick and Centennial Industrial Sites, at locations along East Bennett Road where the potable water system would be installed, and at receptors along the proposed haul routes. The ambient noise measurement locations are identified in Figure 4.10-3.



**Figure 4.10-3
Noise and Vibration Measurement Locations**



Source: Bollard Acoustical Consultants, Inc. (2021).



Continuous noise monitoring was not necessary at all of the 30 sensitive receptors evaluated in this study because several of the monitoring locations represent ambient conditions at multiple receptor locations. For instance, the data collected at Monitoring Site 3 (see Figure 4.10-3) adequately represents the ambient noise conditions at Receptors 19 through 25 (see Figure 4.10-2). Similarly, monitoring site 12 can be used to extrapolate ambient conditions at receptors adjacent to Brunswick Road north of East Bennett Road (Receptors 4 through 7, 17 and 18). Results of ambient long-term noise monitoring are presented in Table 4.10-1.

**Table 4.10-1
Summary of Long-term Noise Monitoring Results**

Site ¹	Date	Ldn (dBA)	Average Measured Hourly Noise Levels (dBA)					
			Daytime ²		Evening ³		Nighttime ⁴	
			Leq	Lmax	Leq	Lmax	Leq	Lmax
1	Tuesday, June 13, 2017	61	60	82	57	82	51	71
	Wednesday, June 14, 2017	61	61	83	59	85	52	75
	Thursday, June 15, 2017	61	59	80	57	79	52	76
	Friday, June 16, 2017	60	59	80	56	77	51	74
	Saturday, June 17, 2017	58	57	78	55	78	49	69
	Sunday, June 18, 2017	58	57	83	56	81	49	71
	Average	60	59	81	57	80	51	73
2	Tuesday, June 13, 2017	60	59	82	56	81	51	71
	Wednesday, June 14, 2017	60	59	82	56	83	51	73
	Thursday, June 15, 2017	60	59	81	56	79	51	73
	Friday, June 16, 2017	60	59	80	55	77	51	73
	Saturday, June 17, 2017	58	56	78	55	81	48	70
	Sunday, June 18, 2017	58	57	82	56	82	47	69
	Average	59	58	81	56	81	50	72
3	Tuesday, June 13, 2017	69	67	80	64	79	60	78
	Wednesday, June 14, 2017	68	67	81	64	84	59	77
	Thursday, June 15, 2017	68	67	82	64	81	59	79
	Friday, June 16, 2017	68	67	82	64	79	59	76
	Saturday, June 17, 2017	67	65	80	63	81	58	76
	Sunday, June 18, 2017	66	64	81	64	81	57	77
	Average	68	66	81	64	81	59	77
4	Tuesday, June 13, 2017	53	52	64	49	64	45	55
	Wednesday, June 14, 2017	52	51	64	49	61	44	56
	Thursday, June 15, 2017	53	51	62	50	65	45	57
	Friday, June 16, 2017	53	52	65	49	61	45	56
	Saturday, June 17, 2017	51	50	64	48	63	43	54
	Sunday, June 18, 2017	50	49	62	48	63	42	56
	Average	52	51	64	49	63	44	56
5	Tuesday, Oct. 01, 2019	60	60	81	53	69	51	67
	Wednesday, Oct. 02, 2019	60	61	82	52	73	51	70
	Average	60	61	82	53	71	51	69
6	Tuesday, Oct. 01, 2019	66	65	80	60	76	59	73
	Wednesday, Oct. 02, 2019	67	65	81	60	74	59	74
	Thursday, Oct. 03, 2019	67	65	80	60	76	59	73

(Continued on next page)



**Table 4.10-1
Summary of Long-term Noise Monitoring Results**

Site ¹	Date	Ldn (dBA)	Average Measured Hourly Noise Levels (dBA)					
			Daytime ²		Evening ³		Nighttime ⁴	
			Leq	Lmax	Leq	Lmax	Leq	Lmax
	Average	63	63	81	56	73	55	71
7	Friday, Dec. 07, 2018	59	59	79	55	75	50	73
	Saturday, Dec. 08, 2018	57	57	76	54	77	47	69
	Sunday, Dec. 09, 2018	55	56	76	52	74	46	68
	Monday, Dec. 10, 2018	57	58	77	53	74	48	69
	Average	60	60	78	55	75	51	70
8	Friday, Dec. 07, 2018	57	57	76	54	73	47	70
	Saturday, Dec. 08, 2018	55	55	74	54	77	45	67
	Sunday, Dec. 09, 2018	54	54	74	51	72	44	65
	Monday, Dec. 10, 2018	56	56	75	52	74	45	66
	Average	56	57	76	53	74	47	68
9	Friday, Dec. 07, 2018	60	60	79	57	76	51	74
	Saturday, Dec. 08, 2018	59	59	79	56	79	49	71
	Sunday, Dec. 09, 2018	57	58	79	55	78	47	70
	Monday, Dec. 10, 2018	60	60	80	56	79	49	71
	Average	58	58	78	55	77	48	70
10	Friday, Dec. 07, 2018	59	59	79	56	77	50	74
	Saturday, Dec. 08, 2018	58	57	79	55	78	47	72
	Sunday, Dec. 09, 2018	57	57	79	53	76	47	70
	Monday, Dec. 10, 2018	58	59	79	55	77	48	71
	Average	58	58	79	55	77	48	71
11	Friday, Dec. 07, 2018	59	59	77	56	75	50	73
	Saturday, Dec. 08, 2018	57	57	76	56	78	48	70
	Sunday, Dec. 09, 2018	56	57	78	53	75	47	70
	Monday, Dec. 10, 2018	58	58	77	55	76	49	71
	Average	58	58	78	55	76	48	71
12	Thursday, July 26, 2018	63	55	72	53	65	56	70
	Average	63	55	72	53	65	56	70

Notes:

1. Ambient noise monitoring locations are shown on Figure 4.10-3.
2. Daytime = 7:00 AM– 7:00 PM
3. Evening = 7:00 PM– 10:00 PM
4. Nighttime = 10:00 PM – 7:00 AM

Source: Bollard Acoustical Consultants, Inc. (2021).

As shown in Table 4.10-1, ambient noise conditions vary depending primarily on the distance between the monitoring site and nearby roadways. Existing L_{dn} levels range from a high of 68 dBA (near Brunswick Road (Site 3)) to a low of 52 dBA (e.g., locations removed from roadway noise sources (Site 4)).

The Nevada County Airport is located approximately 4,000 feet northeast of the Brunswick Industrial Site and approximately 7,500 feet east of the Centennial Industrial Site. According to the Nevada County Airport Land Use Compatibility Plan (NCALUCP), both the Brunswick



Industrial Site and Centennial Industrial Site are located outside of the airport's 55 dB Community Noise Equivalent Level (CNEL) contour (see Figure 4.10-4).^{7,8}

Existing Traffic Noise Levels

The existing ambient noise environment in the project vicinity is defined primarily by traffic. The existing traffic noise environment was quantified using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) with the Calveno vehicle noise emission curves. Traffic volumes for existing conditions were obtained from the traffic study prepared for the proposed project by KD Anderson & Associates. Table 4.10-2 shows the calculated existing traffic noise levels in L_{dn} at the nearest representative residential receptors to each roadway segment.

#	Roadway	Segment	Distance (feet)	L_{dn}	60 dB L_{dn} Contour Distance (ft)
1	East Bennett Road	West of Brunswick Road	135	52.5	43
2	Brunswick Road	Brunswick Industrial Site Entrance to East Bennett Road	200	60.9	230
3	Brunswick Road	North of Whispering Pines Lane	100	66.6	275
4	Brunswick Road	South of Brunswick Industrial Site Entrance	150	62.8	230
5	Brunswick Road	Whispering Pines Lane to East Bennett Road	120	66.4	319
6	Empire Street	West of SR 174	50	59.8	49
7	Empire Street	East of South Auburn Street	50	61.1	59
8	Idaho Maryland Road	East of SR 49	90	61.5	113
9	State Route 174	West of Brunswick	50	67.8	166
10	Whispering Pines Lane	Crown Point Circle to Brunswick	70	57.8	50
11	Whispering Pines Lane	Centennial to Crown Point Circle	70	59.1	61

Source: FHWA-RD-77-108 with inputs provided by KD Anderson, BAC and Caltrans.

Ambient Vibration Levels

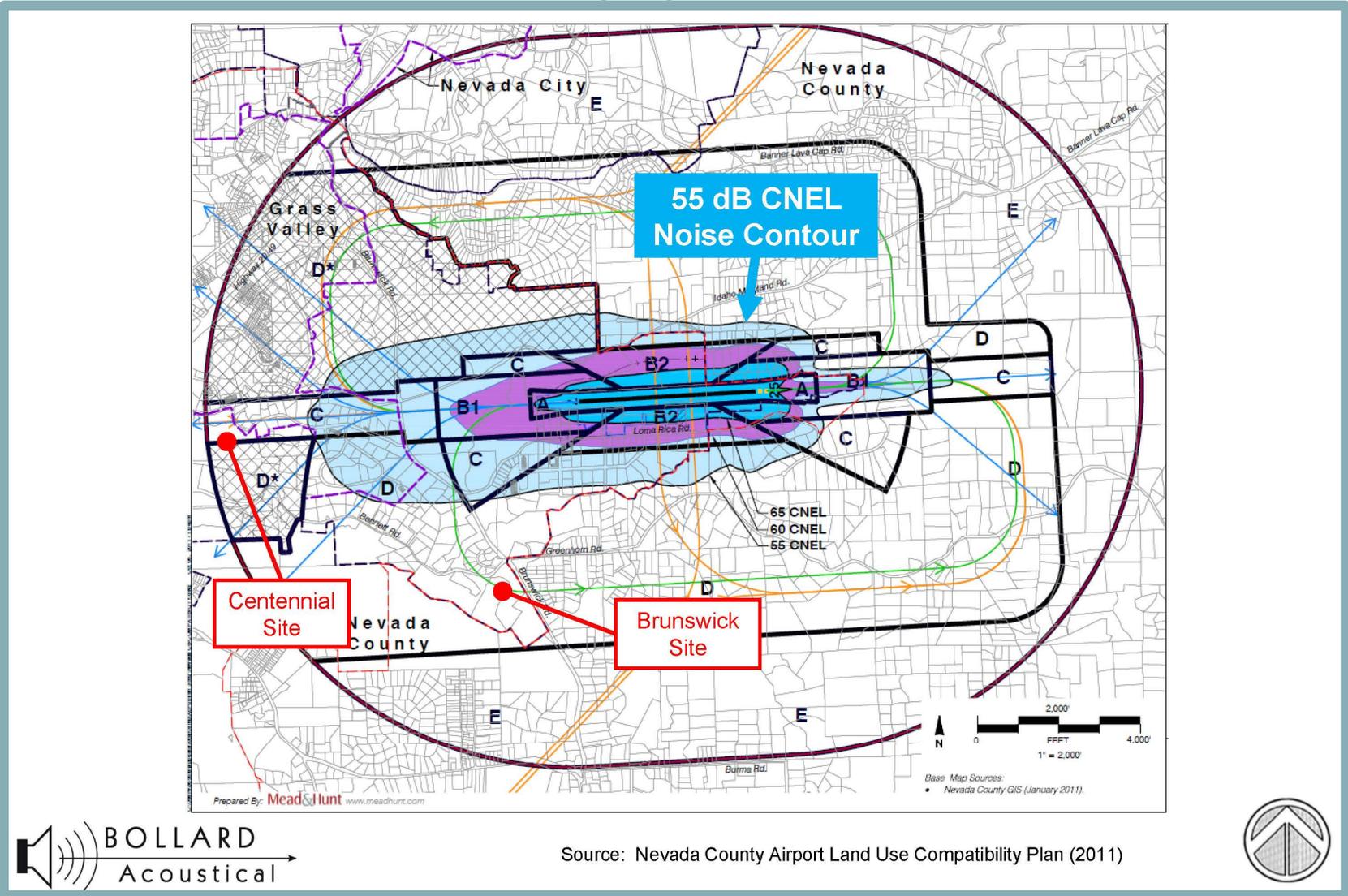
As with the local noise environment, the ambient vibration environment is defined primarily by traffic on the local roadway network. BAC conducted short-term vibration measurements at the same locations as the ambient noise monitoring locations (see Figure 4.10-3). A summary of the ambient vibration survey results is provided in Table 4.10-3.

⁷ County of Nevada. *Nevada County Airport Land Use Compatibility Plan (NCALUCP)*. September 21, 2011.

⁸ CNEL is defined as the 24-hour average noise level with noise occurring during the evening hours (7:00 PM – 10:00 PM) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.



**Figure 4.10-4
Nevada County Airport Noise Contours**



Source: Nevada County Airport Land Use Compatibility Plan (2011)



**Table 4.10-3
Summary of Short-term Vibration Results**

Measurement Site	Measured Vibration Levels, VdB rms		
	Minimum	Average	Maximum
V1	31	41	64
V2	31	42	60
V3	31	47	60
V4	31	35	50
V5	31	34	48
V6	31	37	48
V7	31	38	54
V8	32	41	62
V9	31	39	54
V10	32	57	76
V11	31	46	66

Note: Vibration measurement locations are shown on Figure 4.10-3.

Source: *Bollard Acoustical Consultants, Inc. (2021).*

4.10.3 REGULATORY CONTEXT

In order to limit exposure to physically and/or psychologically damaging noise levels, the State of California, various county governments, and most municipalities in the State have established standards and ordinances to control noise. The following provides a general overview of the existing State and local regulations that are relevant to the proposed project.

State Regulations

The following are the State environmental laws and policies relevant to noise.

California State Building Codes

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations (CCR), establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses, and dwellings other than single-family dwellings.

Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room. Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment.

Local Regulations

The following are the local environmental goals and policies relevant to noise.

Nevada County General Plan

The relevant goals and policies from the Noise Element of the Nevada County General Plan are presented below.



Goal 9.1 Provide for the health, safety, and welfare of the people of Nevada County through a set of policies designed to encourage an environment free of unnecessary and annoying noise.

Policy 9.1.1 Determine the existing noise environment and continue to reassess this environment so that a realistic set of noise standards can be developed reflecting the varying nature of different land uses.

Policy 9.1.2 The following noise standards contained in Table 9.1 below [included as Table 4.10-4], as performance standards and land use compatibility standards, shall apply to all discretionary and ministerial projects, excluding permitted residential (including tentative maps) land uses.

Policy 9.1.3 The Nevada County Planning Department shall be the lead agency responsible for coordination of all local noise control activities and intergovernmental group activities and subsequent enforcement efforts.

Table 4.10-4 General Plan Noise Element Exterior Noise Limits				
Land Use Category	Zoning Districts	Time Period	Noise Level, dBA	
			L_{eq}	L_{max}
Rural	"A1" "TPZ" "AE" "OS" "FR" "IDR"	7:00 A.M. - 7:00 P.M.	55	75
		7:00 P.M. - 10:00 P.M.	50	65
		10:00 P.M. - 7:00 A.M.	40	55
Residential and Public	"RA" "R2" "R1" "R3" "P"	7:00 A.M. - 7:00 P.M.	55	75
		7:00 P.M. - 10:00 P.M.	50	65
		10:00 P.M. - 7:00 A.M.	45	60
Commercial and Recreation	"C1" "CH" "CS" "C2" "C3" "OP" "REC"	7:00 A.M. - 7:00 P.M.	70	90
		7:00 P.M. - 7:00 A.M.	65	75
Business Park	"BP"	7:00 A.M. - 7:00 P.M.	65	85
		7:00 P.M. - 7:00 A.M.	60	70
Industrial	"M1" "M2"	any time	80	90

Notes:

- A. Compliance with the above standards shall be determined by measuring the noise level based on the mean average 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.
- B. Where two different zoning districts abut, the standard applicable to the lower, or more restrictive, district plus 5 dBA shall apply.
- C. The above standards shall be measured only on 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 affected property owners and approved by the County.
- D. If the measured ambient level exceeds that permitted, then the allowable noise exposure standard shall be set at 5 dBA above the ambient.
- E. Because of the unique nature of sound, the County reserves the right to provide for a more restrictive standard than shown in the Exterior Noise Limits table contained in this policy. The maximum adjustment shall be limited to be not less than the current ambient noise levels and shall

(Continued on next page)



not exceed the standards of this policy or as they may be further adjusted by Policy 9.1.2.b. Imposition of a noise level adjustment shall only be considered if one or more of the following conditions are found to exist:

- 1.) Unique characteristics of the noise source:
 - (a) The noise 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.
 - (b) The noise is impulsive in nature (such as hammering, riveting, or explosions), or contains music or speech.
 - (c) The noise source is of a long duration.
 - 2.) Unique characteristics of the noise receptor when the ambient noise level is determined to be 5 dBA or more below the Policy 9.1.2 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 9.1.2 standard, whichever is more restrictive.
- F. The above standards shall not apply to those activities associated with the actual construction of a project or to those projects associated with the provision of emergency services or functions.
- G. The standards of this policy shall be enforced through compliance inspections and/or complaints.
- H. Recognizing that this chapter must work toward the solution to existing noise problems, those land uses that are inconsistent with the above standards and are therefore nonconforming in nature, shall comply with said standards as these land uses are upgraded or intensified or after abandonment through the use permit or site plan process. Said standards shall apply only to that portion of the land use requiring approval. In any event, the use or portion subject to a land use permit must meet the standards in the Exterior Noise Limits table in this policy and cumulatively the noise generated from the entire site must be equal to or less than the pre-land use permit ambient noise level. All such projects will require a comprehensive noise analysis pursuant to Policy 9.1.13 and the Nevada County Noise Element Manual.

Source: General Plan Noise Element, Table 9.1.

- Policy 9.1.6 Encourage public awareness of noise and its hazards and means to minimize its existing and future impacts.
- Policy 9.1.7 Encourage heavy truck traffic to those routes outside residential areas.
- Policy 9.1.8 Encourage cities within Nevada County to adopt noise control programs compatible with County efforts.
- Policy 9.1.9 Develop a realistic policy framework designed to function as a guide to planning for appropriate land uses in relation to hazardous and annoying noise.
- Policy 9.1.10 Strongly discourage those General Plan amendments and zone changes that would likely create land use conflicts relative to noise.
- Policy 9.1.11 Strongly encourage future noise sensitive land uses, including residences, schools, hospitals, nursing homes, churches, and libraries, to those location [sic] of the County where the impact of noise generators is limited so that compliance with standards found



in Policy 9.1.2 will be maintained. This policy shall apply to the approval of all tentative maps for residentially zoned parcels.

- Policy 9.1.12 Limit future noise generating land use to those location [sic] of the County where their impacts on noise sensitive land uses will be minimized, consistent with the standards found in Program 9.1.
- Policy 9.1.13 Require the preparation of a comprehensive noise study for all land use projects determined to have a potential to create noise levels inconsistent with those standards found in Program 9.1, and in accordance with the methodology identified in the Noise Element Manual contained in General Plan Volume 2, Section 3 - Noise Analysis Appendix A.
- Policy 9.1.14 Provide for adequate design controls to assist in mitigating on-site the significant adverse impacts of future noise generating land uses through increased setbacks, landscaping, earthen berms, and solid fencing.
- Policy 9.1.15 Strictly enforce the noise insulation standards for new construction as required by Title 24 of the California Administrative Code.
- Policy 9.1.16 Minimize the noise impact from automobiles, trucks, motorcycles, and off-road vehicles by continuing to request enforcement of those sections of the California Vehicle Code relative to vehicle exhaust system maintenance by the County Sheriff and State Highway Patrol.
- Policy 9.1.18 The routing and design of new or expanded transportation facilities by the County shall incorporate feasible measures necessary to mitigate increases in noise levels.
- Policy 9.1.19 Encourage the minimization of noise emission from all County-controlled activities consistent with Policy 9.1.1 standards.
- Policy 9.1.20 Protect the safety and general welfare of people in the vicinity of the Nevada County Airport and the Truckee Tahoe Airport port [sic] by implementing the appropriate noise compatibility policies to avoid the establishment of noise sensitive land uses in the portion of the airport environs that are exposed to significant levels of aircraft noise.
- Policy 9.1.21 Ensure the development of compatible land uses adjacent to the Nevada County Airport by enforcing the noise criteria as found in the Nevada County Airport Land Use Compatibility Plan as adopted by the Nevada County Airport Land Use Commission on September 21, 2011, as those standards are in effect and may be hereafter amended. (See Figure 9.1 of the General Plan Noise Element – Incorporated by reference).



Policy 9.1.23 The County shall continue to enforce noise criteria standards consistent with the airport noise policies adopted by the Nevada County Airport Land Use Commission and the Truckee Tahoe Airport Land Use Commission based on the considerations of the following factors:

- a. Established federal and state regulations and guidelines.
- b. The ambient noise levels in the community. Ambient noise levels influence the potential intrusiveness of aircraft noise upon a particular land use and vary greatly between Community Regions and Rural Regions.
- c. The extent to which noise would intrude upon and interrupt the activity associated with a particular use.
- d. The extent to which the activity itself generates noise.
- e. The extent which the activity itself generates itself [sic] generates noise.
- f. The extent of outdoor activity associated with a particular land use.
- g. The extent to which indoor uses associated with a particular land use may be made compatible with application of sound attenuation in accordance with the policies set forth for maximum acceptable interior noise levels.

Whispering Pines Corporate Community Specific Plan

The Whispering Pines Corporate Community Specific Plan and Master Environmental Impact Report,⁹ adopted in February of 1984, includes the following policies related to noise:

E.2 Noise

- a. Noise environments within the Specific Plan boundaries shall be maintained at the following levels: 70 dB CNEL for industrial areas (outdoor) 65 dB CNEL for residential areas (outdoor) and 45 dB CNEL for residential areas (indoor).
- b. Activities which may emit continuous noise levels in excess of standards outlined in a. shall be required to mitigate noise levels to acceptable standards.
- c. Activities located adjacent to existing residences shall demonstrate that noise levels will not adversely affect the adjacent neighborhood.

The policies listed above are consistent with the Nevada County General Plan Noise Element Policies. As a result, compliance with the County noise policies would ensure compliance with the Whispering Pines Corporate Community Specific Plan noise policies.

Nevada County Land Use and Development Code

Section L-II 4.1.7 of the Nevada County Land Use and Development Code (LUDC) pertains to noise. The noise standards presented in Table L-II 4.1.7, Exterior Noise Limits, of the Nevada County LUDC are nearly identical to those contained in the General Plan Noise Element (see

⁹ Certain existing businesses located in the vicinity of the proposed project are within the Whispering Pines Corporate Community Specific Plan. This noise and vibration analysis considers impacts to such businesses and, thus, the Whispering Pines Corporate Community Specific Plan and Master Environmental Impact Report noise standards have been included.



Table 4.10-4). However, Section L-II 4.1.7.D.8 of the Nevada County LUDC states the following with respect to construction noise:

L-II 4.1.7.D.8 The above standards shall not apply to those activities associated with the actual construction of a project or to those projects associated with the provision of emergency services or functions.

The provision above exempts construction noise from the Table 4.10-4 noise standards. Nonetheless, an evaluation of construction noise is provided in this analysis for purposes of CEQA analysis.

City of Grass Valley

The project sites are located within unincorporated Nevada County, but because the Centennial Industrial Site borders the City of Grass Valley, the City's noise standards are discussed here. The City of Grass Valley noise level standards are identical to the Nevada County noise level standards during daytime hours. Because operations at the Centennial Industrial Site would only occur during daytime hours (i.e., no later than 10:00 PM, as Table 6-5 of Grass Valley General Plan defines nighttime as 10:00 PM – 7:00 AM), the City and County noise standards are identical for the purposes of the proposed project.

4.10.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to noise and vibration. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment. For the purposes of this EIR, an impact is considered significant if the proposed project would result in any of the following:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

Summary of Adjustments to Nevada County Noise Standards for On-Site Noise Sources

As described in Footnote B of Table 4.10-4, a +5 dB adjustment to the noise standards would be applicable at all residential receptors due to the differing zoning districts. However, the +5 dB adjustment would be negated by a -5 dB adjustment due to the project noise sources occurring for long durations. As a result, the only adjustment applied to the Table 4.10-4 standards were based on ambient conditions. Pursuant to Table 4.10-4, Footnote D:



- where baseline ambient conditions currently exceed the Table 4.10-4 standards, the standard has been set at 5 dB above the ambient.
- where baseline ambient levels are more than 5 dB below the Table 4.10-4 standards, the standard has been set at the baseline ambient level plus 5 dB.
- Where ambient conditions are less than 5 dB below the Table 4.10-4 standards, no adjustment for ambient conditions was applied.

Table 4.10-6 shows the baseline ambient conditions at each representative receptor, extrapolated from the ambient noise survey results, and the corresponding maximum and average, daytime, evening, and nighttime noise level standards applicable to each representative receptor location after the appropriate adjustments to the Table 4.10-4 standards have been applied to account for the ambient conditions. Overall, the right-hand portion of Table 4.10-6 presents the applicable noise level standard for each representative receptor.

Traffic Noise Increase Criteria

The Nevada County General Plan Noise Element and Noise Ordinance do not have a specific policy or standard for assessing noise impacts associated with **increases** in off-site ambient noise levels resulting from project-generated traffic on public roadways. The County’s General Plan and Ordinances do contain specific numeric standards for acceptable increases over ambient (5 dB according to footnote D of Table 4.10-5 – discussed later in this section), but they do not contain numeric standards for **increases** in off-site traffic noise levels resulting from a project.

Because CEQA requires that the significance of noise impacts be evaluated relative to the **increase** in noise resulting from a project, where the local jurisdiction does not have such adopted thresholds, reasonable thresholds from other agencies must be considered. As a result, the following section describes Federal thresholds for assessing the significance of project-related increases in off-site heavy truck traffic using federal research conducted by the Federal Interagency Commission on Noise (FICON).

Table 4.10-5 was developed by the FICON as a means of developing thresholds for identifying project-related noise level increases. The rationale for the graduated scales is that test subject’s reactions to increases in noise levels varied depending on the starting level of noise.

Table 4.10-5 Significance of Changes in Cumulative Noise Exposure	
Ambient Noise Level Without Project, dB	Increase Required for Significant Impact
<60	+5.0 dB or more
60-65	+3.0 dB or more
>65	+1.5 dB or more
<i>Source: Federal Interagency Committee on Noise (FICON).</i>	

The FICON standards have been used extensively in recent years by the authors of this section in the preparation of the noise sections of EIRs that have been certified in many California cities and counties and are considered appropriate for this analysis.



**Table 4.10-6
Baseline Ambient Conditions and Adjusted Nevada County Noise Standards by Receptor**

Receptor ²	Baseline Ambient Conditions ¹						Applicable Standards After Adjustment					
	Daytime ³		Evening ³		Nighttime ³		Daytime		Evening		Nighttime	
	Leq	Lmax	Leq	Lmax	Lmax	Leq	Leq	Lmax	Leq	Lmax	Leq	Lmax
1	58	76	51	68	50	66	63	81	56	73	55	71
2	63	81	56	73	55	71	68	86	61	78	60	76
3	61	82	53	71	51	69	66	87	58	76	56	74
4	55	72	53	65	56	70	60	75	58	70	61	75
5	49	66	47	59	50	64	54	71	50	64	55	69
6	50	67	48	60	51	65	55	72	50	65	56	70
7	49	66	47	59	50	64	54	71	50	64	55	69
8	54	72	49	69	45	65	55	75	50	74	45	70
9	48	66	43	63	39	59	53	71	48	65	44	60
10	47	66	43	64	37	58	52	71	48	65	42	60
11	47	67	43	65	37	59	52	72	48	70	42	60
12	49	69	45	67	39	62	54	74	50	72	44	67
13	51	70	48	69	41	64	55	75	50	74	45	69
14	50	72	48	72	42	64	55	75	50	77	45	69
15	51	73	49	72	43	65	55	75	50	77	45	70
16	48	71	46	71	40	62	53	75	50	76	45	67
17	56	73	54	66	57	71	61	75	59	71	62	76
18	52	69	50	62	53	67	55	74	50	65	58	72
19	54	69	51	68	46	65	55	74	56	73	51	70
20	57	72	55	72	50	68	62	75	60	77	55	73
21	55	70	53	70	48	66	60	75	58	75	53	71
22	56	71	53	70	48	67	61	75	58	75	53	72
23	58	73	56	73	51	69	63	75	61	78	56	74
24	60	75	58	75	53	71	65	80	63	80	58	76
25	60	75	57	74	52	71	65	75	62	79	57	76
26	51	64	49	63	44	56	55	69	50	65	45	60
27	51	64	49	63	44	56	55	69	50	65	45	60
28	51	64	49	63	44	56	55	69	50	65	45	60
29	51	64	49	63	44	56	55	69	50	65	45	60

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**Table 4.10-6
 Baseline Ambient Conditions and Adjusted Nevada County Noise Standards by Receptor**

Receptor ²	Baseline Ambient Conditions ¹						Applicable Standards After Adjustment					
	Daytime ³		Evening ³		Nighttime ³		Daytime		Evening		Nighttime	
	L _{eq}	L _{max}	L _{eq}	L _{max}	L _{max}	L _{eq}	L _{eq}	L _{max}	L _{eq}	L _{max}	L _{eq}	L _{max}
30	51	64	49	63	44	56	55	69	50	65	45	60

Notes:

1. Baseline ambient conditions at each representative receptor were established through extrapolating the Table 4.10-1 data closest to each receptor using a 4.5 dB per doubling of distance decay rate.
2. Receptor locations are indicated on Figure 4.10-2.
3. Daytime = 7:00 AM – 7:00 PM; Evening = 7:00 PM – 10:00 PM; Nighttime = 10:00 PM – 7:00 AM

Source: Bollard Acoustical Consultants, Inc. (2021).



The use of the FICON standards are considered conservative relative to thresholds used by some other agencies in the State of California. For example, the California Department of Transportation (Caltrans) requires a project-related traffic noise level increase of 12 dB for a finding of significance, and the California Energy Commission (CEC) considers project-related noise level increases between 5 to 10 dB significant, depending on local factors. Therefore, the use of the FICON standards, which set the threshold for finding of significant noise impacts as low as 1.5 dB, provides a very conservative approach to impact assessment for this project.

Based on the FICON research, as shown in Table 4.10-5, a 5 dB increase in noise levels due to a project is required for a finding of significant noise impact where ambient noise levels without the project are less than 60 dB. Where pre-project ambient conditions are between 60 and 65 dB, a 3 dB increase is applied as the standard of significance. Finally, in areas already exposed to higher noise levels, specifically pre-project noise levels in excess of 65 dB, a 1.5 dB increase is considered by FICON as the threshold of significance.

As noted previously, audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered significant according to CEQA. Because every physical process creates noise, whether by the addition of a single vehicle on a roadway, or a tractor in an agricultural field, the use of audibility alone as significance criteria would not provide a meaningful measure of impact significance. CEQA requires a substantial increase in ambient noise levels before noise impacts are identified, not simply an audible change.

Summary of Applicable Vibration Standards

Nevada County does not have specific policies or standards pertaining to vibration levels. However, vibration levels associated with construction activities and project operations are addressed as potential vibration impacts associated with project implementation.

The Federal Transit Administration (FTA) Noise and Vibration Manual provides vibration levels at which damage to structures could occur. As shown in Table 4.10-7, a vibration level of 90 VdB is the minimum at which the onset of damage to extremely susceptible buildings could occur. As a result, 90 Vdb is used in this analysis for the consideration of damage to structures.

Table 4.10-7 FTA Criteria for Assessing Damage to Structures	
Building Category	Level, VdB¹
I. Reinforced-concrete, steel or timber (no plaster)	102
II. Engineered concrete and masonry (no plaster)	98
III. Non-engineered timber and masonry buildings	94
IV. Buildings extremely susceptible to vibration damage	90
Note: 1. RMS velocity in decibels (VdB) are 1 micro-inch/second.	
Source: FTA Transit Noise and Vibration Impact Assessment [Table 12-3]. May 2006.	

The FTA guidelines also provide criteria for assessing the potential for annoyance related to vibration. Table 4.10-8 provides vibration criteria for general assessment of impacts.

Because project operations would essentially occur continuously during the proposed business hours, the FTA criteria applicable to “Frequent Events” is applied in this analysis. According to



Table 4.10-8, the general assessment impact level for frequent events applicable at residential uses is 72 VdB. If vibration levels exceed the 72 VdB threshold, a detailed vibration assessment is recommended.

Table 4.10-8			
Groundborne Vibration Impact Criteria for General Assessment			
Land Use Category	Impact Levels (VdB)		
	Frequent Events^a	Occasional Events^b	Infrequent Events^c
Category 1: Buildings where vibration would interfere with interior operations	65 ^d	65 ^d	65 ^d
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83
a. "Frequent Events" is defined as more than 70 vibration events of the same source per day. b. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. c. "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day. d. This criterion limit is based on levels that are acceptable for most moderately-sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research equipment may require detailed evaluation to define the acceptable vibration levels.			
Source: FTA Transit Noise and Vibration Impact Assessment [Table 8-1]. May 2006.			

Blasting Vibration Standards

The U.S. Bureau of Mines (USBM) and Office of Surface Mining, Reclamation, and Enforcement (OSMRE) have both developed recommendations for ground vibration levels to prevent damage to residential structures. Dr. Konya of Precision Blasting Services recommended a threshold level of 0.4 in/s PPV for the IMM project. The threshold level is based on previous studies for which it was determined that less than approximately eight percent of people would complain about blasting activities if the peak particle velocity was below 0.4 in/s. The project-specific blasting report recommends this threshold be applied at the location of receptors on surface to minimize annoyance and complaints.

The USBM also developed the Z-Curve method to identify blast level ranges which utilized PPV, displacement, and frequency. The Z-Curve is the main regulatory curve used in the United States, and is the regulatory curve used in all court cases dealing with vibration damage to residential structures. It should be noted that the Z-Curve and other ground vibration standards are conservative, and exceeding the curve does not mean that damage will occur but, rather, the possibility exists that damage could occur. In recent years, OSMRE has developed a modified Z-curve that is now used as the federal regulation for blasting vibration near residential structures.

Concerns about ground vibration and the effects it can have on sensitive electrical equipment such as microscopes, computers, and other systems has existed since electrical equipment first came out. When considering sensitive electrical equipment, three classifications exist: military, industrial, and commercial. The military equipment is the most robust and must be combat tested. The standards for military equipment are typically about two g-force (g) of acceleration at 20 to 40 Hertz (Hz) of frequency. Recent work has shown that computers for industrial and commercial settings could withstand ground vibration between two g and three g of acceleration. Telephone equipment has also been shown to withstand over 0.6 in/s of ground vibration on the unit, which



correlated to approximately 2.0 in/s on the ground. This was without any vibration dampening equipment installed. If vibration dampening equipment is utilized on electrical equipment then the equipment is affected less by the ground vibration.

A summary of the thresholds of significance for impacts from blasting vibrations can be summarized as follows:

Table 4.10-9 Thresholds of Significance for Mine Blasting Vibrations	
Response	PPV (in/sec)
Damage to residential structures unlikely	< OSMRE Z-Curve
No significant concerns about public annoyance	< 0.40 in/s
Blasting vibrations not typically detectable on blasting seismograph	< 0.05 in/s
Source: Precision Blasting Services (2019).	

Method of Analysis

Below are descriptions of the methodologies utilized to measure background and ambient noise and estimate future traffic noise, construction noise, and vibration associated with the project. Further modeling details and calculations are provided in Appendix L and Appendix M to this EIR. The results of the noise and vibration impact analyses were compared to the standards of significance discussed above in order to determine the associated level of impact.

For the ambient noise level measurement survey, BAC used Larson Davis Laboratories Model 820, LxT and 831 precision integrating sound level meters. The meters were calibrated before use with a Larson Davis Laboratories Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters. The noise monitoring survey was conducted in June 2017, July and December 2018, and October 2019. Weather conditions present during the monitoring program were typical for the seasons during which they were conducted. Adverse or anomalous weather conditions which could have caused measured ambient noise levels to be atypical did not exist.

The existing traffic noise environment was quantified using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) with the Calveno vehicle noise emission curves. Traffic volumes for existing conditions were obtained from the traffic study prepared for the proposed project by KD Anderson & Associates. Truck usage percentages were obtained from BAC observations and published Caltrans traffic counts. Vehicle speeds were based on posted speed limits and BAC observations, and the day/night distribution of traffic was obtained from the 24-hour ambient noise monitoring results.

For the project noise analysis, BAC used the SoundPlan Version 8.2 noise prediction model to estimate project-generated noise at the nearest residences. International Standards Organization (ISO) 9613-2 was employed as the sound propagation methodology within SoundPlan. ISO 9613-2 applies appropriate octave-band offsets for atmospheric absorption for various combinations of temperature and relative humidity for each noise source associated with the project.

The ambient vibration level measurements were conducted by BAC using a Larson Davis Laboratories Model LxT sound level meter fitted with a BRC SEN_VEL Vibration Transducer (500



mV/ips). 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).

Because the project does not propose nighttime heavy truck trips, which is the only off-site noise source associated with the project (with the exception of water supply pipeline construction), and because the project's on-site noise sources must comply with the County's nighttime noise level standards, an evaluation of sleep disturbance is not warranted for this project.

Effects of Distance on Sound Propagation

As a general rule, sound from a localized source spreads out as it travels away from the source, and the sound pressure levels drop off with distance according to fundamental relationships. Sound from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (i.e., decreases) at a rate of six dB for each doubling of distance from a point source. For the proposed project, on-site activities and processing equipment are treated as a point source in the noise propagation calculations. Off-site truck traffic is treated as a moving point source in the propagation calculations, with a sound level decay rate of 4.5 dB per doubling of distance from the noise source.

Atmospheric (Molecular) Absorption and Anomalous Excess Attenuation

Air absorbs sound energy. The amount of absorption is dependent on the temperature and humidity of the air, as well as the frequency of the sound. Families of curves have been developed which relate these variables to molecular absorption coefficients, frequently expressed in terms of dB per thousand feet. For standard day atmospheric conditions, defined as 59 degrees Fahrenheit and 70 percent relative humidity, the molecular absorption coefficient at 1,000 Hz is 1.5 dB per thousand feet. Molecular absorption is greater at higher frequencies, and reduced at lower frequencies. In addition, for drier conditions, the molecular absorption coefficients generally increase. Similarly, as temperature increases, molecular absorption coefficients typically increase as well.

Anomalous excess attenuation caused by variations in wind speed, wind direction, and thermal gradients in the air can typically be estimated using an attenuation rate of 1.5 dB per thousand feet for a noise source generating a 1,000 Hz signal. As with molecular absorption, anomalous excess attenuation typically decreases with lower frequencies and increases with higher frequencies.

Effects of Topographic Shielding

A noise barrier is any impediment which intercepts the path of sound as it travels from source to receiver. Such impediments can be natural, such as a hill or other naturally occurring topographic feature which blocks the receiver's view of the source. Impediments can also be vegetative, such as heavy tree cover, which similarly blocks the source from view of the receiver. Finally, impediments can be man-made, such as a solid wall, earthen berm, or structure constructed between the noise source and receiver. Regardless of the type of impediment, the physical properties of sound are such that, at the point where the line-of-sight between the source and receiver is interrupted by a barrier, a five dB reduction in sound occurs.

The effectiveness of a barrier is a function of the difference in distance sound travels on a straight-line path from source to receiver versus the distance it must travel from source to barrier, then barrier to receiver. This difference is referred to as the "path length difference", and is used to



calculate the Fresnel Number. A barrier's effectiveness is a function of the Fresnel Number and frequency content of the source. In general, the more acute the angle of the sound path created by the introduction of a barrier, the greater the noise reduction provided by the barrier.

For the proposed project, more distant receptors will typically be shielded from view of most on-site activities, but closer receptors may not be shielded. Where such shielding would occur, the level of noise reaching the receiver would be lower than at unshielded receivers located the same distances from the source. To account for shielding of project noise sources by intervening topography, elevation data for the entire study area was input to the SoundPlan model to create a three-dimensional base map. Noise source and receptor heights were input within the base map and the noise prediction model automatically computed the degree of acoustic shielding between each source and receptor.

Effects of Ground Cover

Ground cover also affects sound propagation. For example, soft ground is more acoustically absorptive than paved surfaces and vegetated ground is more absorptive still. For this analysis, it was assumed that the project site would essentially consist of acoustically hard surfaces with little sound absorption. Conversely, the area surrounding the project site is heavily vegetated, primarily with pine trees. Using aerial imagery and project site plans, the SoundPlan model inputs for both hard surfaces, soft surfaces, and vegetated areas were applied. The degree of sound absorption applied to each noise source at each receptor varies depending on the type of ground cover and distance between the noise sources and receptors. The greater the distance between the project site and the sensitive receptors, the greater the amount of intervening vegetation and the higher the degree of sound absorption. Where the ground between the noise source and receptor consists primarily of hardscape, the model applied positive offsets to account for reflections of sound from those surfaces.

Attenuation by Proposed Buildings and Enclosures

When equipment or processes are located within a building or enclosure, the noise generation of that equipment and processes is attenuated by the building walls and ceiling. The specific degree of attenuation provided by a building will depend on the building materials and construction, as well as the number and size of openings in the building, such as may be required for ventilation. With the exception of on-site mobile equipment, the significant stationary noise sources associated with the project are proposed to be located within insulated buildings. The noise attenuation provided by the proposed buildings varies by frequency, but will depend upon ultimate building design and construction. Additional technical detail is included in Appendix L to this EIR.

Blasting Vibration

The prediction of ground vibration for an underground mine that will conduct blasting can be accomplished utilizing modelling of proposed blasting practices with industry accepted models. These models are developed to be extremely conservative and overestimate the ground vibration. There are various formulas that have been developed over time to estimate ground vibration. The formula most applicable to underground mining is the Cubed-Root Scale Distance (CRSD) formula.

To assess groundborne vibration impacts, Precision Blasting Services (PBS) used the CRSD prediction equation. The CRSD is based on the direct path distance between a blast and a structure, and the weight of explosives used. The CRSD is then applied to predict ground vibration.



To understand what types of ground vibration would be expected it is important to identify and define the type of blast design that will be used for underground development. The type of blast design utilized is based on the purpose of the blast area. The following section identifies the two main blast design methods to be used at the Idaho-Maryland Mine; Drift Development and Long-hole Stoping. Based on the blast designs identified, typical blast guidelines are established and analyzed to identify ground vibration levels.

Regarding drilling, it is noted that the mining industry utilizes two methods of drilling to develop boreholes or drill holes, these methods are percussion and rotary drilling. Percussion drilling is completed by striking a drill bit into the rock and applying small amounts of rotation to the drill bit with every strike. The total movement of the drill head is very small per hit and the borehole that is developed is slightly larger than the drill diameter. Rotary drilling is the process of cutting a borehole with a drill bit in which the rock is cut or crushed by a high-speed rotation drill system.

The drilling of bore holes will have only local effects within a few feet of the location of the drill. There is no vibration or effect of drilling except for the local zone around the drill hole. This vibration or effects of drilling cannot be detected feet away from the drill site and no impact to the community would exist from these drilling activities.

Drift Development - Lateral Tunneling

A tunnel created by drilling and blasting underground is termed a "drift" in the mining industry. Drift development blasting is used to develop new or modify existing mine workings. An extensive network of existing drifts already exists in the Idaho-Maryland Mine, developed by historic operators. Existing drifts may be enlarged to accommodate modern mining equipment. In addition, new drifts would be developed to access new working areas in undeveloped ore zones or create passageways for moving broken rock, ventilation, or other services.

A drift is created by advancing the working face in short segments which are called "rounds". At the Idaho-Maryland Mine, a drift round is anticipated to be approximately 12 feet long. The actual advance per round is always less than the depth of the drilled holes and it is assumed that a 12-foot drift round would result in an advance of the drift of 10 feet per blast. The round commences by drilling a number of parallel holes in the face of the drift. To create enough void for the rock to be fragmented by explosives, one or several of the holes in the center of the drill hole pattern are enlarged and used as void, or relief, holes (open holes not loaded with explosives) and a number of closely spaced holes around the relief holes are loaded with explosives. This is called the "cut" of the drift round. The explosives in the cut are initiated first, which fragments and ejects the rock in the cut to create a larger void in the face of the drift. The remaining holes are then initiated in a series of delays to progressively enlarge the blast until the final dimensions and profile of the drift is created. The blasting of a drift round progresses as follows:

- 1) The cut holes surrounding the relief holes are initiated first with each hole on a different delay timing to progressively fragment the rock and create the cut.
- 2) The holes surrounding the cut are initiated after the cut holes have detonated and progressively fragment the rock to enlarge the blasted area of the round. As the void area increases, several of the holes can be initiated on the same delay timing.
- 3) The lifter holes at the floor of the drift are fired last in order to create the finished floor profile and "lift" the fragmented rock to allow easier loading of the broken rock. Typically, a number of the lifter holes are initiated on the same delay timing.



Raise Development - Vertical Tunneling

A raise is a vertical tunnel which is used to connect drifts. Raises are constructed as ventilation airways, ore passes, ladder or hoist passageways, or slots (voids) for long-hole stope blasts. Raises are typically constructed using hand held pneumatic powered drills rather than the large machine mounted hydraulic drills used in drifting. Therefore, the drill hole diameters are smaller and the hole lengths shorter than drift rounds. A raise round is drilled and blasted similar to a drift round as previously described. Assuming a typical hole diameter of 1.25-inch, a loaded hole length of 8 feet, and the blasting of four holes in one delay the charge weight per delay using emulsion can be calculated as 21.3 pounds (lbs) per delay.

Long-hole Stope Blasting

Generally, mining of a block of ore commences by driving horizontal tunnels, using drifting techniques as described above, along the length of an ore vein. Horizontal tunnels are driven through orebody on vertical spacing of approximately 50 feet. Once the tunnels are completed, a pattern of drill holes are drilled between the two levels. These long holes are then loaded with explosives and detonated to fragment the ore so that it can be transported to the shaft and then to surface. The mining of these blocks of ore is termed "stopping" in the mining industry and the mined areas between the drifts are termed "stopes".

Long-hole blasting utilizes longer boreholes which extend from the previously developed drift into the rock mass. The holes are typically larger in diameter and two to five times longer than the holes used in drift development. The stope blasting is similar to holes being blasted in a quarry, with long holes that are drilling into the rock which break to a free face or a slot. The preliminary long-hole stopping design would use 2.5-inch diameter drill holes. The long holes would be loaded with either ammonium nitrate fuel oil (ANFO) or emulsion.

Independent Peer Review

Saxelby Acoustics, under contract with Raney, was hired to conduct a third-party independent peer review of the Noise and Vibration Analysis prepared for the proposed project by BAC, as well as the Technical Blasting Report prepared by PBS. The peer review requested additional detail and/or clarification. The most substantive comment was for BAC to use a noise model such as CadnaA or SoundPLAN for calculating project noise impacts rather than manual calculation of individual noise sources. In response to the technical peer review, BAC provided an updated Noise and Vibration Analysis, which included noise modelling using SoundPLAN, thus satisfactorily addressing the peer review comments.¹⁰ Saxelby Acoustics found the Technical Blasting Report to be adequate.¹¹

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on implementation of the proposed project in comparison with the baseline and standards of significance identified above.

¹⁰ Personal [email] communication between Nick Pappani, Vice President, Raney Planning & Management, Inc. and Luke Saxelby, Principal Consultant, Saxelby Acoustics LLC. November 17, 2020.

¹¹ Saxelby Acoustics. *Blasting Study Peer Review for the Idaho-Maryland Mine EIR – Nevada County, California*. June 29, 2020.



4.10-1 Generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, due to initial construction activities. Based on the analysis below, even with the implementation of mitigation, the impact would be considered *significant and unavoidable*.

Site preparation activities at both the Brunswick and Centennial Industrial Sites will include site clearing, grading, paving, and building construction. In addition, construction of the potable water pipeline along East Bennett Road will include trenching, pipeline installation, and compaction activities.

Construction activities associated with development of the aboveground facility at the Brunswick Industrial Site is anticipated to occur over approximately 18 months. Construction activities at the Centennial Industrial Site would be limited (e.g., driveway entrance and left-turn lane improvements) and are anticipated to take 1-2 months to complete. Construction of the potable water pipeline is anticipated to take approximately four months to complete. The aforementioned activities would lead to a temporary increase in ambient noise levels in the project vicinity, and are discussed in further detail below. Potential noise and vibration effects associated with the proposed engineered fill placement at the Brunswick and Centennial Industrial Sites is addressed separately at Impact 4.10-2.

Construction

Construction activities associated with the proposed project would require the use of numerous pieces of noise-generating equipment, such as excavating machinery (e.g., backhoes, bulldozers, excavators, front loaders) and other construction equipment (e.g., compactors, scrapers, graders). Construction worker traffic and construction-related material haul trips would raise ambient noise levels along local haul routes, depending on the number of haul trips made and types of vehicles used.

Table 4.10-10 presents the typical maximum noise levels for equipment commonly used in general construction projects at full-power operation at a distance of 50 feet.

As shown in the table, construction equipment typically generates 77 to 90 dBA of noise at 50 feet away. Not all of these construction activities would be required for the project.

The FHWA Roadway Construction Noise Model (RCNM) was used to quantify worst-case construction noise levels for the project as the model is considered representative of the types of construction activities that would be associated with the project. For this assessment, it was assumed that a bulldozer, grader, excavator, front-end loader and compactor would be used for the various stages of site preparation at both the Brunswick and Centennial Industrial Sites. It was also assumed that mobile equipment would not utilize traditional backup warning devices (beepers) during construction activities when operating in reverse, given that the broadband “squawker” type devices are proposed. For the pipeline installation, less equipment would be required.



**Table 4.10-10
 Typical Construction Equipment Noise**

Equipment Description	Maximum Noise Level at 50 Feet, dBA
Auger drill rig	85
Backhoe	80
Compactor (ground)	80
Compressor (air)	80
Concrete batch plant	83
Concrete mixer truck	85
Concrete pump truck	82
Concrete saw	90
Crane (mobile or stationary)	85
Dozer	85
Dump truck	84
Excavator	85
Front end loader	80
Generator (more than 25 kVA)	82
Grader	85
Jackhammer	85
Mounted impact hammer	90
Paver	85
Pumps	77
Rock drill	85
Scraper	85
Soil mix rig	80

Source: Federal Highway Administration (FHWA).

Assuming a bulldozer, grader, excavator, front-end loader and compactor were operating concurrently at the Brunswick and Centennial Industrial Sites during site preparation, the combined noise exposure from the effective noise center of those operations would be 85 dBA L_{eq} and 85 dB L_{max} at a distance of 50 feet from the operations. However, the earthmoving equipment would be at various locations on the project sites rather than grouped in a small portion of the sites. To provide a conservative but reasonable assessment of project construction noise generation at the Brunswick and Centennial Industrial Sites, it was assumed that all of this equipment could be operating concurrently, but that the equipment would be spread out over the sites during the site clearing/construction operations. As a result, average noise levels were predicted for the Brunswick and Centennial Industrial Sites preparation activities assuming the noise sources were distributed throughout the sites, whereas maximum noise levels were predicted based on the closest proximity of the equipment to the sensitive receptor locations.

It should be noted that an average noise level of 80 dBA L_{eq} at 50 feet was used to assess construction noise generation of the proposed pipeline installation along East Bennett Road. This level is 5 dB lower than the 85 dBA L_{eq} level used for the assessment of construction noise generation at the Brunswick and Centennial Industrial Sites because less heavy earthmoving equipment would be required for the water pipeline installation component of the project than the site preparation and construction operations at the Brunswick and Centennial Industrial Sites.



BAC applied the aforementioned construction noise levels to the representative receptor locations shown on Figure 4.10-3 using the SoundPlan model. The results of the construction noise projections are presented in Table 4.10-11.

Receptor	Predicted Noise Level		Daytime Noise Criteria ¹		Daytime Noise Criteria Exceeded? ²	
	Leq	Lmax	Leq	Lmax	Leq	Lmax
1	54	61	63	81	NO	NO
2	50	60	68	86	NO	NO
3	39	39	66	87	NO	NO
4	37	36	60	75	NO	NO
5	37	28	54	71	NO	NO
6	36	28	55	72	NO	NO
7	36	29	54	71	NO	NO
8	44	42	55	75	NO	NO
9	58	54	53	71	YES	NO
10	65	65	52	71	YES	NO
11	61	62	52	72	YES	NO
12	60	59	54	74	YES	NO
13	67	67	55	75	YES	NO
14	64	62	55	75	YES	NO
15	63	62	55	75	YES	NO
16	56	61	53	75	YES	NO
17	51	54	61	75	NO	NO
18	55	65	55	74	NO	NO
19	49	52	55	74	NO	NO
20	53	58	62	75	NO	NO
21	51	55	60	75	NO	NO
22	54	62	61	75	NO	NO
23	56	67	63	75	NO	NO
24	50	61	65	80	NO	NO
25	50	62	65	75	NO	NO
26	52	63	55	69	NO	NO
27	48	52	55	69	NO	NO
28	49	52	55	69	NO	NO
29	47	45	55	69	NO	NO
30	44	39	55	69	NO	NO

1. Project construction activities would be limited to daytime hours. As a result, only the daytime criteria were utilized for the assessment of potential noise impacts.

2. Because the Nevada County Zoning Ordinance exempts construction activities from the noise standards, these criteria are not applicable to this component of the project. Results of this analysis are provided to give an indication as to whether or not construction noise increases would be substantial relative to existing ambient conditions at these nearest receptors.

Source: Bollard Acoustical Consultants, Inc. (2021).

As demonstrated in Table 4.10-11, the construction activities could result in substantial temporary increases in daytime noise exposure at eight receptors in the project vicinity



(Receptors 9 through 16), when compared to the baseline ambient noise levels at these locations, shown in Table 4.10-6. The substantial increase in noise levels at such locations would be due to installation of the potable water pipeline along East Bennett Road. As noted above, construction noise is exempt from the Nevada County LUDC noise standards (Section L-II 4.1.7.D.8), thus the project's construction noise would not be in violation of the County noise standards. Nevertheless, the predicted construction noise level increases at Receptors 9 through 16 would still be considered substantial pursuant to CEQA.

In conclusion, construction noise impacts associated with construction activities at the Centennial Industrial Site and Brunswick Industrial Site would be *less than significant*. However, installation of the potable water pipeline in East Bennett Road is considered a **significant** impact during duration of daytime construction.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the temporary construction-related noise impact associated with installation of the potable water pipeline. However, because the noise reductions that would be achieved by the measures cannot be definitively determined to confirm that noise levels would be reduced to below a level of significance, the impact is considered *significant and unavoidable* for the purposes of this CEQA evaluation.

4.10-1 *The following noise reduction measures shall be implemented during construction of the potable water line along East Bennett Road and shall be included on Improvement Plans for installation of the potable water line to the satisfaction of the Nevada County Planning Department.*

- *Provide advanced notification of pipeline construction dates and durations to each of the residences located along the construction corridor.*
- *Ensure that all equipment utilizing internal combustion engines are fitted with working mufflers in good repair.*
- *Utilize the quietest equipment capable of performing the required construction.*
- *Locate construction staging areas as far as feasibly possible from existing residences.*
- *If portable generators or air compressors are to be used, locate that equipment as far as feasibly possible from existing residences and, if possible, shield them from view of those residences using intervening topography or vehicles.*
- *All mobile equipment shall be fitted with broad-band "growler" type back-up warning devices rather than the conventional "beeper" devices.*



4.10-2 Generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, due to fill placement, compaction, off-site traffic, and related activities. Based on the analysis below, with the implementation of mitigation, the impact is *less-than-significant*.

Placement and compaction of engineered fill at the Centennial Industrial Site would occur over approximately five years, and placement and compaction of engineered fill at the Brunswick Industrial Site would occur over approximately six years. Movement of fill from the Brunswick Industrial Site to the Centennial Industrial Site would involve an increase of heavy truck traffic along off-site roadways, which could increase local noise levels. The aforementioned activities would lead to a temporary increase in ambient noise levels in the project vicinity, and are discussed in further detail below.

Engineered Fill Placement and Compaction

While the placement of engineered fill is anticipated to occur over an extended period of time, these operations would not occur over the life of the project. For example, it is estimated that engineered fill placement may occur for approximately five years at the Centennial Industrial Site and six years at the Brunswick Industrial Site. This is in contrast to the operational life of the mine, which could occur up to 80 years, pursuant to the Conditional Use Permit. As a result, placement and compaction activities at both the Brunswick Industrial and Centennial Industrial Sites are evaluated in this construction noise impact discussion.

For this assessment, it was assumed that a bulldozer, grader, excavator, front-end loader and compactor would be used concurrently and that traditional backup warning devices would not be a component of the construction noise generation (the broadband warning devices are proposed). Based on these assumptions, the RCNM predicts maximum and average noise levels of 85 dBA L_{max} and 85 dBA L_{eq} at a reference distance of 50 feet from the operations. These levels were projected to the nearest receptors using industry standard sound propagation algorithms at the Centennial Industrial Site and the SoundPlan model at the Brunswick Industrial Site.

Centennial Industrial Site

The nearest sensitive receptors to the Centennial Industrial Site are Receptors 1, 2, and 8 (see Figure 4.10-3), which are located approximately 500 to 1,000 feet from the nearest locations on the Centennial Industrial Site where the engineered fill would be placed. BAC calculated the maximum noise levels at the nearest receptors using the SoundPlan Model. For modelling purposes, maximum noise levels were predicted based on the closest proximity of the heavy equipment to each receptor whereas average noise levels were predicted based on the assumption that the earthmoving equipment would be spread out on the project site. The results of the modeling are presented in Table 4.10-12.



Table 4.10-12							
Centennial Industrial Site: Engineered Fill Activity Noise							
Receptor	Minimum Distance	Predicted Noise Level		Daytime Noise Criteria		Criteria Exceeded?	
		L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
1	500	54	61	63	81	NO	NO
2	600	50	60	68	86	NO	NO
8	1000	44	42	55	75	NO	NO

Note: Engineered fill placement, grading and compaction activities would be limited to daytime hours. As a result, only the daytime criteria are utilized for the assessment of potential noise impacts for this activity.

Source: Bollard Acoustical Consultants, Inc. (2021).

As shown above, engineered fill placement and compaction activities at the Centennial Industrial Site would generate noise levels below the applicable daytime noise criteria at each of the nearest receptors, and impacts related to temporary noise increase from the placement and compaction of engineered fill at the Centennial Industrial Site would be less than significant.

Although engineered fill placement and compaction activities would only occur during daytime hours at the Centennial Industrial Site, transport of engineered fill material from the Brunswick Industrial Site to the Centennial Industrial Site would occur between the hours of 6:00 AM and 10:00 PM. As a result, the nighttime criteria would be applicable to the transport of materials to the Centennial Industrial Site, but only the daytime standards would be applicable to the placement and compaction operations. To quantify the noise generation of trucks arriving at the Centennial Industrial Site, depositing the fill material and departing the site, BAC utilized the SoundPlan model assuming 16 heavy truck operations at the Centennial Industrial Site per hour (eight arrivals loaded and eight departures empty). The results of the analysis are presented in Table 4.10-13.

Table 4.10-13							
Centennial Industrial Site: Nighttime Fill Transport Noise							
Receptor	Minimum Distance	Predicted Noise Level		Nighttime Noise Criteria		Criteria Exceeded?	
		L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
1	500	47	61	55	71	NO	NO
2	600	43	59	60	76	NO	NO
8	1000	24	38	45	70	NO	NO

Source: Bollard Acoustical Consultants, Inc. (2021).

The Table 4.10-13 modeling results indicate that noise generated by deliveries of fill material to the Centennial Industrial Site during nighttime hours would be well below the nighttime noise criteria at the nearest sensitive receptors. As a result, this impact is considered less than significant.



Brunswick Industrial Site

Multiple noise-sensitive receptors are located around the perimeter of the Brunswick Industrial Site (see Figure 4.10-3). The distances between the proposed engineered fill placement areas and the nearby sensitive receptors range from 300 to 2,000 feet. Based on maximum and average construction noise levels of 85 dBA L_{max} and 85 dBA L_{eq} at a reference distance of 50 feet, average and maximum noise levels were computed at the nearest receptors to the Brunswick Industrial Site using the SoundPlan Model. The results of the modeling are presented in Table 4.10-14.

Receptor	Minimum Distance	Predicted Noise Level		Daytime Noise Criteria		Criteria Exceeded?	
		L _{eq}	L _{max}	L _{eq}	L _{max}	L _{eq}	L _{max}
15	1400	45	45	55	75	NO	NO
16	1600	46	46	53	75	NO	NO
17	2000	40	40	61	75	NO	NO
18	1600	47	47	55	74	NO	NO
19	1300	40	40	55	74	NO	NO
20	1000	46	46	62	75	NO	NO
21	700	47	47	60	75	NO	NO
22	500	52	52	61	75	NO	NO
23	400	55	55	63	75	NO	NO
24	350	50	50	65	80	NO	NO
25	650	50	50	65	75	NO	NO
26	300	51	51	55	69	NO	NO
27	600	46	46	55	69	NO	NO
28	500	47	47	55	69	NO	NO
29	1200	40	40	55	69	NO	NO
30	1800	32	32	55	69	NO	NO

Note: Engineered fill placement, grading and compaction activities would be limited to daytime hours. As a result, only the daytime criteria are utilized for the assessment of potential noise impacts for this activity.

Source: Bollard Acoustical Consultants, Inc. (2021).

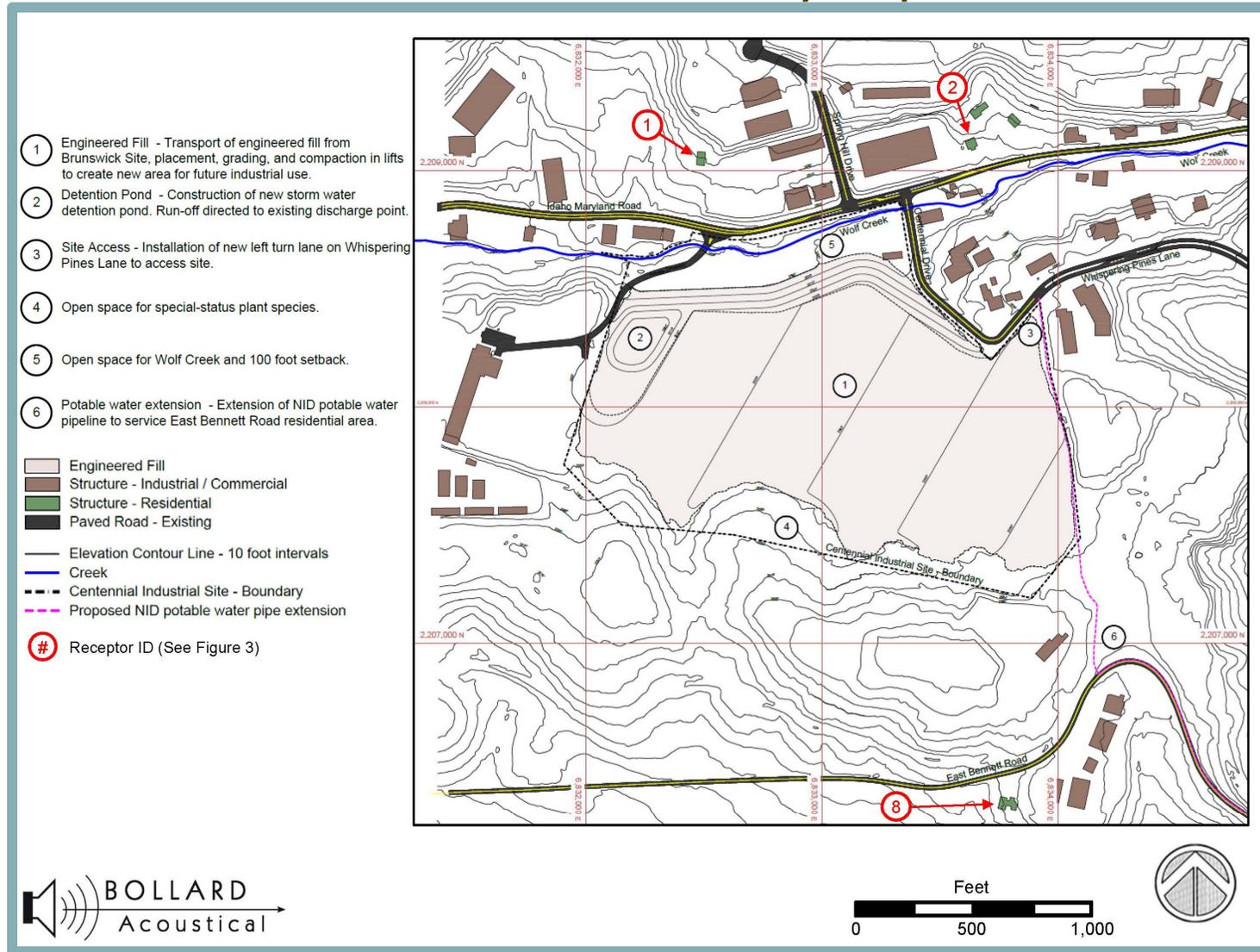
As shown above, engineered fill placement and compaction activities at the Brunswick Industrial Site would generate noise levels below the applicable daytime noise criteria at each of the nearest receptors, and impacts related to temporary noise increase from the placement and compaction of engineered fill at the Brunswick Industrial Site would be less than significant.

Off-Site Traffic (including hauling to Centennial Industrial Site)

During the first five years of the proposed project, fill would be transported from the Brunswick Industrial Site to the Centennial Industrial Site. The additional heavy truck traffic from hauling fill would contribute to the ambient noise environment, specifically to Receptors 1, 2, and 8 (see Figure 4.10-5).



**Figure 4.10-5
 Centennial Industrial Site Plan and Nearby Receptor Locations**



Following the completion of fill placement at the Centennial Industrial Site and the Brunswick Industrial Site (an estimated combined period of approximately 11 years), project-generated fill material would be delivered by truck to various off-site locations via State Route (SR) 20/49. Due to the long-term delivery to market, that operation is evaluated in Impact 4.10-3.

Maximum off-site heavy truck traffic noise levels were assessed for the delivery of engineered fill material to the Centennial Industrial Site. Specifically, the analysis assumed 200 heavy truck trips per day (100 round trips). In addition, employees at the proposed project would generate vehicle trips and associated traffic noise during daily commutes. The proposed project would require approximately 312 direct employees during full mining operations. At full operations, approximately 44 employees would work regular eight-hour days, five days per week, and approximately 268 employees would work 12-hour shifts, seven days on and seven days off. The Brunswick Industrial Site would generate a maximum of 174 employee round trips per day while the Centennial Industrial Site would generate a maximum of four employee round trips per day. In total, the analysis assumed 356 daily one-way employee trips.

Table 4.10-15 presents the existing ambient noise levels and the anticipated existing plus-project traffic noise levels at the nearest residences to each roadway segment, as well as the project-related increase in traffic noise levels and the impact assessment threshold for each roadway segment (based on the substantial increase criteria presented in Table 4.10-5). As shown in the table, the traffic noise level increases from the transport of fill from the Brunswick Industrial Site to the Centennial Industrial Site and employee trips would not exceed the applicable thresholds of significance at any of the receptors.

However, it should be noted that the results presented above do not account for the use of jake brakes. In the event that jake brakes are used by project haul trucks operating between the Brunswick and Centennial Industrial Sites, the potential exists that a substantial increase in ambient noise levels could result from the project at the sensitive receptors located along that haul route.

Conclusion

Implementation of the proposed project would include an estimated five years of temporary hauling of engineered fill from the Brunswick Industrial Site to the Centennial Industrial Site, and engineered fill placement and compaction at the Centennial Industrial Site, which would result in temporary increases in ambient noise levels in the vicinity of the project site. Based on the above analysis, all noise generated from engineered fill placement and compaction, and noise associated with haul truck operation (excepting potential jake brake use) and worker trips during this period, would remain below the applicable noise standards.

However, noise generated from hauling fill from the Brunswick Industrial Site to the Centennial Industrial Site could exceed local standards if jake brakes are used. Therefore, the project could result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, and a **significant** impact could occur.



**Table 4.10-15
 Traffic Noise Levels (L_{dn} , dB) at Nearest Residences along Haul Routes
 used for Fill Placement Activities at Centennial**

Roadway	Description	Baseline	Baseline Plus Project	Increase	Significance Threshold	Substantial Increase?
Bennett Road	Site Entrance to Brunswick	52.5	54.9	2.4	5.0	NO
Brunswick Road	South of Project Site Entrance	62.8	62.8	0.0	3.0	NO
Brunswick Road	Site Entrance to Bennett	60.9	61.2	0.3	3.0	NO
Brunswick Road	Bennett to Whispering Pines	66.4	66.7	0.3	1.5	NO
Brunswick Road	Whispering Pines to Idaho-Maryland Road	66.6	66.7	0.1	1.5	NO
Brunswick Road	Idaho Maryland Road to 49	65.7	65.7	0.0	1.5	NO
Empire Street	West of SR 174	59.8	60.0	0.1	5.0	NO
Empire Street	East of Auburn	61.1	61.2	0.1	3.0	NO
Idaho Maryland Road	East of SR 49	61.5	61.5	0.0	3.0	NO
State Route 174	West of Brunswick	67.8	67.8	0.0	1.5	NO
Whispering Pines Lane	Crown Point to Brunswick	57.8	60.4	2.6	5.0	NO
Whispering Pines Lane	Centennial to Crown Point	59.1	61.1	2.1	5.0	NO

Source: Bollard Acoustical Consultants, Inc. (2021).



Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the potential for jake brake use during hauling material between the Brunswick Industrial Site and the Centennial Industrial Site and would reduce the potential impact to a *less-than-significant* level.

4.10-2 *Haul truck operators shall be required to operate their trucks in such a manner so as to not require the use of jake brakes along the project haul routes. The project applicant shall post signage at the exits of both the Centennial Industrial Site and Brunswick Industrial Site informing drivers that the use of jake brakes is not permitted. Additionally, drivers directly employed by the project applicant, as well as any contract drivers, shall be required to abstain from use of jake brakes as a company policy. Proof of sign postage (e.g., photographic documentation) and a copy of the company policy language shall be provided to the Nevada County Planning Department prior to commencement of hauling. In the event that jake brake usage associated with project-related heavy truck traffic is observed, the project applicant shall implement additional measures to educate drivers regarding the safe operation of their vehicles without the use of jake brakes or take disciplinary action, if required, to the satisfaction of the Nevada County Planning Department. In addition, haul trucks shall be fitted with broad-band “growler” type back-up warning devices rather than the conventional “beeper” devices.*

4.10-3 Generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Based on the analysis below, and with implementation of mitigation, the impact is less than significant.

Operations of the proposed mine would involve several components that would result in the long-term/permanent generation of noise, specifically the following:

- Long-Term Off-Site Traffic
- Mineral Processing
- Shaft Ventilation
- Exterior Pumps
- Water Treatment Plant
- Backup Generators
- Mine Compressor
- Brunswick Shaft Skipping
- Parking Lot
- Blasting

Each of the aforementioned components are analyzed for potential noise-related impacts, and discussed separately in further detail below. In addition, a discussion and analysis of the potential for several components to combine and result in additive noise-related impacts is included below.

Long-Term Off-Site Traffic

Fill would be transported to market by heavy trucks for the lifetime of the project. As part of the Noise and Vibration Analysis prepared by BAC, maximum heavy truck traffic



noise levels were assessed for the delivery of engineered fill material to off-site vendors via SR 20/49. The analysis assumed 200 heavy truck trips per day (100 round trips) and employee trips, as previously discussed.

Table 4.10-16 presents the existing ambient noise levels and anticipated existing plus-project traffic noise levels at the nearest residences to each roadway segment, as well as the project-related increase in traffic noise levels and the impact assessment threshold for each roadway segment based on the criteria presented in Table 4.10-5.

As shown in Table 4.10-16, the traffic noise level increase from the transport of fill from the Brunswick Industrial Site to the highway and from employee commutes would not exceed the applicable thresholds of significance at any of the receptors. Therefore, noise-related impacts from off-site heavy truck and employee traffic would be less than significant.

Mineral Processing

The project processing equipment located within the processing building would consist of the SAG mill (primary grinding), ball mill (secondary grinding), concentrator, cyclones and screens, and filter presses. The noise transmission loss of the proposed metal building ranges from 31 dB at 125 Hz to 75 dB at 4,000 Hz. In addition, the metal building would have double doors (i.e., airlock) to prevent sound escaping when one set of exterior doors are open.

Using information provided by the project applicant for similar facilities, the noise generation from such processing equipment is expected to be 105 dBA L_{eq} with maximum noise levels of approximately 110 dBA L_{max} .

The reference noise level data for both the noise source and building enclosure were used as inputs to the SoundPlan model to calculate processing plant operations at the nearest receptors (see Figure 4.10-6). The results of those calculations are provided in Table 4.10-17. Because such processes are anticipated to occur at all hours, the most restrictive, nighttime noise criteria were applied.

Based on the data presented in Table 4.10-17, the mineral processing operations would generate noise levels below the applicable nighttime standards of significance at each of the nearest sensitive receptor locations. As such, noise-related impacts from mineral processing would be less than significant.

Shaft Ventilation Fan

Ventilation would be provided with a fan located on the surface and ducting into the Brunswick shaft until the service shaft is complete and the permanent underground ventilation fan can be installed. Required aboveground facilities to support pumping of fresh air underground would include a primary ventilation fan and duct work. The primary ventilation fan would include housing on each side, as well as a silencer to reduce noise levels. The front of the ventilation fan would connect to a vent duct that would carry air underground, into the mine shaft. In addition, secondary fans would be installed underground to promote air circulation.



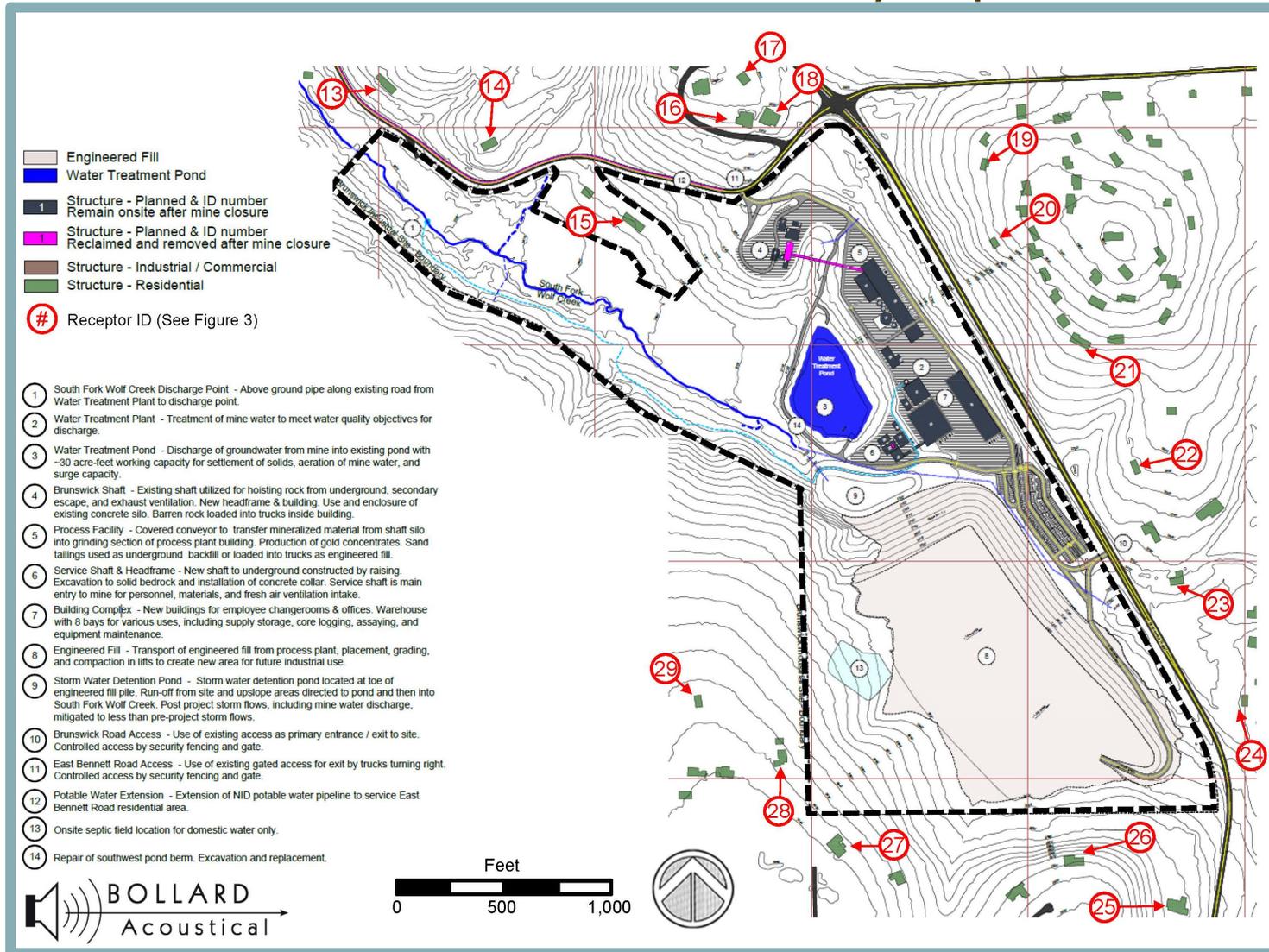
**Table 4.10-16
 Traffic Noise Levels (L_{dn} , dB) at Nearest Residences along Haul Routes
 used for Offsite Hauling of Fill Via SR 20/49**

Roadway	Description	Baseline	Baseline Plus Project	Increase	Significance Threshold	Substantial Increase?
Bennett Road	Site Entrance to Brunswick	52.5	54.9	2.4	5.0	NO
Brunswick Road	South of Project Site Entrance	62.8	62.8	0.0	3.0	NO
Brunswick Road	Site Entrance to Bennett	60.9	61.2	0.3	3.0	NO
Brunswick Road	Bennett to Whispering Pines	66.4	66.7	0.4	1.5	NO
Brunswick Road	Whispering Pines to Idaho Maryland Road	66.6	67.0	0.4	1.5	NO
Brunswick Road	Idaho Maryland Road to SR 49	65.7	66.2	0.5	1.5	NO
Empire Street	West of SR 174	59.8	60.0	0.1	5.0	NO
Empire Street	East of Auburn	61.1	61.2	0.1	3.0	NO
Idaho Maryland Road	East of SR 49	61.5	61.6	0.1	3.0	NO
State Route 174	West of Brunswick	67.8	67.8	0.0	1.5	NO
Whispering Pines Lane	Crown Point to Brunswick	57.8	57.8	0.0	5.0	NO
Whispering Pines Lane	Centennial to Crown Point	59.1	59.1	0.0	5.0	NO

Source: *Bollard Acoustical Consultants, Inc. (2021).*



**Figure 4.10-6
 Brunswick Industrial Site Plan and Nearby Receptors**



**Table 4.10-17
 Mineral Processing Noise Levels at Nearest Receptors**

Receptor	Minimum Distance	Predicted Noise Level		Nighttime Noise Criteria		Criteria Exceeded?	
		L _{eq}	L _{max}	L _{eq}	L _{max}	L _{eq}	L _{max}
15	1000	25	30	45	70	NO	NO
16	800	32	37	45	67	NO	NO
17	1000	25	30	61	75	NO	NO
18	800	33	38	58	72	NO	NO
19	650	32	37	51	70	NO	NO
20	500	36	41	55	73	NO	NO
21	700	30	35	53	71	NO	NO
22	1100	25	30	53	72	NO	NO
23	1600	21	26	56	74	NO	NO
24	2200	22	27	58	76	NO	NO
25	2850	24	29	57	76	NO	NO
26	2500	25	30	45	60	NO	NO
27	2300	24	29	45	60	NO	NO
28	2000	24	29	45	60	NO	NO
29	2350	24	29	45	60	NO	NO
30	2700	21	26	45	60	NO	NO

Note: Mineral processing operations would occur 24-hours per day. As a result, the most restrictive nighttime criteria were utilized for the assessment of potential noise impacts for this activity.

Source: Bollard Acoustical Consultants, Inc. (2021).

The sound level generated by the ventilation fans depends primarily on the fan input power and type. The shaft ventilation fan proposed for use at the Brunswick Industrial Site would be centrifugal-type rated at 275 horsepower (hp) (205 kilowatts). Based on the fan power rating and the above formula, the sound pressure level for the proposed ventilation fan computes to 113 dBA at a distance of 5 feet. This reference noise level was projected to the nearest representative receptors to the Brunswick Industrial Site, including the effects of a silencer providing comparable sound attenuation as the other industrial buildings proposed at the site. Because the fan would operate at all hours, the most restrictive, nighttime noise criteria were applied. Due to the steady-state nature of the fan operations, maximum noise levels (L_{max}) would be equivalent to average sound levels (L_{eq}). It should be noted that a custom silencer, which would be fabricated for the temporary surface ventilation fan, would be engineered to provide the required degree of sound attenuation, as well as oriented with the fan inlet facing away from the nearest receptors. The results of those calculations are provided in Table 4.10-18.

As shown in Table 4.10-18, the shaft ventilation fan is predicted to generate noise levels below the applicable nighttime standards of significance at each of the nearest sensitive receptor locations. As such, noise-related impacts from shaft ventilation would be less than significant.



**Table 4.10-18
 Ventilation Fan Noise Levels at Nearest Receptors**

Receptor	Distance	Predicted Noise Level		Nighttime Noise Criteria		Criteria Exceeded?	
		Leq	Lmax	Leq	Lmax	Leq	Lmax
15	650	24	24	45	70	NO	NO
16	600	29	29	45	67	NO	NO
17	800	23	23	62	76	NO	NO
18	600	31	31	58	72	NO	NO
19	950	23	23	51	70	NO	NO
20	950	25	25	55	73	NO	NO
21	1400	20	20	53	71	NO	NO
22	1850	15	15	53	72	NO	NO
23	2350	15	15	56	74	NO	NO
24	2950	12	12	58	76	NO	NO
25	3450	14	14	57	76	NO	NO
26	3100	15	15	45	60	NO	NO
27	2700	13	13	45	60	NO	NO
28	2300	14	14	45	60	NO	NO
29	2300	15	15	45	60	NO	NO
30	2600	13	13	45	60	NO	NO

Note: Processing operations would occur 24-hours per day. As a result, the most restrictive nighttime criteria were utilized for the assessment of potential noise impacts for this activity.

Source: Bollard Acoustical Consultants, Inc. (2021).

Exterior Pumps

Several tanks would be located outdoors, adjacent to the proposed process plant. The water tanks would include electric pumps at the bottom of the tanks, and the thickener tank and paste filter feed tanks would include peristaltic hose pumps mounted on the bottom of the tanks. The cement silo would transfer cement into the plant with a mechanical auger, the thickener tank would have a rotating rake, and the paste filter feed tank would have a rotating impeller. The horsepower of the exterior pumps would range from 15 to 30 hp. Such equipment would generate very low noise emissions.

Based on the pump horsepower, combined pump noise levels are expected to be 65 dBA at a reference distance of 50 feet. The nearest receptor to the exterior pump area is Receptor 20, located 550 feet to the east. At a distance of 550 feet, pump noise would be reduced to 44 dBA. After accounting for ground attenuation and vegetation, as well as shielding provided by the 25-foot high process building, pump noise levels at the nearest receptor are predicted to be approximately 26 dBA. Because the predicted pump noise levels would be below the most restrictive nighttime noise criteria, noise-related impacts from exterior pumps would be less than significant.

Water Treatment Plant

The primary noise source associated with the water treatment plant would be the pumps and the turbine aerator. The turbine aerator would be located inside the building. Several pumps would be located outdoors, adjacent to the building and at the pump platform on the water treatment pond. The distance from the water treatment



plant to the nearest residence, Receptor 20, (see Figure 4.10-3) would be approximately 900 feet.

Noise level measurements conducted by BAC at the Auburn California Wastewater Treatment Plant determined that average noise levels of approximately 50 dBA were recorded at a distance of 500 feet from the plant. This noise was generated primarily by pumps and an aeration system.

Using the SoundPlan model with an assumed interior noise level of 75 dBA within the treatment plant building, and including the noise attenuation provided by the building, water treatment plant noise was estimated to be approximately 28 dBA or less at the nearest receptors. The estimated noise level from operations of the water treatment plant would be well below the applicable daytime, evening, and nighttime thresholds of 62, 60, and 55 dB L_{eq} , respectively. As such, the noise-related impacts from the water treatment plant would be less than significant.

Backup Generators

The proposed project would include four diesel generators located inside of a building adjacent to the water treatment plant. The generators would be used for emergency power during interruptions to grid power from PG&E, which would occur very infrequently. Noise level data for similar generators indicate that the generators would produce a combined sound level of approximately 105 dBA within the generator building. Due to the substantial noise attenuation provided by the proposed industrial building, the noise levels calculated using the SoundPlan model at the nearest residences are predicted to be below 25 dBA L_{eq} . Because the predicted generator noise levels are well below all applicable noise standards, the noise-related impacts from the backup generators would be less than significant.

Mine Compressor

The proposed mine air compressor would be located inside a building adjacent to the Brunswick Shaft, and would have a rated capacity of 4,000 cubic feet per minute at 800 hp. The noise generation of an unenclosed compressor would be approximately 110 dBA at a reference distance of three feet. Assuming an overall interior noise level of 105 dB within the compressor building, the SoundPlan model predicts average noise levels of less than 35 dBA at the nearest sensitive receptor (Receptor 18). Because the predicted compressor sound levels would satisfy the applicable nighttime noise level criteria at the nearest receptors, noise-related impacts from the mine compressor would be less than significant.

Brunswick Shaft Skipping

During project operations, rock would be hoisted up the Brunswick Shaft in skips and dropped into the concrete silo. Rock hoisted into the headframe building would drop approximately two feet onto a steel chute, which would direct the rock into a pile. The falling rock is predicted to generate a maximum noise level of approximately 120 dBA within the headframe building. Acoustical shielding provided by the concrete sleeve of the silo and the headframe building is predicted to substantially reduce maximum noise levels. At the nearest residence (Receptor 16), located 595 feet to the north, the SoundPlan model predicts a maximum noise level of less than 50 dBA L_{max} . The nighttime noise level criteria applicable at this receptor is 67 dBA L_{max} . Because the



maximum noise generation of the shaft skipping operations would be below the applicable noise standard, noise-related impacts from the Brunswick Shaft skipping would be less than significant.

Parking Lot

Noise generation related to parking lot activities would include vehicles arriving and departing, engines starting and stopping, car doors opening and closing, and persons conversing. During the busiest shift change, approximately 107 employee vehicles would arrive at the project site and 67 employee vehicles would depart the project site, for a total of 174 parking lot movements. Parking lot movements generate mean sound exposure levels of 70 dB at a reference distance of 50 feet.

The nearest receptor to the parking area is located approximately 300 feet to the east (between Receptors 22 and 23). At 300 feet, noise generated from the parking lot would be 41 dBA L_{eq} and 49 dBA L_{max} . The nighttime noise level criteria applicable at this receptor is 53 dB L_{eq} and 72 dBA L_{max} . Because the average and maximum noise generation of the employee parking lot activities would be below those average and maximum noise criteria, noise-related impacts from the parking lot would be less than significant.

Blasting

In order to assess the potential for noise impacts associated with blasting activities, BAC referred to the long-term blasting noise level data collected from a similar mine.

In 2013, BAC conducted a long-term blasting noise level survey over the course of 30 days at the Sutter Gold Mine, an underground mine located in Amador County, California. During the survey, noise monitoring was conducted at five separate locations, with the nearest located approximately 220 feet from the main mine portal. Over the course of the 30-day survey, 62 blasting events were captured at the nearest location. The average noise level calculated from the 62 blast events was 75 dBA L_{max} at the location 200 feet from the mine portal.

As part of the proposed project, two entrances would be provided to the vertical mine shafts at the Brunswick Industrial Site. The main shaft would be located at the northern portion of the site, approximately 550 feet away from the nearest receptor (Receptor 16). The new service shaft would be located approximately 1,000 feet from the nearest receptor (Receptor 21).

The Idaho-Maryland Mine would be a vertical shaft mine, whereas the portal to the Sutter Gold Mine, where the long-term blasting noise monitoring was performed, was accessed through a horizontal portal. In addition, the portals used for the proposed project would be smaller in size than those used for the Sutter Gold Mine. As such, blasting noise levels from the proposed project are expected to be considerably lower than those measured at the Sutter Gold site. According to BAC's Noise and Vibration Analysis, the difference in maximum noise levels at the two sites is estimated to be at least 20 dB.

Using the 75 dBA L_{max} average blasting noise level from the Sutter Gold Mine, and applying a 20 dB reduction to assess blasting noise impacts at the Brunswick



Industrial Site, the worst-case maximum noise levels at the nearest noise-sensitive receptors would range from 52 to 57 dBA L_{max} . The range of predicted worst-case blasting noise levels of 52 to 57 dBA L_{max} is below the daytime, evening, and nighttime dBA L_{max} criteria at the nearest receptors (refer to Table 4.10-6 for daytime, evening, and nighttime noise criteria for each receptor).

Combined Stationary Noise Sources

Due to the considerable distance and topographic shielding between the Centennial and Brunswick Industrial Sites, noise sources present at one site would not result in any additive change in the noise environment at the other site. However, several separate noise sources would exist at the Brunswick Industrial Site and, when combined, would result in higher noise levels at the nearest receptors than the individual sources alone.

To predict combined project noise exposure, BAC developed noise contours for both daytime and nighttime periods using the SoundPlan model. Each of the aforementioned individual noise sources were included in the combined SoundPlan model runs. The noise contours for daytime and nighttime periods are provided in Figure 4.10-7 and Figure 4.10-8, respectively. Table 4.10-19 and Table 4.10-20 provide the computed daytime and nighttime combined noise exposure from all sources which would be in operation during those hours and a comparison of that exposure to the applicable noise criteria at each receptor.

As shown in Figure 4.10-7 and Figure 4.10-8, as well as Table 4.10-19 and Table 4.10-20, the combined project noise exposure is expected to fall below both the daytime and nighttime noise criteria at the nearest receptors.

Conclusion

Based on the above, none of the individual activities associated with long-term operations of the proposed project would generate noise in excess of the applicable noise standards. Furthermore, combined project noise impacts are not anticipated for the proposed project. Nonetheless, because the project would include multiple processes which generate noise, and because compliance with the Nevada County Noise Standards is required, Mitigation Measure 4.10-2 is included out of an abundance of caution to ensure satisfaction with such standards and to reduce the potential for annoyance resulting from the proposed project to the maximum extent feasible. It is conservatively concluded that the proposed project could result in a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, and the project's noise impacts could be **significant**.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.



Figure 4.10-7
Daytime Cumulative Operation of All Equipment and Processes

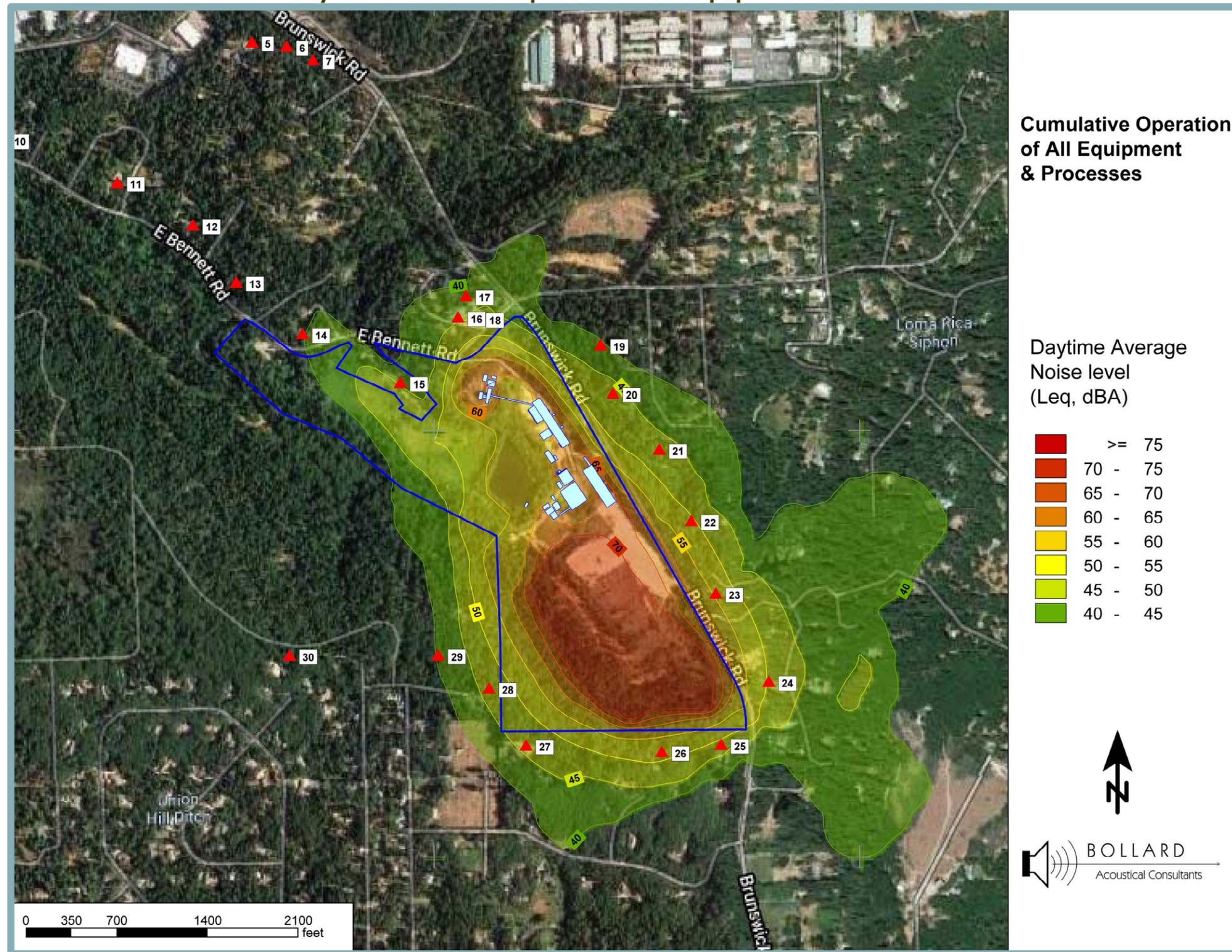
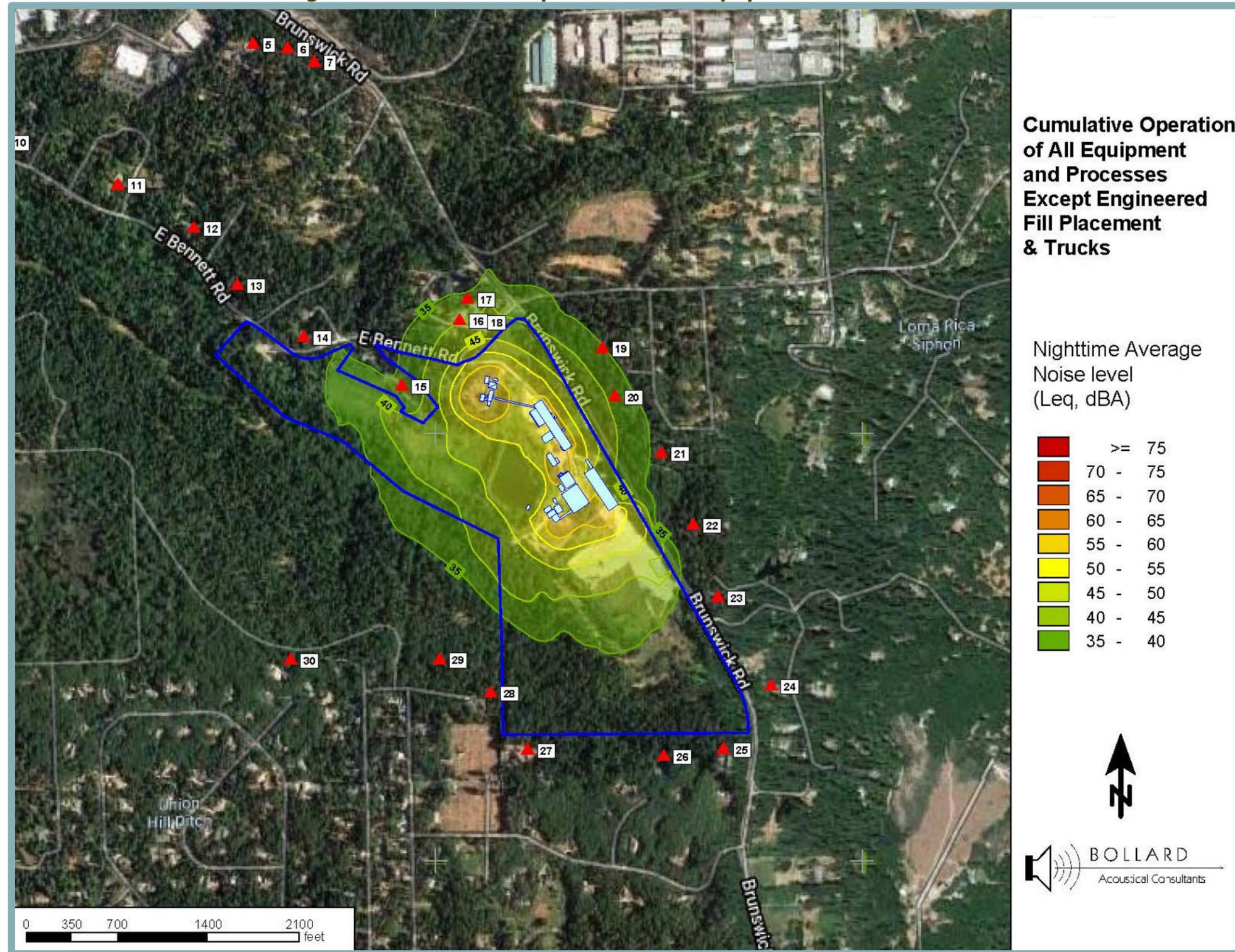


Figure 4.10-8
Nighttime Cumulative Operation of All Equipment and Processes



**Table 4.10-19
 Predicted Combined Noise Levels from All Daytime
 Sources at Nearest Receptors**

Receptor	Project Daytime Noise Generation		Daytime Noise Criteria		Criteria Exceeded?	
	Leq	Lmax	Leq	Lmax	Leq	Lmax
1	56	68	63	81	NO	NO
2	54	67	68	86	NO	NO
3	39	46	66	87	NO	NO
4	37	43	60	75	NO	NO
5	29	34	54	71	NO	NO
6	29	34	55	72	NO	NO
7	29	33	54	71	NO	NO
8	38	48	55	75	NO	NO
9	35	41	53	71	NO	NO
10	34	40	52	71	NO	NO
11	34	42	52	72	NO	NO
12	33	41	54	74	NO	NO
13	34	43	55	75	NO	NO
14	41	48	55	75	NO	NO
15	44	55	55	75	NO	NO
16	45	51	53	75	NO	NO
17	43	49	61	75	NO	NO
18	47	53	55	74	NO	NO
19	41	50	55	74	NO	NO
20	47	55	62	75	NO	NO
21	47	58	60	75	NO	NO
22	51	62	61	75	NO	NO
23	55	67	63	75	NO	NO
24	50	66	65	80	NO	NO
25	49	67	65	75	NO	NO
26	51	68	55	69	NO	NO
27	46	57	55	69	NO	NO
28	46	57	55	69	NO	NO
29	40	50	55	69	NO	NO
30	34	39	55	69	NO	NO

Source: *Bollard Acoustical Consultants, Inc. (2021).*



**Table 4.10-20
 Predicted Combined Noise Levels from All Nighttime
 Sources at Nearest Receptors**

Receptor	Project Nighttime Noise Generation		Nighttime Noise Criteria		Criteria Exceeded?	
	Leq	Lmax	Leq	Lmax	Leq	Lmax
1	14	15	55	71	NO	NO
2	14	16	60	76	NO	NO
3	17	21	56	74	NO	NO
4	17	20	61	75	NO	NO
5	13	17	55	69	NO	NO
6	14	18	56	70	NO	NO
7	17	19	55	69	NO	NO
8	14	16	45	70	NO	NO
9	20	25	44	60	NO	NO
10	19	25	42	60	NO	NO
11	20	26	42	60	NO	NO
12	18	20	44	67	NO	NO
13	22	28	45	69	NO	NO
14	31	39	45	69	NO	NO
15	36	45	45	70	NO	NO
16	40	48	45	67	NO	NO
17	36	45	62	76	NO	NO
18	41	49	58	72	NO	NO
19	36	42	51	70	NO	NO
20	39	43	55	73	NO	NO
21	33	37	53	71	NO	NO
22	28	30	53	72	NO	NO
23	24	27	56	74	NO	NO
24	23	27	58	76	NO	NO
25	25	28	57	76	NO	NO
26	26	31	45	60	NO	NO
27	25	29	45	60	NO	NO
28	26	29	45	60	NO	NO
29	26	30	45	60	NO	NO
30	24	28	45	60	NO	NO

Source: Bollard Acoustical Consultants, Inc. (2021).



4.10-3 *The following conditions shall be met, subject to review and approval by the Nevada County Planning Department:*

1. *All on-site mobile equipment shall be fitted with broad-band “growler” type back-up warning devices rather than the conventional “beeper” devices.*
2. *A comprehensive noise monitoring program shall be conducted of each facet of the operation to both verify the modelling assumptions of the project noise analysis (Bollard Acoustical Consultants, Inc. Noise and Vibration Analysis, Idaho Maryland Mine, Nevada County, California BAC Job #2018-203. March 8, 2021) and to ensure that compliance with the applicable Nevada County noise standards is being achieved at nearby sensitive receptors. The noise monitoring program shall evaluate noise levels at a minimum of five receptor locations surrounding the Brunswick Industrial Site. The noise monitoring system shall consist of the installation of permanent noise monitors at three to five locations on the Brunswick Industrial Site, and one site at the Centennial Industrial Site, to be determined by a third-party noise consultant under contract with the County, in coordination with the applicant. The permanent monitors shall be provided with a continual power source, and shall include internet connectivity technology, to enable electronic retrieval of noise monitoring data at any time by the County’s third-party noise consultant.*
 - a. *Within 30 days of installation and operation of mine-related equipment at the Brunswick Industrial Site, the County’s third-party noise consultant shall retrieve and evaluate noise monitoring data to evaluate whether mine-related operational noise levels are in compliance with County noise standards at the pre-determined Receptor locations, using noise level data and noise attenuation calculations accounting for distance to the receptor locations. The results shall be submitted to the Nevada County Planning Department within one week from evaluation of the noise data. If the results indicate that the County noise standards are being exceeded either by individual equipment or processes, or cumulative noise generation of the entire facility, operations shall cease until additional engineering controls can be implemented as needed. Such measures could take the form of noise barriers, installation of sound absorbing materials, use of additional silencers, etc. After implementation of any recommended measures, follow-up noise level data evaluation shall be conducted to demonstrate that the resultant operational noise levels comply with the County noise level standards at nearby sensitive receptors.*
 - b. *After the initial noise monitoring evaluation described under “a”, the County’s third-party noise consultant shall evaluate permanent noise monitoring data at the pre-determined receptor locations as follows: i) on a quarterly basis during the*



first five years of project operation; ii) once per year thereafter for the life of the project; and iii) in response to public noise complaints. If the results indicate that the County noise standards are being exceeded, then the actions described in “a” shall be implemented to the satisfaction of the County.

4.10-4 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Based on the analysis below, and with the implementation of mitigation, the impact is less than significant.

Implementation of the proposed project could result in the generation of groundborne vibration from construction activities, heavy truck traffic, and underground blasting.

Construction

Construction activities associated with the proposed project would have the potential to result in varying degrees of temporary ground vibration depending on the specific construction equipment used and operations involved. Table 4.10-21 shows the typical vibration levels produced by various types of construction equipment.

**Table 4.10-21
 Vibration Levels of Heavy Earthmoving Equipment at 25 Feet**

Source	PPV (in/s)	RMS Velocity in Decibels (VdB)
Water Trucks	0.001	57
Scraper	0.002	58
Bulldozer - Small	0.003	58
Backhoe	0.051	82
Excavator	0.051	82
Grader	0.051	82
Loader	0.051	82
Loaded Trucks	0.076	86
Bulldozer - Large	0.089	87

Source: Bollard Acoustical Consultants, Inc. (2021).

The nearest receptor to where the most significant vibration would be generated is approximately 350 feet away. By applying a standard vibration attenuation calculation, the vibration level at the nearest sensitive receptor would be 0.002 in/s PPV, or approximately 58 VdB, which falls below the selected criteria for vibration impacts on structures (90 VdB) and annoyance to residential land uses (72 VdB). Therefore, construction associated with the proposed project would result in a less-than-significant impact related to groundborne vibration.

Heavy Truck Traffic

Vibration would be generated by heavy truck traffic transporting engineered fill material from the Brunswick Industrial Site to the Centennial Industrial Site and/or off-site. As shown in Table 4.10-3, measured ambient vibration levels along the local roadway network ranged from 34 to 57 VdB. The local roadway network already includes truck



traffic and, therefore, the ambient vibration survey included vibration generated from the passbys of heavy trucks. Heavy truck passbys associated with the proposed project would not generate higher vibration levels than the levels generated during existing truck passbys. The truck traffic vibration levels would be below the thresholds for both annoyance and damage to structures, and heavy truck traffic associated with the proposed project would result in a less-than-significant impact related to groundborne vibration.

Underground Blasting

As part of the project, an extensive network of tunnels would be constructed throughout the lifetime of the proposed mine. New underground tunnels would be created as necessary to access potential ore veins or to provide the necessary infrastructure, ventilation, and escape routes. The largest types of blasting that would occur for tunnel expansion would be drift development and long-hole stope blasting.

The Idaho-Maryland Mine has already been extensively mined to 1,600 feet below surface, but the possibility exists that gold ore is located in the upper levels of the mine as well. Therefore, the analysis conducted by PBS assumed that mining by drift rounds and long-hole blasts could take place as shallow as 500 feet below the ground surface.

Blasting Effects at Nearby Residences

The receptors located directly above the area that would be blasted have the least horizontal distance of separation from the blast area and, therefore, the least amount of rock through which ground vibration could be attenuated. As a result, such receptors have the greatest potential to notice adverse effects from a blast.

The maximum ground vibration from underground blasting was analyzed using the CRSD prediction equation. In addition, this analysis assumed that the receptor is located directly above the blast location (i.e., no horizontal separation). Table 4.10-22 and Table 4.10-23 present the anticipated PPV from various blasting levels using the drift development and long hole blasting techniques described above.

Table 4.10-22 PPV for Drift Development Blasting based on Vertical Distance from Receptor				
Mine Level	Weight of Explosive (lbs)	Receptor Distance from Blast (ft)	Cubed-Root Scaled Distance	PPV (in/s)
500	52.1	500	144.2	0.14
600	52.1	600	173.0	0.11
700	52.1	700	201.9	0.08
800	52.1	800	230.7	0.07
900	52.1	900	259.5	0.06
1000	52.1	1000	288.4	0.05
1100	52.1	1100	317.2	NT
1200	52.1	1200	346.0	NT
1300	52.1	1300	374.9	NT
1400	52.1	1400	403.7	NT

(Continued on next page)



**Table 4.10-22
PPV for Drift Development Blasting based on Vertical
Distance from Receptor**

Mine Level	Weight of Explosive (lbs)	Receptor Distance from Blast (ft)	Cubed-Root Scaled Distance	PPV (in/s)
1500	52.1	1500	432.6	NT
1600	52.1	1600	461.4	NT
1700	52.1	1700	490.2	NT
1800	52.1	1800	519.1	NT
1900	52.1	1900	547.9	NT
2000	52.1	2000	576.7	NT
2100	52.1	2100	605.6	NT
2200	52.1	2200	634.4	NT
2300	52.1	2300	663.3	NT
2400	52.1	2400	692.1	NT
2500	52.1	2500	720.9	NT
2600	52.1	2600	749.8	NT
2700	52.1	2700	778.6	NT
2800	52.1	2800	807.4	NT
2900	52.1	2900	836.3	NT

Note: Any field indicated with the symbol "NT" has an anticipated ground vibration below that which is detectable on a typical blasting seismograph (PPV < 0.05 in/s).

Source: Precision Blasting Services (2019).

**Table 4.10-23
PPV for Long-Hole Stop Blasting based on Vertical
Distance from Receptor**

Mine Level	Weight of Explosive (lbs)	Receptor Distance from Blast (ft)	Cubed-Root Scaled Distance	PPV (in/s)
500	133	500	98.0	0.23
600	133	600	117.5	0.18
700	133	700	137.1	0.14
800	133	800	156.7	0.11
900	133	900	176.3	0.09
1000	133	1000	195.9	0.08
1100	133	1100	215.5	0.07
1200	133	1200	235.1	0.06
1300	133	1300	254.7	0.05
1400	133	1400	274.3	0.05
1500	133	1500	293.9	NT
1600	133	1600	313.5	NT
1700	133	1700	333.0	NT
1800	133	1800	352.6	NT
1900	133	1900	372.2	NT
2000	133	2000	391.8	NT
2100	133	2100	411.4	NT
2200	133	2200	431.0	NT

(Continued on next page)



**Table 4.10-23
 PPV for Long-Hole Stope Blasting based on Vertical
 Distance from Receptor**

Mine Level	Weight of Explosive (lbs)	Receptor Distance from Blast (ft)	Cubed-Root Scaled Distance	PPV (in/s)
2300	133	2300	450.6	NT
2400	133	2400	470.2	NT
2500	133	2500	489.8	NT
2600	133	2600	509.4	NT
2700	133	2700	528.9	NT
2800	133	2800	548.5	NT
2900	133	2900	568.1	NT

Note: Any field indicated with the symbol "NT" has an anticipated ground vibration below that which is detectable on a typical blasting seismograph (PPV < 0.05 in/s).

Source: Precision Blasting Services (2019).

Emulsion explosive product has been assumed as it produces the largest weight of explosives (charge weight) per hole. This has been segmented based on the anticipated mining levels, beginning at 500 feet and every 100 feet below that. The datum to ground has been set as the elevation of Brunswick Shaft; however, many of the surrounding structures which the mine may be mining below are located at a higher elevation relative to the Brunswick Shaft, and thus, have lower ground vibration levels than shown in the tables. Any field indicated with the symbol "NT" has an anticipated ground vibration below that which is typically detectable on a typical blasting seismograph (PPV < 0.05 in/s) and as such, is viewed as having no ground vibration effects.

As shown in Table 4.10-22 and Table 4.10-23, all groundborne vibrations calculated for blasting of both drift round and long-hole stopes, respectively, fall below the USBM recommendations and the levels at which structural damage to buildings is possible (see Table 4.10-9). Drift development blasts at the shallowest depth considered of 500 feet would be barely perceivable to the general population and undetectable by instrumentation below 900 feet in depth. Larger longhole stoping blasts at the shallowest depth considered of 500 feet would be 0.23 in/s, which is also well below the threshold level of vibration (0.4 in/s) about which less than eight percent of the population complains. The calculated ground vibration is considered insignificant. At depths below 800 feet, the ground vibration becomes unnoticeable to the general population. Untraceable vibration would occur at a depth of approximately 1,500 feet. At depths below 1500 feet, it would be expected that ground vibration would be unnoticeable.

As such, underground blasting associated with the proposed project would result in a less-than-significant vibration-related impact to sensitive receptors in the project vicinity.

Blasting Effects at Analog Devices

Analog Devices, Inc., located along Crown Point Circle, is a business that works with sensitive electronic equipment and microscopes placed on vibration dampeners.



According to PBS, based upon research, it is reasonable to assume such equipment can withstand vibration levels up to 0.5 in/s without affecting the function of these devices.¹²

In the vicinity of the Analog Devices building, the shallowest depth that underground mining and blasting is likely to occur is 1,000 feet. Such blasting may occur directly below Analog Devices and, therefore, horizontal offset has not been included. Results of the analysis for groundborne vibration impacts at Analog Devices is presented in Table 4.10-24.

Mine Level	Weight of Explosive (lbs)	Vertical Distance From Blast (ft)	Horizontal Distance From Blast (ft)	True Distance from Blast (ft)	Cubed-Root Scaled Distance	PPV (in/s)
1000	133	1026.5	0	1026.5	201.1	0.07
1100	133	1126.5	0	1126.5	220.7	0.06
1200	133	1226.5	0	1226.5	240.3	0.06
1300	133	1326.5	0	1326.5	259.9	0.05
1400	133	1426.5	0	1426.5	279.5	NT
1500	133	1526.5	0	1526.5	299.1	NT
1600	133	1626.5	0	1626.5	318.6	NT
1700	133	1726.5	0	1726.5	338.2	NT
1800	133	1826.5	0	1826.5	357.8	NT
1900	133	1926.5	0	1926.5	377.4	NT
2000	133	2026.5	0	2026.5	397.0	NT

Note: Any field indicated with the symbol "NT" has an anticipated ground vibration below that which is detectable on a typical blasting seismograph (PPV < 0.05 in/s).

Source: Precision Blasting Services (2019).

As shown in Table 4.10-24, the calculated ground vibration predictions would remain below 0.1 in/s (i.e., vibration level that is perceivable). Underground blasting on the 1,400-foot level and below would not be traceable. Therefore, underground blasting associated with the proposed project would result in a less-than-significant vibration-related impact to Analog Devices.

Blasting Effects at Sierra Nevada Memorial Hospital

The Sierra Nevada Memorial Hospital has been identified as a vibration-sensitive receptor in the project vicinity. The Sierra Nevada Memorial Hospital contains sensitive equipment which may be susceptible to adverse impacts from groundborne vibration. PBS has worked on many projects that involved blasting next to working hospitals, including blasting foundations for hospital expansions next to existing hospitals. The ground vibration was never an issue and was typically set to the USBM Z-Curve limits for residential structures.

¹² PBS. *Environmental Factors of Blasting Report for the Proposed Idaho-Maryland Gold Project, Nevada County, CA* [pg. 23]. September 27, 2019.



Results of the analysis for groundborne vibration effects at the Sierra Nevada Memorial Hospital are presented in Table 4.10-25.

Mine Level	Weight of Explosive (lbs)	Vertical Distance From Blast (ft)	Horizontal Distance From Blast (ft)	True Distance from Blast (ft)	Cubed-Root Scaled Distance	PPV (in/s)
500	133	398.5	3300	3324.0	651.2	NT
600	133	498.5	3300	3337.4	653.8	NT
700	133	598.5	3300	3353.8	657.0	NT
800	133	698.5	3300	3373.1	660.8	NT
900	133	798.5	3300	3395.2	665.2	NT
1000	133	898.5	3300	3420.1	670.0	NT
1100	133	998.5	3300	3447.8	675.4	NT
1200	133	1098.5	3300	3478.0	681.4	NT
1300	133	1198.5	3300	3510.9	687.8	NT
1400	133	1298.5	3300	3546.3	694.7	NT
1500	133	1398.5	3300	3584.1	702.2	NT
1600	133	1498.5	3300	3624.3	708.3	NT
1700	133	1598.5	3300	3666.8	714.8	NT
1800	133	1698.5	3300	3711.5	721.7	NT
1900	133	1798.5	3300	3758.3	729.0	NT
2000	133	1898.5	3300	3807.1	736.7	NT

Note: Any field indicated with the symbol "NT" has an anticipated ground vibration below that which is detectable on a typical blasting seismograph (PPV < 0.05 in/s).

Source: Precision Blasting Services (2019).

As shown in Table 4.10-25, vibration from underground blasting would not be traceable at the hospital site. Therefore, underground blasting associated with the proposed project would result in a less-than-significant vibration-related impact to Sierra Nevada Memorial Hospital.

Blasting Effects at Downtown Grass Valley

Downtown Grass Valley was analyzed for vibration impacts due to the presence of older buildings and a larger population in the area. Results of the analysis for groundborne vibration impacts in Downtown Grass Valley are presented in Table 4.10-26.

As shown in Table 4.10-26, vibration from underground blasting would not be traceable in Downtown Grass Valley. Therefore, underground blasting associated with the proposed project would result in a less-than-significant vibration-related impact to Downtown Grass Valley.



**Table 4.10-26
 Ground Vibration Predictions at Downtown Grass Valley**

Mine Level	Weight of Explosive (lbs)	Vertical Distance From Blast (ft)	Horizontal Distance From Blast (ft)	True Distance from Blast (ft)	Cubed-Root Scaled Distance	PPV (in/s)
500	133	169.5	6000	6002.4	1175.91	NT
600	133	269.5	6000	6006.0	1176.63	NT
700	133	369.5	6000	6011.4	1177.67	NT
800	133	469.5	6000	6018.3	1179.03	NT
900	133	569.5	6000	6027.0	1180.72	NT
1000	133	669.5	6000	6037.2	1182.74	NT
1100	133	769.5	6000	6049.1	1185.07	NT
1200	133	869.5	6000	6062.7	1187.72	NT
1300	133	969.5	6000	6077.8	1190.69	NT
1400	133	1069.5	6000	6094.6	1193.97	NT
1500	133	1169.5	6000	6112.9	1197.56	NT
1600	133	1269.5	6000	6132.8	1198.47	NT
1700	133	1369.5	6000	6154.3	1199.69	NT
1800	133	1469.5	6000	6177.3	1201.22	NT
1900	133	1569.5	6000	6201.9	1203.05	NT
2000	133	1669.5	6000	6227.9	1205.18	NT

Note: Any field indicated with the symbol "NT" has an anticipated ground vibration below that which is detectable on a typical blasting seismograph (PPV < 0.05 in/s).

Source: Precision Blasting Services (2019).

Blasting Effects from Construction of Shaft Raise

As part of the proposed project, an additional raise would be constructed from underground to develop a new shaft at the site. Construction blasting of the shaft raise would commence from an underground drift and move upward towards the surface using similar blasting methods as described for raise development (see page 4.10-28). The shaft raise would result in temporary blasting activities closer to the surface than the drift and stope development analyzed above.

The proposed shaft would have a breakthrough of approximately 50 feet below the ground surface. The shaft is expected to be approximately 18 feet by 12 feet in area. The shaft would likely be developed using drill holes up to 1.25-inch diameter with a total of eight feet of explosive product loaded in the hole in each blast. For this analysis, it is assumed that up to five holes would fire on a single delay, for a total of 26.6 lbs of explosive being detonated per delay.

The closest residence to the service shaft location on surface is greater than 900 feet horizontally. Based on the assumed charge weight per delay, the blasting vibrations would be undetectable at the nearest residence during the majority of construction of the raise from underground.

The highest levels of ground vibration would be those produced from the breakthrough round, as this round would have the least amount of vertical distance between the blast and the surface. While this round would occur 50 feet below surface, the round



would be blasted to the surface. The ground vibration from this single shot would not cause damage to residences in the area or to industrial structures adjacent to the raise breakthrough round. The maximum ground vibration at the nearest receptor is expected to be 0.13 in/s, which is well below the 0.4 in/s recommendation for annoyance within the community (see Table 4.10-9).

Therefore, underground blasting associated with the construction of the proposed shaft raise would result in a less-than-significant vibration-related impact.

Conclusion

Based on the above, operation of the proposed mine is not anticipated to cause damage to structures in the project area. Regular drift round blasting would be undetectable below 900 feet depth or distance, and would be barely perceivable at 500 feet depth. The largest longhole blasts, occurring once every three to four days on average, would be undetectable below 1,400 feet depth or distance from a receiver. The maximum ground vibration that the mine would produce to nearby receptors is 0.23 in/s PPV, which considers a rare scenario where a longhole blast occurs directly underneath a receptor at 500 feet depth. The maximum ground vibration of 0.23 in/s PPV is comparable to the vibration level from running a garbage disposal in a house, with the exception that the blasting ground vibration would last only seconds. Blasting on mine levels below 1,400 feet would produce no traceable ground vibration on the surface. In addition, identified structures/businesses in the surrounding area have been analyzed to determine potential risk. Analog Devices may experience ground vibrations up to a maximum of 0.07 in/s PPV, which is below the limit that humans can feel. The Sierra Nevada Memorial Hospital and Downtown Grass Valley would not experience any ground vibration associated with the proposed project.

Overall, the proposed project is not anticipated to result in the exposure of persons to or generation of excessive groundborne vibration levels. Nonetheless, in order to ensure that actual mining operations would generate vibration levels as expected, a Ground Vibration Monitoring Program is required. Without quantitative evidence and regular monitoring from the Ground Vibration Monitoring Program, a **significant** impact related to the generation of groundborne vibration could occur.

Mitigation Measure(s)

The mitigation below requires a Ground Vibration Monitoring Program to determine the actual levels of ground vibration that occur, assess ground vibration, and modify blasting, if needed. Implementation of the following mitigation measure would ensure the above potential impact is *less than significant*.

4.10-4 *The project applicant shall conduct a project-specific Ground Vibration Monitoring Program. As part of the Ground Vibration Monitoring Program, the mine shall employ between eight and ten seismographs during the blasting of levels above the 1,000-foot level. The seismographs shall be placed at the following locations:*

- *One at the Brunswick Shaft;*
- *One at each of the four corners of the Mine Property;*
- *One in the Whispering Pines Industrial Park;*



- Two at nearby residences; and
- Two travelling seismographs which can change location depending on the weekly/monthly mining plan.

After the mine has stopped blasting at the proposed shaft and above the 1,000-foot level, only five seismographs would be required for the Ground Vibration Monitoring Program. One seismograph shall be located at the Brunswick Shaft and one in each of the four corners of the mine property. The five seismographs would collect relevant data throughout the entire operation to understand how the ground is transmitting vibration in these areas.

Once mining operations commence, the project applicant shall hire a blast consultant to assist with the development of a 95 percent confidence level equation for the site-specific ground vibration. The blast consultant shall assess the data acquired by the seismographs using a linear regression and log-log confidence model to develop an equation that the mine can use to modify blasting, as needed, to ensure vibration levels remain below 0.4 in/s at sensitive receptors.

Results of the Ground Vibration Monitoring Program and the equation for site-specific ground vibration shall be submitted to the Nevada County Planning Department for review.

4.10-5 For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? Based on the analysis below, the impact is *less-than-significant*.

The Nevada County Airport is located approximately 0.75-mile (4,000 feet) northeast of the Brunswick Industrial Site and approximately 1.42-mile (7,500 feet) east of the Centennial Industrial Site. The proposed project would not include the development of any noise-sensitive land uses. In addition, both the Brunswick and Centennial Industrial Sites are located outside of the future 55 dB CNEL noise contour for the Nevada County Airport, which falls below the County's normally acceptable 75 dB CNEL level established for industrial land uses. The proposed project is within Compatibility Zones C, D, D-Urban Overlay, and E of the Nevada County Airport Land Use Compatibility Plan. According to the Nevada County Airport Land Use Commission (NCALUC), the proposed project does not contain characteristics likely to result in inconsistencies with the compatibility criteria set forth in the Nevada County Airport Land Use Compatibility Plan and the NCALUC gives approval of the project.¹³

As a result, the project would not expose people residing or working in the project area to excessive aircraft noise levels, and the impact would be ***less than significant***.

¹³ Daniel Landon, Executive Director, Nevada County Transportation Commission. Email correspondence to Matt Kelley, Senior Planner, Nevada County, January 27, 2020.



Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

For detail related to the cumulative setting of the proposed project, refer to Chapter 5, Statutorily Required Sections of this EIR.

4.10-6 Generation of a substantial permanent increase in ambient noise and/or vibration levels associated with the cumulative noise and vibration from all sources of the proposed project. Based on the analysis below, the impact is *less than cumulatively considerable*.

The extent by which noise and vibration sources combine to result in higher noise and vibration levels depends on the relative locations of the sources and the sources' individual magnitude. As noted in Chapter 5, Statutorily Required Sections, of this EIR, a list of 20 planned development projects was compiled to develop a reasonable estimate of the cumulative impacts that could occur within neighboring portions of both the County of Nevada and the City of Grass Valley. Considering noise and vibration attenuate with distance, the substantial distance and topography that separates each potential future development project from the Centennial and Brunswick Industrial Sites would ensure that noise and vibration levels from different projects would not combine. Furthermore, the planned projects that are nearest to any portion of the project site would not involve the development of land uses associated with the generation of substantial noise and/or vibration. For example, the Initial Study prepared for the nearest planned project, 12836 Greenhorn Road, concluded that operations of the proposed project would result in less-than-significant impacts related to noise with implementation of mitigation, and a less-than-significant impact related to vibration with no mitigation required. As a result, the operation of the cumulative development projects in the area would not produce noise or vibration levels that would combine with the noise or vibration levels generated from the proposed project.

Vehicle traffic generated from the proposed project and other planned development projects could potentially combine to result in a cumulative impact related to transportation noise. As noted in the Noise and Vibration Analysis, future traffic volumes on the project area roadways would increase over time relative to existing levels due to general growth of the region. However, the project-generated truck traffic would remain constant, and would not increase over time. As a result, the incremental contribution to overall traffic noise levels resulting from the project would decrease over time. For example, East Bennett Road, west of Brunswick Road, currently carries approximately 1,486 vehicles, and the associated noise level is 52.5 dBA. With the project contribution of 111 trucks, the noise level is expected to increase to 54.8 dBA, for a project-related change of 2.3 dB. However, if future traffic levels from cumulative development throughout the region were to increase by ten percent to 1,635 vehicles per day, and the project-related traffic remains at 111 trucks, the total transportation noise level would be 55.0 dBA, but the project-related change diminishes to 2.1 dBA. Because the future project-related traffic noise level increases would diminish over time and remain below the applicable thresholds of significance, the impact is considered to be less-than-significant relative to future cumulative traffic conditions.



Based on the above, each individual project would mitigate noise and vibration impacts to the maximum extent feasible, noise and vibration impacts would not combine due to substantial distance between projects, and cumulative transportation-related noise impacts would not occur. As a result, significant cumulative project noise and/or vibration impacts are not anticipated for the proposed project. The proposed project would not result in a substantial permanent increase in ambient noise or vibration levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, and the project's noise and vibration impacts would be ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.



4.11 PUBLIC SERVICES AND UTILITIES

4.11. PUBLIC SERVICES AND UTILITIES

4.11.1 INTRODUCTION

The Public Services and Utilities chapter of the EIR summarizes the setting information and identifies potential new demands resulting from the proposed project on various public services and utility systems, including but not limited to fire protection, law enforcement, schools, parks and recreation, water supply, wastewater systems, solid waste disposal, and electrical utilities. Information for the Public Services and Utilities chapter was primarily drawn from direct communications with public service providers who would serve the proposed project, as well as technical documentation, such as the Water Supply Assessment prepared for the project by West Yost (Appendix N),¹ and the septic system analysis prepared by Navo & Sons (Appendix H.8).²

4.11.2 EXISTING ENVIRONMENTAL SETTING

The following section describes the existing public services and utilities in the project area.

Fire Protection

Several fire agencies provide fire protection services within the project area, including both wildland fire and structural fire response. The Centennial Industrial Site is located within both the Nevada County Consolidated Fire District (NCCFD) and the Ophir Hill Fire Protection District (FPD), whereas the Brunswick Industrial Site is located entirely within the Ophir Hill FPD (see Figure 4.11-1). These two fire districts are described below, as well as the other fire agencies who could provide services to the project site based on mutual aid or other agreements.

Nevada County Consolidated Fire District

NCCFD provides fire protection and emergency rescue service to a large area of approximately 140 square miles in western Nevada County, including the Alta Sierra community and the areas surrounding Grass Valley and Nevada City. The District is bordered by Penn Valley and Rough and Ready FPD on the west, Ophir Hill and Peardale-Chicago Park FPDs on the east, and Higgins Area FPD on the south. The northern boundary of the District abuts mostly public lands along the south side of the South Yuba River (on the north, North San Juan FPD extends to the centerline of the river).

The NCCFD was established in 1991 as a result of the consolidation of the Gold Flat and Bullion FPDs. Subsequent reorganizations expanded the District by bringing in Alta-Oaks Sunset FPD in 1992, Watt Park FPD in 1997, and Forty-Niner FPD in 2003.

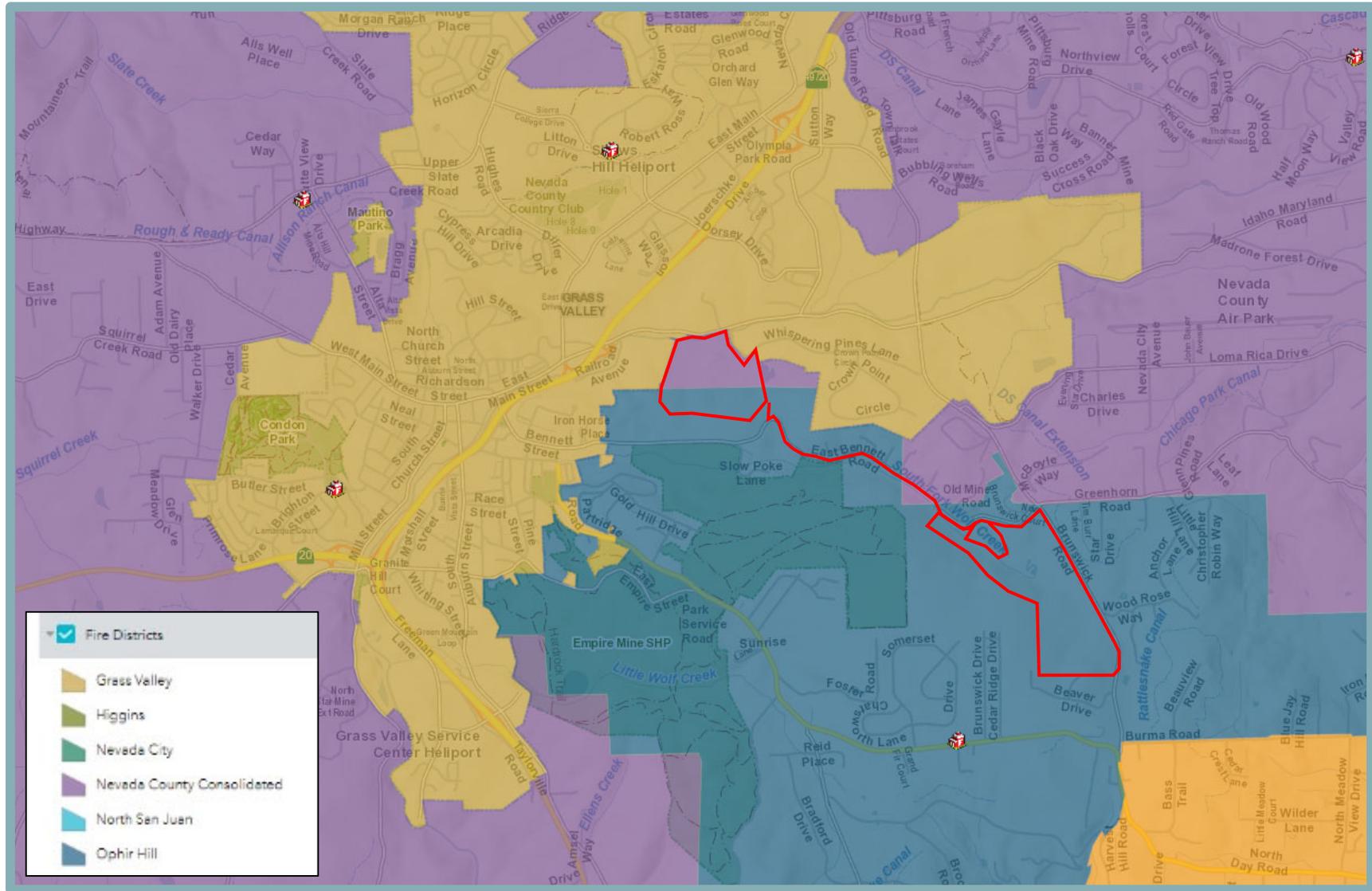
Much of the District has semi-rural/suburban low-density residential development. A handful of agricultural areas persist, along with some forested and converted mining territories.

¹ West Yost. *Idaho-Maryland Mine Water Supply Assessment*. December 1, 2021.

² Navo & Sons, Inc. *12791 Brunswick Rd. Septic System Analysis*. October 28, 2019.



**Figure 4.11-1
Fire District Boundaries**



In February 2014, a Joint Operations Agreement (JOA) was entered into between the City of Nevada City, the City of Grass Valley and NCCFD for the purpose of providing reciprocal fire protection and related services. The JOA provides for the Grass Valley Fire Department (GVFD), Nevada City Fire Department (NCFD) and NCCFD to operate under a Boundary Drop/Closest resource response plan, under which the closest fire engine to an incident will be dispatched or multiple engines can be dispatched for larger incidents, regardless of jurisdiction. For example, according to the JOA Response Policy, for structural fires, four engines would be dispatched to an incident within the County.³ As will be further discussed below, the Grass Valley and Nevada City Fire Departments have recently merged.

The three agencies are the only departments in the County operating under this agreement and over time have evolved into a very codependent system. While the JOA satisfies the everyday operational needs of the three agencies, for significant incidents, the JOA still depends on automatic or mutual aid from other agencies in the area and reciprocates by assisting those agencies when requested.

The nearest NCCFD station to the project site is Station 86. Station 86 is located at 12337 Banner Lava Cap, Nevada City. The station houses an E-86, a Type 2 Engine specially designed for the Banner Mountain Area, with a 600-gallon water tank and 1,000 gallons per minute pump. Station 86 also includes Squad 86, which is used as a snowplow for the District during snow storms. Station 86 has full time staffing 24 hours a day, 7 days a week.⁴ To do this the District has three shifts (A, B, C) that work 48 hours, with 96 hours off. A minimum of two fire personnel staff the station at all times, and each personnel has emergency medical technician (EMT) training.

The NCCFD strives to meet the National Fire Protection Association (NFPA) 1710 guideline for fire department responses which allows firefighters one minute to don their turnouts once an emergency call for service is received from dispatch and four minutes of drive time.⁵ A fire department is to meet this five-minute response standard 90 percent of the time. By maintaining this standard response time, the NCCFD can minimize deaths and injuries associated with fires; minimize the direct and indirect losses due to fires; and minimize deaths for people experiencing sudden illness, accidents, or injuries.

Ophir Hill Fire Protection District

Ophir Hill FPD provides fire protection and emergency rescue service to an area east of Grass Valley which includes the community of Cedar Ridge. As shown in Figure 4.11-1, the entirety of the Brunswick Industrial Site, and roughly half of the Centennial Industrial Site, are located within Ophir Hill FPD. The District is bordered by Grass Valley on the west, NCCFD on the north and south, and Peardale-Chicago Park FPD on the east. Empire Mine State Park occupies a large portion of the District adjacent to the Grass Valley.

The District serves nearly nine square miles, with a population of approximately 3,700. The area is characterized by semi-rural/suburban low-density residential development. A handful of agricultural areas persist, along with some forested and converted mining territories. The District

³ Nevada City. *Report to City Council: Study Session on the Provision of Fire and Emergency Services, January 22, 2015*. Available at: <https://www.nevadacityca.gov/files/documents/January222015StaffReport1314075821091516PM.pdf>. Accessed January 7, 2021.

⁴ Nevada County Consolidated Fire District. *Station 86*. Available at: <https://www.nccfire.com/station-86>. Accessed December 16, 2020.

⁵ Nevada County Consolidated Fire District. *Nevada County Consolidated Fire District Strategic Plan 2016-2021*.



has a master mutual aid agreement with other fire agencies in the region, including state and federal agencies, and an automatic aid agreement with Peardale-Chicago Park FPD.

The District's fire Station 52 is located at 12668 State Route 174, south of the project site. Station 52 is staffed with two personnel 24 hours per day, seven days per week (24/7). The Station houses a Type 1 Fire Engine (structural fire apparatus) and second engine, both of which have 1,250-gallon pumps. The Station also houses a wildland fire engine.

While a response time goal has not been formally adopted, Ophir Hill FPD strives to meet the NFPA 1710 guideline for fire department responses of 5 minutes 90 percent of the time.

During fire season, the District's response policy is to dispatch three engines, one from Ophir Hill, one from Peardale-Chicago Park FPD, and one from the California Department of Forestry and Fire Protection (CAL FIRE).

Grass Valley/Nevada City Fire Department

On November 10, 2020, the respective councils of the cities of Grass Valley and Nevada City passed resolutions to approve an agreement for fire protection services between the City of Nevada City and the City of Grass Valley.⁶ Under the agreement, the NCFD fire personnel, other than the Fire Chief of Nevada City, shall become employees of and shall operate under the direction of the City of Grass Valley and the Grass Valley Fire Chief. Also under the agreement, Fire Station 54, located at 210 Providence Mine Road in Nevada City, will be leased to the City of Grass Valley for its use in fulfilling its obligations to provide fire protection and emergency medical services to Nevada City under the agreement.

Other fire stations operated by the GVFD include Station 1, located at 472 Brighton Street in downtown, which is staffed with a minimum of one company officer and one engineer or firefighter/operator 24/7. Station 2, located at 213 Sierra College Drive, is staffed with a minimum of a Captain, Engineer, and firefighter 24/7.

Additional equipment is placed at both stations that crews can utilize for calls for service, such as a 105-foot ladder truck at Station 2. As previously discussed, the GVFD is a part of the Nevada County JOA which is comprised of the NCCFD, and recently combined GV/NCFD. These agencies work and train together to provide high quality service to the community. Many of the engines within the JOA are outfitted with similar equipment to allow for a smooth interagency operation.

While a response time goal has not been formally adopted, the GV/NCFD strives to meet the NFPA 1710 guideline for fire department responses of 5 minutes 90 percent of the time.

California Department of Forestry and Fire Protection

Wildland fire protection is provided either by the State (through CAL FIRE) or the Federal government (through the U.S. Forest Service). The State has direct protection responsibility for all state and private wildlands (or forest lands) in designated areas, and provides support and assistance to local jurisdictions in other areas of the state. CAL FIRE is responsible for wildland

⁶ For example, see *Nevada City Special City Council Meeting, Tuesday, November 10, 2020, Report to City Council*. Available at: <https://www.nevadacityca.gov/files/documents/CityCouncilPacket11-1020024910110620PM1315.pdf>. Accessed January 7, 2021.



fire response at the Centennial and Brunswick Industrial Sites. Local fire districts may also provide wildland fire protection, depending upon the event and circumstances.

With respect to the project site, the nearest CAL FIRE station is Station 20, located at 10242 Ridge Road, Nevada City. Station 20 is typically fully staffed, 24/7. A minimum of three fire personnel staff the Station at all times. During summer, the Station is equipped with two fire engines (Type 3, 500-gallon water tank), and one engine (Type 3) in the winter.

In addition to legal responsibility for wildland fires in state responsibility areas (SRA), where the project site is located, CAL FIRE has mutual and/or automatic aid agreements, and thus, may assist local fire agencies with structural fires and medical incidents under the closest resource concept.

CAL FIRE strives to meet the NFPA 1710 guideline for fire department responses of 5 minutes 90 percent of the time.

Dispatch

In Nevada County, dispatch of emergency calls to 911 has been streamlined. All calls are initially routed to the Regional Dispatch Center (operated and staffed by the Nevada County Sheriff's Office), and dispatched as follows:⁷

Landline Calls

The Regional Dispatch Center (RDC) at the Nevada County Sheriff's Office in Nevada City receives landline calls. Trained personnel at the RDC then route the calls as follows:

- **Law Enforcement** calls are routed to the applicable law enforcement agency officers on duty:
 - Grass Valley Police (for incidents in Grass Valley)
 - Nevada City Police (for incidents in Nevada City)
 - Town of Truckee Police (for incidents in the Town of Truckee)
 - Nevada County Sheriff (for incidents in the unincorporated area)
- **Fire & Medical** calls are routed to the Grass Valley Interagency Emergency Command Center (ECC), which then coordinates the response by tasking the responsible fire or medical agency. The ECC provides dispatch services for CAL FIRE Nevada-Yuba-Placer Unit's 12 fire stations, and also for 26 other fire departments, emergency medical services, and air ambulance helicopters:
 - CAL FIRE (incidents occurring on SRA lands)
 - U.S. Forest Service (incidents occurring on Federal Responsibility Area [FRA] lands)
 - Fire District or City as appropriate

911 Cell Calls

Depending on the location of the call, cell phone calls are routed either to California Highway Patrol (CHP) offices in Sacramento, or to the RDC in Nevada City. Calls routed to the RDC are then forwarded as described above.

⁷ Nevada County Local Agency Formation Commission. *Sphere of Influence Updates, Nevada County Service Providers*. January 16, 2014.



Law Enforcement

The Nevada County Sheriff's Office provides law enforcement services to the unincorporated areas of Nevada County. The Sheriff's Office headquarters is located at the Eric W Rood Center in the Nevada County Government Center on Maidu Avenue in Nevada City. Administrative Offices for all services are located at the Rood Center, including: Patrol, Investigations, Animal Control, Evidence, Coroner, Public Administrator, Civil Process, and Dispatch are all represented at this location.

The Sheriff's Office currently has 68 sworn deputies. Calls for service over the last three years are as follows:⁸

- 9-1-1 calls;
 - 2018 – 29,576
 - 2019 – 31,129
 - 2020 – 32,509
- Calls for Service;
 - 2018 – 39,316
 - 2019 – 38,782
 - 2020 – 42,085
- Case numbers drawn;
 - 2018 – 6,022
 - 2019 – 5,646
 - 2020 – 5,889

9-1-1's are any emergency calls that come in. Many of these calls end up being Fire/Rescue calls that get routed up to the Grass Valley Emergency Command Center for Fire/Rescue dispatching and response.

Calls for service are where a deputy actually takes action on an event. The call has gone from a call into dispatch to a situation where a deputy needs to intervene. This could be a simple phone contact with someone for advice, ranging all the way up to a Code 3 emergency response for something that is occurring. Calls for service also include any self-initiated activity, such as business checks at night, vehicle and pedestrian stops, follow-up on previous investigations, etc.

Case numbers are where a deputy, or animal control officer, writes a report to document an incident. This can be everything from a simple information report all the way up to murder investigation.

The call volume can be handled by the current resources of the Sheriff's Office.⁹

Schools

The Centennial and Brunswick Industrial Sites are within and near several primary education school districts, including Union Hill School District, Grass Valley School District, and Nevada City School District. High Schools are operated by the Nevada Joint Union High School District.

⁸ Personal communication between Lieutenant Robert Jakobs, Emergency Operations Coordinator, Office of Emergency Services, Nevada County Sheriff's Office, and Nick Pappani, Vice President, Raney Planning & Management, Inc., January 5, 2021.

⁹ *Ibid.*



Elementary and Middle School

Several schools are located within the Grass Valley School District. According to the Facilities Utilization Master Plan, Bell Hill Academy (K-4) has a practical capacity of 225 students; Grass Valley Charter School (K-8) has a practical capacity of 686 students; Margaret G. Scotten Elementary School (TK-4) has a practical capacity of 563 students; and Lyman Gilmore Middle School (5-8) has a practical capacity of 715 students.¹⁰ Based on 2019-2020 Enrollment Numbers, Bell Hill Academy was at full capacity; Grass Valley Charter School had a remaining capacity of 164 students; Margaret G. Scotten Elementary School had a remaining capacity of 76 students; Lyman Gilmore Middle School had a remaining capacity of 160 students.¹¹

Over the past twenty years, Nevada County has experienced a decline in K-8 enrollment, from 8,623 students in 1998/99 to 6,936 students in 2018/19, resulting in an overall decrease of 1,687 students or 19.56 percent.¹²

The Nevada City School District (TK-8) comprises all of Nevada City, as well as a considerable portion of unincorporated Nevada County in the eastern region of Nevada County including a number of other surrounding communities such as Willow Valley, Deer Creek Park, Blue Tent, and Cascade Shores.

Over the past twenty years, the District has experienced a decline in enrollment, from the peak of 1,533 students in 1999/00 to 756 students in 2019/20, resulting in an overall decrease of 49.31 percent. The Nevada City School District's enrollment has decreased more than twice the rate of the Nevada County K-8 enrollment. The District's enrollment is projected to decrease from the current 756 students to 577 students by the year 2029/30. A decrease of 179 students, or an average of 18 students per year over the next ten years.¹³

The Union Hill School District includes Union Hill Elementary (TK-6th) and Union Hill Middle School (7-8), generally located west of the project site at 11638 Colfax Highway. Prior to implementing a hybrid schedule due to COVID, the school site served around 580 elementary students and 120 middle school students.

High School

Nevada Joint Union High School District operates the high schools within the vicinity of the project site. The high schools are located in Grass Valley and include Bear River High School, Ghidotti High School, Nevada Union High School, North Point Academy, NU Tech, and Silver Springs High School.

The two main high schools in the vicinity are Bear River High School, with an approximate capacity of 1,200, and Nevada Union High School, with an approximate capacity of 2,500.¹⁴ Based on 2019/2020 enrollment data, Bear River High School had a remaining capacity of approximately 600 students, and Nevada Union High School had a remaining capacity of approximately 1,000 students.

¹⁰ Williams & Associates. *Grass Valley School District Facilities Utilization Master Plan*. October 2017.

¹¹ Nevada County Superintendent of Schools. *2019-2020 Enrollment Summary – October 2019 (Updated 1/16/20)*. Available at: <https://nevco.org/wp-content/uploads/2020/06/Enrollment-10-2019-All-County.pdf>. Accessed January 21, 2021.

¹² Williams & Associates. *Nevada City School District Facilities Utilization Master Plan*. February 2020. IV-3.

¹³ Williams & Associates. *Nevada City School District Facilities Utilization Master Plan*. February 2020. IV-6.

¹⁴ Personal communication between Jordan Kohler, Director of Facilities and Construction, Nevada Joint Union High School District, and Nick Pappani, Vice President, Raney Planning & Management, Inc. January 21, 2021.



Parks

The closest parks located within the vicinity of the project site include the following parks in the City of Grass Valley, each of which provides various amenities: Mulcahy Community or Mautino Park (12.9 acres), Condon Park (80 acres), Memorial Park (7.2 acres), Elizabeth Daniels Park (0.16-acre), Dow Alexander Park (0.25-acre), Glenn Jones Park (2 acres), and Minnie Park (2 acres).

State parks include Empire Mine State Park, near Grass Valley and generally south of the overall project site, Malakoff Diggins State Historical Park north of Nevada City, and the South Yuba River Recreation Area.

Various trails are located in the vicinity, within unincorporated portions of Nevada County, the closest of which is the Loma Rica Trail. The 1.5-mile Loma Rica Trail generally runs north-south along Brunswick Road, from Loma Rica Drive north to Bubbling Wells Road. The 2-mile Litton Trail is a well-established trail that meanders through an informal urban greenbelt in Grass Valley. The greenbelt is a blend of small forested sections, a country club, irrigation canal, community college, high school, and a retirement community. This trail connects local residents to businesses, places of work and education. The 2.3-mile Rattlesnake Trail runs along Rattlesnake Ridge Road, south of the project site, just beyond State Route 174. This is a public neighborhood trail without parking access.

A network of trails is also located within Empire Mine State Park, several of which are in close proximity to the project site, just south of East Bennett Road, including the Upper Union Hill Trail and Indian Ridge Trail.

Water

The following section will discuss water supply and water conveyance infrastructure within the project vicinity. The water supply discussion will focus on surface water resources given that groundwater resources are discussed in detail in Chapter 4.8, Hydrology and Water Quality.

Water Supply

The proposed project is anticipated to receive potable water from Nevada Irrigation District (NID) for dust control, sanitary uses, and to provide a reliable water supply to some nearby residences whose water supply wells could be impacted by mining operations. A Water Supply Assessment (WSA) was prepared by West Yost to evaluate the adequacy of NID's total projected water supplies, including existing water supplies and future planned water supplies, to meet the existing and projected future water demands, including those future water demands associated with the proposed project, under all hydrologic conditions (Normal Years, Single Dry Years, and Multiple Dry Years). The following section is based on the WSA, which is included as Appendix N of this EIR.

NID is located on the western slope of the Sierra Nevada mountain range. NID encompasses 287,000 acres and covers portions of three counties: Nevada, Placer, and Yuba. NID's watershed is located on the upper reaches of the Yuba River, Bear River, and Deer Creek.

Defined as "a special district operated by and for the people who own land within its 287,000-acre boundary", NID was established as an irrigation district in 1921. NID's retail potable water system consists of six service areas. The retail water system connections are predominantly single-family, but also consist of multi-family, commercial, industrial, and institutional customers.



Existing Water Supplies

NID currently receives water from the following sources:

- Purchased water from PG&E that generally originates from the same watershed as the District water rights surface water supply.
- Surface water from the Yuba River, Bear River, and Deer Creek watersheds that is diverted and stored under the District’s pre-1914 and post-1914 appropriative water rights.
- Recycled water from Nevada City, Grass Valley, Auburn, and Placer County.

NID does not utilize groundwater as an existing or planned source of water due to limited groundwater availability. NID currently has a policy to not accept stormwater runoff into canals without the appropriate collection rights. Each of these existing supplies is described below. Table 4.11-1 shows NID’s historical use of these existing water supplies.

Table 4.11-1 Existing (2020) Water Supplies (ac-ft/yr)			
Water Supply	Additional Detail on Water Supply	Actual Volume	Total Right or Safe Yield
Purchased Water	-	0	54,361
Surface Water	Watershed Runoff	119,500	450,000
	Carryover Storage	169,100	
Recycled Water	-	1,408	As available
Total		290,008	-
<i>Source: Nevada Irrigation District 2020 Urban Water Management Plan, July 2021, Table 4-6.</i>			

Purchased Water

NID’s contracted purchase from PG&E is a surface water supply that generally originates from the same watershed as the District water rights surface water supply. The maximum amount available for District purchase is 54,361 acre-feet (ac-ft) with reductions in dry years based on the Sacramento Valley Index (SVI).

Surface Water

NID’s primary source of supply is local surface water derived principally from the Yuba River, Bear River, and Deer Creek watersheds that is diverted and stored under the District’s pre-1914 and post-1914 appropriative water rights. The water rights allow for a diversion of 450,000 ac-ft., although hydrology and runoff timing rarely allow for full collection of all water rights. NID has an extensive system of storage reservoirs that provides surface water supply to the District’s six water treatment plants, as well as to NID’s raw water customers.

The water rights surface water supply falls into two main categories: watershed runoff and carryover storage in surface reservoirs.

Watershed runoff is NID’s primary water supply. This category of supply includes water rights to runoff produced by NID’s watersheds during the water year. NID water rights include 25 pre-1914 rights acquired from mining interests, along with 28 post-1914 rights filed with the State of California to provide for domestic, municipal, industrial, recreational, power, and irrigation uses, and three riparian rights. These include rights for both consumptive and power purposes. The total water right volumes consist of storage rights, direct diversion rights, and some are a



combination of both. The total quantity estimated for diversion and/or storage under current consumptive water rights is approximately 450,000 ac-ft on an annual basis.

The amount of runoff and the way it is used depends upon the amount of water contained in the snowpack and the rate at which the snowpack melts. The most prominent and obvious cause for the fluctuation in natural runoff is the variability in hydrologic conditions, as seen in the wide variations in annual rainfall/snowpack accumulations. Over the last 30 years runoff has fluctuated from less than 77,378 ac-ft in dry years (2015) to over 467,000 ac-ft in wet years (1995). Average runoff from the Upper Division watershed, including the watershed area feeding Scotts Flat Reservoir, is approximately 221,500 ac-ft. Due to provisions in the PG&E Coordinated Operations Agreement, hydrologic variability, and the fact that the District is not the senior water right holder, no supplies are assumed to be available from the Bear River and South Yuba River. The historical runoff data evaluated to estimate the District's average runoff supply, therefore do not include supplies from the Bear River and the South Yuba River, and are based on runoff data from the water supply in the District watershed including Middle Yuba River, Canyon Creek, Texas Creek, Fall Creek and Deer Creek. The District is likely to receive some water from the Bear River and South Yuba River sources in dry years. Due to the uncertainty of the amount of supply available from these two sources and because the District is not the senior water rights holder, it has not been quantified.

The second largest component of NID's supply is carryover storage, which is the volume of water left in storage reservoirs at the end of the irrigation season, usually at the end of September. NID's main storage reservoirs can contain a maximum of 279,985 ac-ft of water. The two major distribution and storage systems within the District are the Deer Creek System and the Bear River System. These systems are a mixture of canals, siphons, pipelines, natural creeks, and other water conveyance structures.

Recycled Water

Recycled water augments the District's overall water supply. The District uses recycled water exclusively for irrigation uses. Below is a description of the use of recycled water from each of the four wastewater treatment municipalities within the District service area:

- Nevada City: The District utilizes recycled wastewater effluent from the Nevada City sewage treatment plant for irrigation uses. The sewage effluent is diverted from Deer Creek and gets re-used as irrigation water.
- Grass Valley: The District utilizes recycled sewage effluent from the Grass Valley sewage treatment plant for irrigation uses. The sewage effluent is diverted from Wolf Creek and gets re-used as irrigation water.
- City of Auburn: The District utilizes recycled sewage effluent from the Auburn sewage treatment plant for irrigation uses. The sewage effluent is diverted from Auburn Ravine and gets re-used as irrigation water.

Potable Water Reliability

Factors contributing to inconsistency in the District's water supplies include legal limitations due to water rights and contracts limiting the quantity of water available to the District, environmental constraints, and reductions in availability due to climatic factors. The surface water supply to the District is subject to reductions during single and multiple dry years (seasonal and climatic shortages). The District holds senior water rights to the majority of its supply, excluding the



watershed runoff supply, and has the ability to manage carryover storage quantities based on domestic, municipal and irrigation needs.

Emergency Water Supply Conditions

NID adopted an updated Drought Plan (Water Shortage Contingency Plan) on November 18, 2015 to guide staff and customers to help minimize drought or water supply storage impacts. The Drought Plan identifies drought action levels, appropriate agency response, water demand reduction goals, and provides recommended demand management measures to assist customers in water conservation. The Drought Plan is reviewed every five years and updated, if necessary, with Board approval. The Drought Plan was updated and adopted along with the 2020 UWMP in July 2021.

NID maintains an Emergency Response Plan to address responding to catastrophic supply interruptions as well as other emergencies. The system is predominantly gravity fed but in situations where on-site generators are unavailable; the District currently has three portable generators that can be moved between different locations as needed. Nearly all drinking water facilities and critical raw water facilities are equipped with permanently installed backup generators. These backup generators increase the reliability of the District's supply.

Water Delivery Infrastructure

NID potable treated water facilities, Elizabeth George and Loma Rica, are located in the vicinity of the Brunswick Industrial Site, where potable water would be required. The Elizabeth George and Loma Rica water treatment plants treated 2,757-acre feet and 1,939-acre feet of water in 2020.

An 18-inch treated water line owned by NID is located within Brunswick Road, along the project site's frontage. An existing NID 4-inch water meter services Brunswick parcel APN 06-441-03, where the office/warehouse would be located and where most of the water is needed.

In addition, an 8-inch water line traverses the approximate central portion of the Brunswick Industrial Site, near the proposed headframe building location. A small 5/8-inch NID meter is located along this water line.

Two existing fire service lines (6-inch and 8-inch) extend into the Brunswick Industrial Site from the 18-inch line in Brunswick Road.

Wastewater

Public sanitary sewer systems in the western part of the County are provided by the cities of Grass Valley and Nevada City and the Nevada County Sanitation District No. 1. The Grass Valley and Nevada City sewage treatment plants were both constructed around 1950 and discharge into Deer Creek and Wolf Creek.

In areas outside the cities' service areas, the County of Nevada, through the Nevada County Sanitation District No. 1, operates and maintains the sewage collection and treatment facilities. There are 10 systems or zones within the Nevada County Sanitation District No. 1. These zones are Lake Wildwood, Lake of the Pines, North San Juan, Gold Creek, Penn Valley, Mountain Lakes Estates, Cascade Shores, Eden Ranch, Higgins Village, and Valley Oak Court.



The proposed project would not be served by a public sewer system. An on-site septic field system would be built at the Brunswick Industrial Site for the proposed permanent toilets, sinks, and shower facilities. The proposed septic system would be required to comply with the County's On-Site Wastewater Treatment Systems (OWTS) and Local Area Management Plan (LAMP).

Solid Waste

Waste Management (WM) provides trash, green waste and recycling collection services throughout Nevada County. Trash from Western Nevada County is taken from the McCourtney Road Transfer Station. The Transfer Station is permitted to accept 350 tons per day (tpd) of residential and commercial solid waste, with a vehicle limit of 1,090 per day. The facility currently receives an average of approximately 198 tpd (based on 359 receiving days per year), with recent peak days as high as 390 tpd.¹⁵

As currently designed, the McCourtney Road Transfer Station does not have sufficient capacity to accommodate the volume of vehicles regularly delivering waste to the site, particularly on peak use periods throughout the spring, summer, and fall.¹⁶ This capacity constraint is partly due to the site's compact size and limited queuing area. In addition, the amount of recyclable materials accepted at the Transfer Station has increased over the last several years due to the closure of most buy-back and drop-off facilities both locally and regionally. Nevada County has designed a project to resolve the existing issues, which is currently undergoing environmental review, and funding has been allocated in the County's Capital Improvement Plan.

From the Transfer Station, with the exception of recoverable materials, the solid waste is transported to the Lockwood Landfill outside of Reno, Nevada. The Lockwood Landfill, located in Sparks, Nevada, is a Class I Municipal Solid Waste Site that accepts municipal solid waste.¹⁷ The capacity of the Landfill is 302.5 million cubic yards (CY) with a disposal area of 856.5 acres. The Lockwood Regional Landfill has a waste volume of approximately 32.8 million CY.¹⁸

Recovered materials are transported to other processing facilities within the region including the Sacramento Recycling and Transfer Station at 8491 Fruitridge Road in Sacramento.

Electricity and Gas Infrastructure

The electrical grid system in the project area is well developed. The commercial sawmill on the Brunswick Industrial Site was previously serviced by a dedicated 12kV power line and a high voltage power line also runs through the property west of the Brunswick shaft.¹⁹

Natural gas infrastructure is not located at either of the project sites or in the immediate vicinity, nor is natural gas proposed for use at the project site.

¹⁵ Douglas Environmental. *Initial Study/Mitigated Negative Declaration, McCourtney Road Transfer Station Renovation Project* [pg. 2-1]. December 10, 2020.

¹⁶ *Ibid.*

¹⁷ Personal communication between David Garcia, Nevada County Solid Waste Program Manager, and Nick Pappani, Vice President, Raney Planning and Management, Inc., January 22, 2021.

¹⁸ Nevada Division of Environmental Protection. Lockwood Fact Sheet. Available at: <https://ndep.nv.gov/uploads/land-waste-solid-fac-docs/lockwood-fact-sheet.pdf>. Accessed January 22, 2021.

¹⁹ AMEC Foster Wheeler. *Technical Report on the Idaho-Maryland Project, Grass Valley, CA* [pg.5-8]. June 1, 2017.



4.11.3 REGULATORY CONTEXT

The following sections provide a summary of the federal, State, and local regulations pertaining to utilities and service systems with potential applicability to the proposed project.

Federal Regulations

The Safe Drinking Water Act, the principal federal law intended to ensure safe drinking water to the public, was enacted in 1974 and has been amended several times since it came into law. The Act authorizes the U.S. Environmental Protection Agency (EPA) to set national standards for drinking water, called the National Primary Drinking Water Regulations (NPDWR), to protect against both naturally occurring and man-made contaminants. These standards set enforceable maximum contaminant levels in drinking water and require all water providers in the United States to treat water to remove contaminants, except for private wells serving fewer than 25 people. In California, the State Water Resources Control Board (SWRCB) conducts most enforcement activities. If a water system does not meet standards, it is the water supplier's responsibility to notify its customers.

State Regulations

The following are the State environmental laws and policies relevant to public services and utilities and service systems.

Uniform Fire Code

The Uniform Fire Code (California Code of Regulations [CCR], Title 24, Part 9) with the State of California Amendments contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the California Fire Code (CFC) include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The Fire Code contains specialized technical regulations related to fire and life safety.

Proposition 1A/Senate Bill 50

Proposition 1A/Senate Bill (SB) 50 (Chapter 407, Statutes of 1998) is a school construction measure primarily for modernization and rehabilitation of older school facilities and construction of new school facilities. Proposition 1A/SB 50 implemented significant fee reforms by amending the laws governing developer fees and school mitigation. Proposition 1A/SB 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "[...] legislative or adjudicative act [...] involving [...] the planning, use, or development of real property" (Government Code 65996(b)). Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer is deemed to be "full and complete mitigation."

Assembly Bill 1881

AB 1881, the Water Conservation in Landscaping Act of 2006 required the Department of Water Resources (DWR) to update the Model Efficient Landscape Ordinance. Furthermore, AB 1881 required local agencies to adopt the updated model ordinance or an equivalent ordinance by January 1, 2010. If local jurisdictions failed to adopt the updated model ordinance or an equivalent by January 1, 2010, the DWR's updated model ordinance would automatically be adopted by statute.



Senate Bill 610 and Senate Bill 221

In 2001, the California Legislature enacted two pieces of legislation relevant to environmental review focused on the water consumption associated with large development projects. SB 610 (Chapter 643, Statutes of 2001; Section 21151.9 of the Public Resources Code (PRC) and Section 10910 et seq. of the Water Code) requires the preparation of WSAs for large developments. Government Code section 66473.7(a)(1) requires an affirmative written verification of sufficient water supply. SB 221 is designed as a “fail-safe” mechanism to ensure that collaboration on finding the needed water supplies to serve a new large subdivision occurs early in the planning process.

Section 10912 of the California Water Code requires preparation of a WSA for several types of “Projects”, one of which is “A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.” The project meets this criterion because the Brunswick Industrial Site exceeds 40 acres of land. Thus, a WSA is required to be prepared for the proposed project.

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610 – 10656). The Act requires that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually shall prepare and adopt an Urban Water Management Plan (UWMP) within a year of becoming an urban water supplier and update the plan at least once every five years. The Act specifies the content that is to be included in an UWMP, and states that urban water suppliers should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple-dry years. The Act also states that the management of urban water demands and the efficient use of water shall be actively pursued to protect both the people of the State and their water resources. NID prepared a UWMP in 2020.²⁰

Assembly Bill 1327

Assembly Bill (AB) 1327, the Solid Waste Reuse and Recycling Access Act of 1991 requires jurisdictions to adopt ordinances requiring development projects to provide adequate storage area for collection and removal of recyclable materials. Nevada County Land Use and Development Code (LUDC) Section L-II 4.2.13 requires use permit projects to include adequate, accessible, and convenient areas for the storage of solid waste and collection and loading of recyclable materials.

Senate Bill 1016

Enacted in 2007, SB 1016 amended portions of the California Integrated Waste Management Act, allowing the California Integrated Waste Management Board (CIWMB) to use per capita disposal as an indicator in evaluating compliance with the requirements of AB 939. Jurisdictions track and report their per capita disposal rates to CalRecycle.

California Integrated Waste Management Act - Assembly Bill 939

AB 939, the California Integrated Waste Management Act of 1989 contains requirements affecting solid waste disposal in California. According to AB 939, all cities and counties are required to divert

²⁰ Nevada Irrigation District. 2020 Urban Water Management Plan. July 2021.



25 percent of all solid waste from landfill facilities by January 1, 1995, and 50 percent by January 1, 2000. Solid waste plans are required to explain how each city's AB 939 plan will be integrated within the respective county plan. The plans must promote (in order of priority) source reduction, recycling and composting, and environmentally safe transformation and land disposal. Cities and counties that do not meet this mandate are subject to \$10,000-per-day fines.

Local Regulations

The following local goals and policies related to public services and utilities are applicable to the proposed project.

Nevada County General Plan

The following applicable goals and policies related to public services and utilities are from the Nevada County General Plan.

Public Facilities and Services and Element

Goal 3.1 Provide for public facilities and services commensurate with development type and intensity.

Policy 3.1 The levels of service and provision of public facilities in Community Regions shall be based upon improving the capacity of public facilities to serve higher levels of development directed to Community Regions. The levels of service and provision of public facilities in Rural Regions shall be based upon limiting the amount of development to ensure that adequate facilities are available. Planning for future public facilities and services in Community and Rural Regions shall be based upon the following criteria:

Community Regions:

- a. Public water and sewer
- b. Retention of existing emergency response times
- c. Intercommunity-transit

Rural Regions:

Rural Centers

- a. Public or on-site community water and sewer systems
- b. Decreased emergency response times

Rural Areas

- a. Individual septic and wells or on-site community water
- b. Decreased emergency response times
- c. Limited transit

Policy 3.2 The County shall encourage development within Community Regions where higher density development can more efficiently be provided with a full range of public facilities and services.



- Policy 3.3 The land use pattern reflected in the Nevada County General Plan Land Use Map is correlated with the future provision of public facilities to adequately serve said land uses based upon the service criteria and levels of service identified in Policy 3.1 and Policy 3.10. All General Plan amendments shall be required to show that the public facilities and services necessary to serve the proposed development are also correlated with the future provision of facilities and services according to the same criteria.
- Policy 3.4 To enable public services to be provided with the greatest degree of efficiency and cost-effectiveness, development within Community Regions shall be encouraged at the maximum density under the respective land use designations shown on the General Plan Land Use maps, consistent with environmental, infrastructure and other site constraints.
- Policy 3.6 The County shall prepare a long-range Capital Facilities Plan for all facilities to be included in the development impact fee program, as well as facilities to solve existing deficiencies, including a funding and phasing program for provision of facilities in not less than five-year increments.
- Policy 3.7 Based upon the long-range Capital Facilities Plan, the County shall prepare and adopt a Five-Year Capital Improvement Program (CIP) for facilities for which it is responsible, and shall encourage the other affected agencies to also adopt a Five-Year CIP for facilities for which they are responsible. In preparing the CIP, the County shall give priority to improvements which resolve or decrease an existing deficiency. To the maximum extent feasible, improvement projects shall support development of the following:
- a. employment generating uses
 - b. affordable housing
 - c. circulation/safety needs
- Policy 3.8 Based upon the adopted level of service standards, the County shall adopt a comprehensive development fee impact program meeting the requirements of AB 1600 and SB 327 in order to offset the costs of growth-related infrastructure and facilities based upon buildout of the General Plan.
- The County shall impose comprehensive development fees in amounts sufficient to offset the costs identified as the appropriate share of the public facility improvements necessary to serve future development. The comprehensive development fee structure shall ensure that future growth fully mitigates its direct and cumulative impacts upon the County.



Policy 3.10 The following specific level of service standards shall be applicable to Community Regions and Rural Regions for public facilities which the County has responsibility for providing:

Overall County Services and Human Services

- a. For Community and Rural Regions: 2,500 square feet for each increase of 1,000 persons in county-wide population

County Jail

- b. For Community and Rural Regions 1 inmate bed per 1,000 of the county-wide population

County Library

- c. For Community and Rural Regions: 300 square feet for each increase of 1,000 persons in county-wide population

County Parks (Regional)

- d. For Community and Rural Regions: 3.0 acres of land for each increase of 1,000 persons in county-wide population (Local parks to be provided by municipalities or local districts; Regional parks may be separate from local parks or an expansion of such facilities)

County roads (other than local roads, as identified on the County Road Functional Classification Plan).

Recognize existing LOS, including segment and intersection deficiencies, and at a minimum, maintain the following minimum LOS:

- e. For *Community Regions*
Level of Service (LOS) "D", except where the existing LOS is less than "D". In those situations, do not let the LOS further decline.
- f. For *Rural Regions*
Level of Service (LOS) "C", except where the existing LOS is less than "C". In those situations, do not let the LOS further decline.

These standards shall be used by the County as a basis for the long range Capital Facilities Plan

Policy 3.12 Encourage all other districts serving the County (including school, utility, cemetery, park, and fire districts) to develop and to regularly update a Master Service Plan based on realistic growth which specifies a district's policies and requirements for facilities based



upon buildout of the County's General Plan. The County shall review all proposed facility sites in the districts' Facilities Master Plans for consistency with the General Plan.

Policy 3.13 The County shall encourage all affected districts within the County to adopt an impact fee program to offset the costs identified as the appropriate share of the capital improvements necessary to serve future development.

Policy 3.14 In order to ensure that capacity of public facilities is coordinated with the timing of development the County shall require for any development requiring a discretionary permit, and for any General Plan amendment, a determination of the adequacy of public facilities, or an impact fee program, to serve the proposed development.

The adequacy of public facilities shall be determined upon the available capacity in existing facilities, plus the net additional capacity to support new development resulting from construction of the improvements in the Five-Year CIP of the County and other affected local agencies, the County 5-Year Road Improvement Program, and the State Transportation Improvement Program.

Additional capacity provided by such improvements to resolve existing deficiencies shall not be counted in the basis for determining capacity available to serve new development. Where adequate public facilities are planned, but not yet available to serve a proposed development, the County may require that mitigating measures be undertaken by the proponent of the development. Such measures shall not be in lieu of development impact fees; such measures may include, but are not limited to, alteration in the timing or phasing of the proposed development, construction of temporary improvements, or construction of off-site improvements necessary to serve that development.

Policy 3.15 The County shall encourage and may require, where appropriate and feasible, that mechanisms be provided as a condition of discretionary project approval to facilitate the funding of public improvements which are attributable to that project. Such mechanisms may include, but not be limited to, creation of an independent or dependent entity (independent district, dependent district, county service area, community service district).

Policy 3.20 The County will consider the creation of programs that will allow the use of "recapture" provisions to recover costs through subsequent connections for planned extension of infrastructure to new job generating land uses, and will encourage the use of such programs by other public or quasi-public agencies.

See also: Policy 3.7



- Policy 3.24 The County, in cooperation with other affected agencies, shall continue to implement the County Integrated Waste Management Plan. Preparation of a comprehensive long-range facilities plan for the County shall consider the need for transfer stations, composting sites, hazardous waste collection facilities, and other solid waste disposal facilities.
- Policy 3.25 It is recognized that for the immediate future, solid waste is being disposed of outside the County. However, this method of disposal may not be viable in the long term. Therefore, the County will develop a long-range plan for disposal of solid waste.

4.11.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to public services and utilities. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Public Services

Consistent with Appendix G of the CEQA Guidelines, determination of significant impacts for public services is based on whether the proposed project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- Fire protection
- Police protection
- Schools
- Parks
- Other public facilities

Utilities and Service Systems

Consistent with Appendix G of the CEQA Guidelines, determination of significant impacts is based on whether the proposed project would:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;



- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
- Comply with federal, State, and local management and reduction statutes and regulations related to solid waste.

Impacts related to storm drainage facilities are addressed in Chapter 4.8, Hydrology and Water Quality, of this EIR.

Method of Analysis

The following section generally describes the methods used to evaluate the potential significance of the project's impacts on public services and utilities.

Public Services

In order to obtain the most up-to-date information regarding public service providers who would serve the project, Raney contacted the providers to discuss their current resources and ability to serve the proposed project. Input from public service providers has been incorporated into the existing setting and impacts and mitigation measures section of this chapter.

Water Supply

The water supply evaluation is based on a WSA prepared for the proposed project by West Yost, consistent with California Water Code sections 10910 through 10915, as established by SB 610.

The WSA primarily relies on NID's 2020 UMWP, which was adopted in July 2021, for water supply and demand projections. Supplemental information from other available reports has been included to provide the most recent data available and to meet the specific requirements of California Water Code sections 10910 through 10915.

Water Code section 10910 (c)(4) requires that a WSA include a discussion with regard to "whether total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses." Accordingly, the Idaho-Maryland Mine WSA addresses these three hydrologic conditions through the year 2040.

Other Utilities

The wastewater analysis is site-specific as the proposed project would not connect to any public wastewater system. Rather, an on-site sewage disposal system is proposed for the Brunswick Industrial Site, and no wastewater would be generated at the Centennial Industrial Site (portable toilets would be made available for on-site workers involved in engineered fill placement activities). The septic system evaluation involved eight soil test pits at the proposed location of the septic system, determination of the average percolation rate around the soil test pits, estimation of the amount of wastewater associated with the proposed project operations, and determination of the appropriate size and design for the septic system to adequately handle the proposed project's wastewater generation. The percolation tests were performed under the guidelines set forth in Nevada County Sewage Disposal Technical Regulations, and testing was conducted under the supervision of the Nevada County Environmental Health Department.

The solid waste analysis of this chapter is based on solid waste calculations performed using CalRecycle operational solid waste generation rates. The location and sizing of existing natural



gas and electricity infrastructure within the project area was based technical information provided by PG&E specifically for the proposed project.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in comparison with the standards of significance identified above.

4.11-1 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services. Based on the analysis below, the impact is *less than significant*.

In accordance with CEQA Guidelines, this impact evaluation considers whether the project would increase demand for fire protection services such that a fire service provider would need to build new or expand existing facilities to maintain acceptable service ratios, response times, or other performance objectives, and if building such new or expanded facilities would result in environmental impacts. Wildfire hazards are discussed in Chapter 4.13, Wildfire.

Centennial Industrial Site

As previously discussed, the Centennial Industrial Site is located within both the NCCFD and the Ophir Hill FPD, whereas the Brunswick Industrial Site is located entirely within the Ophir Hill FPD.

The proposed project would not construct buildings on the Centennial Industrial Site. Rather, operations would be focused on hauling engineered fill from the Brunswick Industrial Site and placing the engineered fill within an approximate 44-acre portion of the Centennial Industrial Site. Thus, the demands that could be placed upon fire service providers as a result of Centennial operations would be limited to potential vegetation fires, which is addressed within the Wildfire Chapter of this EIR, and emergency medical incidents associated with on-site employees.

The nearest NCCFD station is Station 86, located at 12337 Banner Lava Cap, Nevada City. While response times to the Centennial Industrial Site from Station 86 would be greater than NCCFD's response time goal of five minutes 90 percent of the time, NCCFD has a JOA with GVFD and NCFD.²¹ The JOA provides for the GVFD, NCFD and NCCFD to operate under a Boundary Drop/Closest resource response plan, under which the closest fire engine to an incident will be dispatched or multiple engines can be dispatched for larger incidents, regardless of jurisdiction. As previously discussed, the GVFD and NCFD have recently merged. Under the JOA, GVFD could respond to emergency medical incidents at the Centennial Industrial Site from Station 2 more quickly than NCCFD could respond from Station 86. According to the GVFD, it may

²¹ Personal communication between Terry McMahan, Fire Marshal, Nevada County Consolidated Fire District, and Nick Pappani, Vice President, Raney Planning & Management, Inc., December 17, 2020.



be possible for the Department to respond to emergency medical incidents at the Centennial Industrial Site within the Department's 5-minute response time goal 90 percent of the time, though this depends upon traffic conditions.²² Given the JOA and the lack of proposed structures on the Centennial Industrial Site, thus precluding structural fires on-site, NCCFD does not believe that the proposed project would have a significant impact on its services and did not identify the need to expand or construct new facilities to serve the project.²³ In addition, it is noted that the proposed project will be subject to payment of NCCFD's fire impact fees.

Brunswick Industrial Site

The Brunswick Industrial Site is located entirely within Ophir Hill FPD. Ophir Hill FPD's Fire Station 52 is located at 12668 State Route (SR) 174, south of the project site. Station 52 is staffed with two personnel, 24/7. The station houses a Type 1 Fire Engine (structural fire apparatus) and second engine, both of which have 1,250-gallon pumps. The station also houses a wildland fire engine. Ophir Hill FPD could respond to emergency incidents at the Brunswick (and Centennial) Industrial Site within its response time goal of 5 minutes 90 percent of the time.²⁴

In the event of a structural fire at one of the taller on-site buildings, Ophir Hill FPD may need to access rooftop and/or upper portions of on-site buildings. Rise Grass Valley proposes to install two fire department roof access steel ladders on all buildings taller than 20 feet and less than 75 feet.²⁵ These ladders would be sufficient to reach all on-site buildings where the need for structural fire suppression would reasonably be expected, as shown in Table 4.11-2. The tallest on-site building, other than the headframe building would be the 64-foot tall Process Plant building.

Roof access to buildings may also be facilitated by use of GVFD's 105-foot ladder truck, if available. While the 105-foot ladder could not access the upper portions of the headframes, a ladder would be installed as part of the proposed project.

The potential for structural fires to occur within other on-site structures would be further minimized by the steel construction of all on-site buildings and proper storage and use of hazardous materials within the buildings, as required by federal and state regulations. In addition, all buildings will meet all fire code requirements as set forth by California Buildings Standards Code (CBSC) and CFC, which could include fire sprinklers and fire alarms, as determined by the County Fire Marshal at building permit stage, depending upon building and occupancy type.

²² Personal communication between Mark Buttron, Fire Chief, Grass Valley Fire Department, and Nick Pappani, Vice President, Raney Planning & Management, Inc., December 18, 2020.

²³ Personal communication between Terry McMahan, Fire Marshal, Nevada County Consolidated Fire District, and Nick Pappani, Vice President, Raney Planning & Management, Inc., December 17, 2020.

²⁴ Personal communication between Rob Rothenberger, Fire Chief, Ophir Hill Fire Protection District, and Nick Pappani, Vice President, Raney Planning & Management, Inc., January 6, 2021.

²⁵ Rise Grass Valley Inc. *Proposal to Ophir Hill Fire Protection District*. July 22, 2021.



Table 4.11-2 Building Summary		
Building	Gross Area (square feet)	Maximum Height (feet)
Brunswick Shaft Complex		
Headframe	2,600	165
Shaft building	1,700	25
Conveyor and raise building	700	17
Rock truck loading	1,700	20
Hoist building	2,800	50
Electrical building	800	15
Mine compressor building	1,600	20
Process Plant Area		
Process plant	29,200	64
Process plant addition	7,300	26
Generator building	3,900	20
Warehouse/Office Area		
Warehouse	28,900	27
Changeroom and office building	24,600	30
Water treatment plant	8,500	26
Machinery building	1,600	20
Service Shaft Complex		
Shaft building	2,700	24
Headframe (located in shaft building)	–	80
Hoist building	2,800	50
Electrical building	800	15
Machinery building	1,600	20
Security building	2,400	15

Notwithstanding, in the event of a structural fire at the Brunswick Industrial Site, pursuant to Ophir Hill FPD’s response policy, three engines would be dispatched, one from Ophir Hill FPD, one from Peardale-Chicago Park FPD, and one from CAL FIRE. Additional fire service providers may respond as necessary, as previously discussed. Ophir Hill FPD has expressed concerns regarding pumping capacity.²⁶ The Brunswick Industrial Site would include installation of a fire flow system that would connect to the 18-inch NID water main in Brunswick Road. Two existing fire service lines (6-inch and 8-inch) extend into the Brunswick Industrial Site from the 18-inch line on Brunswick Road. This fire flow infrastructure previously served the former Bohemia Lumber Mill on the Brunswick property. During final improvement plan review, the County Fire Marshal would review the fire flow system to ensure that it meets CFC requirements. In order to address the Ophir Hill FPD’s concern regarding pumping capacity, Rise Grass Valley has committed to providing a lump sum payment of \$1,000,000, at the commencement of mine dewatering, to the Ophir Hill FPD to be used exclusively for the purchase of a new fire engine and associated equipment.²⁷ Rise Grass Valley has also committed to funding three additional Ophir Hill FPD fire fighters during gold production. The Ophir Hill FPD Board has accepted Rise Grass Valley’s proposal and determined that with the provision of a new fully equipped Type 1 fire apparatus, as

²⁶ Personal communication between Robb Rothenberger, Fire Chief, Ophir Hill Fire Protection District, and Nick Pappani, Vice President, Raney Planning and Management, Inc., January 6, 2021.

²⁷ Rise Grass Valley Inc. *Proposal to Ophir Hill Fire Protection District*. July 22, 2021.



well as additional full-time staffing of three firefighters (and roof access ladders), Ophir Hill FPD would have the necessary equipment and staff to serve the project site.²⁸ The County would require the applicant to provide these commitments through project conditions of approval or other similar mechanism. Importantly, the new fire engine and additional personnel would be housed at the existing Ophir Hill fire station, and would not require expansion of the existing station or construction of a new station.

Underground fire incidents would be minimized given that all underground mining equipment would be electrically powered. Storage and use of underground explosives is heavily regulated by the U.S. Department of Labor Mine Safety and Health Administration (MSHA) under Title 30, CFR. Upon delivery to the project site, explosives and detonators would be immediately transported underground and placed in separate magazines pursuant to 29 CFR 1926.904, subdivision (b), and 8 CCR 5251, subdivision (a). The explosives and detonators would be moved and stored underground in auxiliary facilities - they would not be stored on the surface. The auxiliary facilities would be located in an area of the underground mine suitable for such storage use, and would consist of wooden, box-type containers equipped with covers or doors, or facilities constructed or mined-out to provide equivalent impact resistance and confinement so as to comply with 30 CFR 57.6161, subdivision (a). The auxiliary facilities will be located in such a way so as to ensure that escape routes are not obstructed, and will be located a safe distance from underground workings, tunneling and construction operations, shafts, electrical wiring, and combustible rubbish, as is required by 29 CFR 1926.904, 30 CFR 57.6161 and 8 CCR 5258. Blasting operations are controlled pursuant to the regulations in CFR 56.6300 to 56.6905., including but not limited to, primer protection, security of the blast site, post-blast examination for hazards, etc.

Explosives would be transported directly to the site by licensed explosive suppliers. The suppliers will possess the requisite permits, including a CHP hazardous materials transportation license and United States Department of Transportation (DOT) hazardous materials permits. Additionally, the explosives supplier will have a sufficient insurance policy.

The suppliers would transport explosives to the project site via semi-trucks driven by licensed drivers on Brunswick Road via SR 20/49. The semi-trucks will also be conspicuously labeled, as is required by 29 CFR 1926.902, subdivisions (f) through (i). The suppliers will take all proper federally mandated precautions while transporting explosives, including driving on designated explosive routes and will inspect tires at the beginning of each trip and each time the vehicle stops. (49 CFR 397.17.) In addition, in compliance with federal regulations, the explosives and detonators will be separated during the transportation thereof to ensure the explosives are not detonated. (29 CFR 1926.902, subd. (d).)

Emergency Medical Incidents

With respect to emergency medical incidents and underground mine rescue, if deemed necessary, demands for emergency response by Ophir Hill FPD or other providers would be minimized by the mine's own rescue team, which would total 24 members and include five EMTs. An EMT would always be on-site to provide rapid

²⁸ Robb Rothenberger, Fire Chief. Ophir Hill Fire Protection District. Letter dated August 2, 2021.



response to any medical emergencies and a permanent member of the mine rescue team. Each of the four mine rescue teams would be on call to respond to emergencies. Pursuant to MSHA, a minimum of two teams is required to be available within a one-hour travel time to respond to the mine site.

The mine rescue teams would be fully trained and equipped with personal protective equipment, closed circuit rebreather apparatus for underground, open circuit self-contained breathing apparatus for surface responses, oxygen and equipment supplies, gas testing equipment, thermal imaging cameras, communication devices, fire fighting vehicles, hand tools, pumps, hoses, and other equipment. All equipment would be kept at the Brunswick Industrial Site and would not require expansion or new emergency response facilities.

The on-site EMT would be available to transport personnel to the nearest hospital if medical care is non-urgent, thus, relieving demands upon ambulance services (i.e., Sierra Nevada Ambulance). However, certain medical incidents require 9-1-1 dispatch of an ambulance for transport to the appropriate care facility. The total employees on-site at any given time would be 111, which would not be anticipated to generate a substantial amount of emergency calls for service over the course of a typical workday.

In addition, underground metal mining has injury rates similar to residential construction and injury rates are significantly less than agriculture, truck transportation, and logging. The non-fatal lost time injury rate for underground metal mining of approximately 1.5 injuries per year per 100 workers is similar to that experienced in the residential construction industry.^{29, 30} From the period of 2016 to present, only two fatal injuries have occurred in all the underground metal mines combined in the United States (both in 2018).^{31,32}

Reclamation

During reclamation of the Brunswick Industrial Site, underground mining would cease and the Brunswick Shaft and Service Shaft would be closed pursuant to applicable state and federal regulations for safety and security purposes. The tallest structures on-site -- Brunswick Shaft and Service Shaft headframes and headframe buildings -- would be removed, along with the covered conveyor system and above-ground diesel fuel tanks. Paved surfaces and the remaining on-site building shells would remain, but internal contents would be removed. These reclamation activities would further minimize potential demand for fire service provider calls for service at the Brunswick Industrial Site.

²⁹ U.S. Bureau of Labor Statistics. *2018 Non-fatal occupational injury rate by industry*. Available at: www.bls.gov/web/osh/summ1_00.htm. Accessed December 2021.

³⁰ United States Department of Labor – Mine Safety and Health Administration. *2018 Mine Injury and Worktime Quarterly Report*. Available at: <https://arlweb.msha.gov/Stats/Part50/WQ/2018/MIWQ%20Report%20CY%202018.pdf>. Accessed December 2021.

³¹ United States Department of Labor – Mine Safety and Health Administration. *Fatality #16 – November 11, 2018 – Final Report*. Available at: www.msha.gov/data-reports/fatality-reports/2018/fatality-16-november-11-2018/final-report. Accessed December 2021.

³² United States Department of Labor – Mine Safety and Health Administration. *Fatality #14 – October 25, 2018 – Final Report*. Available at: www.msha.gov/data-reports/fatality-reports/2018/fatality-14-october-25-2018/final-report. Accessed December 2021.



Conclusion

CEQA analysis of a project's impacts upon fire service providers should be focused on physical environmental impacts. In other words, the analysis should focus on whether the project necessitates a fire service provider to construct a new facility or expand an existing facility, the construction of which could cause physical impacts to the environment, in order for the provider to meet its response time goals or other performance objectives. The above analysis demonstrates that the proposed project would create additional demand upon fire service providers. However, new or physically altered fire stations are not needed for service providers to meet response time goals for medical or fire-related incidents at the Sites.

Based on the above, the proposed project would not require the construction of new or expanded emergency medical and fire response facilities and would therefore have a **less-than-significant** impact related to adverse physical impacts associated with the provision of new or physically altered fire facilities.

Mitigation Measure(s)

None required.

4.11-2 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services. Based on the analysis below, the impact is *less than significant*.

The Nevada County's Sheriff's Office would provide law enforcement services for the proposed project. The Sheriff's Office headquarters is located at the Eric W Rood Center in the Nevada County Government Center on Maidu Avenue in Nevada City. Response times to calls for service oftentimes depends upon the location of the responding deputy within their patrol beat, as they are the first to respond to any emergency in the County. However, it is important to note that the Sheriff's Office does not have adopted response time goals.

The proposed operations at the Centennial Industrial Site would place limited demand on the Sheriff's Office as operations would be limited to the placement of engineered fill for a finite period of time (i.e., approximately five years until the engineered fill pad is completed to its design height). No above-ground structures or underground mining operations would occur at the Centennial Industrial Site, which could be subject to crimes such as break-ins and theft.

In contrast, the Brunswick Industrial Site would include several new above-ground buildings and commencement of underground mining. Valuable mineral resources would be extracted from underground and processed on-site for off-site shipment. In order to deter potential crime at the Brunswick Industrial Site, the property would be fenced and gated. A security officer would always be on-site to ensure controlled



access to the mine. A total of four security officers would be employed at the mine, with an emphasis on local recruitment.

In addition, while lighting at the Brunswick Industrial Site has been designed to minimize light spill over onto adjacent properties, as discussed in the Aesthetics chapter of this EIR, new light structures are proposed throughout the Brunswick Industrial Site at strategic locations for pedestrian safety along internal walkways and around equipment areas, and to enhance the security of the property. Outdoor lights would be provided at project entry points, within the surface parking lot, and around the Brunswick Shaft and Process Plant and proximate buildings.

Similar to fire protection services, the law enforcement impact analysis should be appropriately focused on determining whether the proposed project's demand upon the Sheriff's Office would generate the need to expand existing law enforcement facilities or provide new facilities, such as a new Sheriff's Office substation.

As previously discussed, the Sheriff's Office currently has 68 sworn deputies and the ability to handle the call volume with current resources of the Sheriff's Office. Based upon the project description details, including the number of employees (111 maximum employees per shift), the Sheriff's Office services would not be adversely affected by the proposed project, and the headquarters would not require expansion to enable the Sheriff's Office to adequately serve the proposed project in addition to current demands.³³

During reclamation of the Brunswick Industrial Site, the Brunswick Shaft and Service Shaft would be closed pursuant to applicable state and federal regulations for safety and security purposes. The Brunswick and Service shafts headframes and headframe buildings would be removed, along with the covered conveyor system and above-ground diesel fuel tanks. Remaining on-site building shells would remain but internal contents would be removed. The site security fencing and lighting would remain, such that the Brunswick Industrial Site could continue to be appropriately secured.

Based on the above, the proposed project would have a **less-than-significant** impact related to resulting in substantial adverse physical impacts associated with the provision of new or physically altered fire facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services.

Mitigation Measure(s)

None required.

³³ Personal communication between Lieutenant Robert Jakobs, Emergency Operations Coordinator, Office of Emergency Services, Nevada County Sheriff's Office, and Nick Pappani, Vice President, Raney Planning & Management, Inc., January 5, 2021.



4.11-3 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or performance objectives for schools. Based on the analysis below, the impact is *less than significant*.

Demand upon local schools as it relates to new development projects is typically a result of new residential communities, where families move to an area and add students to the school District, within whose boundaries they are located. To a lesser degree, demand for schools may be attributable to non-residential projects that increase employment opportunities and result in families relocating to the area for employment opportunities.

The proposed project would support a total of 312 employees. Rise has established local recruitment targets that they intend to achieve through the implementation of a training program. A total of 162 positions have been designated for trainees with no previous experience. Rise estimates that approximately 51 additional workers, with previous experience and training in mining, engineering, electrical or other trades, are available for local area recruitment. Therefore, at least 213 workers (approximately 68 percent of the mine's workforce) are estimated to be sourced from the immediate Nevada County area. It is anticipated that approximately 99 workers (32 percent of workforce) would be recruited from outside the local area; these positions require extensive experience in underground mining which are less likely to be possessed by persons currently residing in the immediate local area.

Considering that the average metal miner is 41.5 years of age, it is reasonable to assume that many employees would have families.³⁴ Conservatively assuming that each of the 99 workers recruited from outside the local area would have a family, the total new population introduced to the local Nevada County area from these 99 workers would be approximately 240 people.³⁵ Even if one student per household, or 99 total students, were assumed, the primary and secondary school districts serving this portion of the County would have sufficient capacity to accommodate the additional students.

For example, based on 2019-2020 Enrollment Numbers, while Bell Hill Academy was at full capacity, Grass Valley Charter School had a remaining capacity of 164 students; Margaret G. Scotten Elementary School had a remaining capacity of 76 students; and Lyman Gilmore Middle School had a remaining capacity of 160 students.³⁶ Union Hill Elementary and Middle School serves around 700 students, though like many other

³⁴ National Institute for Occupational Safety and Health. *National Survey of the Mining Population, Part I: Employees* [pg.75]. 2012. Available at: <https://www.cdc.gov/niosh/mining/UserFiles/works/pdfs/2012-152.pdf>. Accessed January 26, 2021.

³⁵ Assuming 2.42 persons per household, consistent with the Nevada County 2019-2027 Housing Element, pg. 8-23.

³⁶ Nevada County Superintendent of Schools. *2019-2020 Enrollment Summary – October 2019 (Updated 1/16/20)*. Available at: <https://nevco.org/wp-content/uploads/2020/06/Enrollment-10-2019-All-County.pdf>. Accessed January 21, 2021.



schools, has recently implemented a hybrid schedule, thus reducing on campus attendance. In addition, over the past 20 years, Nevada County has experienced a decline in K-8 enrollment, from 8,623 students in 1998/99 to 6,936 students in 2018/19, resulting in an overall decrease of 1,687 students or 19.56 percent.³⁷ The Nevada City School District's enrollment has decreased more than twice the rate of the Nevada County K-8 enrollment over the past 20 years. In addition, the District's enrollment is projected to decrease from the current 756 students to 577 students by the year 2029/30 – a decrease of 179 students, or an average of 18 students per year over the next ten years.³⁸

With respect to high school, based on 2019/2020 enrollment data, Bear River High School had a remaining capacity of approximately 600 students, and Nevada Union High School had a remaining capacity of approximately 1,000 students. As such, no expansion of local school facilities is expected to be necessary as a result of additional students that could move to the project area due to development of the project.

Given existing capacity at area schools, the project would not increase enrollment such that it would create a need for new or expanded school facilities. Based upon the above, the proposed project would have a **less-than-significant** impact with respect to resulting in substantial adverse physical impacts associated with the provision of new or physically altered school facilities.

Mitigation Measure(s)

None required.

4.11-4 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for parks services. Based on the analysis below, the impact is *less than significant*.

Nevada County General Plan Policy 3.10 identifies a specific level of service standard for County regional parks (3.0 acres for each increase of 1,000 persons). The County has adopted a Recreation Mitigation Impact Fee for residential development to address this level of service standard, and distributes those fees to park and recreation districts, the cities, school districts, and non-profit organizations to enhance recreational opportunities at new and existing recreational facilities within the boundaries of four benefit zones in Western Nevada County. Recreation Impact Fees are not collected for non-residential uses, such as the proposed mining operation. This is consistent with industry practice given the limited demand that non-residential projects place on park and recreation services. Large employers could indirectly increase an area's population due to substantial new employment opportunities, which could in turn indirectly increase demand on local parks and recreation facilities.

³⁷ Williams & Associates. *Nevada City School District Facilities Utilization Master Plan*. February 2020. IV-3.

³⁸ Williams & Associates. *Nevada City School District Facilities Utilization Master Plan*. February 2020. IV-6.



The proposed project is anticipated to bring 99 specialized workers to the local area, along with their families. This would not result in the need for new park facilities or expansion of existing park facilities. Sufficient state and local park facilities existing within the area, such as Empire Mine State Park, Malakoff Diggins State Historical Park, several parks within Grass Valley, and trail opportunities such as the 1.5-mile Loma Rica Trail along Brunswick Road in the project vicinity and the network of trails within Empire Mine State Park.

Thus, the proposed project would not require the expansion or construction of new parks and would therefore have a **less-than-significant** impact with respect to resulting in substantial adverse physical impacts associated with the provision of new or physically altered park facilities.

Mitigation Measure(s)

None required.

4.11-5 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for other public services. Based on the analysis below, the impact is *less than significant*.

Nevada County General Plan Policy 3.10 identifies specific level of service standards for other public facilities in the County, including County jail, County library, and County parks (discussed in Impact 4.11-4). As discussed above, the proposed project may reasonably be expected to relocate approximately 240 employees to the local area. This relatively minor increase would not require new County facilities, or expansion of existing facilities, the construction of which could cause significant environmental impacts. For example, using the service standards of Policy 3.10, the proposed project could require an additional 0.24 inmate bed at the County jail, and 72 additional square feet of library space.

According to the 2019-2020 Nevada County Executive Report,³⁹ a voter-approved sales tax measure (Measure A) in 2016 provides a one-fourth cent sales tax to fund County libraries. The tax has a 15-year term and is the primary funding source of the Nevada County Library. This revenue and community involvement helps support the robust library programs available in the County. Of the six comparison counties, Nevada County has the highest book circulation per capita (7.42) and the third highest operating expenditure per capita (\$30.36) behind Placer and Mendocino counties. The sales tax, known as the Nevada County Public Library Transactions and Use Tax Article of the County of Nevada, imposed a tax on all retailers in the incorporated and unincorporated territory of the County at the rate of one-quarter of one percent (0.25

³⁹ Nevada County Executive Office. 2019-2020 Nevada County, California Executive Report. Available at <https://www.mynevadacounty.com/DocumentCenter/View/29532/1920-Executive-Report>. Accessed January 26, 2021.



percent) of the gross receipts of any retailer from the sale of tangible personal property sold at retail in the territory.⁴⁰

With an estimated total payroll, including wages and benefits, at \$38 million per year, retail expenditures associated with mine employees would make a meaningful contribution to the Library sales tax.

Policy 3.10 also includes a service standard for overall County Services and Human Services, at 2,500 square feet for each increase of 1,000 persons. At an estimated 240 new residents resulting from the project, this equates to approximately 600 square feet of additional space for unspecified overall County services and human services. These services are funded by various revenues streams, including but not limited to federal and state monies, property and sales taxes, charges for services, etc. The project's contributions towards these revenue streams would reasonably be expected to offset the potential demand for an estimated need of 600 square feet of additional space for these types of services.

The project would not require the construction of new or expanded public facilities; therefore, the proposed project would have a **less-than-significant** impact with respect to adverse physical impacts associated with other public facilities.

Mitigation Measure(s)

None required.

4.11-6 Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Based on the analysis below, the impact is less than significant.

The following sections describe the water, wastewater treatment, and electric power improvements that would be necessary to serve the proposed project. Storm water drainage facilities are addressed in Impact 4.8-3 of the Hydrology and Water Quality chapter.

Water Supply Infrastructure

Several NID potable treated water facilities are located in the vicinity of the Brunswick Industrial Site, where potable water would be required. An 18-inch treated water line owned by NID is located within Brunswick Road, along the project site's frontage. An existing NID 4-inch water meter services Brunswick parcel APN 06-441-03, where the office/warehouse would be located and where most of the water is needed. Two existing fire service lines (6-inch and 8-inch) extend into the Brunswick Industrial Site from the 18-inch line on Brunswick Road and would be used for the on-site fire system.

⁴⁰ Board of Supervisors of the County of Nevada. *Resolution No. 16-333*. June 30, 2016. Available at <https://www.mynevadacounty.com/DocumentCenter/View/13267/Measure-A-PDF>. Accessed January 26, 2021.



Thus, NID potable water line and meter infrastructure is located at the Brunswick Industrial Site such that connections to existing infrastructure could be conveniently made and off-site water line improvements, such as pipe relocation or new construction, would not be required for the proposed Brunswick Industrial Site operations.

As discussed in Impact 4.8-2 of the Hydrology and Water Quality chapter of this EIR, dewatering associated with the proposed mining operations could result in potential adverse effects to an estimated seven domestic water supply wells in the East Bennett area during the life of the mining operation. As discussed in the Project Description chapter, pursuant to Nevada County General Plan Policy 17.12, the project would address the potential effects on the estimated seven domestic water supply wells by installing an 8-inch potable water supply line in East Bennett Road, as generally shown in Figure 4.11-2, and providing individual well owners with a connection to the potable water line. While only seven wells are projected to be adversely affected, the applicant has prepared, and Mitigation Measure 4.8-2(c) of the Draft EIR requires implementation of, a Well Mitigation Plan that would provide the ability to connect up to 30 properties in the East Bennett area to the NID potable water system. However, connection to the proposed NID pipeline would be voluntary. The properties would be connected to the potable water system prior to commencement of initial mine dewatering, if the property owner chooses to do so.

In accordance with the Well Mitigation Plan, the applicant will fund the engineering, permitting, construction, and installation of main water piping and water meters to each property, as well as NID water charges for ongoing water supply.

An approximately 1¼-mile-long by two feet-wide (approximately 0.30-acre) stretch of East Bennett Road would be temporarily disturbed to bury the potable water pipeline. Installation of the buried potable water pipeline would generally involve trenching, pipe placement, backfill, and cover replacement. Initially, an approximately 24-inch-wide by 42-inch-deep open trench would be excavated. Asphalt would be disposed of consistent with County regulations and overburden would be stockpiled for use as backfill. Upon completion of trenching in a specific section of the route, the eight-inch pipeline would be installed. The pipe would be covered with the stockpiled soil removed during trenching or engineered fill, as required by County guidelines. The backfilled trench within the East Bennett Road right-of-way would then be paved consistent with County guidelines.

The potential physical environmental effects associated with off-site potable water line construction within East Bennett Road are evaluated throughout the remaining technical chapters of this EIR, including, but not limited to, Air Quality (Chapter 4.3), Biological Resources (Chapter 4.4), Cultural Resources (Chapter 4.6), and Hydrology and Water Quality (Chapter 4.8).



**Figure 4.11-2
East Bennett Road Potable Water Line Alignment**



Source: Nevada City Engineering, Inc.



Wastewater Collection

The proposed project would not be served by any public sewer systems, but rather sanitary sewage from the project would be discharged to an on-site sewage disposal system. An on-site septic field system would be built at the Brunswick Industrial Site for the permanent toilets, sinks, and shower facilities planned. The proposed septic system would be required to comply with the County's On-Site Wastewater Treatment Systems (OWTS) and Local Area Management Plan (LAMP). In compliance with the OWTS and LAMP, a septic system permit would be required from the County in order to construct and operate the proposed septic system.

A septic system evaluation was prepared for the proposed project by Navo & Sons, Inc. (refer to Impact 4.6-4 of the Geology, Soils, and Mineral Resources chapter of this EIR for further discussion of the soils evaluation). According to the septic system evaluation, a relatively large, acceptably permeable soil area has been identified within the proposed leach field area, just south of the proposed engineered fill footprint, and set back 100 feet from the property line. The evaluation concludes that the project site is suited for a Pressure Dose sewage disposal system with a minimum of 1,935 lineal feet of leach line. A minimum 10,000-gallon septic pump tank with watertight risers over each lid and outlet effluent filter would be required. The pump tank would be oversized in order to accommodate for potential power loss, backups, and surge flows in the future. The potential environmental impacts associated with the septic field disturbance area have been addressed within the remaining technical chapters of this EIR.

Electricity and Other

The electrical grid system in the project area is well developed. A commercial sawmill that previously operated on the Brunswick Industrial Site was serviced by a dedicated 12kV PG&E power line. A high voltage power line also runs through the property west of the Brunswick shaft.⁴¹ Electricity for the proposed project would be supplied by the existing 12 kV PG&E line along Brunswick Road. The BRUNSWICK 1102 Circuit (Circuit), which would serve the proposed project, has a rating of 13.26 MW.⁴²

The project's total connected load is estimated at approximately 10 MW, with a net load of approximately 6 MW. As of the year 2021, the Circuit operates at 5.15 MW, or approximately 39 percent of the Circuit's maximum capacity. Based on PG&E's usage projections, the Circuit load is anticipated to drop to approximately 4.74 MW by the year 2025.⁴³ Considering the proposed project would generate an electric load of approximately 6 MW, and the Circuit currently provides 5.15 MW, the Circuit capacity would increase to 11.15 MW following implementation of the proposed project. The increase in wattage associated with implementation of the proposed project would remain within the Circuit's capacity of 13.26 MW and, thus, the Circuit would have available load capacity to accommodate the project.

⁴¹ AMEC Foster Wheeler. *Technical Report on the Idaho-Maryland Project, Grass Valley, CA* [pg.5-8]. June 1, 2017.

⁴² Pacific Gas & Electric. *Distribution Investment Deferral Framework (DIDF) Map*. Available at: <https://www.pge.com/b2b/distribution-resource-planning/grid-needs-assessment-map.html>. Accessed December 2021.

⁴³ *Ibid.*



PG&E provided a will serve letter for the project, PG&E has confirmed that there are electric facilities available to serve the proposed project in accordance with all applicable design standards, rules, and tariffs on file with the State of California Public Utilities Commission.⁴⁴

PG&E's BRUNSWICK 1102 Circuit, from which the Brunswick Industrial Site operations would be served, has been subject to recent (October 2019) Public Safety Power Shutoffs (PSPS) due to wildfires.⁴⁵ In order to address any potential PSPS events or other service interruptions, the project includes backup power generation in the form of four diesel generators on the Brunswick Industrial Site, with a capacity to provide approximately 6 MW on a continuous basis. The emissions associated with the generators has been evaluated in the Air Quality, Greenhouse Gas Emissions, and Energy chapter of this EIR.

Gas infrastructure is not located on-site or in the immediate vicinity, nor is gas proposed for use at the project site.

Conclusion

Based on the above, the proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment, or electric power facilities, the construction or relocation of which could cause significant environmental effects. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.11-7 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Based on the analysis below, the impact is *less than significant*.

Project Water Demand

The proposed project would require use of both potable and non-potable water. Each source is discussed separately below.

Potable Water Demand

An average of approximately 5,700 gallons per day (gpd) of potable water would be purchased from NID for sinks, toilets, and showers installed in buildings at the Brunswick Industrial Site. The proposed project would also require potable water from NID for the proposed potable water pipeline in East Bennett Road. The proposed potable water pipeline along East Bennett Road would be constructed from the District's Grass Valley potable water system and would provide water service to those residences whose existing groundwater wells may be impacted by mine groundwater

⁴⁴ Pacific Gas & Electric. *Idaho-Maryland Project (APN: 09-630-37, 09-630-39, 06-441-03, 06-441-04, 06-441-05, 06-441-034, Application Number: 117751473*. November 5, 2019.

⁴⁵ Pacific Gas & Electric. *Amended PG&E Public Safety Power Shutoff (PSPS) Report to the CPUC, October 26 & 29, 2019 De-Energization Event*. Available at: https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/PSPS-Report-Letter-10.26.19-amend.pdf. Accessed January 28, 2021.



dewatering operations. However, connection to the proposed NID pipeline would be voluntary. Although it is not known yet how many residences would connect to the NID potable water supply, it is estimated that up to 30 properties are located along the proposed pipeline alignment (including cul-de-sacs) and could connect. Potable water supply needed for residential use along the proposed pipeline alignment is projected to be approximately 17,900 gpd based on a unit water demand of 0.4 gallons per minute (gpm)/dwelling unit. The 0.4 gpm/dwelling unit water use factor was provided by the District.⁴⁶

Water needed for compaction and dust suppression during activity at the Centennial Industrial Site would also be purchased from NID. Approximately 42,000 gpd of water may be required for dust suppression and compaction over the five-year period of engineered fill placement. Compacting 8 hours per day and 5 days per week requires water service of up to 125 gallons per minute (gpm). Water needed for compaction and dust suppression during activity at the Brunswick Industrial Site would be sourced from dewatered groundwater treated at the on-site WTP, except for a period of approximately nine months prior to the construction of the WTP during which the water would be purchased from NID. Approximately 42,000 gpd may be required for dust suppression and compaction over the six-year period of engineered fill placement. Purchase of water from NID for compaction and dust suppression for the Brunswick Industrial Site (prior to WTP construction) would not overlap temporally with purchase of water from NID at the Centennial Industrial Site for engineered fill placement, as the WTP will have been constructed before engineered fill is placed on the Centennial Industrial Site.

The proposed development area at the Brunswick Industrial Site would be either paved, left in natural forest state, or landscaped. The landscaped area may require some minor irrigation which would use treated mine water, not potable water.

The engineered fill piles would not be paved as part of this project and the final surface would be compacted crushed rock, which would not require dust control watering once construction is complete. The side slopes of the pile would be covered with grass, which should not require irrigation.

Because the WSA prepared for the proposed project assesses the ongoing water demand associated with buildout of the proposed project, the water demand during temporary operations is not included in buildout water demands.

Non-Potable Water Demand

Groundwater consumed during operations is estimated to be 84,000 gpd. Water consumption includes water vapor in ventilation, air, cemented paste backfill, and concentrates and engineered fill. The following list provides a description of project elements consuming groundwater:

- **Underground Mining Service Water:** Such uses include water use for dust suppression in rock drills and blasted rock piles, which is piped into the mine workings. Net consumption of water would not result from such activities, because water in underground workings is pumped to the surface for reuse.

⁴⁶ West Yost. *Idaho-Maryland Mine Water Supply Assessment* [pg. 9]. December 1, 2021.



- Water Vapor in Ventilation: Ventilation air flow through the mine working would become saturated with water vapor, consuming approximately 40,000 gpd (assuming 200,000 CFM airflow, 100 percent saturation of air at 68 degrees F).
- Cemented Paste Backfill: Water is needed to transport and bind the cemented paste backfill underground. Such water is permanently retained in the backfill or used in the hydration of cement. Backfilling would consume approximately 20,000 gpd, assuming a 15 percent water content by mass and 500 tons per day of backfill placed.
- Gold Concentrates and Engineered Fill: Concentrates and engineered fill shipped off-site would contain approximately 24,000 gpd of water.
- Dust Control and Compaction: Active fill areas and unpaved surfaces require water to control fugitive dust, and engineered fill placed at the Brunswick Industrial Site would need to be compacted to meet design standards. Such activities would consume up to 42,000 gpd of treated mine water, but only during temporary fill placement.

Because dust control and compaction of engineered fill would be temporary, as previously discussed, those water demands are not, and are not required to be, included in the buildout water demand projections.

In addition, the proposed project would have a surplus of water from the natural groundwater flow into the ground workings. Once the initial dewatering is completed, approximately 1.224 million gpd (850 gpm) are estimated to be pumped to the surface and treated at the on-site WTP on an on-going basis to maintain the dewatered mine. This water would support all project-related non-potable water demand described above. The process plant would run on a closed circuit.

The total average daily and annual water demand for project operations and potable water use is summarized below in Table 4.11-3. The source of non-potable groundwater is the mine dewatering operations and only 10 percent of the dewatering volume would be needed for non-potable water demand.

Projected Future Water Demand

NID's projected annual future water demand through 2040 is summarized in Table 4.11-4, which includes the demand projections from NID's 2020 UWMP, and the additional project-related demand of approximately 26.4 ac-ft/yr for Brunswick Industrial Site buildings and East Bennett Road potable water line customers.

Notwithstanding the potable demand of 26.4 acre-feet per year associated with the project, the proposed project would be a net contributor of water to the NID water system as a result of the project's ongoing discharge of treated mine dewatering water to South Fork Wolf Creek (850 gpm or about 1,371 ac-ft/yr). The possibility exists for NID to utilize the excess treated mine water discharged to South Fork Wolf Creek. If desired, NID could adjust its flows upstream to use the extra water available downstream.



**Table 4.11-3
Projected Water Demand**

Water Use	Volume	
	Gallons per Day	Acre-Feet per Year
Brunswick Industrial Site Potable Water Use (NID)	5,700	6.4
East Bennett Residential Potable Water Use (NID)	17,900 ¹	20.0
Total NID Potable Water Use	23,600	26.4
Total Groundwater Consumption for Non-Potable Water Use	84,000	94.1
Total Water Use	107,600	120.5

¹ This estimate of potable water demand assumes that up to 31 residential properties along East Bennett Road could be connected to the proposed potable water supply line. As noted in this chapter, this original conservative estimate has since been refined to a maximum number of 30 potential residential properties

Source: West Yost. Idaho-Maryland Mine Water Supply Assessment. December 1, 2021. Table 2-2.

**Table 4.11-4
Projected NID Service Total Water Demands with Project
(ac-ft/yr)**

	2020	2025	2030	2035	2040
Retail	149,269	142,545	145,988	149,431	152,875
Wholesale	2,999	3,891	4,346	4,948	5,549
Unrecoverable Environmental	9,410	16,359 - 59,527	16,359 - 59,527	16,359 - 59,527	16,359 - 59,527
Total Water Demand	161,678	162,795 – 205,963	166,693 – 209,861	170,738 – 213,906	174,783 – 217,951

Notes: The District's water supplies are subject to environmental instream flow requirements as per its water rights and from the District's Federal Energy Regulatory Commission (FERC) License No. 2266 (known as the Yuba-Bear Project). Instream flow requirements are flows the District must leave in the respective streams, using the District's supplies. The current total instream flow requirement is 7,665 AFY. In order to ensure compliance, the District actually uses a total of 9,410 AFY to meet the instream requirement. A majority of these environmental instream flow requirements are not recoverable downstream by NID, and therefore represent a demand on NID's total supplies.

Source: Nevada Irrigation District 2020 Urban Water Management Plan, July 2021, Table 3-10.



Projected Water Supplies

Table 4.11-5 provides a summary of the District's projected water supply entitlements.

Water Code section 10910 (c)(4) requires that a WSA include a discussion with regard to "whether total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses." Accordingly, the WSA addresses these three hydrologic conditions through the year 2040, the estimates of which are presented in Table 4.11-6.⁴⁷ Table 4.11-6 summarizes the projected availability of NID's existing and planned future water supplies, and the District's projected water demands in normal, single dry and multiple dry years through buildout. As shown, demand within NID's service area is expected to exceed the District's supplies from 2025 to 2040 during Single Dry Years and in the first and second years of a Multiple Dry Year period from 2025 to 2040.

Factors contributing to inconsistency in NID's water supplies include legal limitations due to water rights and contracts limiting the quantity of water available to the District, environmental constraints, and reductions in availability due to climatic factors. The surface water supply to NID is subject to reductions during single and multiple dry years (seasonal and climatic shortages). NID holds senior water rights to the majority of its supply, excluding the watershed runoff supply, and has the ability to manage carry over storage quantities based on domestic, municipal and irrigation needs.

NID's contracted water supply from PG&E would be reduced in dry, critically dry, or extreme critically dry water year types. NID's watershed runoff water supply sources are covered by a combination of pre-1914 water rights, post 1914- water rights, and riparian water rights. In some California watersheds, including the Sacramento River watershed, the recent drought has resulted in diversion curtailment orders being issued in 2014 and 2015 on water rights going back to a 1903 priority date. These restrictions may continue to be placed on NID regardless of the priority of the water rights if the drought continues to be an even longer multi-year drought.

Water Supply Sufficiency

Pursuant to Water Code section 10910(c)(4), and based on the technical analyses described in the WSA prepared for the proposed project, the total projected water supplies determined to be available for the proposed project during Normal water years during a 15-year projection would meet the projected water demand associated with the proposed project. The connection of 30 properties as a result of the Idaho-Maryland Mine Project is included in planned projects in the NID 2020 UWMP (see 2020 UWMP, Table 2-2). Therefore, the potable water demands for buildout of the proposed project are included in the District's projected 2040 water demands. The potable water demand of the proposed project (26.4 ac-ft/yr) represents less than 0.27 percent of NID's 2020 potable water production (9,858 ac-ft/yr). Therefore, NID would be able to serve the proposed project in addition to existing and planned developments with some reliance on demand reductions in dry years by 2025.

⁴⁷ The reliability of each of the District's existing and additional planned water supplies and their projected availability during normal, single dry, and multiple dry years, are described in Section 6 of the District's 2020 UWMP.



**Table 4.11-5
NID Normal Year Projected Water Supplies (ac-ft/year)**

Water Supply	Additional Detail on Water Supply	2020 (Actual)		2025	2030	2035	2040
		Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Purchased Water	PG&E	-	54,361	7,500	7,500	7,500	7,500
Surface Water	Watershed Runoff	119,500	450,000	233,066	233,066	233,066	233,066
Surface Water	Carryover Storage	169,100		143,968	143,968	143,968	143,968
Recycled Water	Tertiary Treated	1,408	As available	1,408	1,408	1,408	1,408
Total		290,008	-	385,942	385,942	385,942	385,942

Source: Nevada Irrigation District 2020 Urban Water Management Plan, July 2021, Table 4-6 and Table 4-7. Note: A normal year is assumed.

**Table 4.11-6
Summary of NID Water Demand Versus Water Supply During Various Hydrologic Conditions**

Hydrologic Condition		Normal, Single Dry, and Multiple Dry Years, ac ft/yr			
		2025	2030	2035	2040
Normal Year^(a)					
Available Water Supply		385,942	385,942	385,942	385,942
Total Water Demand		188,336 - 205,963	192,234 - 209,861	196,279 - 213,906	200,324 - 217,951
Potential Surplus (Deficit)		197,606 - 179,979	193,708 - 176,081	189,663 - 172,036	185,618 - 167,991
Percent Shortfall of Demand		-	-	-	-
Single Dry Year^(b)					
Available Water Supply		91,807	91,807	91,807	91,807
Total Water Demand		177,436	181,723	186,173	190,621
Potential Surplus (Deficit)		-85,629	-89,916	-94,366	-98,814
Percent Shortfall of Demand		48%	49%	51%	52%
Multiple Dry Years^(c)					
Year 1	Available Water Supply	179,143	179,143	179,143	179,143
	Total Water Demand	183,751	188,038	192,488	196,936
	Potential Surplus (Deficit)	-4,608	-8,895	-13,345	-17,793
	Percent Shortfall of Demand	3%	5%	7%	9%
Year 2	Available Water Supply	176,630	176,630	176,630	176,630
	Total Water Demand	183,751	188,038	192,488	196,936

(Continued on next page)



**Table 4.11-6
Summary of NID Water Demand Versus Water Supply During Various Hydrologic Conditions**

Hydrologic Condition		Normal, Single Dry, and Multiple Dry Years, ac ft/yr			
		2025	2030	2035	2040
	Potential Surplus (Deficit)	-7,121	-11,408	-15,858	-20,306
	Percent Shortfall of Demand	4%	6%	8%	10%
Year 3	Available Water Supply	381,346	381,346	381,346	381,346
	Total Water Demand	212,714	217,001	221,451	225,899
	Potential Surplus (Deficit)	168,632	164,345	159,895	155,447
	Percent Shortfall of Demand	-	-	-	-
Year 4	Available Water Supply	254,196	254,196	254,196	254,196
	Total Water Demand	188,900	193,187	197,637	202,085
	Potential Surplus (Deficit)	65,296	61,009	56,559	52,111
	Percent Shortfall of Demand	-	-	-	-
Year 5	Available Water Supply	282,920	282,920	282,920	282,920
	Total Water Demand	188,900	193,187	197,637	202,085
	Potential Surplus (Deficit)	94,020	89,733	85,283	80,835
	Percent Shortfall of Demand	-	-	-	-

Notes:

- (a) Nevada Irrigation District 2020 Urban Water Management Plan, July 2021, Table 5-4.
- (b) Nevada Irrigation District 2020 Urban Water Management Plan, July 2021, Table 5-5
- (c) Nevada Irrigation District 2020 Urban Water Management Plan, July 2021, Table 5-6.

Source: Nevada Irrigation District 2020 Urban Water Management Plan, July 2021, Table 3-10.



Water supply exceeds demand, including addition of the Idaho-Maryland project, during normal years and therefore sufficient water supply to service the project is available during normal years.

Water demand within NID's service area is expected to exceed the District's supplies by more than 45 percent from 2025 to 2040 in Single Dry Years and by less than 10 percent from 2025 to 2040 during the first and second years of a Multiple Dry Year period. However, this project is not expected to exacerbate NID's water supply shortages during dry years and the project will supply water into South Fork Wolf Creek, and into the NID water conveyance system, at volumes exceeding the project water demand for potable water from NID. The 26.4 ac-ft per year potable water demand of the project is very small in comparison to the 4,696 ac-ft of water supplied by the Elizabeth George and Loma Rica water treatment plants in 2020 and the estimated surplus treated groundwater discharge from the proposed mine of approximately 1,371 ac-ft per year.

As previously discussed, the 2020 UWMP projects that demand would exceed supplies during single dry year and multiple dry year scenarios. This illustrates the highly variable reliability of a snowpack-based supply system during drought periods. There are numerous management and operational efforts available to NID to address supply shortfall during drought periods. Demand reductions, carryover storage strategies, system operational strategies, supplemental supplies, increased storage, and others are all options to evaluate in creating NID's future water resources management supply strategy in the Plan for Water process. In its 2020 UWMP, NID assumed carryover water would be reduced by the same quantity as the watershed runoff (approximately 81 percent). This is likely a conservative assumption as carryover storage is water from the previous year that is stored in reservoirs. NID documents carryover storage in Normal years is expected to be over 140,000 acre-feet (see Section 6.2 and Table 6-4 of the UWMP). It is possible that the year prior to a Single Dry Year would not be as dry as the Single Dry Year and therefore carryover storage would be closer to the value for a Normal Year. A larger value of carryover storage would translate to less severe water supply deficits. NID will be reviewing the assumptions in the 2020 UWMP as part of the Plan for Water.

This project would be subject to any applicable water demand cutbacks during droughts, similar to other NID potable water customers who are served by NID. NID's Drought Plan (Water Shortage Contingency Plan), outlined in Section 6 of the District's 2020 UWMP, includes a six-stage plan describing specific actions to reduce water demand by up to 50 percent in the event of a water supply shortage or emergency. In 2015, as a response to the Governor's Executive Order, NID also passed a resolution for treated water conservation to achieve 36 percent water use reduction from 2013 water use between the months of May through September. NID's customers were able to achieve the target reductions during a number of months in 2015 and 2016. For all of 2015 and 2016, water reduction was 27 percent and 22 percent, respectively. During multiple dry years, NID's Water Shortage Contingency Plan would take effect and mandatory conservation would help decrease the shortfall. According to NID staff, if supplies become extremely critical, drinking water supplies may be reduced but would not be cut off to protect public health and safety.



NID is in the early stages of a long-term visioning and planning effort to better understand potential future conditions and needs and identify management and operational practices to meet those needs. The process, Plan for Water, will identify optional water management practices as triggering points in supply, demand, regulatory, legal, and other events are reached. These practices may include supply projects, demand management efforts, policy changes, and others.

As further documented in the UWMP, NID has rights to water from the Bear River and South Yuba River. Because NID is not the senior water right holder, none of the water supply available to NID from these sources has been included in the UWMP water supply projections. However, the UWMP documents that it is likely that NID would receive at least a portion of their rights to water from the Bear River and South Yuba River in dry years.⁴⁸ This would reduce the potential water shortage in single dry and multiple dry years.

Conclusion

Based on the above, sufficient water supplies would be available to serve the proposed project, as well as existing and reasonably foreseeable future development during normal, dry, and multiple dry years. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.11-8 Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. Based on the analysis below, the impact is *less than significant*.

This impact evaluation considers whether the project would adversely impact a wastewater treatment provider's ability to serve existing commitments and projected demand due to capacity limitations. The proposed project would generate limited wastewater at the Brunswick Industrial Site through use of toilets, sinks, showers, and laundry. This wastewater would be directed to an on-site septic system for disposal.

According to the septic system evaluation prepared for the Brunswick Industrial Site, a relatively large, acceptably permeable soil area has been identified within the proposed leach field area, just south of the proposed engineered fill footprint, and set back 100 feet from the property line. The evaluation concludes that the project site is suited for a Pressure Dose sewage disposal system with a minimum of 1,935 lineal feet of leach line. A minimum 10,000-gallon septic pump tank with watertight risers over each lid and outlet effluent filter would be required. The pump tank would be oversized in order to accommodate for potential power loss, backups, and surge flows in the future.

⁴⁸ Nevada Irrigation District. 2020 Urban Water Management Plan [pg. 31]. July 2021.



The project would also include portable chemical toilets and hand-washing stations to employees working underground at Brunswick and temporarily at the Centennial Industrial Site. The applicant will be required to obtain a Portable Toilet with Portable Hand Washing Station Annual Permit from the Nevada County Department of Environmental Health (NCDEH) and pay any associated permit fees. The portable toilets and hand washing stations will be serviced on a routine basis as determined by the NCDEH and said service will be provided by a licensed and certified septic pumper commercial business. The liquid waste periodically pumped from the portable toilets would be discharged at a wastewater treatment facility, assumed to be the City of Grass Valley WWTP. The relatively limited waste generated by these portable toilets could be accommodated at the WWTP given its available capacity (as of 2016, the WWTP had an available average dry weather flow capacity of approximately 1.48 mgd, which is currently anticipated to be similar given the City's very low growth rates over the recent past).⁴⁹

Thus, wastewater treatment providers would not be involved with, nor affected by, the proposed project. Therefore, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.11-9 Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals, or conflict with federal, State, and local management and reduction statutes and regulations related to solid waste. Based on the analysis below, the impact is *less than significant*.

Solid waste would be generated by the proposed project during the construction and operation phases. Construction debris would be limited given that all buildings on the Brunswick Industrial Site would be pre-fabricated steel buildings and no structures would be built on the Centennial Industrial Site. In addition, consistent with the CALGreen Code, the contractor would be required to divert 65 percent of the construction waste materials generated during the project. Off-site construction of the potable water pipeline in East Bennett Road could generate approximately 1,200 cubic yards of asphalt waste (not accounting for diversion).

During operation of the proposed project, mine employees would generate daily solid waste. Using industrial waste rates, it is estimated that at full operation of the mine (i.e., 312 employees) approximately 2,786 pounds, or 6.2 cubic yards of solid waste, could be generated per day.⁵⁰

⁴⁹ City of Grass Valley. *Wastewater System Master Plan*. August 23, 2016; City of Grass Valley. *City of Grass Valley 2019-2027 Housing Element*. Adopted August 13, 2019, pg. II-1.

⁵⁰ California Department of Resources Recycling and Recovery. *Estimated Solid Waste Generation Rates*. Available at: <https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates>. Accessed January 22, 2021.



Solid waste from the proposed project would be transported to the Lockwood Landfill outside of Reno, Nevada. The Lockwood Regional Landfill has a waste volume of approximately 32.8 million cubic yards, with a capacity of 302.5 million cubic yards.⁵¹ Thus, the Lockwood Landfill has sufficient capacity to accommodate the project's construction and operational solid waste.

As previously discussed, however, the McCourtney Road Transfer Station, to which the project's solid waste would first be transported, does not have sufficient capacity to accommodate the volume of vehicles regularly delivering waste to the site, particularly on peak use periods throughout the spring, summer, and fall.⁵² This capacity constraint is partly due to the site's compact size and limited queuing area. In addition, the amount of recyclable materials accepted at the Transfer Station has increased over the last several years due to the closure of most buy-back and drop-off facilities both locally and regionally. However, Nevada County has designed an improvement project to resolve the existing issues, which is currently undergoing environmental review, and funding for the expansion project has been allocated in the County's CIP.

This project would also generate mining waste. California Water Code Section 13050(q)(1) defines mining waste as soil, waste rock, and overburden, as defined in Section 2732 of the PRC, and tailings, slag, and other processed waste materials. However, this waste is not subject to solid waste reduction goals, nor would it be disposed of at a landfill. Rather, the barren rock extracted from the mine would be used as engineered fill on the Centennial and Brunswick Industrial Sites, and hauled to market. Mineralized ore extracted from the mine would be used both as backfill (after processing at the Process Plant) and engineered fill, similar to barren rock.

In addition, as part of the proposed project, settled solids ("sludge") would be removed from the clay-lined settling pond approximately every 10 years. The volume of the pond, assuming operational freeboard, is approximately 23 acre-feet. Assuming a flow rate of 850 gpm and a sludge density of approximately 122 lbs/ft³ (16.4 ft³/ton), approximately one percent of the operational volume of the pond would be required to impound sludge over a period of 10 years.⁵³ This correlates to approximately 420 tons of sludge being removed from the pond every 10 years. Regional landfills can accommodate this additional solid waste, be it Lockwood Regional Landfill, Ostrom Road Landfill (Yuba County), Kiefer Landfill (Sacramento County), etc.^{54,55}

The removal of sludge from the pond can be achieved with slurry pumps and the periodic sludge dewatering activities can be performed using Rise's mining-related process plant equipment, which includes thickeners and filter presses. It is anticipated

⁵¹ Nevada Division of Environmental Protection. *Lockwood Fact Sheet*. Available at: <https://ndep.nv.gov/uploads/land-waste-solid-fac-docs/lockwood-fact-sheet.pdf>. Accessed January 22, 2021.

⁵² Nevada Division of Environmental Protection. *Lockwood Fact Sheet*. Available at: <https://ndep.nv.gov/uploads/land-waste-solid-fac-docs/lockwood-fact-sheet.pdf>. Accessed January 22, 2021.

⁵³ Linkan Engineering. *Idaho-Maryland Water Treatment Plant Design Report*. February 2021, pg. 5-3.

⁵⁴ California Department of Resources Recycling and Recovery. *SWIS Facility/Site Activity Details: Recology Ostrom Road LF Inc. (58-AA-0011)*. Available at: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/733?siteID=4075>. Accessed March 20, 2021.

⁵⁵ California Department of Resources Recycling and Recovery. *SWIS Facility/Site Activity Details: Sacramento County Landfill (Kiefer) (34-AA-0001)*. Available at: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/2070?siteID=2507>. Accessed March 20, 2021.



that the process plant equipment would be temporarily repurposed for sludge removal and dewatering, as necessary. If the process plant cannot accommodate sludge removal activities for any reason, the sludge could also be dewatered using mobile dewatering equipment (belt press, centrifuge, settling tanks, etc.) that is readily available from contractors and service providers who specialize in sludge removal from treatment ponds.

Based on the above, construction and operation of the proposed project would not generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. In addition, the project would not conflict with applicable federal, State, and local management and reduction statutes and regulations related to solid waste. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

For detail regarding the cumulative setting for this EIR analysis, refer to Chapter 5, Statutorily Required Sections of this EIR.

4.11-10 Increase in demand for public services associated with the proposed project, in combination with cumulative development. Based on the analysis below, the cumulative impact is *less than significant*.

For fire protection services, the Centennial Industrial Site is located within both the NCCFD and the Ophir Hill FPD, whereas the Brunswick Industrial Site is located entirely within the Ophir Hill FPD. The primary demand upon fire protection agencies attributable to the proposed project would be associated with operations at the Brunswick Industrial Site, given the presence of new above-ground structures that could be subject to structural fires, and considering that the Brunswick Industrial Site would support the majority of the employee workforce, some of whom could require emergency medical attention.

The potential for structural fires to occur within other on-site structures would be minimized by the steel construction of all on-site buildings and proper storage of hazardous materials in accordance with federal and state regulations. In addition, all buildings will meet all fire code requirements as set forth by CBSC and CFC, which could include fire sprinklers and fire alarms, as determined by the County Fire Marshal at building permit stage, depending upon building and occupancy type. The Brunswick Industrial Site would also include installation of a fire flow system that would connect to the 18-inch NID water main in Brunswick Road. Two existing fire service lines (6-inch and 8-inch) extend into the Brunswick Industrial Site from the 18-inch line on Brunswick Road. During final improvement plan review, the County Fire Marshal would review the fire flow system to ensure that it meets CFC requirements.



As previously discussed, Ophir Hill FPD could respond to emergency incidents at the Brunswick Industrial Site within its response time goal of 5 minutes 90 percent of the time.⁵⁶ Thus, a new fire station or expansion of Station 52 would not be needed for Ophir Hill FPD to respond to incidents at the Brunswick Industrial Site within its response time goal. In addition, the proposed project would be subject to payment of Ophir Hill FPD's and NCCFD's fire impact fees, which are used to help off-set the impact that new construction has on the Districts. Rise Grass Valley has also committed to fund a new fire engine and three full-time firefighters, which would be required by the County through project conditions of approval or other acceptable mechanism.

Other cumulative development would similarly be designed in compliance with state and local fire regulations, thus reducing demand on local fire service providers. Given that the majority of cumulative projects identified in Chapter 5 are consistent with their respective general plans, the incremental demand upon fire protection services from these projects has been anticipated and incorporated into planning efforts. In addition, the majority of cumulative projects (see Figure 5-1) are located near existing fire station locations, enabling efficient emergency response without the need to construct new stations.⁵⁷ The Dorsey Marketplace project within the City of Grass Valley involves a general plan amendment due to the requested land use types, and thus demand for services attributable to the Dorsey Marketplace project have not necessarily been anticipated in previous planning efforts; however, this project would be served primarily by GVFD, and the Dorsey Marketplace EIR (2019) concluded that cumulative effects related to fire protection services would be less than significant.⁵⁸ Therefore, the proposed project, in combination with future cumulative development, would result in a less-than-significant cumulative impact related to the need for new, or improvements to existing, fire facilities.

With respect to law enforcement, the project-level analysis determined that the Nevada County Sheriff's Office services would not be adversely affected by the proposed project's incremental demand, and the headquarters would not require expansion to enable the Sheriff's Office to adequately serve the proposed project in addition to current demands.⁵⁹ Given that the majority of cumulative projects identified in Chapter 5 are consistent with their respective general plans, the incremental demand upon law enforcement from these projects has been anticipated and incorporated into planning efforts. With respect to Housing Element Sites 3 and 5, Housing Element Rezone Program Implementation EIR (2013) Mitigation Measure 4.13-1c requires that "Prior to the occupancy of any new development, the project developer shall ensure adequate staffing and police or sheriff service response times dictated by population." The Dorsey Marketplace project within the City of Grass Valley involves a general plan amendment due to the requested land

⁵⁶ Personal communication between Robb Rothenberger, Fire Chief, Ophir Hill Fire Protection District, and Nick Pappani, Vice President, Raney Planning & Management, Inc., January 6, 2021.

⁵⁷ It is also noted that Mitigation Measure 4.13-1a from the Housing Element Rezone Program Implementation EIR (2013) requires that "Prior to the occupancy of any new development, the project developer shall ensure adequate staffing and fire service response times dictated by population." In addition, Mitigation Measure 4.13-1c requires that "Prior to the occupancy of any new development, the project developer shall ensure adequate staffing and police or sheriff service response times dictated by population."

⁵⁸ Dudek. *Dorsey Marketplace EIR* [pg. 14-38]. March 2019.

⁵⁹ *Ibid.*



use types; however, this project would be served by Grass Valley Police Department, and the Dorsey Marketplace EIR (2019) concluded that cumulative effects related to law enforcement would be less than significant.⁶⁰

Schools in the surrounding school districts are predominantly operating below their enrollment capacity. Thus, the potential for cumulative buildout, as defined in Chapter 5 of this EIR, to result in overcrowding at schools in the area is unlikely. Nevertheless, each individual development would be required to pay SB 50 school impact fees, similar to the proposed project, which would contribute to the facilitation of school expansions in order to serve the needs of the area. Furthermore, according to SB 50, payment of the necessary school impact fees for the project would be considered full and satisfactory CEQA mitigation. Proposition 1A/SB 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any “[...] legislative or adjudicative act [...] involving [...] the planning, use, or development of real property” (Government Code 65996(b)). Therefore, the proposed project, in combination with future cumulative development, would result in a less-than-significant cumulative impact related to the need for new, or improvements to existing, school facilities.

With respect to parks, several of the cumulative projects identified in Chapter 5 are residential, and thus, would place greater demand on existing parks. However, these residential projects would each be subject to dedication of on-site park land or payment of park impact fees, in accordance with local regulations, which are intended to offset each project’s incremental impact on existing park facilities. Furthermore, the remainder of the cumulative projects are small non-residential projects which would not be expected to generate substantial new demand for parks. As previously discussed, the project’s incremental demand for parks would not result in the need to expand existing parks.

Other public services such as libraries and the County jail, would not be significant impacted by the project’s incremental demand of an additional 0.24 inmate bed at the County jail, and 72 additional square feet of library space, pursuant to the calculation methodology in Policy 3.10 of the County General Plan. Given that the majority of cumulative projects identified in Chapter 5 are consistent with their respective general plans, the incremental demand upon law enforcement from these projects has been anticipated and incorporated into planning efforts.

Based on the above, the proposed project, in combination with the cumulative list of projects, would have a **less-than-significant** cumulative impact related to resulting in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives.

Mitigation Measure(s)

None required.

⁶⁰ Dudek. *Dorsey Marketplace EIR* [pg. 14-41]. March 2019.



4.11-11 Increase in demand for utilities and service systems associated with the proposed project, in combination with cumulative development. Based on the analysis below, the cumulative impact is *less than significant*.

Water Supply

NID's UWMP includes future water demand projections, as shown in Table 4.11-4. NID's future treated water distribution system connections and population are projected in Section 2 of the UWMP. The UWMP developed average annual growth rates based on the historical growth rate for each customer classification to determine the number of projected connections for the period 2020 through 2040.

The cumulative project list identified for this EIR includes a range of projects consistent with their respective agency's General Plan. This means that the growth associated with the cumulative projects is accounted for in NID's UWMP as growth is based upon coordination with agencies and their planning documents. Furthermore, the majority of cumulative projects are relatively small in scale. The two larger projects consist of Dorsey Marketplace and Loma Rica Ranch Specific Plan. According to a letter from NID on the Dorsey Marketplace EIR, NID's "UWMP anticipated growth and increased demands based upon Grass Valley's planning documents. This approach means proposed future water demands from developments such as the Dorsey Marketplace were included in the District's UWMP as anticipated growth."⁶¹ With respect to the Loma Rica Ranch Specific Plan, this master planned project was approved in 2011 by the City of Grass Valley. Thus, the future demand projections included in NID's 2020 UWMP, which are based on agency planning documents, accounted for the water demand from the Loma Rica Ranch Specific Plan. This is also confirmed in Table 2-2 of NID's 2020 UWMP. Housing Element Sites 3 and 5 were rezoned in 2018, resulting in an increase in the allowable density from a combined total of approximately 71 dwellings units (using former R2-PD zoning) to approximately 189 dwelling units (using current R3-RH zoning). This equates to a net increase of 118 units for Sites 3 and 5, which would result in an increase in the demand for potable water supply.

As previously discussed, Table 4.11-6 summarizes the projected availability of NID's existing and planned future potable water supplies, and the District's projected water demands in normal, single dry and multiple dry years through buildout. As shown, demand within NID's service area is expected to exceed the District's supplies from 2025 to 2040 during Single Dry Years and in the first and second years of a Multiple Dry Year period from 2025 to 2040.

The NID's Water Shortage Contingency Plan, outlined in Section 6 of the District's 2020 UWMP, includes a six-stage plan describing specific actions to reduce water demand by up to 50 percent in the event of a water supply shortage or emergency. In 2015, as a response to the Governor's Executive Order, NID also passed a resolution for treated water conservation to achieve 36 percent water use reduction

⁶¹ Nevada Irrigation District. *Re: Comments Regarding the Notice of Completion (NOC) of the Draft Environmental Impact Report (EIR) for the Dorsey Marketplace Project*. May 1, 2019, included as Comment Letter F in the Dorsey Marketplace Final EIR (SCH# 2016022053). October 2019.



from 2013 water use between the months of May through September. NID's customers were able to achieve the target reductions during a number of months in 2015 and 2016. For all of 2015 and 2016, water reduction was 27 percent and 22 percent, respectively.

As further documented in the UWMP, NID has rights to water from the Bear River and South Yuba River. Because NID is not the senior water right holder, none of the water supply available to NID from these sources has been included in the UWMP water supply projections. However, the UWMP documents that it is likely that NID would receive at least a portion of their rights to water from the Bear River and South Yuba River in dry years.⁶² This would reduce the potential water shortage in single dry and multiple dry years. In addition, in its 2020 UWMP, NID assumed carryover water would be reduced by the same quantity as the watershed runoff (approximately 81 percent). This is likely a conservative assumption as carryover storage is water from the previous year that is stored in reservoirs. NID documents carryover storage in Normal years is expected to be over 140,000 acre-feet (see Section 6.2 and Table 6-4 of the UWMP). It is possible that the year prior to a Single Dry Year would not be as dry as the Single Dry Year and therefore carryover storage would be closer to the value for a Normal Year. A larger value of carryover storage would translate to less severe water supply deficits.

In addition, as previously discussed, notwithstanding the potable demand of 26.4 acre-feet per year associated with the project, the proposed project would be a net contributor of water to the NID water system as a result of the project's discharge of treated mine dewatering water to South Fork Wolf Creek (850 gpm or about 1,371 ac-ft/yr).

Wastewater

As previously discussed, the proposed project would not connect to a public wastewater system, but rather, the wastewater generated at the Brunswick Industrial Site (e.g., toilets, sinks, showers, laundry) would be properly disposed of at an on-site leach field, designed in conformance with County Environmental Health standards. This would be an on-site operation that would not have the potential to combine with other projects to produce related cumulative effects. With respect to the temporary operations at the Centennial Industrial Site and underground mine work at Brunswick, the project would include portable chemical toilets and hand-washing stations to employees, the waste from which would occasionally need to be pumped and disposed of at a WWTP, assumed to be the Grass Valley WWTP. The limited waste from these portable toilets would have a minor incremental effect on WWTP available capacity.

Electricity

PG&E has confirmed that there are electric facilities available to serve the proposed project in accordance with all applicable design standards, rules, and tariffs on file with the State of California Public Utilities Commission. Electricity for the proposed project would be supplied by the 12 kV PG&E line along Brunswick Road. Given that the majority of cumulative projects identified in Chapter 5 are consistent with their

⁶² Nevada Irrigation District. *2020 Urban Water Management Plan* [pg. 31]. July 2021.



respective general plans, the incremental demand upon energy from these projects has been anticipated and incorporated into local planning efforts. The Dorsey Marketplace project within the City of Grass Valley involves a general plan amendment due to the requested land use types. The Dorsey Marketplace EIR (2019) concluded that cumulative effects related to electricity demand from the City of Grass Valley General Plan would be less than significant.⁶³ Therefore, the proposed project, in combination with future cumulative development, would result in a less-than-significant cumulative impact related to the need for new, or improvements to existing, electrical facilities.

Solid Waste

As noted previously, solid waste collection services for the proposed project would be provided by Waste Management, who would transport the waste to the McCourtney Road Transfer Station, and ultimately to Lockwood Landfill. With the current space available, the landfill would have sufficient capacity to serve the project. While the transfer station is capacity constrained, Nevada County has designed an improvement project to resolve the existing issues, which is currently undergoing environmental review, and funding has been allocated in the County's CIP.

Although the proposed project includes rezoning of the Brunswick Industrial Site, the site is already zoned for industrial uses; thus, the project would not be anticipated to result in significantly more intense waste generation than was previously anticipated for the project site in regional solid waste planning efforts. In addition, the cumulative list of projects would generate solid waste, most of which has been anticipated by regional planning efforts, given that the majority of cumulative projects are consistent with the adopted planning documents of their respective jurisdictions. While the Dorsey Marketplace project involves an amendment to the Grass Valley General Plan, the solid waste generated by said project (171 dwelling units, approximately 104k square of non-residential uses) could easily be accommodated by the Lockwood Landfill's capacity.

Conclusion

Water supply exceeds existing and projected future demand, including addition of the Idaho-Maryland project, during normal years. Therefore, sufficient water supply is available to service existing and future reasonably foreseeable development during normal years.

Water demand within NID's service area is expected to exceed the District's supplies by more than 45 percent from 2025 to 2040 in Single Dry Years and by less than 10 percent from 2025 to 2040 during the first and second years of a Multiple Dry Year period. This supply deficit can be addressed through NID's previously discussed Water Shortage Contingency Plan, and as previously mentioned, the proposed project would be a net contributor of water to the NID water system. With respect to wastewater, the proposed project would not combine with other cumulative projects' demand for wastewater treatment capacity as the project includes an on-site sewage disposal system.

⁶³ Dudek. *Dorsey Marketplace EIR* [pg. 14-2]. March 2019.



Solid waste from the proposed project and other cumulative development could easily be accommodated at the Lockwood Landfill, and while the McCourtney Road Transfer Station has capacity constraints, Nevada County has allocated funding in its CIP to expand the transfer station. Electricity demand from the proposed project in combination with cumulative development could be served by existing without the need for new production facilities.

With the exception of the Dorsey Marketplace project, the list of cumulative projects identified in Chapter 5 of this EIR, are consistent with their respective jurisdiction's adopted planning documents, and thus, the incremental demand these projects would place on utilities has been anticipated in local planning efforts. The Dorsey Marketplace EIR concludes that cumulative impacts due to buildout of Dorsey Marketplace and the Grass Valley General Plan would result in less-than-significant cumulative impacts. Thus, the proposed project, in combination with cumulative development, would have a ***less-than-significant*** cumulative impact to utilities.

Mitigation Measure(s)

None required.



4.12 TRANSPORTATION

4.12. TRANSPORTATION

4.12.1 INTRODUCTION

This Transportation chapter of the EIR discusses the existing transportation and circulation facilities within the project vicinity, as well as applicable policies and guidelines used to evaluate the operations of the proposed project. Where development of the proposed project would conflict with applicable policies or guidelines, mitigation measures are identified herein. The information contained within this chapter is primarily based on the Traffic Impact Analysis prepared for the proposed project by KDAnderson & Associates, Inc. (see Appendix O),¹ as well as information drawn from the Nevada County General Plan,² and the Nevada County General Plan EIR.³ All technical calculations are included as an appendix to the Traffic Impact Analysis.

TJKM was retained by Raney to perform an independent third-party peer review of the Traffic Impact Analysis.⁴

4.12.2 EXISTING ENVIRONMENTAL SETTING

The section below describes the physical and operational characteristics of the existing transportation system within the study area, including the surrounding roadway network, transit, bicycle and pedestrian facilities.

Study Area

The Traffic Impact Analysis prepared for the proposed project addressed traffic conditions at 24 intersections and six roadway segments (see Figure 4.12-1). The limits of the study area were reviewed and approved by Nevada County and the City of Grass Valley staff. The quality of traffic flow is typically governed by the operation of major intersections and the daily volume of traffic along the roadways. The physical characteristics of the study intersections and roadways are described in further detail below. Intersections associated with State Route (SR) 49/SR 20 are referred to throughout the remainder of this chapter as SR 49. The entirety of SR 49 proceeds in a northbound/southbound direction and is identified as such.

Study Intersections

The following sections provide a summary of the intersections within the study area.

1. Neal Street/Tinloy Street

The Neal Street/Tinloy Street intersection is a signal-controlled intersection providing access to downtown Grass Valley and SR 49. Southwest-bound Tinloy Street is a two-lane one-way street with left-through and through-right lanes. Neal Street is a two-way street with one eastbound and one westbound lane along Neal Street. Crosswalks are present across both legs of Tinloy Street. Bike lanes are not present at the intersection.

¹ KD Anderson & Associates, Inc. *Traffic Impact Analysis for the Idaho-Maryland Mine Project, Nevada County, CA.* May 26, 2021.

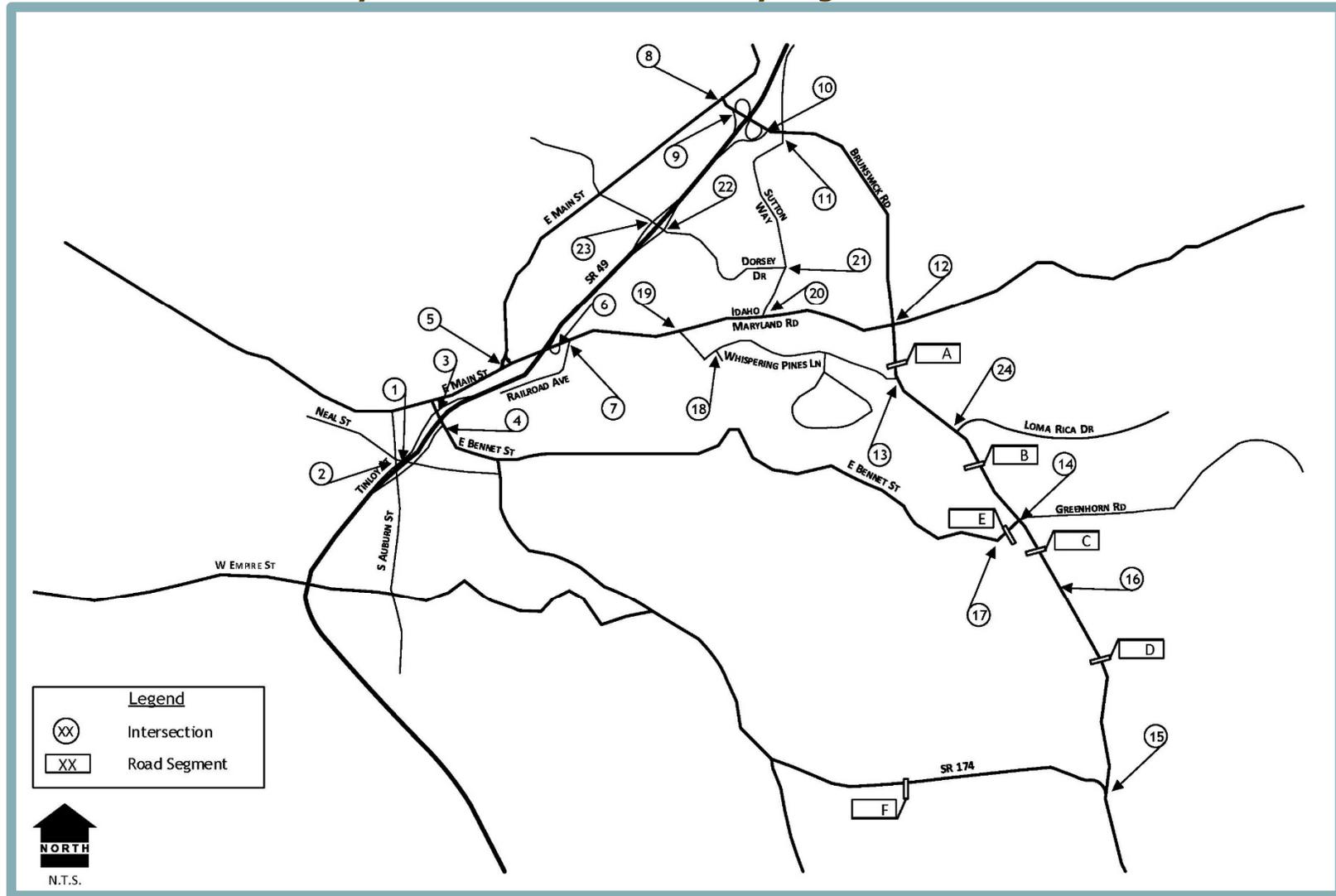
² Nevada County. *Nevada County General Plan.* Updated 2014.

³ Nevada County. *Nevada County General Plan, Final Environmental Impact Report.* March 1995.

⁴ TJKM. Peer Review of Traffic Impact Analysis for the Idaho-Maryland Mine Project. July 2, 2020.



Figure 4.12-1
Study Intersection and Roadway Segment Locations



Source: KDAnderson & Associates, Inc., 2021.



2. S. Auburn Street/Tinloy Street
The S. Auburn Street/Tinloy Street intersection is a signal-controlled intersection providing access to downtown Grass Valley and SR 49. Southwest-bound Tinloy Street is a two-lane, one-way street with through-left and through-right lanes. S. Auburn Street is a two-way street with one southbound lane and two northbound lanes, one left-through and one through lane. Crosswalks are present across both legs of S. Auburn Street. Bike lanes are not present in the intersection.
3. E. Bennett Road/Tinloy Street - SR 49 Westbound Off-Ramp
The E. Bennett Road/Tinloy Street - SR 49 Westbound (WB) Off-Ramp intersection is a four-way, stop-controlled intersection. The SR 49 WB ramp is stop controlled and includes through-left and through-right lanes. Southbound E. Bennett Road includes a single uncontrolled lane while northbound E. Bennett Road includes a left lane and a through lane which are stop controlled. Crosswalks are present across the SR 49 ramp and E. Bennett Road approaches. Bike lanes are not present along any of these roads.
4. E. Bennett Road/Hansen Way – SR 49 EB On-Ramp
The E. Bennett Road/Hansen Way – SR 49 Eastbound (EB) On-Ramp intersection is a four-way, all-way stop-controlled intersection. Hansen Way is a one-way northbound roadway consisting of through-left and through-right lanes on the approach leg. The eastbound E. Bennett Road approach includes a left turn lane and a through lane while westbound E. Bennett Road includes a through-right lane. Crosswalks are present along across both sides of Hansen Way and bike lanes are not present along any of the roadways.
5. East Main Street/Idaho Maryland Road/SR 49 Westbound Ramps
The East Main Street/Idaho Maryland Road/SR 49 WB Ramps intersection is a modified one-lane roundabout. The Main Street approaches are along the southbound and eastbound approaches. The westbound Idaho Maryland Road approach includes two entry lanes: one for u- and left-turning vehicles and one for through and right-turning vehicles. The southbound Main Street approach includes a free right-turn movement onto westbound Main Street and a single lane for through, left- and u-turns. The eastbound Main Street and SR 49 WB ramps approaches include a single lane for right-, through-, left- and u-turns. Crosswalks are present along all the north, east and west approaches. Bike lanes are not present along any of the approaches.
6. Idaho Maryland Road/SR 49 Eastbound Ramps
The Idaho Maryland Road/SR 49 EB Ramps intersection is an all-way stop, tee intersection. The center of the intersection is approximately 175 feet west of the center of the Idaho Maryland/Railroad Avenue intersection, also all-way stop controlled. The eastbound Idaho Maryland Road approach includes a single through-right lane, while the westbound approach includes a through-left lane and a through lane. The SR 49 EB off-ramp includes left- and right-lane turn lanes. Crosswalks are present across the west and south legs.
7. Idaho Maryland Road/Railroad Avenue
The Idaho Maryland Road/Railroad Avenue intersection is an all-way stop, tee intersection located just east of the northbound SR 49 ramps as described above. The eastbound Idaho Maryland Road approach includes a through lane and a through-right



lane, while the westbound approach includes a through-left lane and a through lane. Northbound Railroad Avenue includes a single approach lane. A crosswalk is present across the Railroad Avenue leg.

8. East Main Street/Brunswick Road/W. Olympia Drive

The East Main Street/Brunswick Road/W. Olympia Drive intersection is a split phase, signal-controlled, four-leg intersection. The northbound East Main Street approach includes left, through and right lanes, while the southbound approach includes dual left-turn lanes and a through-right lane. The westbound approach includes a left-turn lane, a through-left lane and a right-turn lane. The westbound right turn includes an overlap with the southbound left-turn phase. The eastbound approach, W. Olympia Drive, is a single-lane approach. Crosswalks are present across the southbound and westbound approaches. Bicycle lanes or marked sharrows, shared lanes for automobiles and bicycles, are present along the Main Street and Brunswick Road approaches.

9. Brunswick Road/SR 49 Westbound Off-Ramp - Maltman Drive

The Brunswick Road/SR 49 WB Off-Ramp - Maltman Drive intersection is a signal-controlled, four-leg intersection. The intersection is split phased along the Maltman Drive and SR 49 WB off-ramp approaches. The eastbound Brunswick Road approach includes a through lane and a through-right lane while the westbound Brunswick Road approach includes a left-turn lane and two through lanes. The SR 49 WB off-ramp includes dual left-turn lanes, a through lane and a right-turn lane, while Maltman Drive includes a left-turn lane and a right-turn lane; the right-turn lane is overlapped with the westbound left-turn movement. A crosswalk is present across the Maltman Drive approach and bike lanes or sharrows are present along Brunswick Road.

10. Brunswick Road/SR 49 Eastbound Ramps

The Brunswick Road/SR 49 EB Ramps intersection is a signal-controlled intersection. Both approaches along Brunswick Road include a free right-turn onto SR 49 EB and two through lanes. The off-ramp approach includes left- and right-turn lanes. A crosswalk exists across the ramp approach and marked bike lanes are present along the west side of the intersection.

11. Brunswick Road/Sutton Way

The Brunswick Road/Sutton Way intersection is a four-way, signal-controlled intersection. The eastbound Brunswick Road approach includes dual left-turn lanes, two through lanes and a right-turn lane. The westbound approach includes a left-turn lane, a through lane, and a through-right lane. Northbound Sutton Way includes dual left-turn lanes and a through-right lane, while the southbound approach includes a left-turn lane, a through lane, and a right-turn lane. The southbound right-turn lane has separate signal control than the rest of this approach and provides right green arrows with southbound Sutton Way, when eastbound through or left-turn Brunswick Road movements are green and when northbound Sutton Way is green. Crosswalks exist across the north, south, and east approaches, while marked bike lanes are present along Brunswick Road, east of the intersection. A bike lane is also present along the departure leg of the intersection on the south side of Sutton Way, while a northbound bike terminates prior to the Brunswick Road intersection.



12. Brunswick Road/Idaho Maryland Road

The Brunswick Road/Idaho Maryland Road intersection is stop-controlled along the Idaho Maryland Road approaches of the intersection. Northbound Brunswick Road includes a left-turn lane and a through-right turn lane, while the southbound approach includes left-, through-, and right-turn lanes. The eastbound Idaho Maryland Road approach includes a right-turn only lane, while the westbound approach includes a left-turn lane and a right-turn lane. Vehicles were observed along the Idaho Maryland Road approaches making illegal left and through movements. Those volumes were moved into legal movements for this analysis. Crosswalks and bike facilities are not present at this intersection.

13. Brunswick Road/Whispering Pines Lane

The Brunswick Road/Whispering Pines Lane intersection is a signal-controlled, tee intersection. The northbound approach along Brunswick Road includes a left-turn lane and a through lane, while the southbound approach includes a through lane and a through-right lane; the outside lane merges into the through lane approximately 350 feet south of the intersection. The eastbound Whispering Pines Lane approach includes right- and left-turn lanes. Crosswalks and bike facilities are not present at the intersection.

14. Brunswick Road/E. Bennett Road/Greenhorn Road

The Brunswick Road/E. Bennett Road/Greenhorn Road intersection is an all-way, stop-controlled intersection. The Brunswick Road approaches include left-turn lanes and through-right lanes, while the E. Bennett Road and Greenhorn Road approach includes a single lane for all movements. Crosswalks and bike facilities are not present at this intersection.

15. Brunswick Road/SR 174

The Brunswick Road/SR 174 intersection is a tee intersection with stop control along Brunswick Road. The northbound SR 174 approach includes a single through-right lane with a slip ramp leading to northbound Brunswick Road. The southbound SR 174 approach includes a left-turn lane and a through lane. The Brunswick Road approach is stop controlled and includes left- and right-turn lanes. Crosswalks and bike facilities are not present at this intersection.

16. Brunswick Road/Project Driveway

The Brunswick Road/Project Driveway intersection is an existing tee intersection with stop-control at the project driveway. Brunswick Road includes single lanes in each direction with a two-way, left-turn lane at the project driveway. Bike facilities are not present at this intersection.

17. E. Bennett Road/Millsite Road (i.e., project access)

The E. Bennett Road/Millsite Road intersection is an existing tee intersection providing a secondary access to the Brunswick Industrial Site. The existing roadway along Millsite Road is unimproved. This driveway would provide right-turn only access to Brunswick Road for larger haul trucks. E. Bennett Road includes single lanes in each direction. Bike facilities are not present at this intersection.



18. Whispering Pines Lane/Centennial Industrial Site Driveway (Future Project Access Intersection)

The Whispering Pines Lane/Centennial Industrial Site Driveway intersection is a future driveway that would provide access to the Centennial Industrial Site. The driveway would be located approximately 180 feet east of Centennial Drive and would be used by employee and haul route truck traffic. Whispering Pines Lane is a two-lane, median-divided roadway going from Brunswick Road to just east of the project driveway where the median ends. Although not marked as a bike lane, the roadway includes a shoulder stripe to allow a bike lane.

19. Idaho Maryland Road/Centennial Drive

The Idaho Maryland Road/Centennial Drive intersection is a tee intersection with stop-control along Centennial Drive. Idaho Maryland Road includes a through lane and right-turn lane along the eastbound approach and a left-turn lane and through lane along the westbound approach. Centennial Drive is a single-lane approach. Crosswalks and bike facilities are not present at this intersection.

20. Idaho Maryland Road/Sutton Way

The Idaho Maryland Road/Sutton Way intersection is an all-way, stop-controlled, tee intersection. Idaho Maryland Road includes single lanes in each direction, while Sutton Way includes right- and left-turn lanes. Crosswalks and bike facilities are not present at this intersection.

21. Sutton Way/Dorsey Drive

The Sutton Way/Dorsey Drive intersection is an all-way, stop-controlled, tee intersection. Northbound Sutton Way includes a single lane for left and through movements, while the southbound approach includes a through lane and right-turn lane. The eastbound Dorsey Drive approach is a single lane, however, is wide enough to allow right turns past left turning vehicles. A crosswalk is present across the Dorsey Drive approach, while bike facilities are not present.

22. Dorsey Drive/SR 49 Eastbound Ramps

The Dorsey Drive/SR 49 EB Ramps intersection is one-half of a diamond interchange. The intersection is signal-controlled. The eastbound Dorsey Drive approach includes a left-turn lane and a through lane, while the westbound approach includes two through lanes and a through-right lane; the inside through lane is a trap left-turn lane for access onto WB SR 49. The SR 49 EB off-ramp includes a left-turn lane, a through-left lane, and a right-turn lane. Crosswalks are present along the SR 49 EB ramps and the westbound Dorsey Drive approach. Bike lanes are present along Dorsey Drive.

23. Dorsey Drive/SR 49 Westbound Ramps

The Dorsey Drive/SR 49 WB Ramps intersection is one-half of a diamond interchange. The intersection is signal-controlled. The eastbound Dorsey Drive approach includes two through lanes and a right-turn lane; the inside through lane is a trap left-turn lane for access onto eastbound SR 49. The westbound approach includes a left-turn lane and two through lanes. Crosswalks are present along the SR 49 WB ramps and the eastbound Dorsey Drive approach. Bike lanes are present along Dorsey Drive.



24. Brunswick Road/Loma Rica Drive

The Brunswick Road/Loma Rica Drive intersection is a three-way, signal-controlled intersection. The signal operates with a westbound to northbound overlap with the southbound left-turn phase. The southbound Brunswick Road approach includes a left turn lane and one through lane. The northbound approach includes a through lane and a right turn lane while westbound Loma Rica Drive includes left turn and right turn lanes. Crosswalks and bike lanes are not present at this intersection.

Study Roadway Segments

The following section provide a summary of the roadway segments within the study area.

A. Brunswick Road – SR 49 to Whispering Pines Lane

This segment is an approximately 1¼-mile segment. The segment varies from a four-lane section with turn lanes between SR 49 and west of Old Tunnel Road, to a two-lane road plus center turn lane between Old Tunnel Road and Bubbling Wells Road; this makes up approximately ½-mile of the segment. Between Bubbling Wells Road and Idaho-Maryland Road, the road is two lanes; this portion is approximately ⅔-mile. From Idaho-Maryland Road to Whispering Pines Lane, Brunswick Road has one northbound lane with a turn lane and two southbound lanes; this portion is approximately ⅓-mile. Each lane is approximately 12 feet wide. North of Bubbling Wells Road curb, gutter, and sidewalk is present, as the roadway displays more urbanized standards, while, to the south, the roadway has more rural characteristics with varying width paved and unpaved shoulders. The roadway is classified as a Class I Highway with rolling terrain. The roadway is posted as a 40-miles per hour (mph) road north of Bubbling Wells Road and a 50-mph road south of Bubbling Wells Road. Midweek traffic volumes are approximately 12,300 bi-directionally.

B. Brunswick Road – Whispering Pines Lane to E. Bennett Road

This ¾-mile segment is generally a two-lane roadway with turn lanes over rolling terrain. Lanes are generally 12-feet wide with varying width paved and unpaved shoulders. The roadway is classified as a Class I Highway and is posted at 50 mph. Midweek traffic volumes are approximately 15,360 bi-directionally.

C. Brunswick Road – E. Bennett Road to Project Driveway

This ½-mile segment is generally a two-lane roadway. Lanes are generally 12-feet wide with varying width paved and unpaved shoulders. The roadway is classified as a Class I Highway with approximately a five percent downhill grade from E. Bennett Road and is posted at 50 mph. Midweek traffic volumes are approximately 9,440 bi-directionally.

D. Brunswick Road – Project Driveway to SR 174

This ⅔-mile segment is a two-lane roadway over rolling terrain. Lanes are generally 12-feet wide with varying width paved and unpaved shoulders. The roadway is classified as a Class I Highway and is posted at 50 mph. Midweek traffic volumes are approximately 9,420 bi-directionally.

E. E. Bennett Road – Project Driveway to Brunswick Road

This 600-foot segment is a two-lane roadway over rolling terrain and part of a larger segment to Union Jack Street. Lanes are generally 12-feet wide with varying width paved



and unpaved shoulders. The roadway is classified as a Class III Highway with rolling terrain and is posted at 35 mph. Midweek traffic volumes are approximately 1,490 bi-directionally.

F. **SR 174 – Brunswick Road to Empire Street**

This approximately two-mile segment is generally a two-lane roadway with left-turn lanes at various intersections over rolling terrain. Lanes are generally 12-foot wide with varying width paved and unpaved shoulders. The roadway is classified as a Class I Highway and is posted at 50 mph. Midweek traffic volumes are approximately 8,300 bi-directionally.

Level of Service versus Vehicle Miles Traveled

Pursuant to the CEQA Guidelines Section 15064.3, vehicle miles traveled (VMT) is the primary metric used to identify transportation impacts under CEQA. VMT is a measure of the total amount of vehicle travel occurring on a given roadway system. However, because the County considers vehicle level of service (LOS) as a matter of General Plan policy consistency (specifically related to Nevada County General Plan Policy LU-4.1-1 and Policy LU-4.1.2), LOS at the study intersections and roadway facilities is presented and analyzed herein for determining General Plan consistency. Refer to Section 4.12.4 of this chapter for additional discussion regarding the approach to evaluating LOS for General Plan consistency purposes.

The operations of roadway facilities are described with the term LOS, a qualitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result and operations are designated LOS F. Table 4.12-1 summarizes the general characteristics associated with each LOS grade.

Intersection Level of Service – Existing Conditions

New traffic counts were conducted by National Data and Surveying Services (NDS). Intersection turning movements were conducted for this analysis the weeks of August 26, 2019 and October 21, 2019 on Tuesdays, Wednesdays, or Thursdays while area schools were in session. Specific time periods were studied based on direction from Nevada County, which included the "standard" AM and PM peak hours and at the three time periods when project employee trips are expected to occur. Under the proposed work periods there is negligible traffic to and from the site during the AM and PM peak hours. The majority of project traffic occurs in the periods surrounding mining shift changes and the end of the administrative personnel work day as identified above; the end of the day for administrative personnel does occur during some peak periods, and this was reflected in the level of service analyses during the 3:30-4:30 PM analysis period. Based on these project-specific characteristics, the CEQA traffic analysis focuses on the three time periods when project employee trips would occur, as these time periods are expected to have the most project-related traffic impacts. The standard peak hour analysis is provided in the Traffic Impact Analysis for informational purposes (see Appendix O).

The three analysis periods include: 6:30 AM to 7:30 AM; 3:30 PM to 4:30 PM; and 6:30 PM to 7:30 PM. The 6:30 AM/PM to 7:30 AM/PM periods coincide with mining operation shift changes at 7:00 AM/PM, while the 3:30 PM to 4:30 PM period coincides with administrative personnel shift end at 3:30 PM; administrative personnel commence their workday at 7:00 AM.



**Table 4.12-1
Level of Service (LOS) Definitions**

LOS	Signalized Intersections	Unsignalized Intersections	Roadway Segments (Daily)
A	Uncongested operations, all queues clear in a single-signal cycle. Delay \leq 10 sec/veh	Little or no delay. Delay \leq 10 sec/veh	Completely free flow.
B	Uncongested operations, all queues clear in a single cycle. Delay $>$ 10 sec/veh and \leq 25 sec/veh	Short traffic delays. Delay $>$ 10 sec/veh and \leq 15 sec/veh	Free flow, presence of other vehicles noticeable.
C	Light congestion, occasional backups on critical approaches. Delay $>$ 25 sec/veh and \leq 35 sec/veh	Average traffic delays. Delay $>$ 15 sec/veh and \leq 25 sec/veh	Ability to maneuver and select operating speed affected.
D	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay $>$ 35 sec/veh and \leq 55 sec/veh	Long traffic delays. Delay $>$ 25 sec/veh and \leq 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
E	Severe congestion with some long-standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay $>$ 55 sec/veh and \leq 80 sec/veh	Very long traffic delays, failure, extreme congestion. Delay $>$ 35 sec/veh and \leq 50 sec/veh	At or near capacity, flow quite unstable.
F	Total breakdown, stop-and-go operation. Delay $>$ 80 sec/veh	Intersection often blocked by external causes. Delay $>$ 50 sec/veh	Forced flow, breakdown.

Source: KDAnderson & Associates, Inc., 2021.

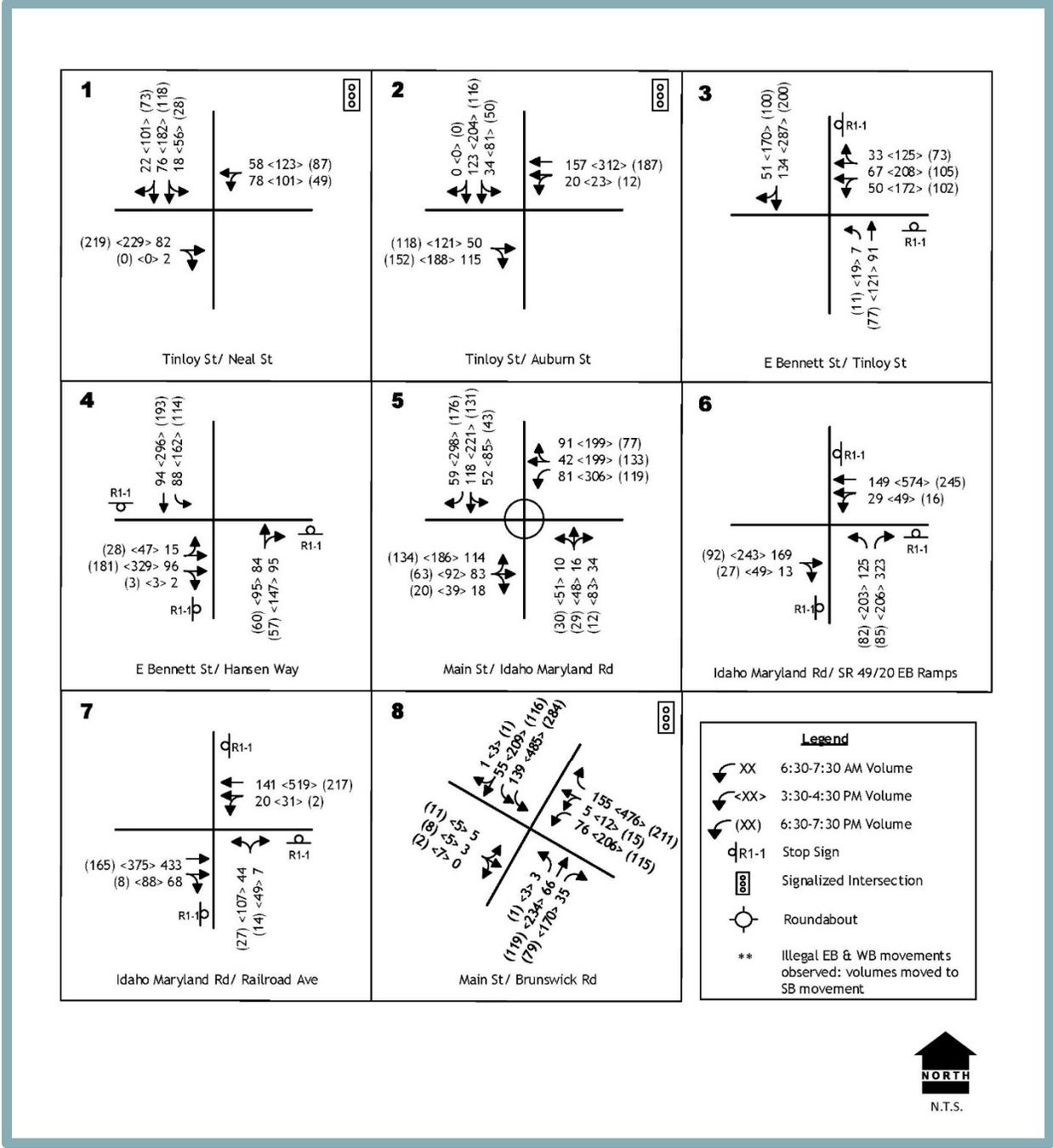
The aforementioned timeframes are referred to as “project traffic hours” throughout this chapter. Intersection turning movements are presented in Figure 4.12-2 through Figure 4.12-4.

Table 4.12-2 summarizes the existing operating LOS at the study intersections for each of the time periods described. As shown in the table, the following three intersections currently operate at unacceptable LOS E or F:

- 12. Brunswick Road/Idaho Maryland Road, where the westbound approach operates at LOS F;
- 15. Brunswick Road/SR 174, where the southbound approach operates at LOS E; and
- 19. Idaho Maryland Road/Centennial Drive, where the northbound approach operates at LOS F.



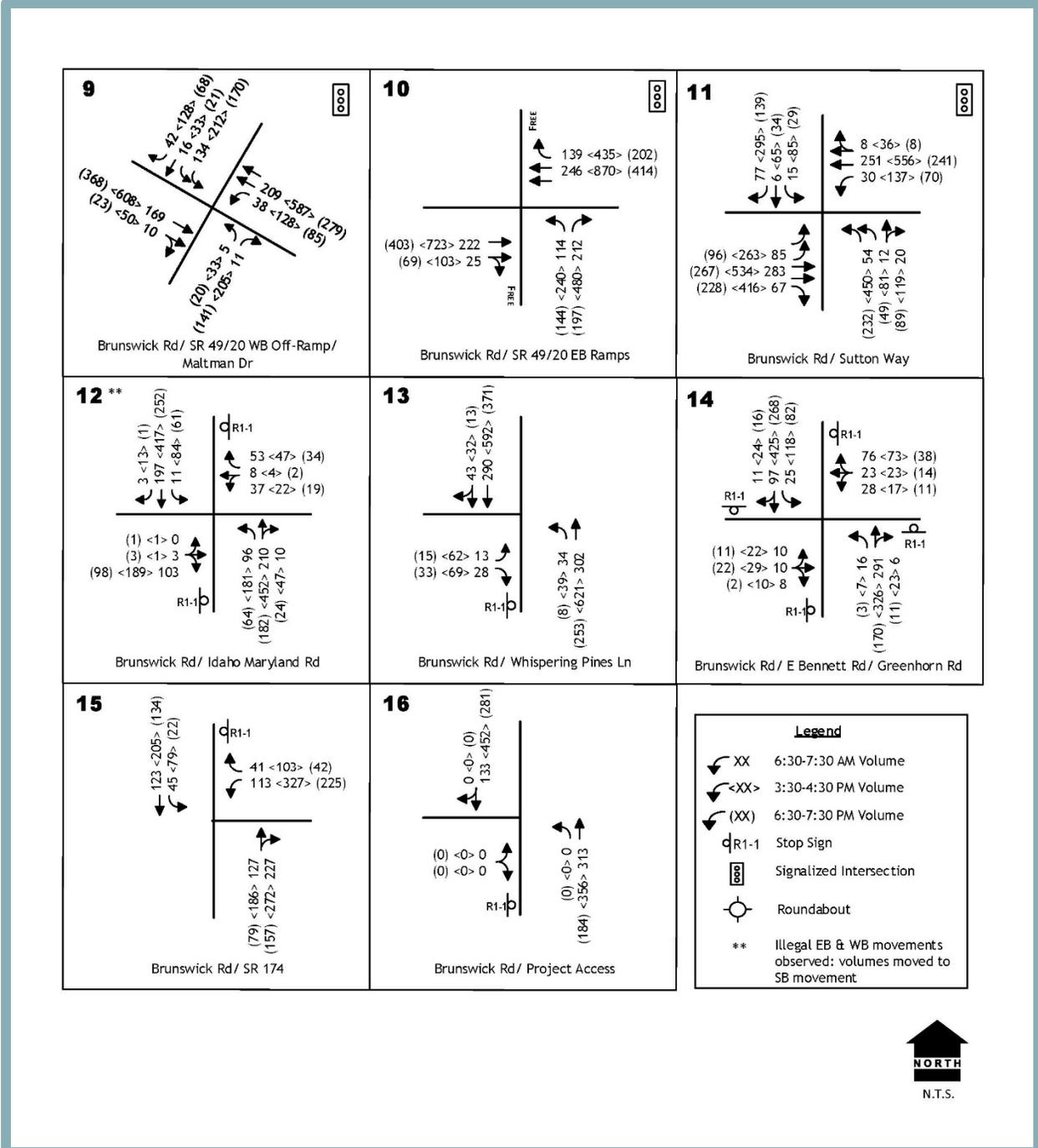
**Figure 4.12-2
 Project Traffic Hours Traffic Volumes and Lane Configurations –
 Existing Conditions (Intersections 1 through 8)**



Source: KDAnderson & Associates, Inc., 2021.



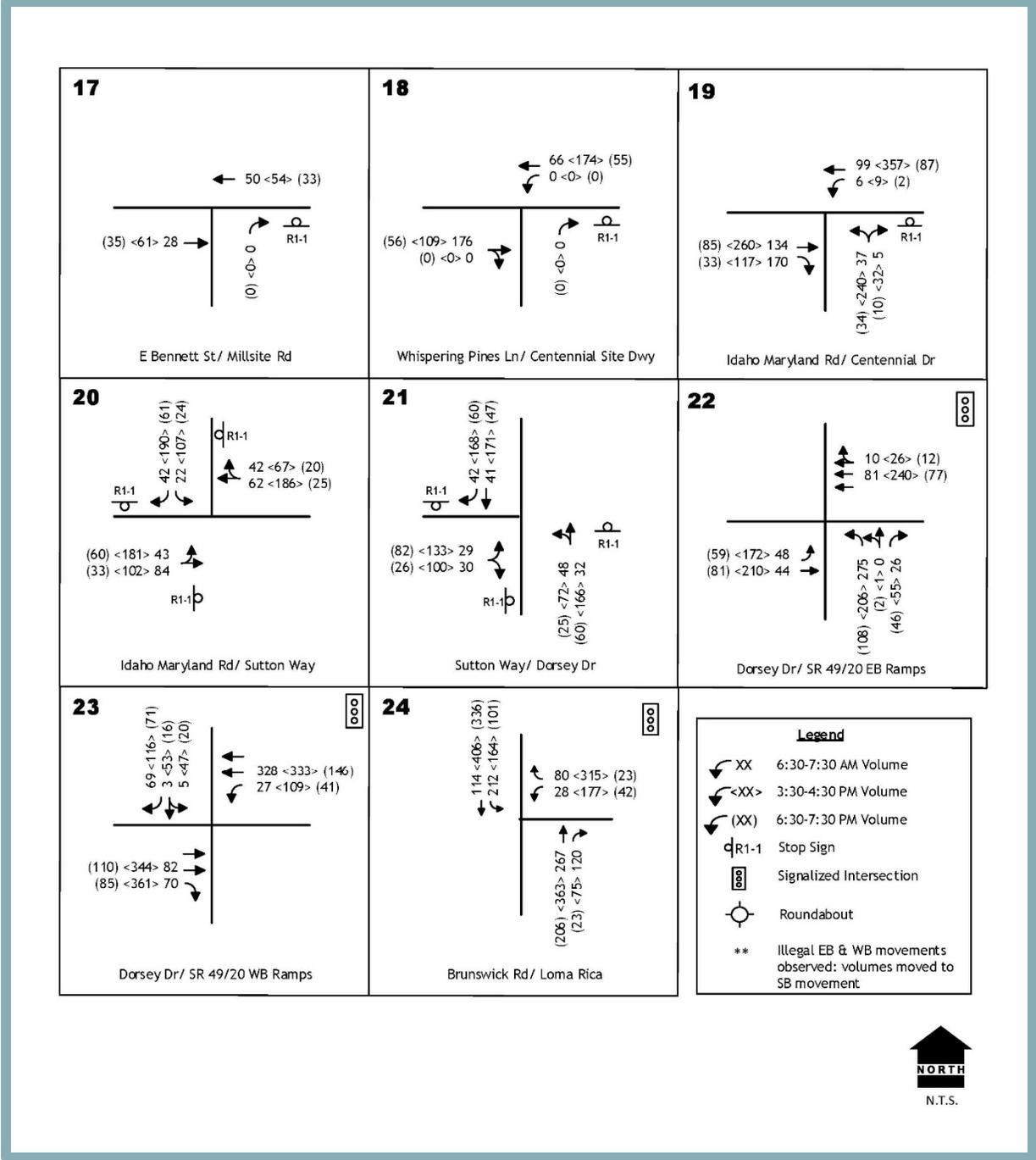
**Figure 4.12-3
 Project Traffic Hours Traffic Volumes and Lane Configurations –
 Existing Conditions (Intersections 9 through 16)**



Source: KDAnderson & Associates, Inc., 2021.



**Figure 4.12-4
 Project Traffic Hours Traffic Volumes and Lane Configurations –
 Existing Conditions (Intersections 17 through 24)**



Source: KDAAnderson & Associates, Inc., 2021.



**Table 4.12-2
Project Traffic Hours Intersection LOS – Existing Conditions**

Location - Jurisdiction	Control	6:30 – 7:30 AM		3:30 – 4:30 PM		6:30 – 7:30 PM		Meets Traffic Signal Warrant?
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	
1. Neal St/Tinloy St ‡	Signal	A	4.8	A	8.3	A	6.6	N/A
2. S. Auburn St/Tinloy St ‡	Signal	A	6.1	A	8.7	A	7.0	N/A
3. E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp ‡	SB/WB Stop	A	3.9	A	6.1	A	4.1	Yes*
4. E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp ‡	AWS	A	9.2	B	14.8	B	10.1	No
5. Main St/Idaho Maryland Rd/SR 49 WB Ramps ‡	Roundabout	A	4.5	A	6.6	A	4.3	N/A
6. Idaho Maryland Rd/SR 49 EB Ramps ‡	AWS	B	13.5	C	18.2	A	9.5	No
7. Idaho Maryland Rd/Railroad Ave ‡	AWS	B	10.7	C	15.9	A	8.5	No
8. Main St/Brunswick Rd/W. Olympia Dr ‡	Signal	A	5.8	B	13.3	A	8.7	N/A
9. Brunswick Rd/SR 49 WB Off-Ramp/Maltman Dr ‡	Signal	B	16.6	B	19.8	B	16.7	N/A
10. Brunswick Rd/SR 49 EB Ramps ‡	Signal	A	8.6	B	13.2	A	9.2	N/A
11. Brunswick Rd/Sutton Way ‡	Signal	A	4.8	C	21.3	A	9.1	N/A
12. Brunswick Rd/Idaho Maryland Rd ‡ NB Left SB Left EB WB	EB/WB Stop	A A B C	8.0 7.8 10.3 17.1	A A B F	9.0 8.8 13.7 70.7	A A B B	8.0 7.8 10.6 14.6	Yes*
13. Brunswick Rd/Whispering Pines Ln ‡ NB Left EB	EB Stop	A B	8.4 10.8	A B	9.0 14.1	A B	8.3 10.5	Yes*
14. Brunswick Rd/E. Bennett Rd/Greenhorn Rd †	AWS	B	10.6	C	17.4	B	10.5	Yes*
15. Brunswick Rd/SR 174 † SB EB Left	SB Stop	B A	12.5 7.6	E A	35.1 7.8	B A	12.5 7.4	Yes*
16. Brunswick Rd/Project Driveway †	EB Stop	Not Studied						
17. E. Bennett Rd/Millsite Rd †	NB Stop	Not Studied						

(Continued on next page)



**Table 4.12-2
 Project Traffic Hours Intersection LOS – Existing Conditions**

Location - Jurisdiction	Control	6:30 – 7:30 AM		3:30 – 4:30 PM		6:30 – 7:30 PM		Meets Traffic Signal Warrant?	
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)		
18. Whispering Pines Ln/Centennial Site Driveway ‡	NB Stop	Not Studied							
19. Idaho Maryland Rd/Centennial Dr ‡ NB WB Left	NB Stop	B	11.3	F	59.1	B	10.1	No	
		A	8.2	A	8.3	A	7.6		
20. Idaho Maryland Rd /Sutton Way ‡	AWS	A	8.1	B	12.4	A	8.0	No	
21. Sutton Way/Dorsey Dr ‡	AWS	A	8.0	B	11.8	A	8.2	No	
22. Dorsey Dr/SR 49 EB Ramps ‡	Signal	A	7.9	B	13.6	A	7.8	N/A	
23. Dorsey Dr/SR 49 WB Ramps ‡	Signal	A	3.7	A	9.1	A	5.3	N/A	
24. Brunswick Road/Loma Rica Dr †	Signal	B	11.8	B	13.9	A	8.0	N/A	

Notes:

- AWS = all way stop
- † = Nevada County jurisdiction
- ‡ = Grass Valley jurisdiction
- **Bold** indicates intersection operates below the applicable threshold of significance
- * = meets warrant in 3:30 PM hour

Source: *KDAnderson & Associates, Inc., 2021.*



Five intersections currently meet the traffic signal warrant during the project traffic hours. The signal warrant is used to provide an informal analysis whether an intersection may be a candidate for signalization. This signal warrant is intended for use at locations where traffic conditions are such that for a minimum of one hour of an average day, the minor street traffic cannot cross or enter the major street without undue delay. The signal warrant considers intersection volumes and the stopped time delay along the higher volume leg of the minor approach. While the signal warrant is applied only in unusual circumstances such as access from an office complex, this warrant provides an indication as to whether an intersection may require further observation. An intersection may meet the minimum requirements but operate at acceptable levels of service. Prior to installation of a traffic signal, a full signal warrant analysis / engineering study should be undertaken to determine whether the intersection overall safety and/or operation will be improved. Those intersections meeting the signal warrant during project traffic hours include:

3. Bennett Road at Tinloy Street,
12. Brunswick Road at Idaho Maryland Road,
13. Brunswick Road at Whispering Pines Lane,
14. Brunswick Road at E. Bennett Road, and
15. Brunswick Road at SR 174.

Roadway Level of Service – Existing Conditions

New roadway segment counts were conducted over a three-day, midweek period from August 27 to August 29, 2019, while vehicle classification counts were conducted over a seven-day period from September 4 to September 10, 2019.

Table 4.12-3 summarizes the LOS based on the current traffic volumes on study area roads with the existing roadway configuration. As shown in the table, all segments along Brunswick Road and E. Bennett Road operate acceptably at LOS D or better, while the SR 174 segment operates at LOS E. The SR 174 segment exceeds the applicable LOS C threshold in both directions.

Existing Pedestrian, Bicycle, and Transit Facilities

The sections below describe the existing pedestrian, bicycle, and transit facilities located within the vicinity of the overall project site.

Existing Pedestrian and Bicycle Facilities

Designated bicycle facilities exist on various parts of County roadways and City of Grass Valley streets. Marked bicycle facilities do not exist near the Brunswick Industrial Site. Whispering Pines Lane, which would provide access to the Centennial Industrial Site, is a two-lane divided roadway with a wide shoulder that is not marked as a bike lane. Sidewalks are more prevalent within the City of Grass Valley than along Nevada County roadways; however, minimal sidewalks exist near the Brunswick Industrial Site and Centennial Industrial Site, with only a discontinuous sidewalk along the northern portion of Idaho Maryland Road near the Centennial Industrial Site being present.



**Table 4.12-3
 Roadway Segment LOS – Existing Conditions**

Roadway	Location	Facility Classification	ATS/PTSF/LOS
			Existing PM Peak Hour
Brunswick Road	SR 49 to Whispering Pines Ln NB SB	Class I Highway	31.8 / 75.6 / D 31.7 / 76.3 / D
	Whispering Pines Ln to E. Bennett Rd NB SB	Class I Highway	37.4 / 67.0 / C 36.6 / 82.6 / D
	E. Bennett Rd to Project Driveway NB SB	Class I Highway	35.7 / 60.4 / C 35.7 / 76.9 / C
	Project Driveway to SR 174 NB SB	Class I Highway	34.1 / 66.4 / C 33.4 / 80.2 / D
E. Bennett Rd	Project Driveway to Brunswick Rd EB WB	Class III Highway	35.4 / 35.4 / B 36.3 / 50.3 / B
SR 174	Brunswick Rd to Empire St EB WB	Class I Highway	30.3 / 59.6 / E 29.3 / 77.2 / E
Notes:			
<ul style="list-style-type: none"> • ATS = average travel speed • PTSF = percent time spent following • Bold indicates applicable threshold of significance exceeded 			
Source: KAnderson & Associates, Inc., 2020.			

Existing Public Transit System

The Transit Services Division of the Nevada County Public Works Department provides bus service throughout Nevada County. The nearest bus route to either the Brunswick Industrial Site or Centennial Industrial Site is Route #3, which passes directly by the Centennial Industrial Site.

The #3 Grass Valley Loma Rica Loop route operates between the Tinloy Street/Bank Street Transit Center and the Nevada County Airport. The route operates Monday through Friday only, with departures from the Transit Center at 8:30 AM, 10:30 AM, 12:30 PM, 1:30 PM, 3:30 PM, and 5:30 PM. The loop takes approximately 30 minutes.

Existing Vehicle Miles Traveled

VMT is a metric that accounts for the number of vehicle trips generated and the length or distance of those trips. The available measures of VMT for Nevada County include the following:



- Total VMT – the sum of VMT for all vehicle trips and trip purposes.
- Residential VMT per capita – the sum of VMT for trips originating from home, divided by the number of residents.
- VMT per worker – the sum of VMT for trips from home to work, divided by the number of workers.

In July 2020, Fehr & Peers prepared Senate Bill 743, Vehicle Miles Traveled Implementation for the Nevada County Transportation Commission (NCTC). The NCTC in turn distributed the document to the various agencies within the County so each agency could develop their own significance threshold guidelines. Fehr & Peers recommends that VMT be expressed as a generation rate rather than a ratio. Because the proposed project is an industrial land use project, the County determined that the preferred significance threshold metric shall be VMT per worker (i.e., project employee).

The subareas, based on similar travel characteristics and proximity, are recommended to be the following: the City of Grass Valley; the City of Nevada City; the Town of Truckee; Alta Sierra; Lake of the Pines; Lake Wildwood and Penn Valley; the remainder of western Nevada County; and the remainder of eastern Nevada County. Use of a subarea threshold acknowledges the differences in VMT generation in different parts of Nevada County.

Table 4.12-4 presents the results of the VMT measurement analysis from several data sources including the NCTC Travel Demand Model (TDM), the California State Travel Demand Model, and MXD+, a trip generation tool developed by Fehr & Peers. As noted in further detail in the Method of Analysis section below, the data in Table 4.12-4 was used to determine the significance threshold for the proposed project. The Grass Valley subarea was used as the basis due to the project’s proximity to the City.

Table 4.12-4 Home-Based VMT per Worker	
Location (SubArea)	NCTC TDM
Grass Valley	18.6
Nevada City	26.6
Truckee	N/A
Alta Sierra	27.8
Lake Wildwood	34.3
Penn Valley	18.6
Lake of the Pines	25.0
Unincorporated Nevada County	N/A
<i>Source: KDAnderson & Associates, Inc., 2021.</i>	

4.12.3 REGULATORY CONTEXT

Existing transportation policies, laws, and regulations that would apply to the proposed project are summarized below and provide a context for the impact discussion related to the project’s consistency with the applicable regulatory conditions. Federal plans, policies, regulations, or laws



related to transportation are not directly applicable to the proposed project. Rather, the analysis presented herein focuses on State and local regulations, which govern the regulatory environment related to transportation at the project level.

State Regulations

The following are the regulations pertinent to the proposed project at the State level.

Guide for the Preparation of Traffic Impact Studies

Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) provides guidance for Caltrans staff who review local development and land use change proposals. The Guide also informs local agencies about the information needed for Caltrans to analyze the traffic impacts to state highway facilities, which include freeway segments, on- or off-ramps, and signalized intersections.

Caltrans has jurisdiction over State highways. Therefore, Caltrans controls all construction, modification, and maintenance of State highways, such as SR 49. Any improvements to such roadways require Caltrans approval.

Senate Bill 743

In 2013, Senate Bill (SB) 743 was passed to amend Sections 65088.1 and 65088.4 of the Government Code, amend Sections 21181, 21183, 21186, 21187, 21189.1, and 21189.3 of the Public Resources Code (PRC), add Section 21155.4 to the PRC, add Chapter 2.7 (commencing with Section 21099) to Division 13 of the PRC, add and repeal Section 21168.6.6 of the PRC, and repeal and add Section 21185 of the PRC, relating to environmental quality. In response to SB 743, the Office of Planning and Research (OPR) has updated the CEQA Guidelines to include new transportation-related evaluation metrics. Draft Guidelines were developed in August 2014, with final Guidelines published in November 2017 incorporating public comments from the August 2014 and January 2016 draft Guidelines. In December 2018, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package along with an updated Technical Advisory related to Evaluating Transportation Impacts in CEQA. Full compliance with the Guidelines became required in July 2020. As a result of SB 743, and Section 15064.3 of the CEQA Guidelines, as discussed in further detail below, local jurisdictions may no longer rely on vehicle LOS or similar measures related to delay as the basis for determining the significance of transportation impacts under CEQA, and instead a VMT metric must be evaluated.

Local Regulations

Local rules and regulations applicable to the proposed project are discussed below.

Nevada County General Plan

The following goals and policies from the Nevada County General Plan are applicable to the proposed project:

Circulation Element

Goal LU-4.1 Coordinate existing and future circulation systems with existing and future land use patterns.



- Goal LU-4.2 In Rural Regions, establish and maintain a desired level of service that supports sustainable growth and development.
- Goal LU-4.3 In Community Regions, ensure a desired level of service that supports the current circulation system and provide for future circulation improvements.
- Goal LU-4.4 Maintain desired levels of service by balancing development of the circulation system with land use and development in the County.
- Goal LU-4.7 Provide 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 The minimum level of service allowable in the Rural Regions of the County, as identified in the General Plan, shall be 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. Level of service shall be based on the typical highest peak hour of weekday traffic. Special events may be permitted which temporarily exceed this minimum LOS.
- Policy LU-4.1.2 The minimum acceptable level of service (LOS) for areas identified as Community Regions in the General Plan shall be LOS D, except where the existing LOS is less than D. In those situations, the LOS shall not be allowed to drop below the existing LOS. Level of service shall be based on the typical highest peak hour of weekday traffic.
- Policy LU-4.1.4 Consistent with legal and funding constraints the following types of road improvement projects shall be emphasized in the County Capital Improvement Program:
- a. Projects needed to maximize the safety of the road system on high accident road segments and intersections, including, but not limited to additional road widths and turn lanes, realignments, shoulder improvements, bridge improvements, hazard elimination and hazard control devices;
 - b. Projects needed to improve rideability, including, but not limited to, pavement extension and rehabilitation;
 - c. Projects needed to improve capacity and travel speed, particularly in Community Regions, and including, but not limited to, interchange improvements, additional road lanes and/or widths, turn lanes, signalization, and bridge improvements;



- d. Projects needed to improve the use of other modes of transportation, including, but not limited to, public transportation facilities (transit facilities and stops), park and ride facilities, bikeways, non-motorized trails, and pedestrian facilities; and
- e. Improve local circulation to address safety and emergency service needs.

Policy LU-4.1.5

Where it is determined by the County that a County road, road segment or intersection no longer provides the desirable or acceptable level of service as defined in Policy LU-4.1.1 and Policy LU-4.1.2, the County shall take action to ensure compatibility between future growth and the road system. Solutions to local road system problems may include funding of transportation-related facilities, transportation management techniques, or development limitations or restrictions.

Policy LU-4.1.6

Relative to the State highway system, Nevada County recognizes the major funding limitations that exist within the State system and finds that as a matter of policy, additional growth and development may be allowed within the County, notwithstanding the adverse impacts which may result in the short term by this growth and development. Therefore, the County shall:

- a. Encourage the existing partnership between Nevada County and the State in working together to solve State Highway problems and funding limitations;
- b. Commit local moneys, when available, in the partial funding of critical State highway improvements. As a part of this commitment, the County shall continue to pursue the use of development fees from private development as a funding source;
- c. Acknowledge that short-term adverse impacts to the State highway system resulting from growth and development within the County will occur until adequate funding is made available and improvements made through projects identified in the adopted State Transportation Improvement Program; and
- d. Monitor State activities in responding to the needs of the State system within the County.
- e. Solutions to State road system problems shall include County review and input to the State Transportation Improvement Program, formal



County requests for specific improvements and/or facilities, and requests for inclusion of said improvements and/or facilities within the Nevada County Regional Transportation Improvement Program.

- f. Should critical State highway improvements not be identified in the adopted State Transportation Improvement Program, the County may review its policies to determine if additional growth and development should be curtailed in the impacted areas.

Policy LU-4.1.8 New roads not shown on the General Plan Land Use Maps as part of the regional and non-through access local road systems identified in the Nevada County Road Functional Classification Plan shall not be constructed at public expense, but shall be provided as site improvements for each development project as necessary to provide safe, appropriate access.

Policy LU-4.1.11 New roads built to serve discretionary projects shall be maintained through private maintenance agreements, homeowners associations, Permanent Road Divisions (PRDs), or Community Service Areas (CSAs).

Goal MV-4.1 Provide for the safe and efficient movement of people and goods in a manner that respects the rural character of Nevada County.

Goal MV-4.2 Provide for a transportation system design that facilitates the transportation of people, goods and services in support of the General Plan and the local economy.

Goal MV-4.3 Provide for alternative routes for efficient service and for emergency access.

Goal MV-4.4 Reduce accident rates on County maintained roadways.

Policy MV-4.2.5 In the review of all discretionary permits, the County shall consider the effect of the proposed development on the area-wide transportation network and the effect of the proposed development on the road network and other transportation facilities in the immediate vicinity of the project site.

Goal RD-4.1 Reduce dependence on the automobile.

Goal RD-4.2 Increase the availability of alternative modes of transportation.



Goal RD-4.3 Decrease vehicle miles traveled while encouraging increased transit ridership and vehicle occupancy.

Goal RD-4.4 Encourage land use patterns that reduce the need for new roadways and promote the use of alternative transportation modes.

Policy RD-4.3.1 All discretionary and ministerial non-residential projects shall consider the feasibility of providing transit alternatives to automobile transportation and ways to reduce the dependence on the automobile. For projects generating 50 or more employees, the applicant shall prepare an analysis documenting means to reduce automobile dependence. Wherever feasible, measures documented in the analysis shall be incorporated into the project. This process shall be coordinated with the applicable Transportation Management Association (TMA) or successor agencies.

Policy RD-4.3.4 Minimize the need to commute by:

- a. Providing for an adequate amount of residential, commercial, and industrial designations in proper balance, as shown on the General Plan Land Use Maps; and
- b. Encouraging Economic Development and Public Facility policies that support local employment opportunities.

Policy RD-4.3.5 Encourage the development of transit to serve Community Regions and Rural Centers by:

- a. Clustering growth to maximize the efficiency of the transit system; and
- b. Providing commuter-oriented transit to serve employment centers.

Policy RD-4.3.6 Sidewalks, walkways, bicycle facilities and paths should be provided where necessary, and on an equitable basis with roadway improvements.

Policy RD-4.3.7 Sidewalks or walkways are encouraged as frontage improvements for all discretionary permits within Community Regions, as shown on the General Plan Land Use Maps, including all non-residential projects and all residential projects with an overall density greater than one dwelling unit per gross acre. To the extent feasible, pedestrian use shall be included within the roadway prism.



Nevada County Land Use and Development Code

Nevada County LUDC Section L-II 4.1.9, Transportation Alternatives, identifies that methods should be considered to reduce automobile dependence travel throughout the County. Land use applications requiring a development permit or a use permit shall address alternative transportation opportunities for employees, residents, and/or customers served by the project. For projects that employ 50 or more persons, the project applicant shall submit a detailed analysis of transportation alternatives, documenting feasible measures for reducing auto dependence.

Nevada County Bicycle Master Plan

The Nevada County Transportation Commission's *Nevada County Bicycle Master Plan* (NCTC 2016) aims to provide safe, well-maintained bikeways and support facilities in order to improve the bicycling environment in Nevada County and promote alternative modes of transportation. This plan includes goals, policies, and objectives for guiding plan implementation; details of existing conditions in the County; a demand analysis; recommendations for bikeway improvements, including bicycle parking, and education, outreach and encouragement programs; and an implementation strategy including a project priority list, feasibility analysis, and cost estimates.

Nevada County Active Transportation Plan

NCTC also prepared an Active Transportation Plan (July 2019), which covers Nevada County and its three incorporated Cities: the City of Grass Valley, the City of Nevada City, and the Town of Truckee. The plan will help make each jurisdiction eligible for new funding to create new trails, sidewalks, bike lanes, and other improvements for bicycling and walking. The plan will support applications for funding from the statewide Active Transportation Program and other sources of funding. The Active Transportation Plan meets all requirements for active transportation plans as specified by the California Transportation Commission's 2019 Active Transportation Program Guidelines.

Nevada County Local Traffic Mitigation Fee

Nevada County established its current Traffic Impact Mitigation Program in 1997, with the adoption of a Local Traffic Mitigation Fee (LTMF). Under the program, development impact fees are collected to help fund construction for local improvements within unincorporated Nevada County. The current fee schedule is effective for the fiscal year 2020/2021. The LTMF is based on total thousand square feet of buildings. The project proposes 126,000 square feet of industrial buildings and will be required to pay the LTMF. The current fee would be calculated as $126 \text{ TSF} \times \$442.44 = \$55,747.44$. The actual fee paid will depend on the mitigation fee in place at the time of construction.

City of Grass Valley General Plan

Several study intersections are located within the City of Grass Valley. As a result, the following implementation actions from the Grass Valley General Plan are included:

- 6-CI Monitor truck traffic. As conditions warrant, develop, enforce, evaluate and update a truck route system to ensure safe and efficient routes through the City.



7-CI

Continue to update the Capital Improvements Program to implement policy which strives to maintain LOS “D” at all locations during the weekday P.M. peak hour. Define “normally accepted maximum” improvements that are consistent with the character and terrain of Grass Valley. If forecast traffic volumes cannot maintain LOS “D”, the City Council may consider additional “extraordinary” improvements. The City Council may determine, on a case-by-case basis that “extraordinary” improvements are not feasible or desirable and may relax the LOS “D” standard for a particular intersection or roadway segment. In considering exceptions to the LOS “D” standard, the City shall consider the following factors:

- The number of hours per day that the intersection or roadway segment would operate at conditions worse than LOS “D”.
- The ability of the improvement to reduce peak hour delay and improve traffic operations.
- The impact on accessibility to surrounding properties.
- The right-of-way needs and the physical impact on surrounding properties.
- The visual aesthetics of the required improvements and its impact on community identity and character.
- Environmental impacts including air quality and noise impacts.
- Construction and right-of-way acquisition costs.
- Impacts on pedestrian and bicycle accessibility and safety.
- The impacts of the required construction phasing and traffic maintenance.

In no case should the City plan for worse than LOS “E” at any intersection or roadway segment during the afternoon peak hour.

Grass Valley Transportation Impact Fee (GVTIF) Program

The City of Grass Valley has an established Transportation Impact Fee Program (GVTIF) that collects fees to help fund construction for local improvements within the City of Grass Valley. Although the project is not located in the City of Grass Valley, the project will be required to pay the GVTIF as mitigation for impacts to intersections included in the GVTIF (see Impacts section of this chapter). The GVTIF is based on total thousand square feet of industrial buildings. The project proposes 126,000 square feet of industrial buildings and will be required to pay the required GVTIF. The current fee would be calculated as $126 \text{ TSF} \times \$666.66 = \$83,999$, and an administration fee of 1% = \$839.99. The actual fee paid will depend on the mitigation fee in place at the time of construction.

Western Nevada County Regional Transportation Mitigation Fee Program

The NCTC, in partnership with Nevada County, Nevada City, and the City of Grass Valley, established the Regional Transportation Mitigation Fee (RTMF) program in 2001. Under the RTMF program, development impact fees are collected to help fund construction of the regional system of roads, streets, and highways needed to accommodate growth in western Nevada County. Nevada City and the City of Grass Valley also have adopted their own transportation mitigation fees to fund transportation improvements in each city. All three fee programs were



updated in 2008 and again in 2016 to reflect changes in demographic and economic assumptions and associated changes in transportation improvement needs and funding opportunities for these improvements.

The purpose of the RTMF is to establish a uniform, cooperative program to mitigate the cumulative indirect regional impacts of future developments on traffic conditions of regional roadways in Nevada County. The fees help fund improvements needed to maintain the target LOS in the face of the higher traffic volumes brought on by new developments.

The RTMF is based on total thousand square feet of industrial buildings. The project proposes 126,000 square feet of industrial buildings and will be required to pay the required RTMF. The current fee would be calculated as $126 \text{ TSF} \times 5.33 \times \$79.37 = \$53,303.30$. The actual fee paid will depend on the mitigation fee in place at the time of construction.

4.12.4 IMPACTS AND MITIGATION MEASURES

This section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to transportation.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, the proposed project would be considered to result in a significant adverse impact on the environment in relation to transportation and circulation if the project would result in any of the following:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b);
- Substantially increase hazards to vehicle safety due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access.

Specific application of the general thresholds is provided in the following section, based on guidance from Nevada County and the City of Grass Valley.

Level of Service Standards of Significance

The following thresholds of significance are used for the LOS analysis of study intersections and roadway segments for purposes of determining General Plan consistency. Before presenting the thresholds, it is important to emphasize that OPR has already provided guidance on why LOS standards should not be included within general plans. According to OPR:⁵

SB 743 “does not preclude the application of local general plan policies, zoning codes, conditions of approval, thresholds, or any other planning requirements pursuant to the police power or any other authority.” (See Pub. Resources Code, § 21099(b)(4).) However,

⁵ Governor's Office of Planning and Research. *SB 743 Frequently Asked Questions*. Available at: <https://opr.ca.gov/ceqa/sb-743/faq.html>. Accessed March 21, 2021.



OPR has previously provided guidance on why LOS standards should not be included within general plans. (See OPR's General Plan Guidelines, Appendix B.)

Even if a general plan contains an LOS standard and a project is found to exceed that standard, that conflict should not be analyzed under CEQA. CEQA is focused on planning conflicts that lead to environmental impacts. (*The Highway 68 Coalition v. County of Monterey* (2017) 14 Cal.App.5th 883; see, e.g., Appendix G, IX(b) (sic) [asking whether the project will "Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?"].) Auto delay, on its own, is no longer an environmental impact under CEQA. (See Pub. Resources Code, § 21099(b)(2).)

The above-referenced General Plan Guidelines (Appendix B) focus on Transportation Safety. It is noted therein that, "*Lane width has a particularly discernable impact on safety. The traditional approach to sizing lanes opts for wider lanes to accommodate driver error and to attempt to increase throughput. However, research reveals that wider lanes hinder both of these objectives.*" The solution to LOS issues is oftentimes widening roadways and/or intersections to accommodate more traffic flow. Given the higher incidence of traffic safety conflicts this may pose, OPR's General Plan guidelines recommend that agencies focus on VMT rather than LOS, as reducing VMT has been shown to reduce collision exposure and improve safety.⁶

While not legally required to do so, the County of Nevada, in its discretion as the CEQA lead agency for the proposed project, has chosen to assign a level of significance to those cases where the project's traffic causes an intersection to be in conflict with an agency's General Plan LOS standard.

Nevada County

Nevada County identifies LOS D or better as the acceptable LOS at intersections and roadways in community regions, and LOS C or better as acceptable LOS at intersections and roadways in rural regions. All study intersections and roadways, except the Brunswick Road/SR 174 intersection and SR 174 east of Empire Street, are within the Grass Valley Community Region, as identified in the County's General Plan. The Brunswick Road/SR 174 intersection and SR 174 roadway segment, east of Empire Street, are a part of the State highway system.

For the proposed project, a LOS conflict would result if the project's traffic would cause an intersection or roadway segment operations to change from acceptable to unacceptable LOS or a project adds traffic to an intersection or roadway segment already operating at unacceptable LOS.

The Nevada County General Plan Policy LU-4.1.6 states "Relative to the State highway system, Nevada County recognizes the major funding limitations that exist within the State system and finds that as a matter of policy, additional growth and development may be allowed within the County, notwithstanding the adverse impacts which may result in the short term by this growth and development."

⁶ Governor's Office of Planning and Research. *Appendix B: Transportation Safety* [pg. 351]. 2020.



Grass Valley

The City of Grass Valley identifies LOS D or better as the acceptable LOS at intersections and roadways. For the proposed project, a LOS conflict would result if the project's traffic would cause an intersection or roadway segment operations to change from acceptable to unacceptable LOS or a project adds traffic to an intersection already operating at unacceptable LOS. The City allows LOS E conditions at the Bennett Road/Tinloy Street/SR 49 WB Off-Ramp intersection.

Caltrans

The Caltrans Guide for the Preparation of Traffic Impact Studies states that Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities. Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. Based on the recently approved Dorsey Marketplace traffic study in Grass Valley, the LOS D threshold was used as the acceptable LOS and will be used in this analysis for Caltrans facilities.

Intersection Queuing Standards of Significance

Nevada County Traffic Impact Analysis Guidelines state that queuing impacts are considered to be substantial if the queues:⁷

- 1) exceed the available storage capacity and extend through the adjacent street intersection;
- 2) extend through right- or left-turn pocket;
- 3) extend in the through lane blocking a right- or left-turn pocket; or
- 4) result in insufficient sight distance conditions.

The queues projected under "Plus Project" conditions were also compared to "No Project" conditions to determine the extent of queues where existing queues exceed the available storage. For this analysis, "Plus Project" queues exceeding the turn lane are only considered to have a significant impact if the "Plus Project" queue is greater than 25 feet of the "No Project" queue. This represents about one car length and is used by other agencies in assessing queuing impacts. The 25-foot length allows fluctuation in the results, especially in simulations where stochastic modeling results in some intersection queues increasing while others may decrease.

Vehicle Miles Traveled Standard of Significance

For the proposed project, a VMT impact may be considered less than significant if:

- The project's total weekday VMT per service population is equal to or less than 14.3 percent below the subarea mean under baseline conditions, or the project reduces the total VMT per service population for the subarea; and
- The project is consistent with the General Plan and the Nevada County Regional Transportation Plan.

As stated above, because the proposed project is an industrial land use project, the County determined that the preferred significance threshold metric shall be VMT per worker (i.e., project employee). The data in Table 4.12-4 was used to determine the significance threshold for the

⁷ Nevada County. *Traffic Impact Analysis Guidelines*. Updated December 7, 2020.



proposed project. The Grass Valley subarea was used as the basis due to the project's proximity to the City. Therefore, the proposed project would be considered to result in a significant impact related to VMT if the project would result in a VMT per worker ratio that is less than 14.3 percent below the subarea mean for the Grass Valley subarea of 18.6.

Method of Analysis

The analysis methodology provided in the Traffic Impact Analysis prepared for the proposed project by KDAAnderson & Associates, Inc., is discussed below.

Level of Service Analysis

As noted above, VMT is the primary metric used to identify transportation impacts under CEQA. However, because the County considers vehicle LOS as a matter of General Plan consistency, LOS at the study intersections and roadway facilities is presented and analyzed herein.

The vehicle LOS analysis is intended to identify the intersections and roadways that may be impacted by development of the proposed project based on Nevada County, City of Grass Valley, and Caltrans significance criteria and to suggest strategies for locations that are adversely affected by the proposed project.

Level of Service Analysis Scenarios

Based on consultation with Nevada County and the City of Grass Valley, the following scenarios were included in the LOS analysis for the proposed project:

- **Existing Condition:** LOS based on current traffic counts, existing roadway geometry, and existing traffic control.
- **Existing Plus Approved Projects (EPAP) Condition:** LOS based on the Existing Condition plus traffic and improvements from projects that are approved or are reasonably foreseeable in the next five years.
- **EPAP Plus Project Condition – Scenario #1:** LOS based on the EPAP Condition plus traffic from the proposed project, considering transport of engineered fill to the Centennial Industrial Site.
- **EPAP Plus Project Condition – Scenario #2:** LOS based on the EPAP Condition plus traffic from the proposed project, considering transport of engineered fill to construction sites accessible via SR 49.
- **Cumulative No Project Condition:** LOS based on traffic volumes associated with cumulative buildout of the Nevada County region projected to occur by 2035 without traffic generated by the proposed project. The Cumulative No Project Condition includes reasonably certain projected changes to intersection geometry and roadway segments.
- **Cumulative Plus Project Condition – Scenario #1:** LOS based on the Cumulative No Project Condition plus traffic from the proposed project, considering transport of engineered fill to the Centennial Industrial Site.
- **Cumulative Plus Project Condition – Scenario #2:** LOS based on the Cumulative No Project Condition plus traffic from the proposed project, considering transport of engineered fill to construction sites accessible via SR 49.



Intersection Level of Service Analysis

The analysis techniques presented in the Highway Capacity Manual 6th Edition were used to provide a basis for describing existing traffic conditions and evaluating the significance of the project's traffic impacts.

Various software programs have been developed to assist in calculating intersection LOS, and the level of sophistication of each program responds to factors that affect the overall flow of traffic. Three programs – (1) Synchro, (2) Synchro/Simtraffic, a simulation program, and (3) SIDRA, a roundabout intersection analysis program – were used for the analysis depending on the intersection characteristics.

The Synchro software was used at the following study intersections:

4. E. Bennett Road/Hansen Way
6. Idaho Maryland Road/SR 49 EB Ramps
7. Idaho Maryland Road/Railroad Avenue
12. Brunswick Road/Idaho Maryland Road
13. Brunswick Road/Whispering Pines Lane
14. Brunswick Road/E. Bennett Road/Greenhorn Road
15. Brunswick Road/SR 174
16. Brunswick Road/Project Driveway
17. E. Bennett Road/Millsite Road
18. Whispering Pines Lane/Centennial Industrial Site Driveway
19. Idaho Maryland Road/Centennial Drive
20. Idaho Maryland Road/Sutton Way
21. Sutton Way/Dorsey Drive
24. Brunswick Road/Loma Rica Drive

The City of Grass Valley has previously identified the Brunswick Road/SR 49 interchange to be analyzed using the Synchro/Simtraffic simulation software. Additional intersections were also simulated based on non-standard traffic control conditions that Synchro cannot analyze. The Synchro/Simtraffic simulation software was used for the following study intersections:

1. Neal Street/Tinloy Street
2. S. Auburn Street/Tinloy Street
3. E. Bennett Road/Tinloy Street/SR 49 WB Off-Ramp
8. Main Street/Brunswick Road/W. Olympia Drive
9. Brunswick Road/SR 49 WB Off-Ramp/Maltman Drive
10. Brunswick Road/SR 49 EB Ramps
11. Brunswick Road/Sutton Way
22. Dorsey Drive/SR 49 EB Ramps
23. Dorsey Drive/SR 49 WB Ramps

The SIDRA software was used at the following intersection:

5. Main Street/Idaho Maryland Road/SR 49 WB Ramps



Each of the intersections analyzed by Synchro/Simtraffic software are within the City of Grass Valley. As noted above, the City requires simulation of the Brunswick Road corridor. The remaining intersections were also simulated based on non-standard traffic control. The Synchro/Simtraffic software is a stochastic model (i.e., randomness is present when running the simulations). The results vary within each scenario and between scenarios. As a result, some intersections have lower delays in the “Plus Project” scenarios than in the “No Project” scenarios, which is a normal occurrence for stochastic models. Results showing that delays or queues could improve at one intersection while increasing at other intersections is not unexpected. The changes typically should be reasonable; a substantial reduction in delay is not anticipated.

Roundabout analyses were conducted using *SIDRA* Version 8 software.

Traffic Signal Warrant

The extent to which existing or projected traffic volumes may justify signalization at unsignalized intersections has been determined based on considerations of traffic signal warrants presented in the Manual of Uniform Traffic Control Devices, 2014. For this analysis, the volume thresholds associated with Warrant 3 (Peak Hour Volume) have been assessed. Because this analysis considered the peak hours of project traffic, the peak hour warrant was analyzed for each of the three time period segments. The meeting of a traffic signal warrant does not, in itself, require installation of a traffic signal but serves as a method to identify a location where further analysis is required.

Intersection Queuing

The quality of traffic flow can also be affected by queuing at signalized intersections. For this analysis, the lengths of peak period queues have been identified and compared to available storage in order to determine whether spillover from turn lanes can affect adjoining travel or extend through adjacent intersections. The 95th percentile queue lengths are reported as part of the Synchro, Synchro/Simtraffic, and *SIDRA* analyses. Those locations where the 95th percentile queue exceeds the available storage have also been noted.

Roadway Level of Service Analysis

Study roadway segments were analyzed using methods presented in the Highway Capacity Manual 2010 (HCM), which are similar to the methods used in 2010 and HCM 6th Edition. All of the study roadway segments are considered two-lane highway segments. A two-lane highway is an undivided roadway with one lane in each direction. Passing a slower vehicle requires use of the opposing lane as sight distance and gaps in the opposing traffic stream permit. As volumes and geometric restrictions increase, the ability to pass decreases and platoons form. Motorists in platoons are subject to delay because they are unable to pass. The HCM divides two-lane roadways into three types: Class I, Class II, and Class III. The three types are defined as follows:

- **Class I two-lane highways** are highways where motorists expect to travel at relatively high speeds. Two-lane highways that are major intercity routes, primary connectors of major traffic generators, daily commuter routes, or major links in state or national highway networks are generally assigned to Class I. These facilities serve mostly long-distance trips or provide the connections between facilities that serve long-distance trips.



- **Class II two-lane highways** are highways where motorists do not necessarily expect to travel at high speeds. Two-lane highways functioning as access routes to Class I facilities, serving as scenic or recreational routes (and not as primary arterials), or passing through rugged terrain (where high-speed operation would be impossible) are assigned to Class II. Class II facilities most often serve relatively short trips, the beginning or ending portions of longer trips, or trips for which sightseeing plays a significant role.
- **Class III two-lane highways** are highways serving moderately developed areas. They may be portions of a Class I or Class II highway that pass through small towns or developed recreational areas. On such segments, local traffic often mixes with through traffic, and the density of unsignalized roadside access points is noticeably higher than in a purely rural area. Class III highways may also be longer segments passing through more spread-out recreational areas, also with increased roadside densities. Such segments are often accompanied by reduced speed limits that reflect the higher activity level.

Three measures of effectiveness are incorporated into the methodology to determine automobile LOS:

- Average Travel Speed (ATS) reflects mobility on a two-lane highway. It is defined as the highway segment length divided by the average travel time taken by vehicles to traverse it during a designated time interval.
- Percent Time Spent Following (PTSF) represents the freedom to maneuver and the comfort and convenience of travel. It is the average percentage of time that vehicles must travel in platoons behind slower vehicles due to the inability to pass. Because this characteristic is difficult to measure in the field, a surrogate measure is the percentage of vehicles traveling at headways of less than 3.0 at a representative location within the highway segment. PTSF also represents the approximate percentage of vehicles traveling in platoons.
- Percent of free-flow speed (PFFS) represents the ability of vehicles to travel at or near the posted speed limit.

Speed and delay due to passing restrictions are both important to motorists on Class I two-lane highways; therefore, LOS is defined in terms of both ATS and PTSF. Travel speed is not a significant issue on Class II highways; therefore, LOS is defined only in terms of PTSF. High speeds are not expected on Class III highways and because the length of the Class III segments may be generally limited, passing restrictions are also not a major concern. In Class III segments, drivers are expected to want to travel at or near the speed limit. Therefore, PFFS is used to define LOS. The LOS criteria for two-lane highways are shown in Table 4.12-5.

Project Trip Generation

Trip generation is determined by identifying the type and size of the land use being developed. Recognized sources of trip generation data may then be used to calculate the total number of trip ends resulting from the day-to-day operation of the project.



**Table 4.12-5
Vehicle LOS for Two-Lane Highways**

LOS	Class I Highways		Class II Highways	Class III Highways
	ATS (mi/hr)	PTSF (%)	PTSF (%)	PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50-55	>35-50	>40-55	>83.3 – 91.7
C	>45-50	>50-65	>55-70	>75.0 – 83.3
D	>40-45	>65-80	>70-85	>66.7 – 75.0
E	≤40	>80	>85	≤66.7

Source: KDAnderson & Associates, Inc., 2021.

The Trip Generation Manual (Institute of Transportation Engineers (ITE), 10th Edition, 2017) is often used to calculate project trips for more common land use codes. However, the publication does not have trip generation data for mining operations. Consequently, the project trip generation was developed based on projected employment rates, projected truck trips for hauling engineered fill and mining concentrate off site, and projected material and supply deliveries.

During full mining operations, the proposed project would employ approximately 312 direct employees, as detailed in Table 4.12-6. At full operations, approximately 44 employees would work regular eight-hour days, five days per week, and approximately 268 employees would work 12-hour shifts, seven days on and seven days off. Shifts for 12-hour employees would be from 7:00 AM to 7:00 PM and 7:00 PM to 7:00 AM, while work shifts for eight-hour employees would be from 7:00 AM to 3:30 PM. The Brunswick Industrial Site would generate a maximum of 174 employee trips per day. The Centennial Industrial Site would generate a maximum of four employee trips per day.

**Table 4.12-6
Operations Workforce and Hours of Operation**

Workforce	Shift	Total Employees
Administrative Personnel: Management, technical, construction, administrative staff	8 hours a day, 5 days a week 7:00 AM to 3:30 PM	40
Mining Operations: Underground mining, mineral processing, engineered fill transport staff	12 hours a day, 7 days on, 7 days off 7:00 AM to 7:00 PM and 7:00 PM to 7:00 AM	268
Grading Operations: Centennial* or Brunswick Industrial Site – placement and compaction of engineered fill	8 hours a day, 5 days per week 7:00 AM to 3:30 PM	4
Total Workforce		312
* Staffing at the Centennial Industrial Site is projected to occur over an approximate five-year span within the analysis.		

Source: KDAnderson & Associates, Inc., 2021.



In addition to employee traffic, the proposed project would result in daily operational truck traffic, including but not limited to engineering fill trucking, concentrate trucking, materials and supplies deliveries, and ancillary vehicle traffic to support operations. The truck traffic, hours, and projected trip generation are detailed in Table 4.12-7. The total maximum number of two-way truck trips is 118 trucks, with 236 total daily trips made, one inbound and one outbound.

Table 4.12-7 Project Truck Traffic and Hours			
Truck Traffic	Hours	Maximum Daily Trips	Average Daily Trips
Brunswick Industrial Site			
Engineered Fill	6:00 AM to 10:00 PM 7 days a week	100	50
Concentrate	6:00 AM to 10:00 PM. 7 days a week	5	1
Materials/Supplies/Ancillary services	7:00 AM to 7:00 PM 7 days a week	12	6
Centennial Industrial Site			
Fuel Supplies	7:00 AM to 3:30 PM 5 days a week	1	0.3
Total			
Total Two-Way Trips (One-Way Trips)		118 (236)	57.3 [rounded 58] (114.6) [rounded 115]
Note: The traffic analysis studies the worst-case scenario of maximum daily trips and with hours of operation.			
Source: <i>KDAnderson & Associates, Inc., 2021.</i>			

As discussed previously, the three time periods analyzed are when project employee trips are expected to occur based on actual proposed work schedules. Table 4.12-8 presents the projected trip generation for the project during the three analysis periods.

As noted, the Centennial Industrial Site is expected to be an active site with delivery of engineered fill occurring for a period of approximately five years. The engineered fill is projected to be delivered to construction sites accessible from SR 49 for the remaining 15 years of the analysis. Which years would be used for each scenario is currently unknown; therefore, two scenarios were analyzed, with each scenario assumed to be active at buildout:

- **Scenario 1:** Transport of engineered fill to the Centennial Industrial Site.
- **Scenario 2:** Transport of engineered fill to construction sites accessible via SR 49.



**Table 4.12-8
 Project Trip Generation**

	Employee Trips (Hourly)					
	6:30 – 7:30 AM		3:30 – 4:30 PM		6:30 – 7:30 PM	
	In	Out	In	Out	In	Out
Brunswick Industrial Site						
7:00 AM Shift Change M-F	107*	67‡				
3:30 PM End of Administrative Day M-F			0	40†		
6:30 PM Shift change M-F					67‡	67‡
Centennial Industrial Site						
7:00 AM Shift Change M-F	4	0				
3:30 PM End of Administrative Day M-F			0	4		
6:30 PM Shift change M-F					0	0
Total Trips - Employee Traffic	111	67	0	44	67	67
Haul Traffic						
Brunswick Industrial Site						
Engineered Fill ◊	8	8	8	8	8	8
Concentrate □	1	1	1	1	1	1
Materials/Supplies △	2	2	2	2	2	2
Centennial Industrial Site						
Fuel Supplies Δ	1	1	1	1	1	1
Total Trips – Haul Traffic	12	12	12	12	12	12
Total						
Total Trips	123	79	12	56	79	79
Notes:						
<ul style="list-style-type: none"> • Trip generation assumes worst case scenario. Daily operations workforce and truck traffic are detailed in Table 4.12-6 and Table 4.12-7. • Brunswick Industrial Site operational on weekends and generates 67 inbound/outbound trips at shift change. • * = includes mining and administrative operations • ‡ = includes mining operations • † = includes administrative operations • □ = five round trips (10 one-way truck trips)/day averaged over eight-hour day (worst case) • Δ = 1 trip per day • △ = 12 roundtrips (24 one-way truck trips)/day averaged over eight-hour day • ◊ = 100 roundtrips (200 truck trips)/day averaged over 12-hour day (worst case) 						
Source: KDAAnderson & Associates, Inc., 2021.						



Project Trip Distribution and Assignment

The distribution of traffic was developed based on existing traffic patterns in the Grass Valley area and where employees may be expected to live. Engineered fill would be hauled to either the Centennial Industrial Site or to off-site construction sites, and mining concentrate would be shipped off-site via SR 49. Other trucks providing materials and supplies are expected to access the site from both SR 49 and SR 174. Trip distribution for the various trip elements are shown in Table 4.12-9. The trip distribution shown in Figure 4.12-5 considers hauling to the Centennial Industrial Site, while Figure 4.12-6 provides trip distribution considering hauling to construction sites accessible via SR 49. Project traffic volumes are shown in Figure 4.12-7 through Figure 4.12-9 with the Centennial Industrial Site used for engineered fill, and Figure 4.12-10 through Figure 4.12-12 with engineered fill hauled to off-site construction locations. The project distribution was reviewed by both Nevada County and Grass Valley staff.

Existing Plus Approved Projects Condition Assumptions

The analysis of the near-term cumulative condition is intended to consider the impact of projects that are approved or are reasonably foreseeable in the next five years. The near-term cumulative condition is referred to as the EPAP scenario. Nevada County and City of Grass Valley staff were contacted to identify any approved or pending projects in the project vicinity.

Where available, trip generation developed for a project was assigned to the study intersections. When unavailable, KDAAnderson & Associates, Inc. used the best available information for those projects, generated trips for each, and distributed and assigned trips to the study intersections. The Approved Projects traffic was then added to the existing volumes to develop the EPAP scenario. EPAP volumes are presented in Figure 4.12-13 through Figure 4.12-15.

The following 11 projects were identified for the EPAP scenario based on input from Nevada County and the City of Grass Valley.

- 1) **Guided Springs:** This project is located on Main Street west of Bennett Road and consists of division of a 6.96-acre parcel into 27 single-family residential lots;
- 2) **O-Reilly Auto Parts:** This project is located on Nevada City Highway north of Brunswick Road and includes 8,694 square feet of retail use;
- 3) **740 Maltman Drive:** This project is located south of Brunswick Road and includes replacement of an existing 2,000-square-foot building with a new 3,700-square-foot professional office building;
- 4) **500 Idaho Maryland Road:** This project includes construction of two manufacturing buildings, one of which has already been completed, consisting of 22,500 square feet. The site is located east of Railroad Avenue;
- 5) **River Valley Bank:** This project includes construction of two buildings, a 3,500-square-foot bank, which has already been completed, and a new 1,450-square-foot professional office building;
- 6) **634 Town Talk Road:** This project includes division of a 1.36-acre parcel into 11 lots in an R-3 zone. The project is located just east of Brunswick Road in the vicinity of the SR 49 interchange;



**Table 4.12-9
 Project Trip Distribution**

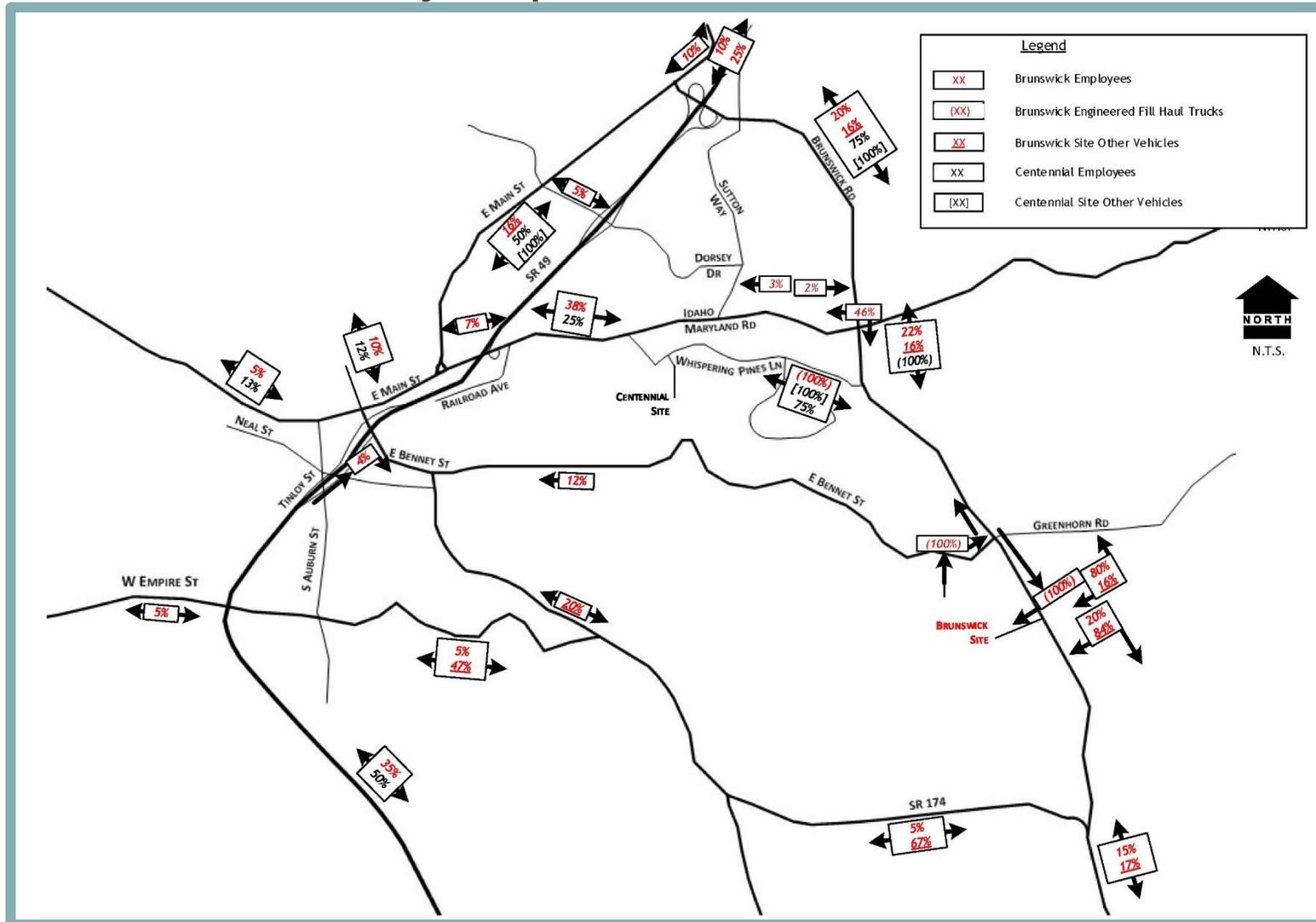
Route	Percent of Total Trips				
	Brunswick Industrial Site			Centennial Industrial Site	
	Employees	Engineered Fill Trucks	Other Vehicles	Employees	Other Vehicles
West to Grass Valley	15%	0%	0%	25%	0%
West on SR 174	5%	0%	67%	0%	0%
West on SR 49	0%	0%	16%	0%	0%
South to Auburn via SR 49	35%	0%	0%	0%	0%
South to Auburn via SR 174	15%	0%	17%	0%	0%
East on Nevada City Highway ¹	10%	0%	0%	25%	0%
East on SR 49	10%	0%	0%	0%	0%
North to Loma Rica	5%	0%	0%	0%	0%
North to Grass Valley via Dorsey	5%	0%	0%	0%	0%
West on SR 49 (Scenario #1)	0%	0%	0%	50%	100%
To Centennial Industrial Site (Scenario #1)	0%	100%	0%	0%	0%
East on SR 49 (Scenario #2)	0%	20%	0%	0%	0%
West on SR 49 (Scenario #2)	0%	80%	0%	0%	0%
Total	100%	100%	100%	100%	100%

Note:
¹ E. Main Street becomes Nevada City Highway through town.

Source: KDAnderson & Associates, Inc., 2020.



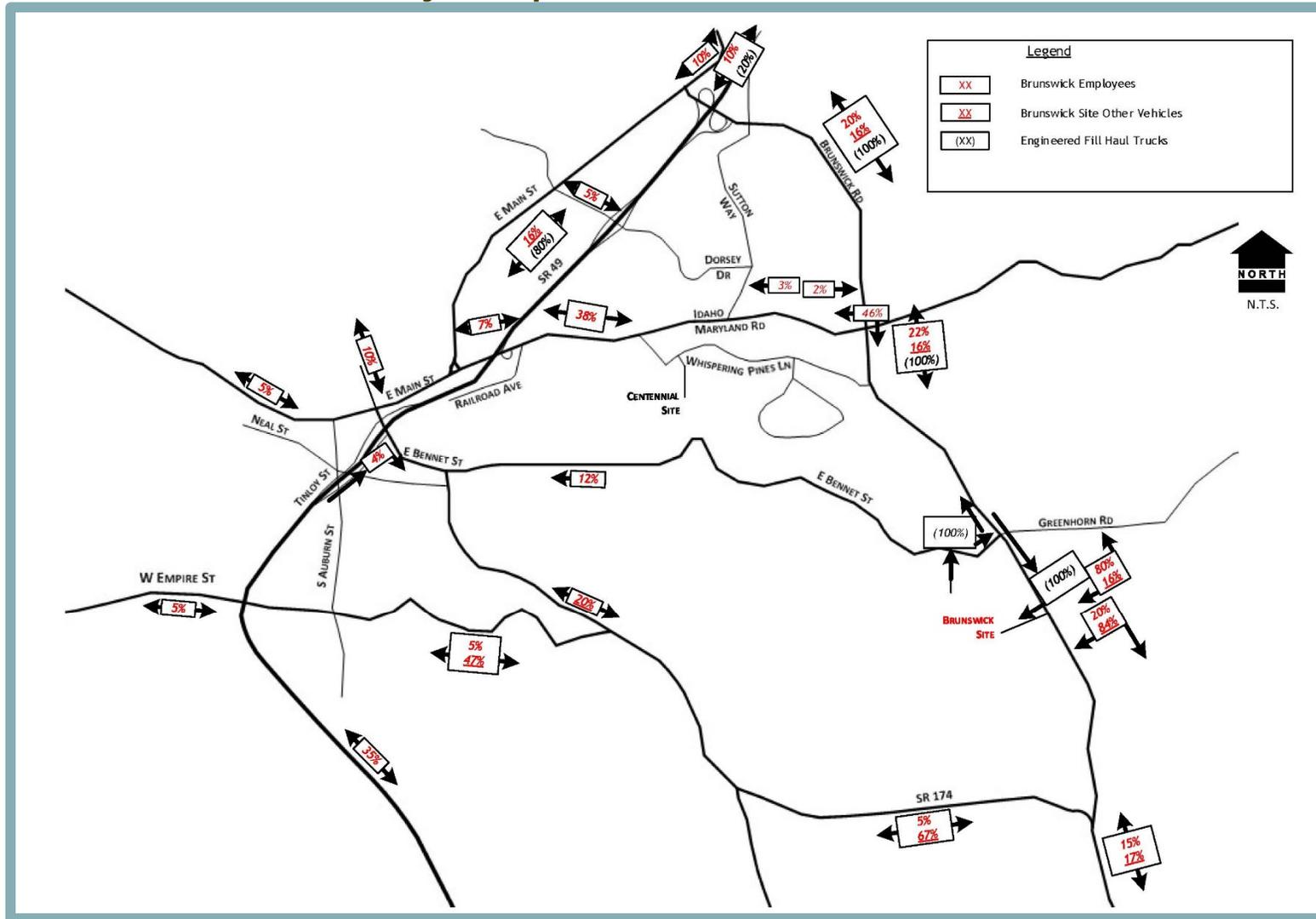
**Figure 4.12-5
 Project Trip Distribution – Scenario #1**



Source: KAnderson & Associates, Inc., 2021.



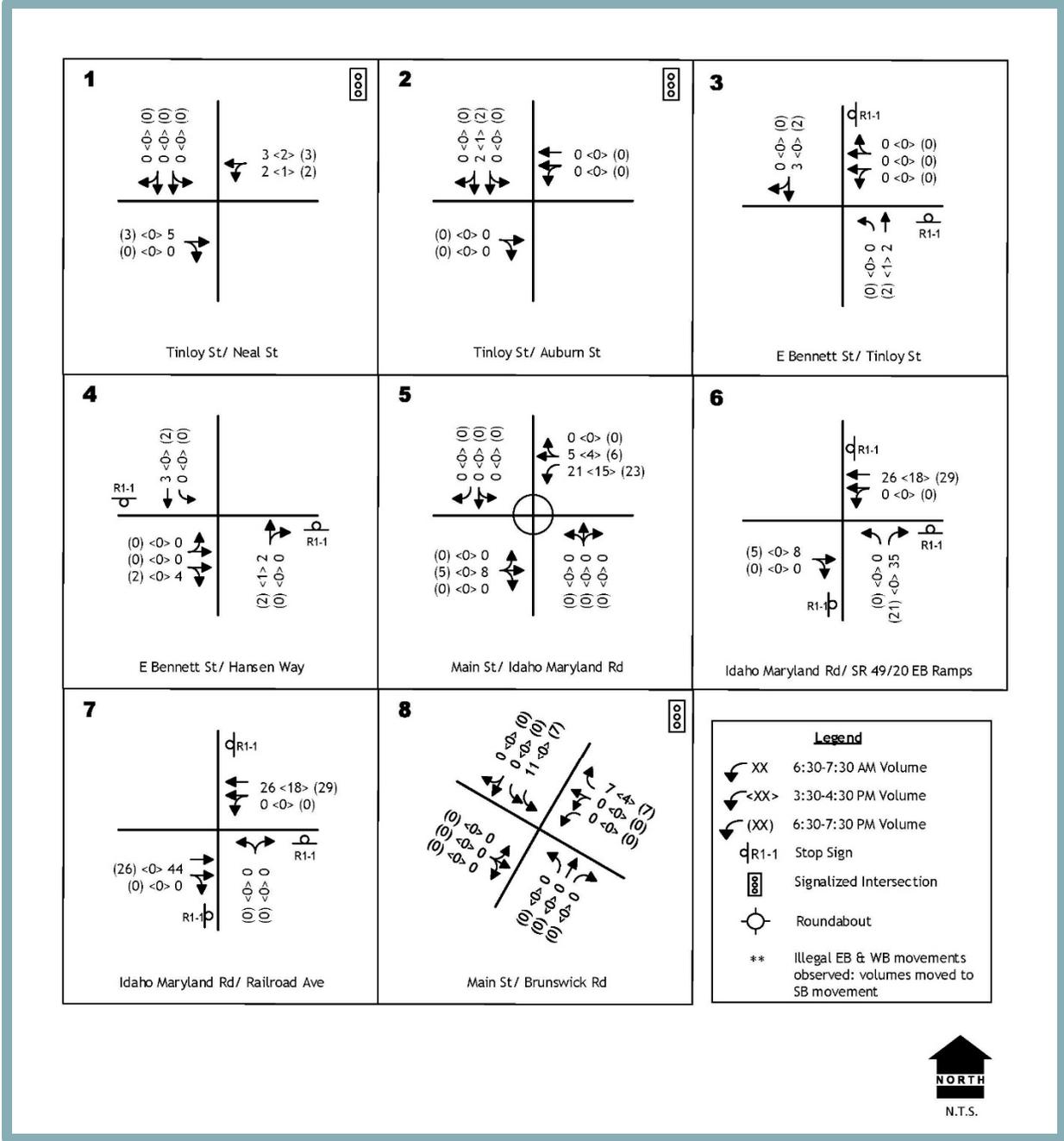
**Figure 4.12-6
 Project Trip Distribution – Scenario #2**



Source: KAnderson & Associates, Inc., 2020.



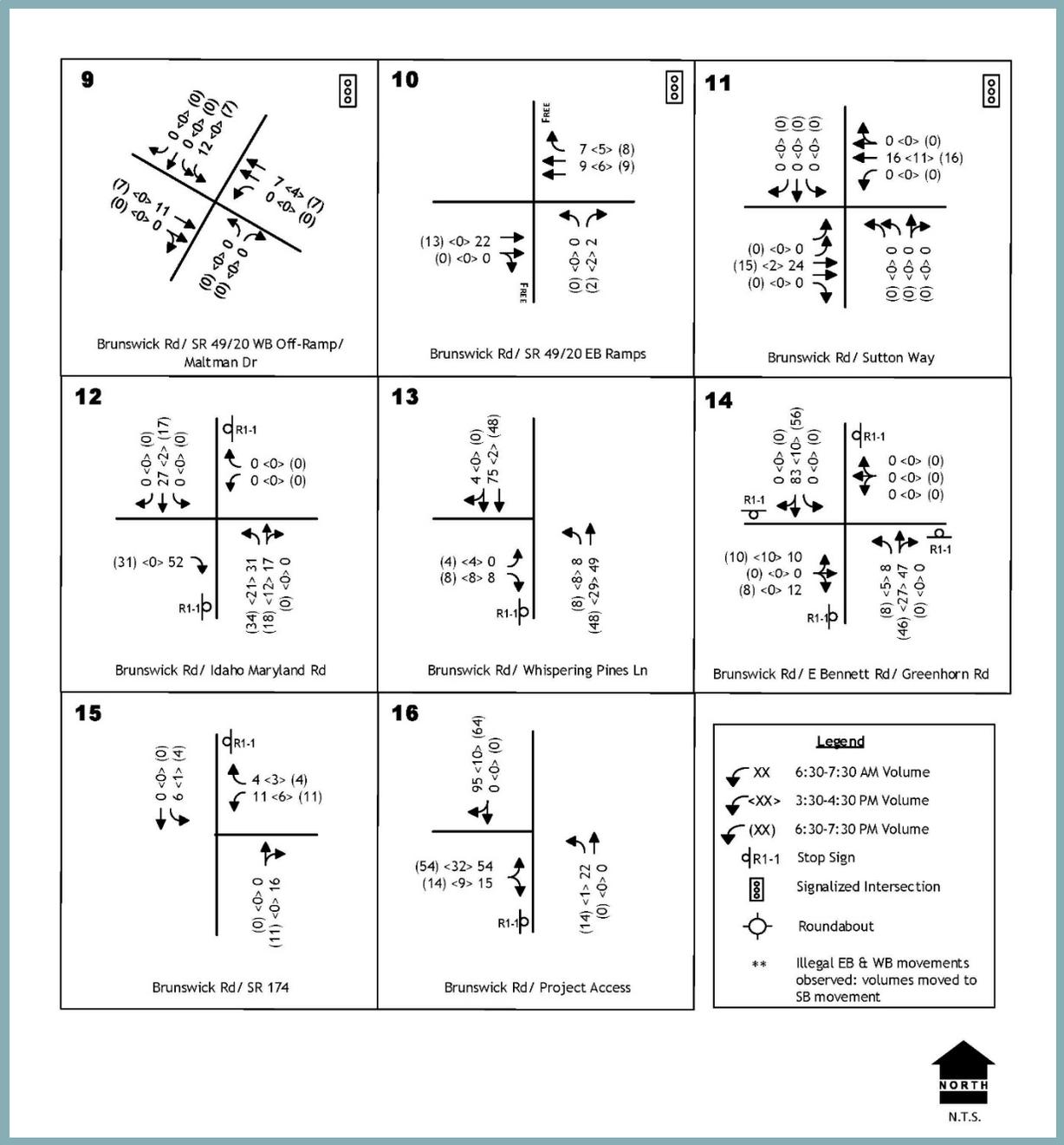
**Figure 4.12-7
 Project Traffic Hours Traffic Volumes and Lane Configurations
 (Intersections 1 through 8) – Scenario #1**



Source: KDAnderson & Associates, Inc., 2021.



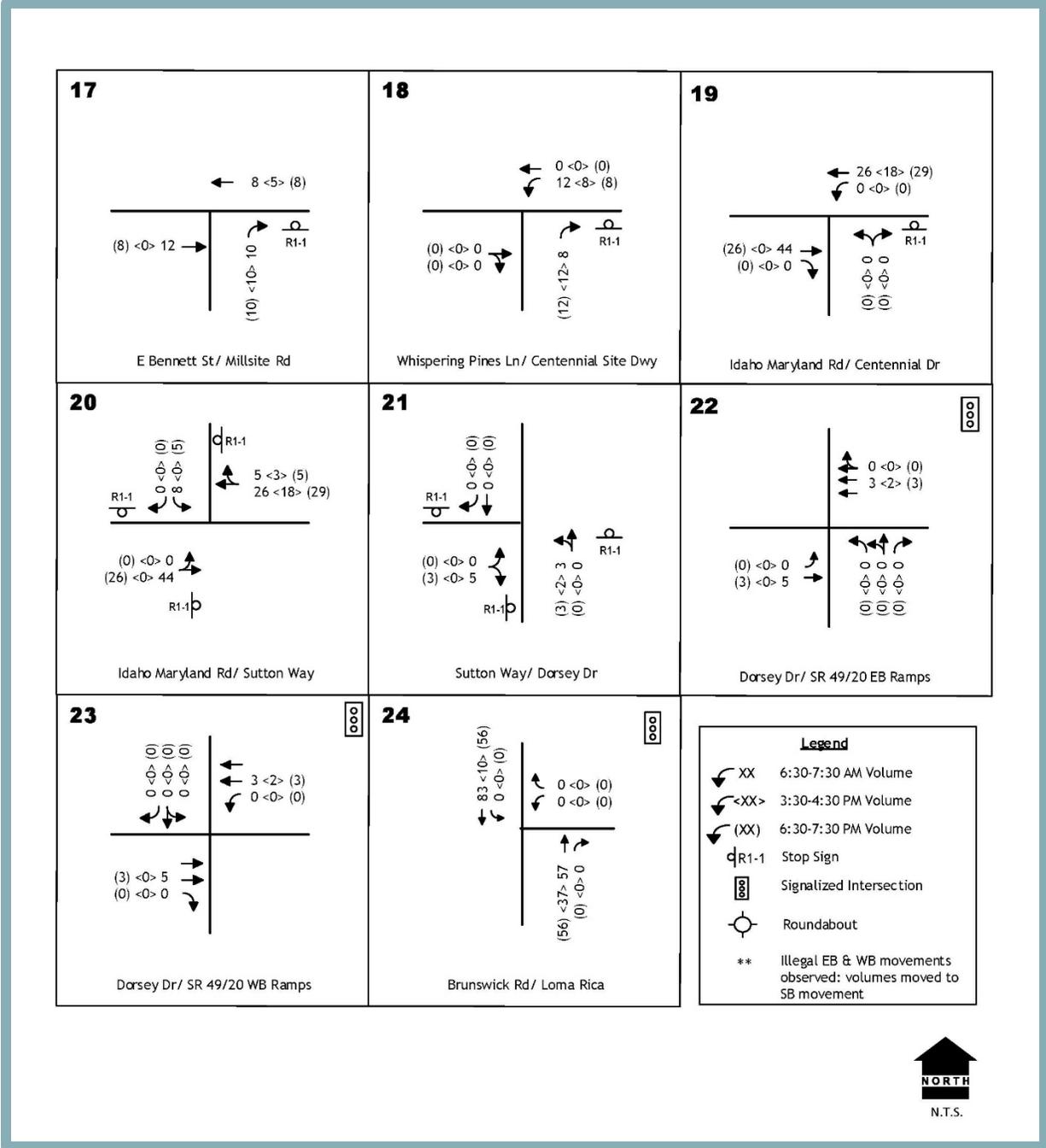
**Figure 4.12-8
 Project Traffic Hours Traffic Volumes and Lane Configurations
 (Intersections 9 through 16) – Scenario #1**



Source: KAnderson & Associates, Inc., 2021.



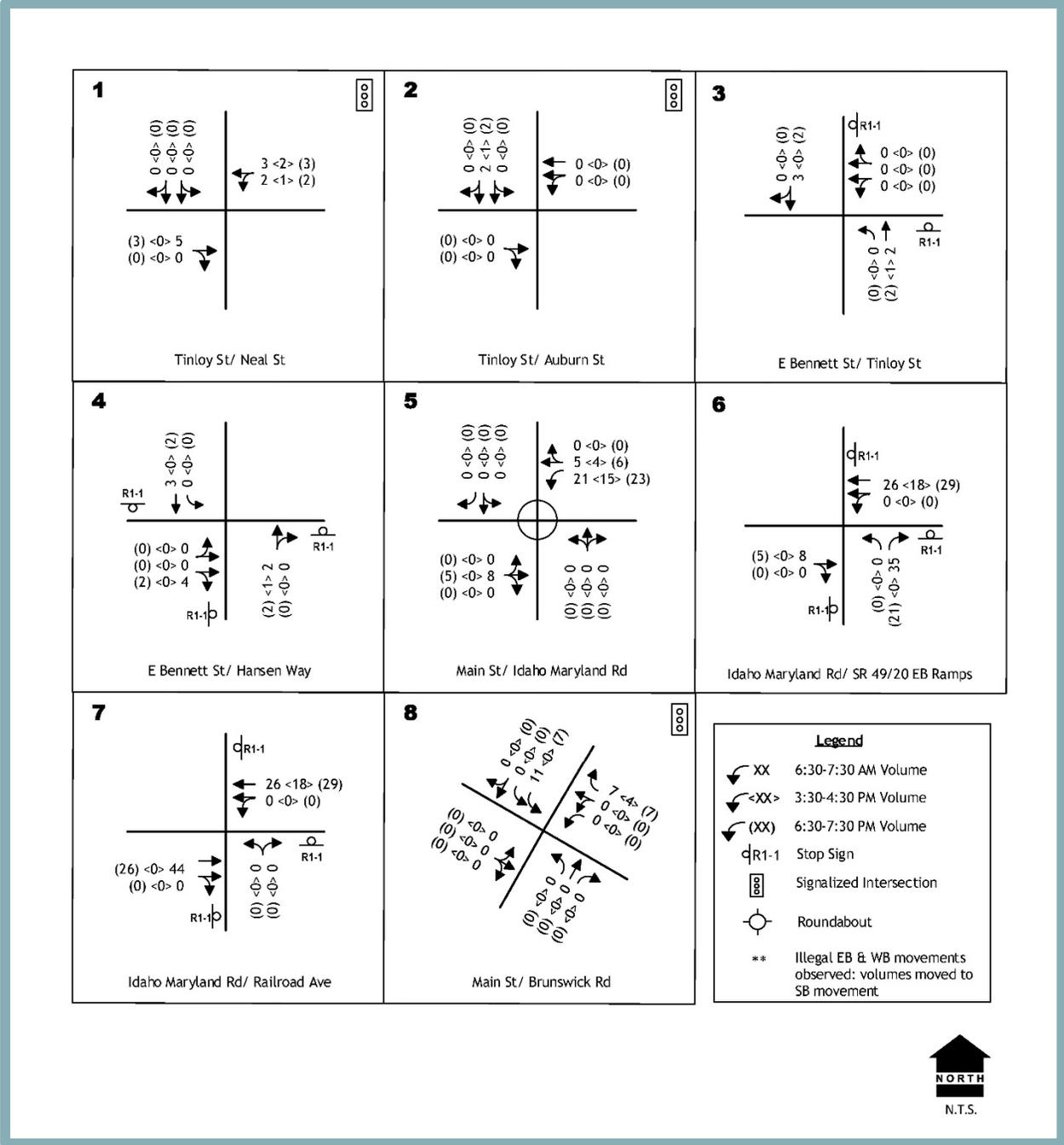
**Figure 4.12-9
 Project Traffic Hours Traffic Volumes and Lane Configurations
 (Intersections 17 through 24) – Scenario #1**



Source: KDAnderson & Associates, Inc., 2021.



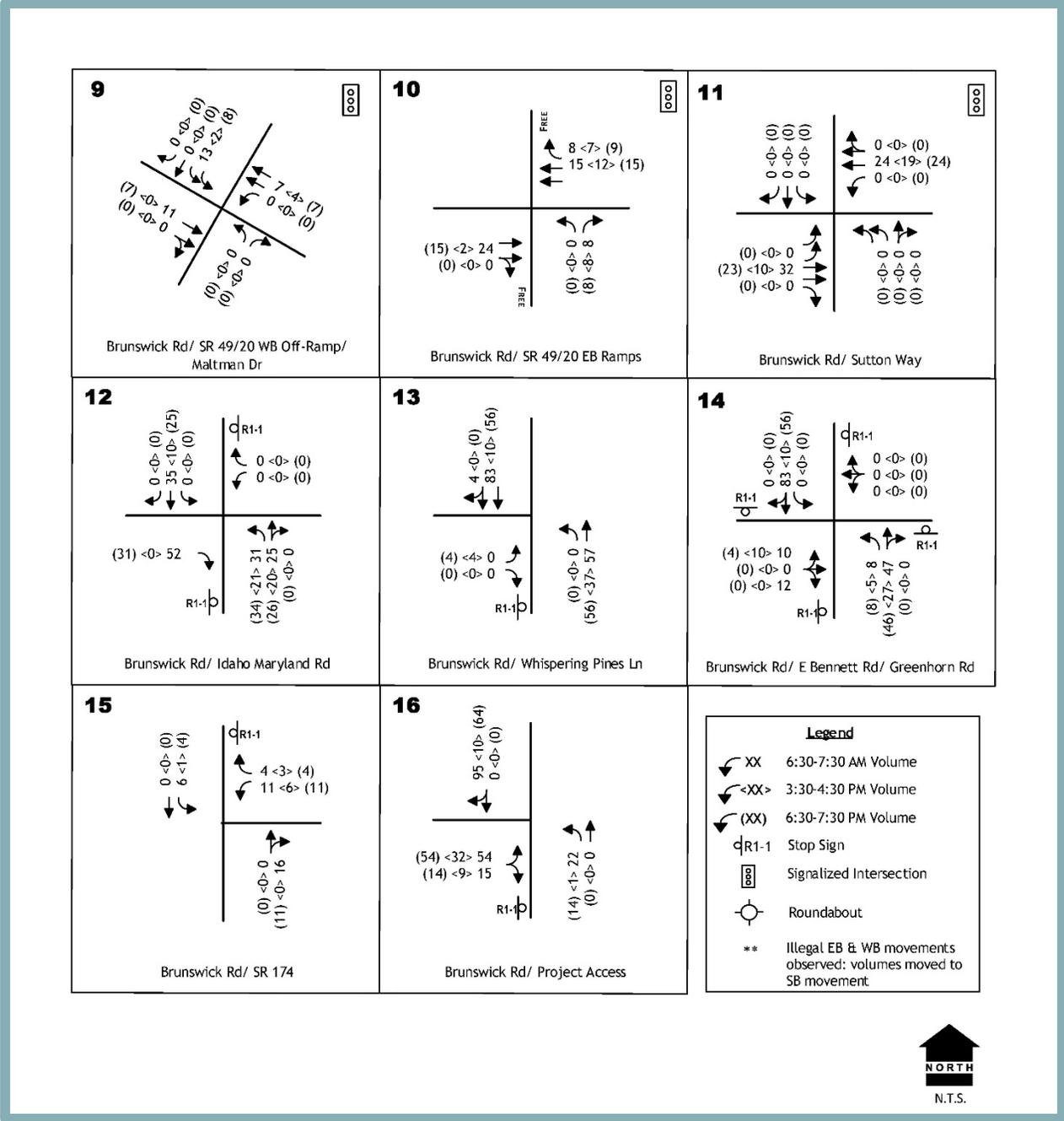
Figure 4.12-10
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – Scenario #2



Source: KAnderson & Associates, Inc., 2021.



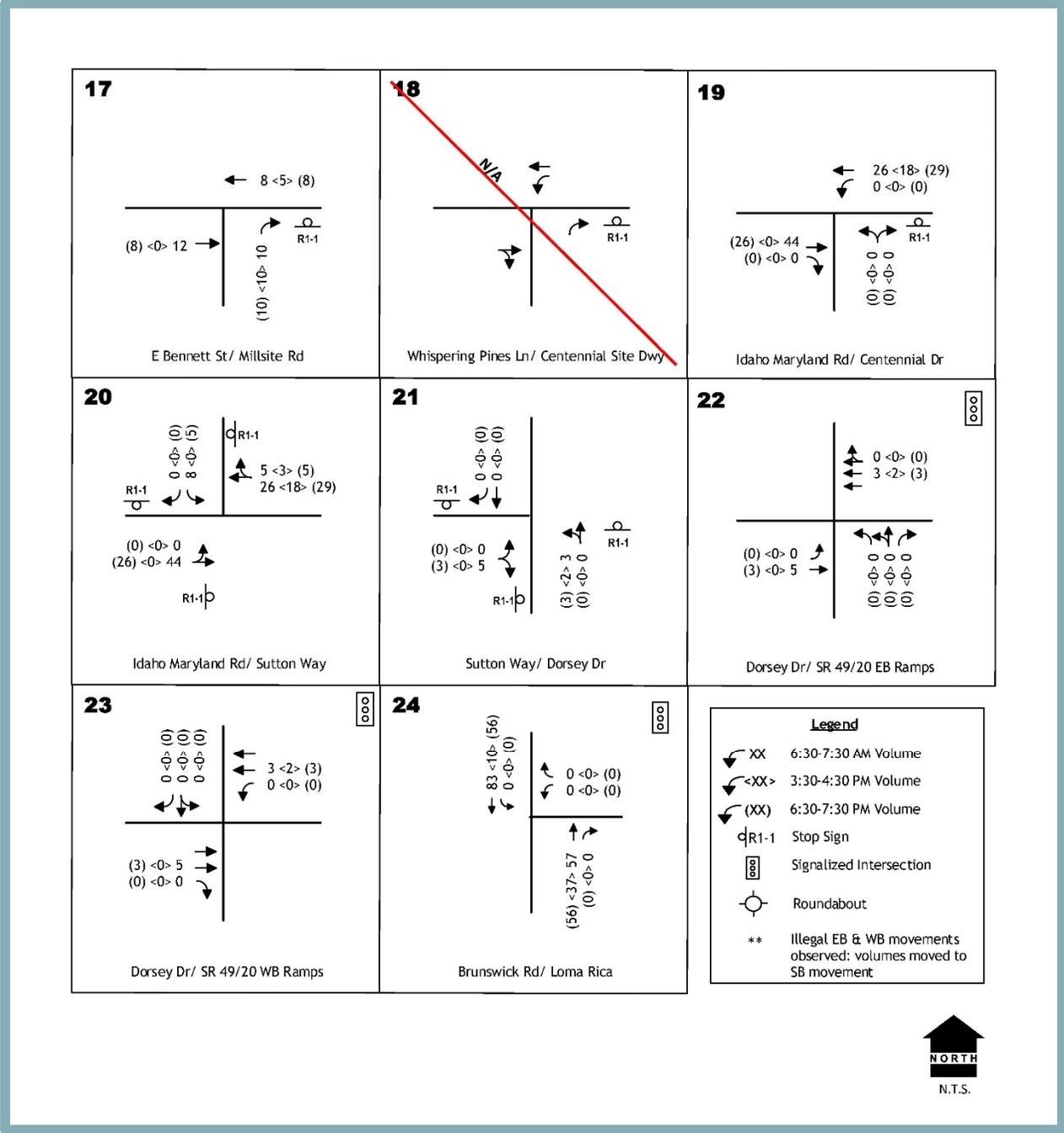
Figure 4.12-11
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – Scenario #2



Source: KDAnderson & Associates, Inc., 2021.



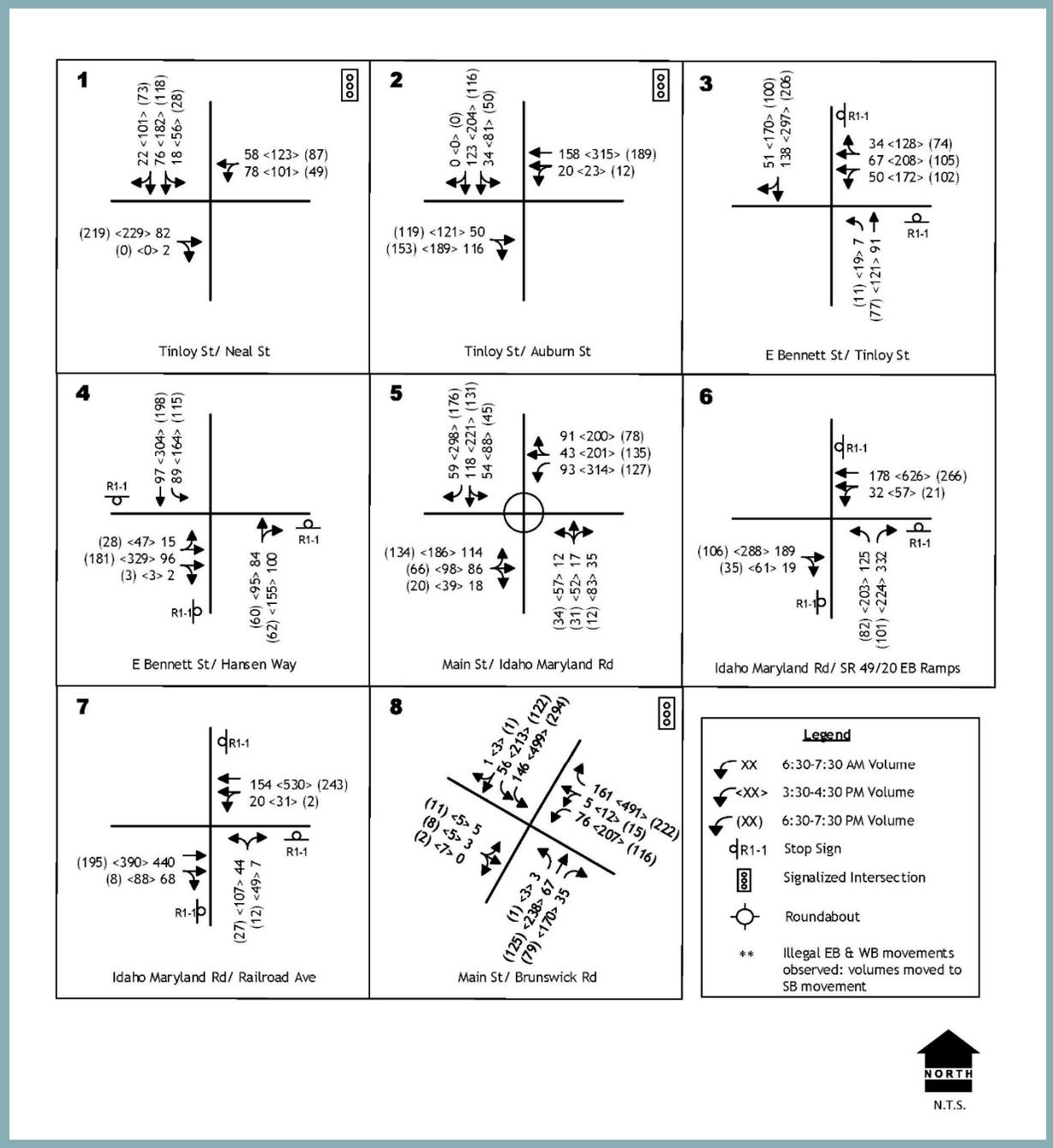
**Figure 4.12-12
 Project Traffic Hours Traffic Volumes and Lane Configurations
 (Intersections 17 through 24) – Scenario #2**



Source: KDAnderson & Associates, Inc., 2021.



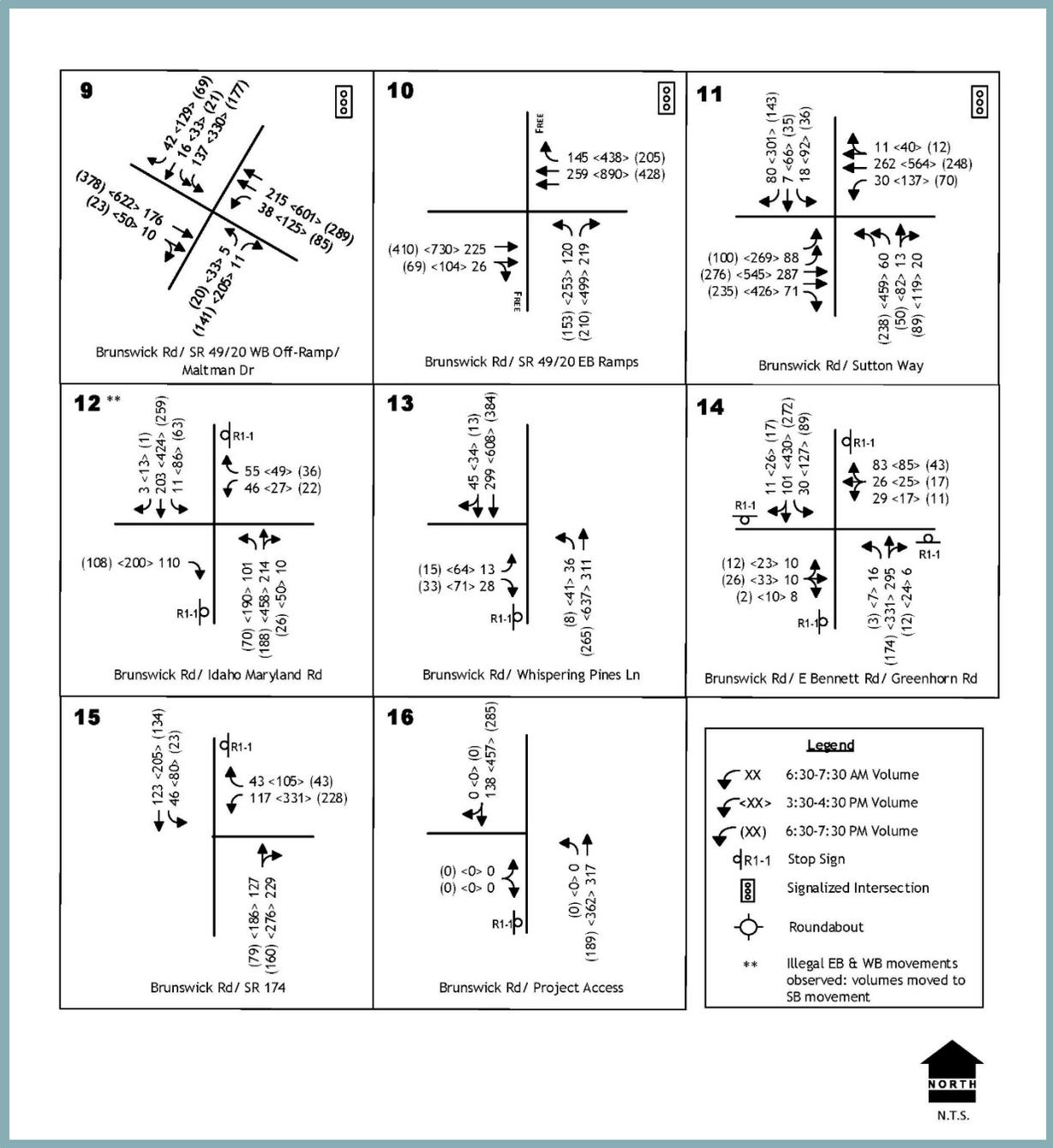
Figure 4.12-13
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – EPAP Conditions



Source: KDAAnderson & Associates, Inc., 2021.



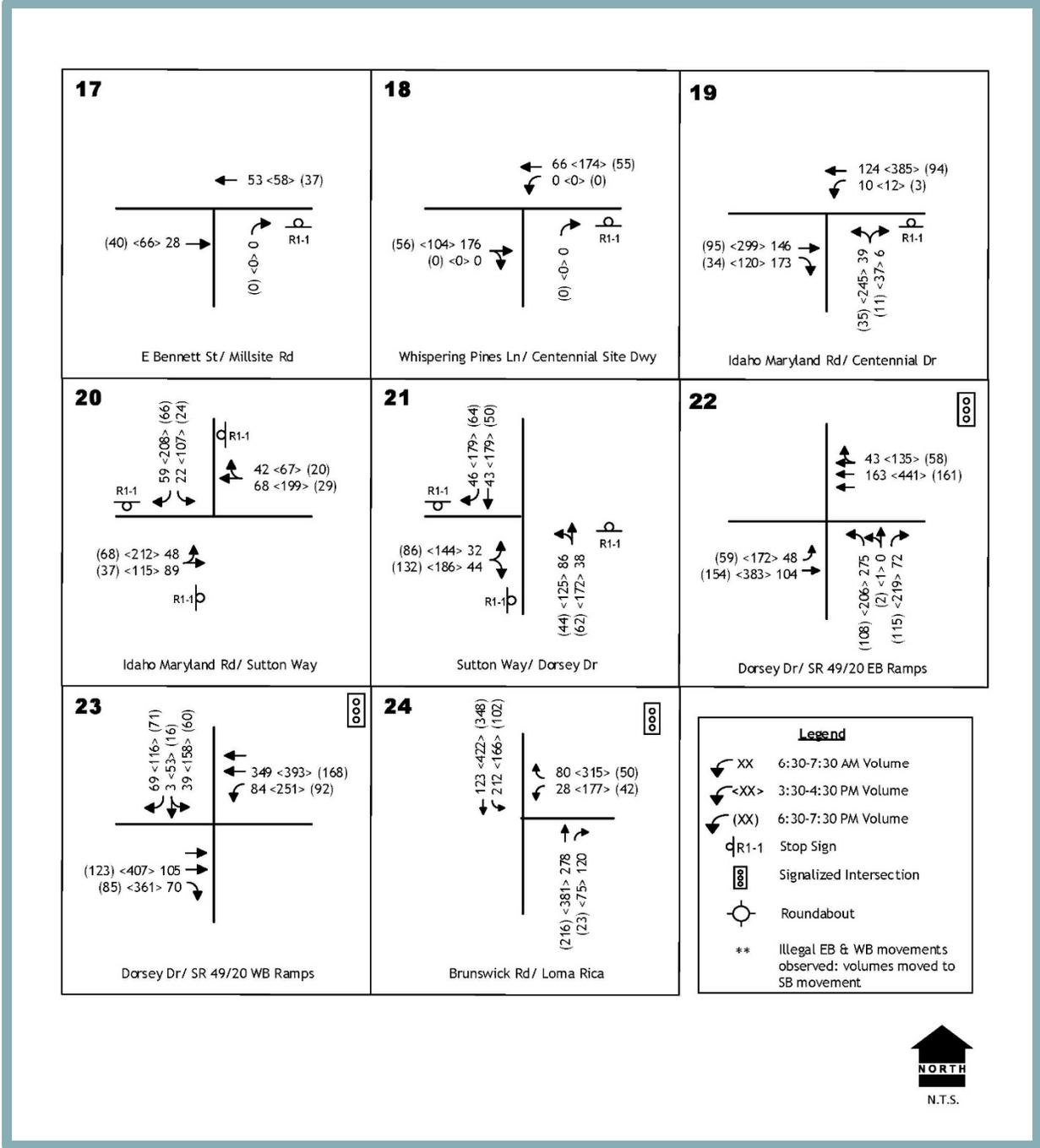
Figure 4.12-14
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – EPAP Conditions



Source: KDAAnderson & Associates, Inc., 2021.



Figure 4.12-15
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – EPAP Conditions



Source: KDAnderson & Associates, Inc., 2021.



- 7) **130 Crown Point Circle:** This project is located in the Whispering Pines Specific Plan zone and includes construction of a 6,889-square-foot dental office (medical office building);
- 8) **Loma Rica Ranch:** This project includes the first phase of the Loma Rica Ranch Specific Plan (LRRSP). The LRRSP area includes lands between Sutton Way to east of Brunswick Road, north of Idaho Maryland Road. The first phase includes 175 single-family residential units and 60 duplex/townhome lots;
- 9) **Dorsey Marketplace:** This project considered two alternative site plans. Alternative A included commercial development of 181,900 square feet, construction of 90 multiple-family residential units and a 3,200-square-foot clubhouse. Alternative B provided up to 172 apartments, a 3,200-square-foot clubhouse, approximately 104,350 square feet of commercial space, and approximately 8,500 square feet of office space. The worst-case trip generation for the site, Alternative A, was used;
- 10) **South Woodlands:** This project is located on Greenhorn Road east of Brunswick Road and consists of development of 30 single-family residential lots;
- 11) **Tranquility Lane Estates:** This project is located on Idaho Maryland Road east of Brunswick Road and consists of development of nine single-family residential lots.

Because operation of the proposed project would likely not commence within the next five years, the EPAP Condition is considered the baseline condition for the analysis within this chapter, as compared to the Existing Condition. This is consistent with *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 452 (*Neighbors for Smart Rail*), for which the Supreme Court stated, "...we note that in appropriate circumstances an existing conditions analysis may take account of environmental conditions that will exist when the project begins operations; the agency is not strictly limited to those prevailing during the period of EIR preparation. An agency may, where appropriate, adjust its existing conditions baseline to account for a major change in environmental conditions that is expected to occur before project implementation."

Cumulative Condition Assumptions

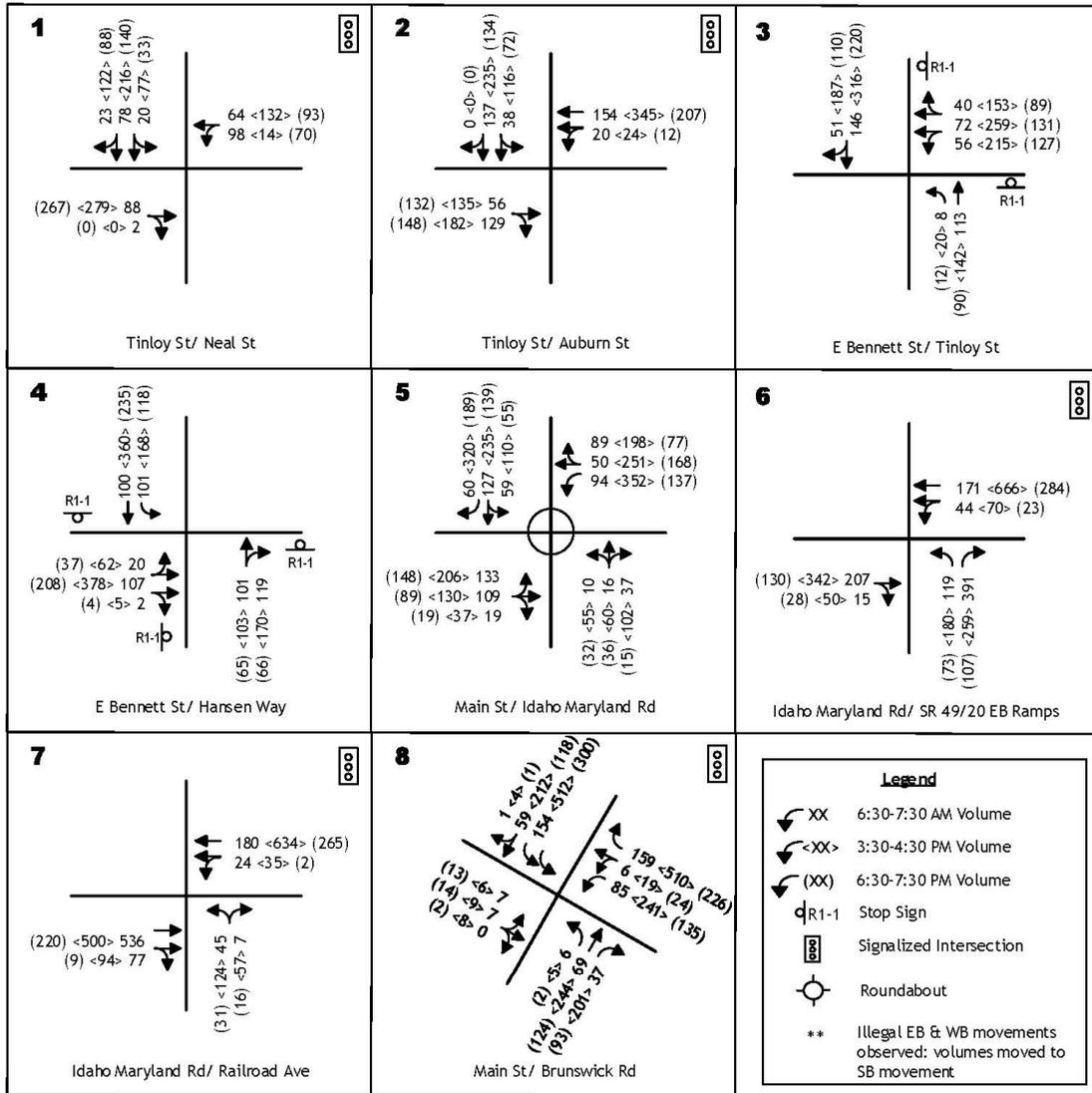
The analysis of the long range 2035 cumulative condition is intended to consider the impact of the proposed project within the context of the Nevada County region buildout projected to occur by 2035.

2035 Traffic Forecasts

Year 2035 traffic forecasts were based on the most recent NCTC regional travel demand model and includes those projects identified in the EPAP scenario and other reasonably foreseeable cumulative growth. Fehr & Peers maintains the NCTC model and provided AM, PM, and daily model volumes for the base year 2012 and the buildout year 2035. Based on direction from the Nevada County Public Works Department, the differential method was used to develop peak hour turning movements at all study intersections. The differential method adds the difference between the two model results to the existing traffic conditions. Turning movements at each intersection for the three scenarios were developed by applying the differential method with the proportional traffic rate between the off-peak scenarios and the peak hour scenarios. Figure 4.12-16 through Figure 4.12-18 display the Cumulative No Project traffic volumes at each study intersection for each of the three study time periods.



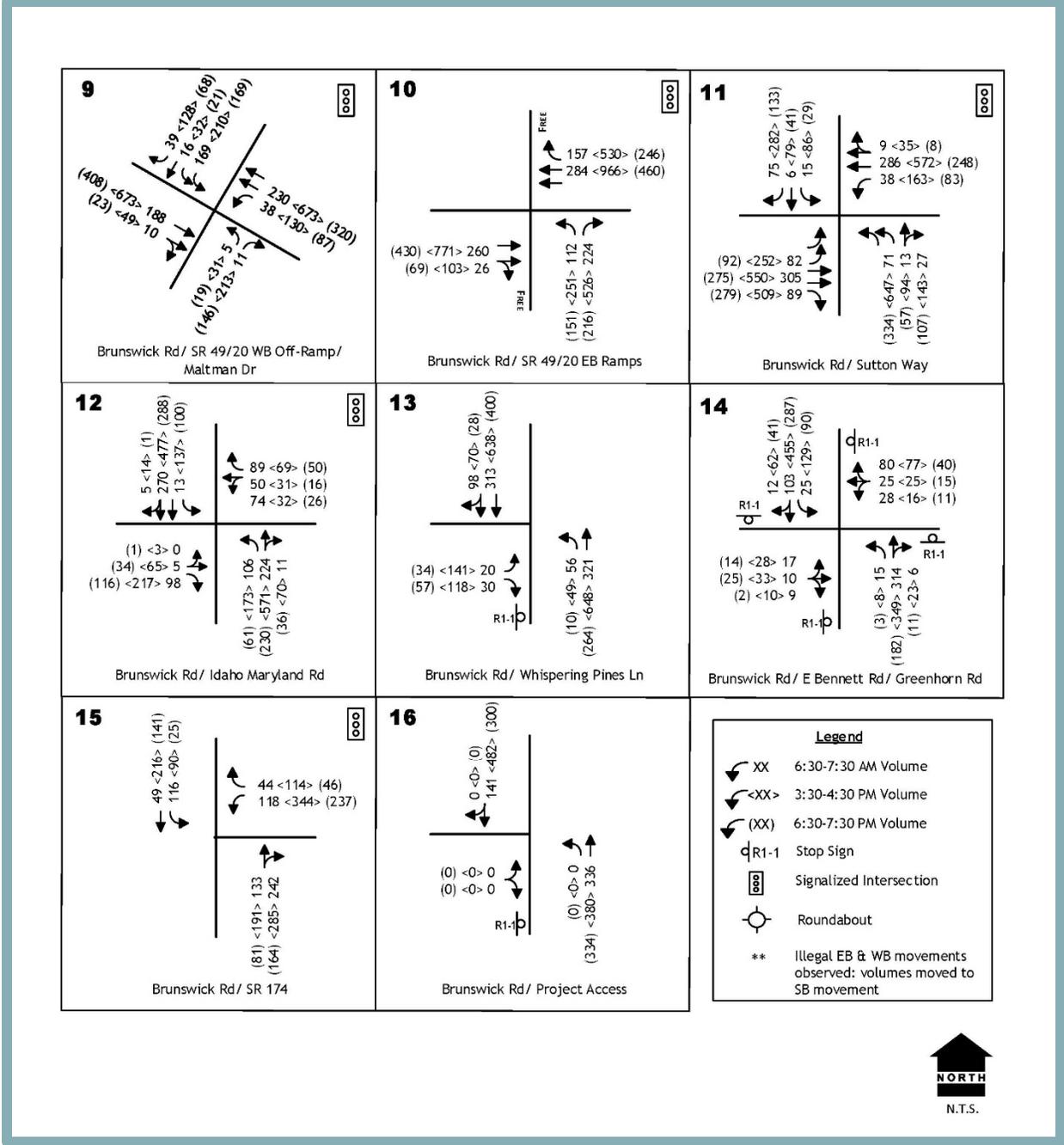
Figure 4.12-16
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – Cumulative No Project Conditions



Source: KAnderson & Associates, Inc., 2021.



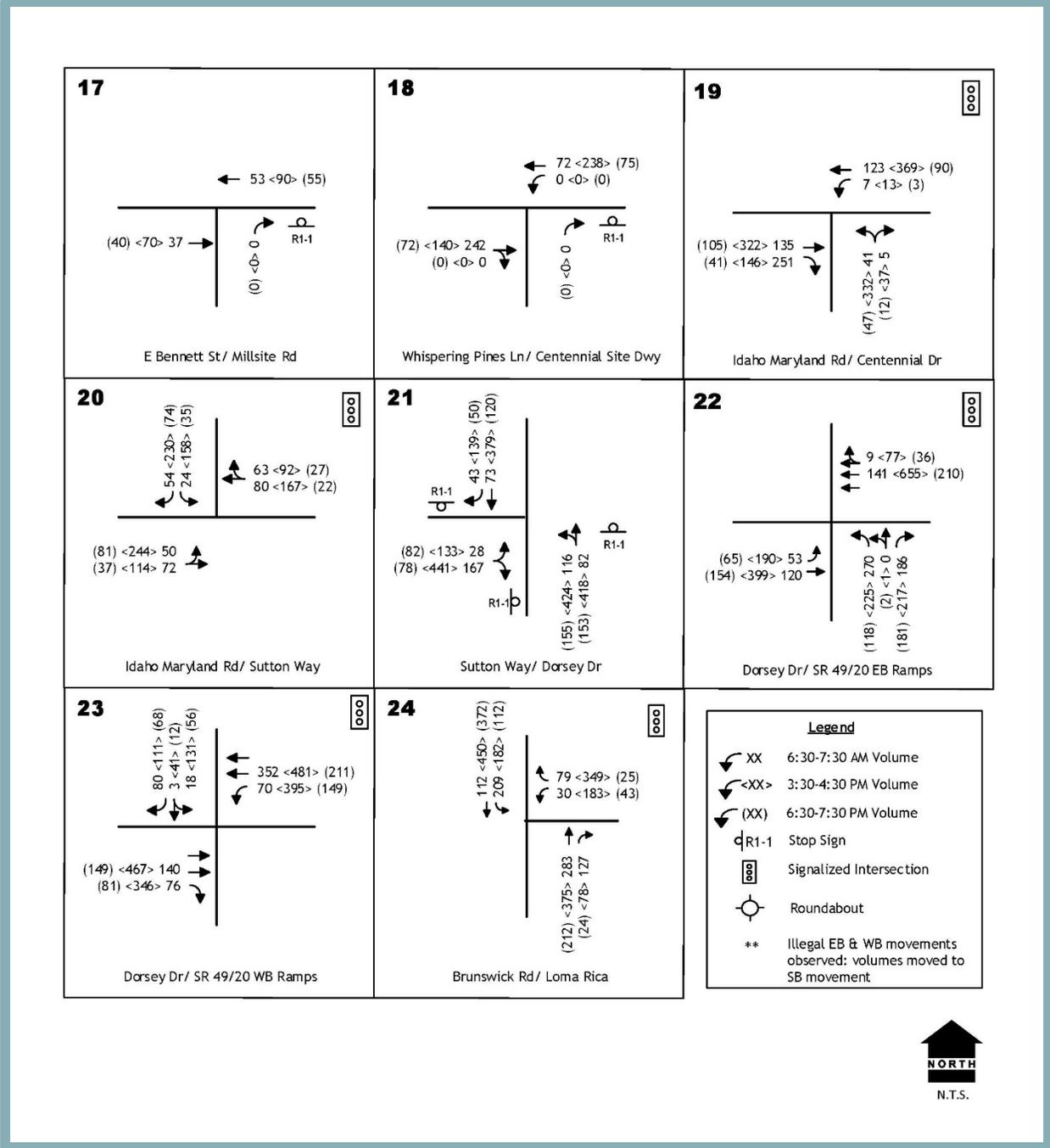
Figure 4.12-17
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – Cumulative No Project Conditions



Source: KDAnderson & Associates, Inc., 2021.



Figure 4.12-18
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – Cumulative No Project Conditions



Source: KDAAnderson & Associates, Inc., 2021.



Roadway Conditions

The roadways studied for the project are generally projected to remain with their current lane configurations in 2035. The following changes to the projected 2035 roadway network were identified based on Nevada County's, Grass Valley's, and Caltrans' project lists:

- Idaho Maryland Rd/SR 49 Ramps
 - Install traffic signal with NB overlap
- Idaho Maryland Road/Railroad Avenue
 - Install traffic signal
- Brunswick Road/Idaho Maryland Road
 - Install traffic signal, split phase on Idaho Maryland Road with EB overlap
 - Lane configuration to include:
 - EB left-through lane and right-turn lane
 - WB left-through lane and right-turn lane
 - NB left-turn lane and through-right lane
 - SB left-turn lane, through lane and through-right lane
- Idaho Maryland Road/Centennial Drive
 - Install traffic signal

Signal timing was optimized at all intersections. Other roadway improvements were identified; however, none were operational and have not been listed.

One intersection, Brunswick Road/SR 174, was previously identified to be signalized in the NCTC Regional Transportation Program (RTMF). The most recent study, the NCTC 2016 Nexus Study, removed the project from the program as the study showed acceptable intersection LOS. The Caltrans SR 174 Transportation Concept Report (TCR) continues to identify this intersection as a planned, but unfunded improvement, which could include either a traffic signal or roundabout. Based on the aforementioned data, the intersection was analyzed under current traffic operations.

Project Vehicle Miles Traveled Analysis

The NCTC TDM for 2035 conditions was used to estimate the proposed project's daily employee VMT per service population for comparison to the NCTC baseline VMT per service population. Fehr & Peers was retained to conduct model runs to develop VMT projections for the proposed project. Trip generation for the VMT analysis was based on the project building square footage and the trip generation rates contained in the TDM. An initial model run was performed to compare model trip generation to the project employee generation expected to occur. Fehr and Peers iteratively adjusted the input land use element of the model as the model initially estimated higher volumes than the project is expected to generate. Project trips were then tracked throughout the model network using a select-zone analysis. Project VMT was calculated on each link by multiplying the link distance by the number of vehicles using a particular link.

The VMT analysis incorporates Transportation Alternatives pursuant to Nevada County LUDC Sec. L-II 4.1.9. The detailed VMT analysis methodology and results are included in Appendix X to Appendix O of this EIR.

The proposed project would involve the use of heavy trucks to transport fill to the Centennial Industrial Site and to local markets via SR 49. However, as described in further detail below, an analysis of VMT from heavy truck trips is not required pursuant to SB 743 and the CEQA Guidelines and, thus, was not included in this EIR.



Section 1 of SB 743 reads:

“[w]ith the adoption of Chapter 728 of the Statutes of 2008, popularly known as the Sustainable Communities and Climate Protection Act of 2008 [SB 375], the Legislature signaled its commitment to encouraging land use and transportation planning decisions and investments that reduce vehicle miles traveled and contribute to the reductions in greenhouse gas emissions required in the California Global Warming Solutions Act of 2006 [AB 32]”

As demonstrated in the excerpt above, SB 743 directly states that the analysis of VMT is required to achieve the goals established in SB 375, which is based on the greenhouse gas (GHG) emissions goals set forth in Assembly Bill (AB) 32.

Section 1(b) of SB 375, enacted in 2008, states that:

“[i]n 2006, the Legislature passed and the Governor signed Assembly Bill 32 (Chapter 488 of the Statutes of 2006; hereafter AB 32), which requires the State of California to reduce its greenhouse gas emissions to 1990 levels no later than 2020. According to the State Air Resources Board, in 1990 greenhouse gas emissions from automobiles and light trucks were 108 million metric tons, but by 2004 these emissions had increased to 135 million metric tons.”

Likewise, Section 1(c) of SB 375 states that:

“[g]reenhouse gas emissions from automobiles and light trucks can be substantially reduced by new vehicle technology and by the increased use of low carbon fuel. However, even taking these measures into account, it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32.”

As such, SB 375 was focused on reducing GHG emissions through changing land use patterns and transportation policy in a way that reduces automobile and light truck use, rather than by reducing the use of heavy trucks for the movement of goods. Based on the above, the legislative intent of SB 743 and the associated CEQA Guidelines Section 15064.3 is to ensure that lead agencies analyze VMT for passenger car and light truck trips related to land use projects.

In December 2018, OPR issued guidance (“OPR Guidance”) on implementation of SB 743 and the related CEQA Guideline Section 14 California Code of Regulations (CCR) § 15064.3.⁸ The OPR Guidance clearly acknowledges the purpose of the VMT methodology is to reduce emission of GHG pursuant to the strategies set forth in SB 375:

“employing VMT as the metric of transportation impact statewide will help to ensure GHG reductions planned under SB 375 will be achieved through on-the-ground development, and will also play an important role in creating the additional GHG reductions needed beyond SB 375 across the State. Implementation of this change will rely, in part, on local land use decisions to reduce GHG emissions associated with the transportation sector, both at the project level, and in long-term plans (including general plans, climate action

⁸ Governor’s Office of Planning and Research. *Technical Advisory: On Evaluation Transportation Impacts in CEQA*. December 2018.



plans, specific plans, and transportation plans) and supporting sustainable community strategies developed under SB 375.” (OPR Guidance, p. 3.)

The new CEQA Guidelines Section 15064.3 does not specifically state what type of vehicles are to be include or excluded from the VMT analysis, and merely states “[f]or the purposes of this section, ‘vehicle miles traveled’ refers to the amount and distance of automobile travel attributable to a project.” (14 CCR § 15064.3(a).)

On the question of what types of vehicles are to be included in the VMT analysis, OPR stated in its 2018 Guidance that:

“[p]roposed Section 15064.3, subdivision (a), states, ‘For the purposes of this section, “vehicle miles traveled” refers to the amount and distance of automobile travel attributable to a project.’ **Here, the term ‘automobile’ refers to on-road passenger vehicles, specifically cars and light trucks.** Heavy-duty truck VMT **could** be included for modeling convenience and ease of calculation (for example, where models or data provide combined auto and heavy truck VMT).” (OPR Guidance, p. 4; Emphasis added.)

Accordingly, OPR advises that the term “automobile” was not meant to include heavy trucks, but lead agencies **could** include heavy trucks where doing so was convenient under the applicable traffic model. Additionally, the OPR Guidance addresses numerical transportation impact thresholds for a “land use project,” but then only specifically describes residential, office, and retail projects, providing further evidence that movement of goods/materials in heavy trucks was meant to be excluded from the VMT requirement. (OPR Guidance, pp. 11-16.)

Nevada County has adopted VMT traffic analysis guidelines which do not provide guidance on heavy trucks. However, other jurisdictions throughout the State have approved guidance indicating that heavy truck trucks may be excluded from VMT analysis pursuant to SB 743. For instance, the City of Irvine Traffic Study Guidelines include the following direction:

“3.1 Screening Criteria

OPR Guidance Regarding Goods Movement: Section 3 of the Guidelines for Implementation of the California Environmental Quality Act specifies that VMT to be analyzed is defined as the amount and distance of automobile travel attributable to a project. SB 743 therefore does not require the inclusion of heavy-duty truck trips, utility vehicles or other types of vehicles in the VMT analysis. In the case of trucks, the State’s strategy for the goods movement sector is not in VMT reduction, but in advances in technology (zero and near-zero emission control strategies).

City of Irvine Recommendation: VMT analysis will be performed for automobile trips only, which is consistent with State policy.”⁹

Similar language regarding excluding truck VMT from the evaluation of transportation impacts under CEQA has been incorporated into the Traffic Study Guidelines adopted by other cities, including San Marcos (July 1, 2020), Long Beach (June 2020), Clovis (July 1, 2020), San Diego (March 20, 2020), and San Mateo (July 16, 2020). In December 2020, Placer County, which neighbors Nevada County, adopted the County of Placer Transportation Study Guidelines. While the County of Placer Transportation Study Guidelines do not explicitly address the exclusion of heavy trucks for VMT analysis, County staff have indicated that Placer County concurs with the

⁹ City of Irvine. *City of Irvine Traffic Study Guidelines* [pg. 8]. April 2020.



aforementioned methodology, and would not require a project-specific analysis of heavy truck VMT.

Overall, SB 743 and the associated CEQA Guidelines Section 15064.3 were established in order to reduce statewide GHG emissions, and do not require an analysis of VMT related to heavy truck use for the movement of goods. Nevada County has not yet adopted transportation analysis guidelines for heavy trucks, but other jurisdictions in the State have supported the exclusion of heavy truck trips from VMT analysis. As such, this EIR does not include heavy truck trips associated with the transport of fill in the VMT analysis. Importantly, non-transportation effects of heavy truck VMT are evaluated where appropriate in this EIR, such as air quality and GHG emissions.

Pavement Conditions Analysis

KD Anderson performed an assessment of pavement based on Chapters 600, 610, and 630 of the *Highway Design Manual* (California Department of Transportation, 2018). As stated in the *Highway Design Manual*, pavements should be engineered to carry the truck traffic loads expected during the pavement design life. Truck traffic, which includes buses, trucks, and truck-trailers, is the primary factor affecting pavement design life and its serviceability. The methods described in the *Highway Design Manual* for evaluating impacts specify how to estimate traffic loading and pavement performance. Traffic loading is estimated by using established constants to convert truck traffic volumes into 18-kip (1 kip equals 1,000 pounds) equivalent single axle loads (ESALs).

Caltrans identifies 20- and 40-year design life periods when constructing or rehabilitating pavement. For the project analysis, a 20-year design life was used to calculate the Traffic Index (TI). The ESAL constants, as described in the *Highway Design Manual*, are presented in Table 30 of the Manual. The total projected ESALs during the pavement design life are converted into a TI (Table 31) that is used along with the characteristics of the subgrade soils (R-Value) to determine the required pavement thickness.

Truck Turn Assessment

The assessment of truck turning movements was conducted using AutoTURN software prepared by Transoft. This software implements procedures described in the American Association of State and Highway Transportation Officials (AASHTO) document *A Policy on Geometric Design of Highways and Streets*, and the *Caltrans Highway Design Manual*. The software is a CADD based program that simulates turning maneuvers for various vehicles. The program is used to define both vehicle tire tracking and trailer sweep paths in order to test design roadway features to meet minimum design vehicle constraints. A Superior Super Tag SST100 truck vehicle template was created based on information obtained for this vehicle.

The spatial database used in the analysis of all truck turning movements was based on aerial photography acquired from Google Earth, with imagery dated May 17, 2018. At each location the aerial photograph was imported into a CADD file. AutoTURN was then superimposed over each aerial photograph to simulate the projected turning paths for a STAA vehicle. The resulting paths were then reviewed to determine the ability of vehicles to complete the required movements within the identified constraints:

- Drive off of the edge of the pavement, or
- Encroach into the opposing lane.



These AutoTURN paths were then used to develop the limits of new pavement and shoulder, if needed, for each turning movement.

Independent Peer Review

TJKM was retained by Raney, under contract with Nevada County, to conduct a third-party independent peer review of the Traffic Impact Analysis prepared by KD Anderson and Associates. In general, TJKM concluded that the study followed traffic impact study guidelines established by Nevada County, the City of Grass Valley, and Caltrans. Generally, TJKM found the study to be comprehensive and accurate and indicated general agreement with the findings and recommendations of the study. Notwithstanding, several specific comments were provided by TJKM and subsequently addressed by KD Anderson in a revised report.

Project-Specific Impacts and Mitigation Measures

The proposed project impacts on the transportation system are evaluated in this section based on the thresholds of significance and methodology described above. Each impact is followed by recommended mitigation to reduce the identified impacts, if needed.

4.12-1 Conflict with a program, plan, ordinance, or policy addressing study intersections under EPAP Plus Project Conditions. Based on the analysis below, impacts to all study intersections under EPAP Plus Project Conditions would be less than significant, with the exception of the Brunswick Road/Idaho Maryland Road, Brunswick Road/SR 174, and Idaho Maryland Road/Centennial Drive intersections. With implementation of mitigation, the impacts to the Brunswick Road/Idaho Maryland Road and Idaho Maryland Road/Centennial Drive intersections would be reduced to a less-than-significant level. However, even after mitigation, the project's impact to the Brunswick Road/SR 174 intersection would be *significant and unavoidable*.

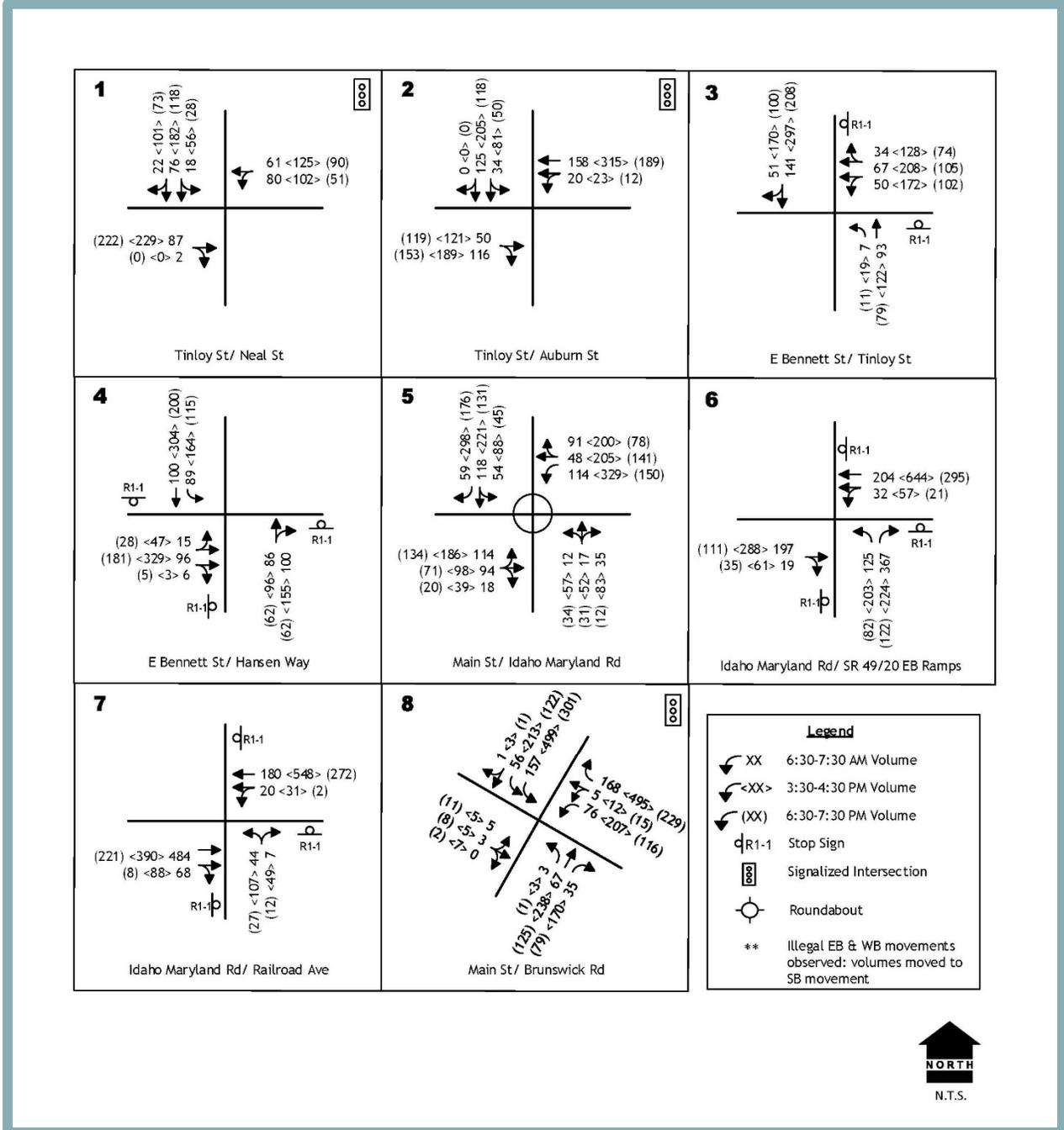
The LOS impacts of the proposed project have been identified by superimposing project traffic onto EPAP Conditions. This analysis addresses two proposed project scenarios, where Scenario #1 considers transport of engineered fill to the Centennial Industrial Site and Scenario #2 considers transport of engineered fill to construction sites accessible via SR 49. The results of the proposed project analysis of study intersections under EPAP Plus Project Conditions for the two scenarios are presented separately in detail below.

EPAP Plus Project Scenario #1

Figure 4.12-19 through Figure 4.12-21 display the EPAP Plus Project under Scenario #1 traffic volumes at each study intersection for each of the study time periods. Table 4.12-10 summarizes operating LOS at the study intersections under EPAP Conditions and Scenario #1 of EPAP Plus Project Conditions for each of the study time periods.



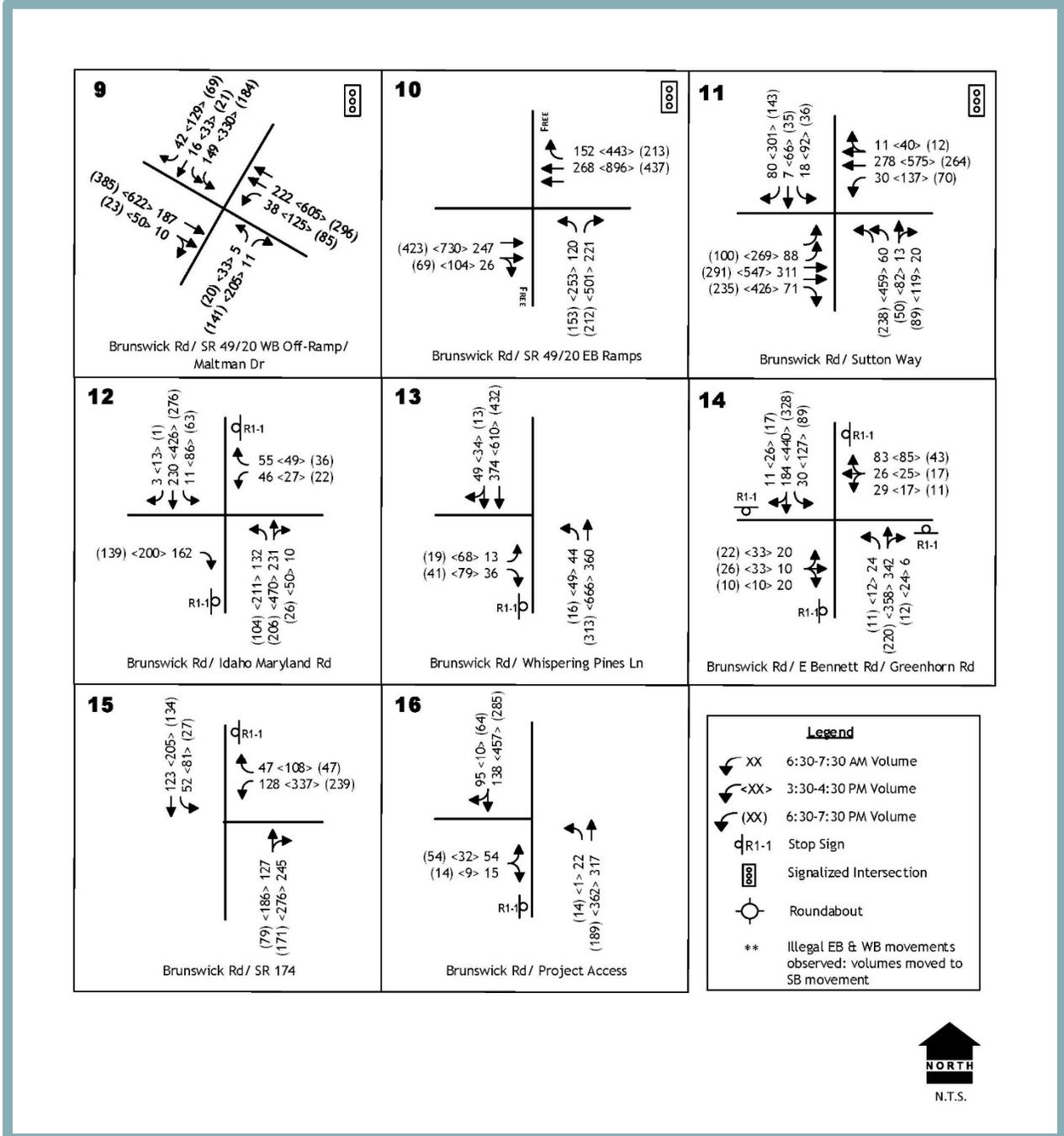
Figure 4.12-19
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – EPAP Plus Project Conditions
(Scenario #1)



Source: KDAAnderson & Associates, Inc., 2021.



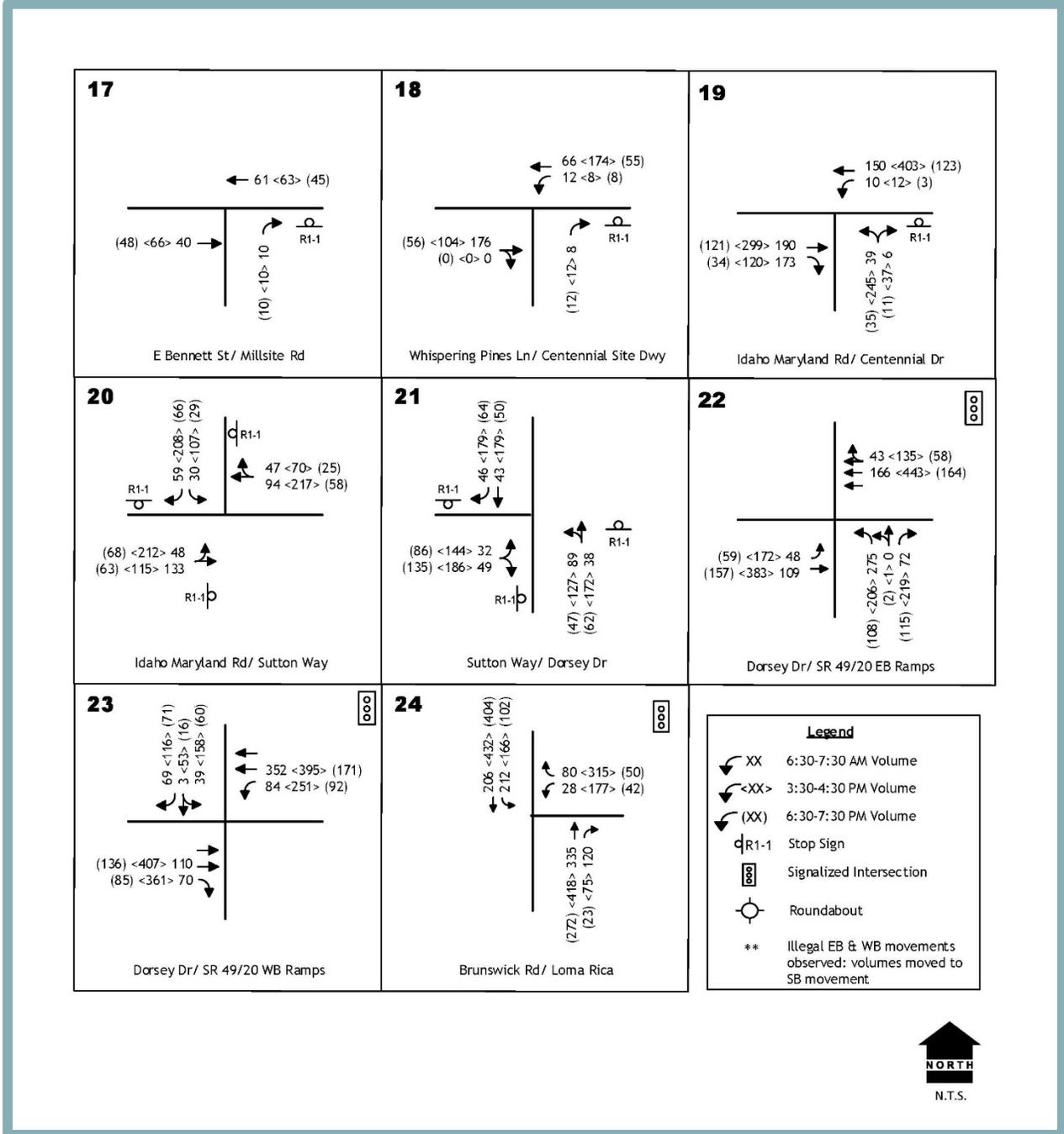
Figure 4.12-20
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – EPAP Plus Project Conditions
(Scenario #1)



Source: KAnderson & Associates, Inc., 2021.



Figure 4.12-21
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – EPAP Plus Project Conditions
(Scenario #1)



Source: KDAAnderson & Associates, Inc., 2021.



**Table 4.12-10
Project Traffic Hours Intersection LOS – EPAP Plus Project Conditions (Scenario #1)**

Location – Jurisdiction	Control	6:30 – 7:30 AM				3:30 – 4:30 PM				6:30 – 7:30 PM				Meets Traffic Signal Warrant?
		EPAP		EPAP Plus Project		EPAP		EPAP Plus Project		EPAP		EPAP Plus Project		
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	
1. Neal St/Tinloy St ‡	Signal	A	4.8	A	5.1	A	8.4	A	8.2	A	7.0	A	7.1	N/A
2. S. Auburn St/Tinloy St ‡	Signal	A	6.3	A	6.1	A	8.7	A	8.7	A	6.9	A	7.0	N/A
3. E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp ‡	SB/WB Stop	A	3.8	A	3.8	A	6.4	A	6.3	A	4.2	A	4.0	Yes*
4. E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp ‡	AWS	A	9.3	A	9.3	B	15.2	B	15.2	B	10.2	B	10.2	No
5. Main St/Idaho Maryland Rd/SR 49 WB Ramps ‡	Roundabout	A	4.7	A	4.8	A	6.8	A	7.0	A	4.4	A	4.6	N/A
6. Idaho Maryland Rd/SR 49 EB Ramps ‡	AWS	B	14.9	C	17.2	C	22.6	C	23.7	A	9.9	B	10.3	Yes*
7. Idaho Maryland Rd/Railroad Ave ‡	AWS	B	11.0	B	11.5	C	16.5	C	17.0	A	8.7	A	8.9	No
8. Main St/Brunswick Rd/W. Olympia Dr ‡	Signal	A	6.1	A	5.9	B	13.7	B	13.4	A	9.0	A	9.0	N/A
9. Brunswick Rd/SR 49 WB Off-Ramp/Maltman Dr ‡	Signal	B	15.9	B	16.8	B	19.8	B	19.8	B	16.5	B	16.9	N/A
10. Brunswick Rd/SR 49 EB Ramps ‡	Signal	A	9.1	A	8.7	B	13.5	B	13.6	A	9.0	A	8.9	N/A
11. Brunswick Rd/Sutton Way ‡	Signal	A	5.2	A	5.2	C	21.5	C	22.0	A	9.5	A	9.2	N/A
12. Brunswick Rd/Idaho Maryland Rd ‡ NB Left SB Left EB WB	EB/WB Stop	A A B C	8.0 7.8 10.4 17.9	A A B D	8.2 7.9 11.3 25.4	A A B F	9.0 8.8 14.1 83.7	A A B F	9.1 8.9 14.1 98.2	A A B C	8.0 7.9 10.7 15.3	A A B C	8.2 7.9 11.2 18.3	Yes*
13. Brunswick Rd/Whispering Pines Ln ‡ NB Left EB	EB Stop	A B	8.4 10.9	A B	8.8 11.4	A B	9.1 14.5	A B	9.1 14.8	A B	8.3 10.6	A B	8.5 11.1	Yes*
14. Brunswick Rd/E. Bennett Rd/Greenhorn Rd †	AWS	B	10.7	B	12.7	C	18.5	C	20.7	B	10.8	B	12.4	Yes*
15. Brunswick Rd/SR 174 † SB EB Left	SB Stop	B A	12.5 7.6	B A	13.0 7.7	E A	36.3 7.8	E A	38.1 7.8	B A	12.6 7.4	B A	13.0 7.4	Yes*
16. Brunswick Rd/Project Driveway † NB Left EB	EB Stop	Not Studied		A B	7.8 11.5	Not Studied		A B	8.4 12.5	Not Studied		A B	8.2 11.7	No
17. E. Bennett Rd/Millsite Rd † NB	NB Stop	Not Studied		A	8.5	Not Studied		A	8.7	Not Studied		A	8.6	No
18. Whispering Pines Ln/Centennial Industrial Site Driveway ‡ NB WB Left	NB Stop	Not Studied		A A	9.6 7.8	Not Studied		A A	9.0 7.5	Not Studied		A A	8.7 7.4	No
19. Idaho Maryland Rd/Centennial Dr ‡ NB WB Left	NB Stop	B A	11.3 8.2	B A	12.2 8.4	F A	99.8 8.5	F A	112.3 8.5	B A	10.2 7.6	B A	10.8 7.7	Yes*
20. Idaho Maryland Rd /Sutton Way ‡	AWS	A	8.1	A	8.5	B	13.9	B	14.3	A	8.1	A	8.5	No
21. Sutton Way/Dorsey Dr ‡	AWS	A	8.1	A	8.2	C	15.6	C	15.7	A	9.2	A	9.3	No
22. Dorsey Dr/SR 49 EB Ramps ‡	Signal	A	9.3	A	9.3	B	13.7	B	14.0	A	8.2	A	8.3	N/A
23. Dorsey Dr/SR 49 WB Ramps ‡	Signal	A	6.2	A	6.2	B	14.9	B	15.9	A	7.4	A	7.4	N/A
24. Brunswick Rd/Loma Rica Dr †	Signal	B	11.8	B	11.5	B	14.2	B	14.7	A	8.3	A	8.5	N/A

- AWS = all way stop
- † = Nevada County jurisdiction
- ‡ = Grass Valley jurisdiction
- **Red** indicates intersection operates below the applicable threshold of significance
- * = meets warrant in 3:30 PM hour

Source: KAnderson & Associates, Inc., 2021.



As shown in Table 4.12-10, the following three intersections are projected to operate unacceptably under EPAP Conditions (3:30-4:30 PM) and would worsen as a result of project traffic under EPAP Plus Project Scenario #1 Conditions.

12. Brunswick Road/Idaho Maryland Road
15. Brunswick Road/SR 174
19. Idaho Maryland Road/Centennial Drive

Seven intersections would meet the peak hour signal warrant under EPAP Plus Project Scenario #1 Conditions during the 3:30 to 4:30 PM project traffic hour scenario. However, only the Brunswick Road/Idaho Maryland Road intersection, the SR 174 at Brunswick Road intersection, and the Idaho Maryland Road at Centennial Drive intersection would operate below the accepted LOS D threshold.

EPAP Plus Project Scenario #2

Figure 4.12-22 through Figure 4.12-24 display the EPAP Plus Project under Scenario #2 traffic volumes at each study intersection for each of the study time periods. Table 4.12-11 summarizes operating LOS at the study intersections under EPAP Conditions and Scenario #2 of EPAP Plus Project Conditions for each of the study time periods. The conclusions for Scenario #2 are the same as Scenario #1.

As shown in the table, the following three intersections are projected to operate unacceptably under EPAP Conditions (3:30-4:30PM) and would worsen as a result of project traffic under EPAP Plus Project Scenario #2 Conditions.

12. Brunswick Road/Idaho Maryland Road
15. Brunswick Road/SR 174
19. Idaho Maryland Road/Centennial Drive

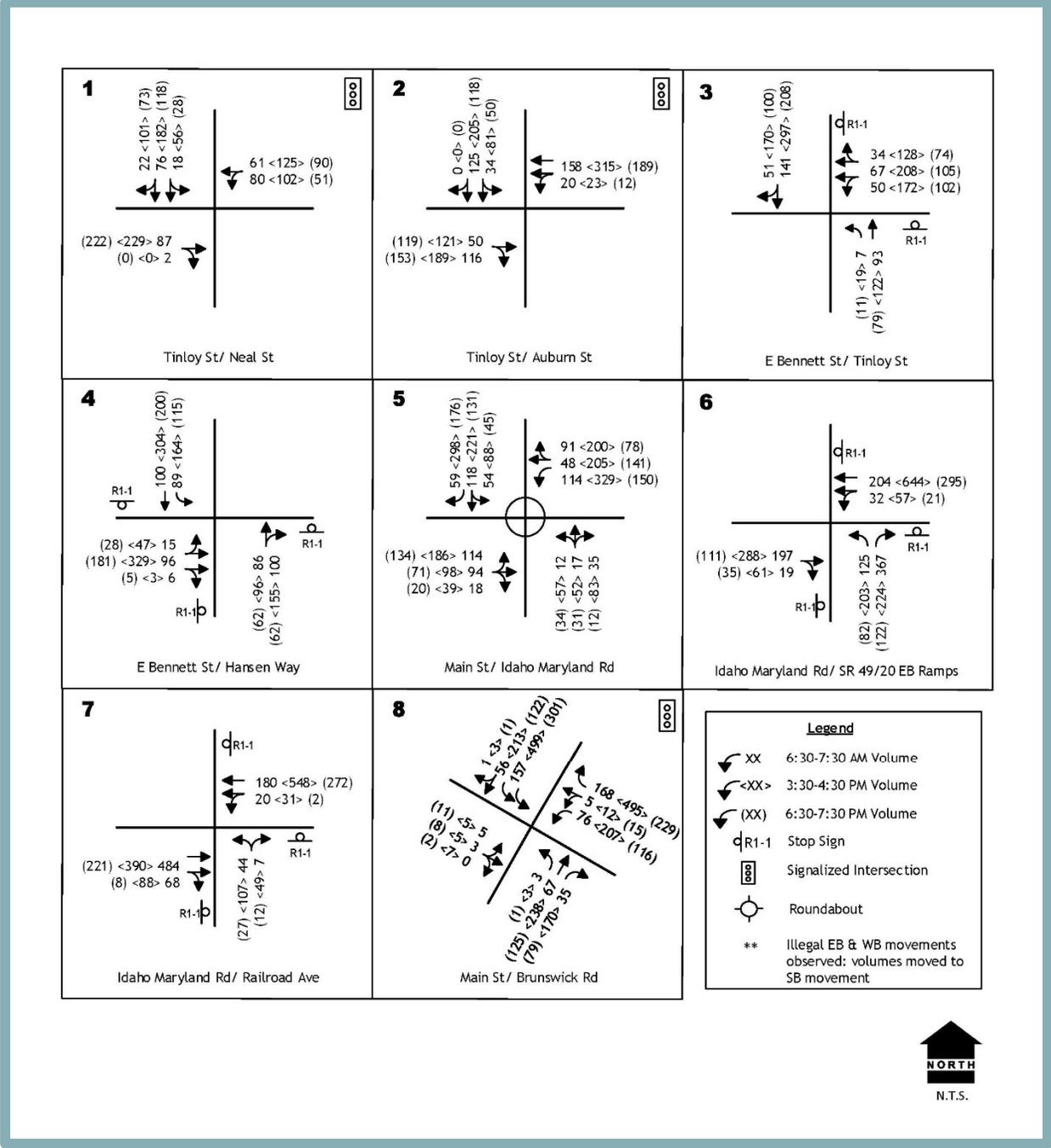
During the project hour analyses, seven intersections would meet the peak hour signal warrant; however, only the Brunswick Road/Idaho Maryland Road intersection, the SR 174 at Brunswick Road intersection, and the Idaho Maryland Road at Centennial Drive intersection would operate below the accepted LOS D threshold.

Conclusion

Based on the above, under both Scenarios #1 and #2 the proposed project would increase traffic through three intersections already identified as operating unacceptably under Existing and EPAP Conditions. Thus, a **significant** impact to the Brunswick Road/Idaho Maryland Road, Brunswick Road/SR 174, and Idaho Maryland Road/Centennial Drive intersections would occur under the EPAP Plus Project Conditions.



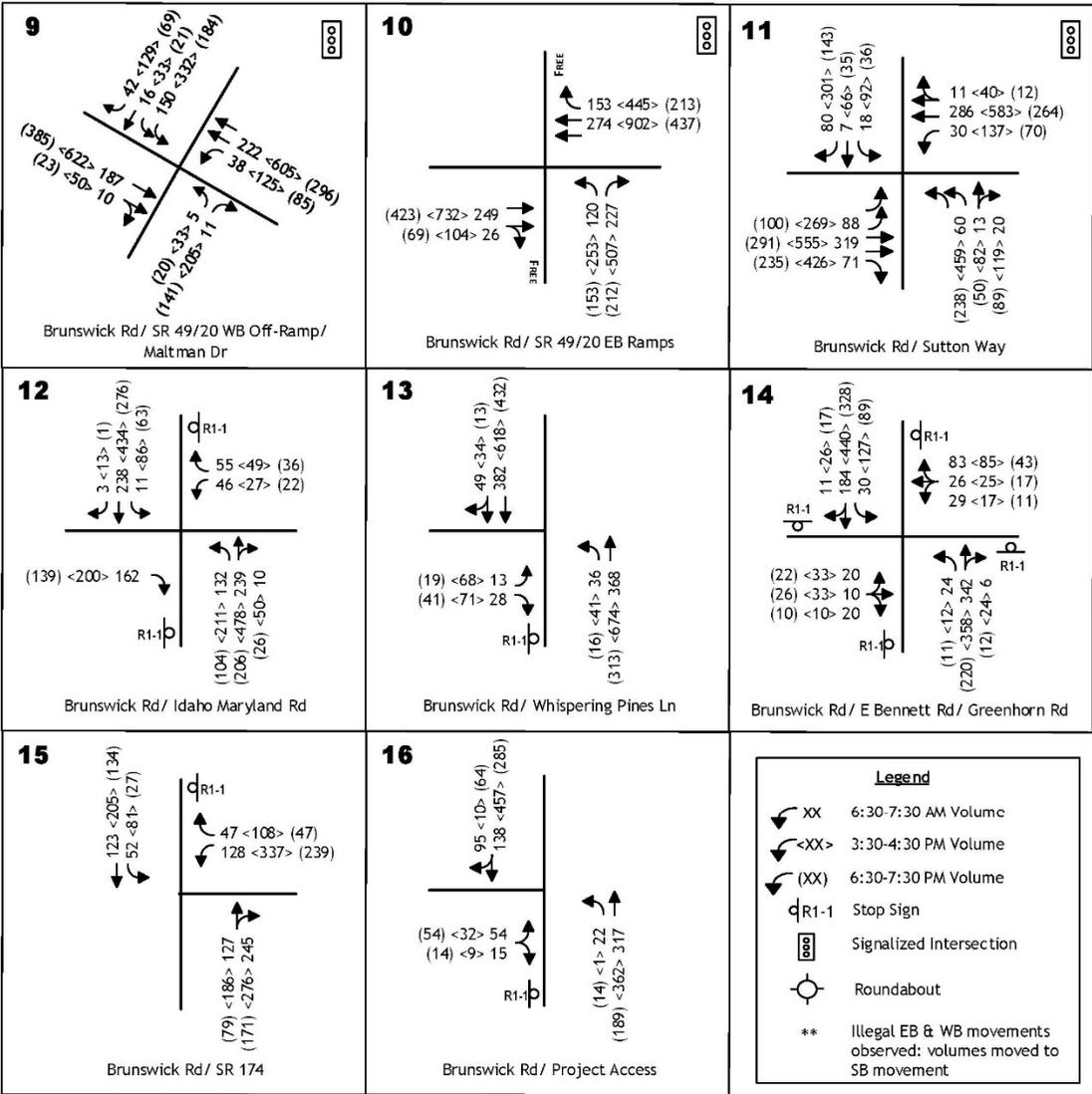
Figure 4.12-22
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – EPAP Plus Project Conditions
(Scenario #2)



Source: KAnderson & Associates, Inc., 2021.



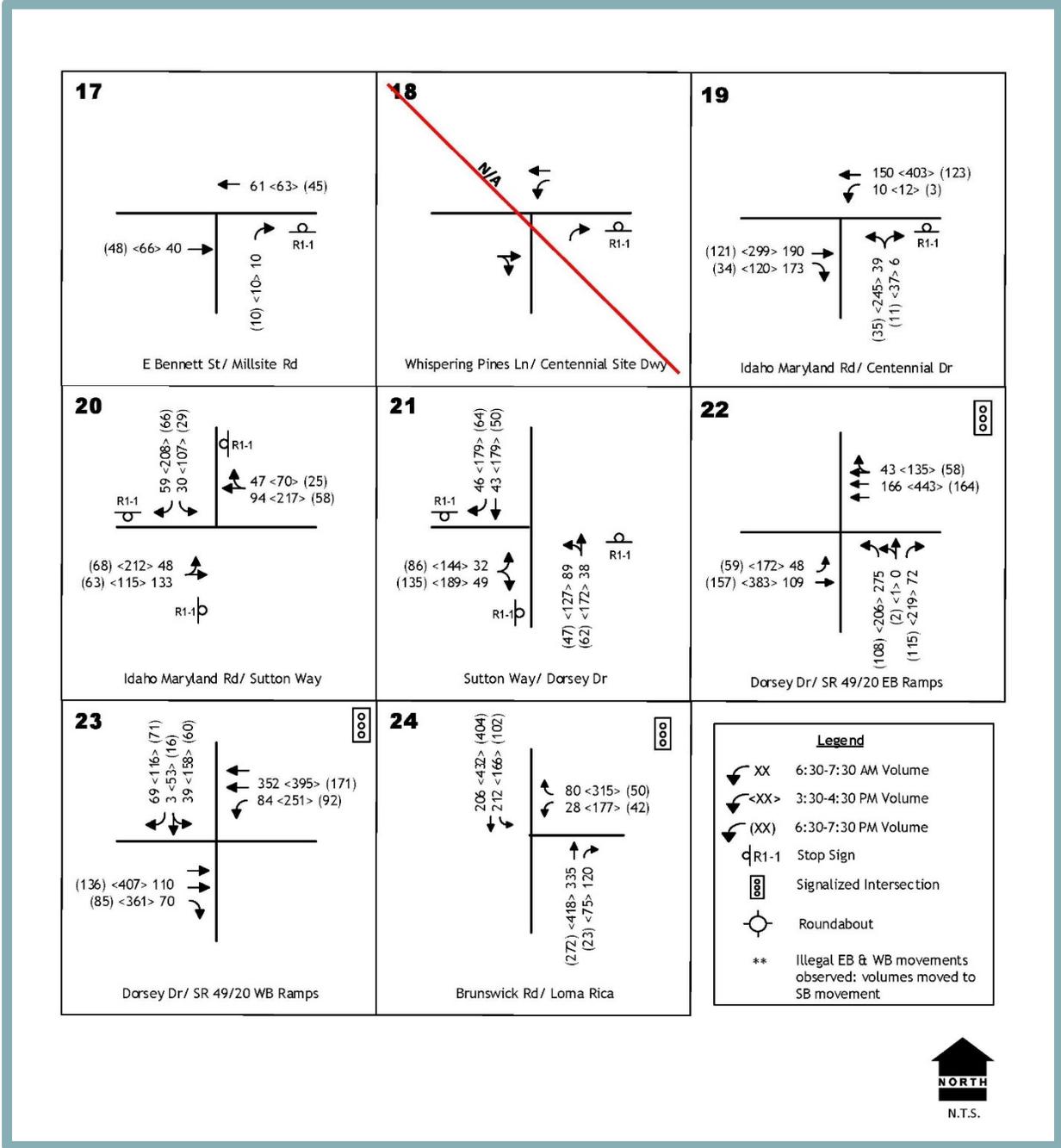
Figure 4.12-23
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – EPAP Plus Project Conditions
(Scenario #2)



Source: KDAnderson & Associates, Inc., 2021.



Figure 4.12-24
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – EPAP Plus Project Conditions
(Scenario #2)



Source: KDAAnderson & Associates, Inc., 2021.



**Table 4.12-11
Project Traffic Hours Intersection LOS – EPAP Plus Project Conditions (Scenario #2)**

Location - Jurisdiction	Control	6:30 – 7:30 AM				3:30 – 4:30 PM				6:30 – 7:30 PM				Meets Traffic Signal Warrant?
		EPAP		EPAP Plus Project		EPAP		EPAP Plus Project		EPAP		EPAP Plus Project		
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	
1. Neal St/Tinloy St ‡	Signal	A	4.8	A	5.0	A	8.4	A	8.6	A	7.0	A	6.8	N/A
2. S. Auburn St/Tinloy St ‡	Signal	A	6.3	A	6.2	A	8.7	A	8.6	A	6.9	A	7.0	N/A
3. E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp ‡	SB/WB Stop	A	3.8	A	3.8	A	6.4	A	6.4	A	4.2	A	4.1	Yes*
4. E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp ‡	AWS	A	9.3	A	9.3	B	15.2	B	15.2	B	10.2	B	10.2	No
5. Main St/Idaho Maryland Rd/SR 49 WB Ramps ‡	Roundabout	A	4.7	A	4.8	A	6.8	A	7.0	A	4.4	A	4.6	N/A
6. Idaho Maryland Rd/SR 49 EB Ramps ‡	AWS	B	14.9	C	17.2	C	22.6	C	23.7	A	9.9	B	10.3	Yes*
7. Idaho Maryland Rd/Railroad Ave ‡	AWS	B	11.0	B	11.5	C	16.5	C	17.0	A	8.7	A	8.9	No
8. Main St/Brunswick Rd/W. Olympia Dr ‡	Signal	A	6.1	A	6.1	B	13.7	B	13.5	A	9.0	A	9.0	N/A
9. Brunswick Rd/SR 49 WB Off-Ramp/Maltman Dr ‡	Signal	B	15.9	B	16.8	B	19.8	C	20.3	B	16.5	B	16.4	N/A
10. Brunswick Rd/SR 49 EB Ramps ‡	Signal	A	9.1	A	8.7	B	13.5	B	14.0	A	9.0	A	8.8	N/A
11. Brunswick Rd/Sutton Way ‡	Signal	A	5.2	A	5.3	C	21.5	C	22.1	A	9.5	A	9.6	N/A
12. Brunswick Rd/Idaho Maryland Rd ‡ NB Left SB Left EB WB	EB/WB Stop	A A B C	8.0 7.8 10.4 17.9	A A B D	8.2 7.9 11.5 26.7	A A B F	9.0 8.8 14.1 83.7	A A B F	9.2 8.9 14.3 107.3	A A B C	8.0 7.9 10.7 15.3	A A B C	8.2 7.9 11.3 18.8	Yes*
13. Brunswick Rd/Whispering Pines Ln ‡ NB Left EB	EB Stop	A B	8.4 10.9	A B	8.8 11.5	A B	9.1 14.5	A B	9.1 14.9	A B	8.3 10.6	A B	8.5 11.2	Yes*
14. Brunswick Rd/E. Bennett Rd/Greenhorn Rd †	AWS	B	10.7	B	12.7	C	18.5	C	20.7	B	10.8	B	12.4	Yes*
15. Brunswick Rd/SR 174 † SB EB Left	SB Stop	B A	12.5 7.6	B A	13.0 7.7	E A	36.3 7.8	E A	38.1 7.8	B A	12.6 7.4	B A	13.0 7.4	Yes*
16. Brunswick Rd/Project Driveway † NB Left EB	EB Stop	Not Studied		A B	7.8 11.5	Not Studied		A B	8.4 12.5	Not Studied		A B	8.2 11.7	No
17. E. Bennett Rd/Millsite Rd † NB	NB Stop	Not Studied		A	8.5	Not Studied		A	8.7	Not Studied		A	8.6	No
18. Whispering Pines Ln/Centennial Industrial Site Driveway ‡	NB Stop	Not Studied		Not Applicable		Not Studied		Not Applicable		Not Studied		Not Applicable		
19. Idaho Maryland Rd/Centennial Dr ‡ NB WB Left	NB Stop	B A	11.3 8.2	B A	12.2 8.4	F A	99.8 8.5	F A	112.3 8.5	B A	10.2 7.6	B A	10.8 7.7	Yes*
20. Idaho Maryland Rd /Sutton Way ‡	AWS	A	8.1	A	8.5	B	13.9	B	14.3	A	8.1	A	8.5	No
21. Sutton Way/Dorsey Dr ‡	AWS	A	8.1	A	8.2	C	15.6	C	15.7	A	9.2	A	9.3	No
22. Dorsey Dr/SR 49 EB Ramps ‡	Signal	A	9.3	A	9.0	B	13.7	B	13.7	A	8.2	A	8.4	N/A
23. Dorsey Dr/SR 49 WB Ramps ‡	Signal	A	6.2	A	6.1	B	14.9	B	15.6	A	7.4	A	7.3	N/A
24. Brunswick Rd/Loma Rica Dr †	Signal	B	11.8	B	11.5	B	14.2	B	14.7	A	8.3	A	8.5	N/A

- Notes:
- AWS = all way stop
 - † = Nevada County jurisdiction
 - ‡ = Grass Valley jurisdiction
 - **Red** indicates intersection operates below the applicable threshold of significance
 - * = meets warrant in 3:30 PM hour

Source: KAnderson & Associates, Inc., 2021.



Mitigation Measure(s)

The mitigation measures for the three intersections impacted by the proposed project in the EPAP scenario are discussed below.

Brunswick Road/Idaho Maryland Road

Signalization would improve the Brunswick Road/Idaho Maryland Road intersection to LOS D. This intersection is identified to be signalized in the City of Grass Valley GVTIF. Under EPAP Plus Project (Scenario #1), the project is expected to add 35 additional vehicles through the intersection during the 3:30-4:30 PM time period, and under EPAP Plus Project (Scenario #2), the project would add 47 additional vehicles. Mitigation Measure 4.12-1(a) requires the applicant to pay the GVTIF to the City of Grass Valley, given that the needed intersection improvement is included in the City's TIF. Thus, payment of the GVTIF would reduce the impact to a *less-than-significant* level.

SR 174/Brunswick Road

Signalization or a roundabout would improve the intersection to acceptable LOS conditions. Under EPAP Plus Project Scenarios #1 and #2, the project is expected to add 10 additional vehicles through the intersection during the 3:30 to 4:30 PM time period. NCTC removed this intersection from their RTMF program in their 2016 Nexus Study, while Caltrans has the intersection identified as a planned, but unfunded improvement in their SR 174 TCR. Installation of a traffic signal would improve the intersection operation to LOS B with an overall delay of 13.3 seconds per vehicle. Mitigation Measure 4.12-1(b) requires the project applicant to enter into a traffic mitigation agreement with the County and provide the project's fair share contribution toward the improvements needed to improve intersection operations to an acceptable level. Because the remaining funds for the intersection improvements are unknown, in terms of timing and contributing parties, the successful implementation of the intersection improvements is uncertain. Therefore, the project's impact to the SR 174/Brunswick Road intersection is *significant and unavoidable*.

Idaho Maryland/Centennial Drive

Signalization will improve the Idaho Maryland/Centennial Drive intersection to LOS D. This intersection is identified to be signalized in the City of Grass Valley GVTIF. Under EPAP Plus Project (Scenario #1), the project is expected to add 18 additional vehicles through the intersection during the 3:30 to 4:30 PM time period, and under EPAP Plus Project (Scenario #2), the project would add 15 additional vehicles. Mitigation Measure 4.12-1(b) requires the applicant to pay the GVTIF to the City of Grass Valley, given that the needed intersection improvement is included in the City's TIF. Thus, payment of the GVTIF would reduce the impact to a *less-than-significant* level.

4.12-1(a) *Brunswick Road/Idaho Maryland Road – Prior to issuance of building permits, the applicant shall pay the GVTIF to the City of Grass Valley. Proof of payment shall be submitted to the Nevada County Community Development Agency.*

4.12-1(b) *SR 174/Brunswick Road – The project applicant shall enter into a Traffic Mitigation Agreement with the County regarding the SR 174/Brunswick Road intersection. The Agreement shall require the*



applicant to pay the project's fair share contribution toward the improvements necessary to improve intersection operations to an acceptable level. The Agreement shall include the fair share calculations and total payment amount. Based on the Caltrans methodology to assess fair share, it is estimated that the fair share percentage is 14.9%.

4.12-1(c) *Idaho Maryland Road/Centennial Drive - Prior to issuance of building permits, the applicant shall pay the GVTIF to the City of Grass Valley. Proof of payment shall be submitted to the Nevada County Community Development Agency.*

4.12-2 Conflict with a program, plan, ordinance or policy addressing study roadway segments under EPAP Plus Project conditions. Based on the analysis below, the impact is less than significant.

As presented in the discussion below, all segments along Brunswick Road and E. Bennett Road would continue to operate at LOS D or better under EPAP Conditions, while the SR 174 segment would continue to operate at LOS E. The SR 174 segment exceeds the LOS C threshold of significance¹⁰ in both directions under EPAP Conditions.

The results of the proposed project analysis of study roadway segments under EPAP Plus Project Conditions for the two proposed project scenarios are presented separately in detail below.

EPAP Plus Project Scenario #1

Table 4.12-12 summarizes the LOS based on the EPAP Condition and EPAP Plus Project Scenario #1 Condition traffic volumes on study area roads with the existing roadway configuration. Similar to EPAP Conditions, all segments along Brunswick Road and E. Bennett Road would continue to operate acceptably at LOS D or better, while the SR 174 segment would continue to operate at LOS E, under EPAP Plus Project Scenario #1 Conditions. However, the proposed project would have a minimal effect on the projected conditions along the segment of SR 174 from Brunswick Road to Empire Street, with an increase in the PTSF from 76.9 percent to 78.2 percent in the westbound direction; the ATS would decrease by 0.1 mph, from 29.3 mph to 29.2 mph. The PTSF in the eastbound direction would remain unchanged at 59.8 percent and the ATS would decrease by 0.1 mph, from 30.3 mph to 30.2 mph.

¹⁰ Conservatively using the County's LOS C threshold for rural regions here, rather than the LOS D Caltrans threshold.



**Table 4.12-12
Roadway Segment LOS – EPAP Plus Project Conditions (Scenario #1)**

Roadway	Location	Facility Classification	ATS/PTSF/LOS	ATS/PTSF/LOS
			EPAP PM Peak Hour	EPAP Plus Project PM Peak Hour
Brunswick Road	SR 49 to Whispering Pines Ln NB SB	Class I Highway	31.5 / 76.4 / D 31.4 / 77.1 / D	31.2 / 77.1 / D 31.2 / 78.4 / D
	Whispering Pines Ln to E. Bennett Rd NB SB	Class I Highway	37.1 / 67.7 / C 36.3 / 82.9 / D	36.1 / 72.5 / D 35.5 / 83.6 / D
	E. Bennett Rd to Project Driveway NB SB	Class I Highway	35.6 / 61.7 / C 35.5 / 78.1 / C	34.9 / 68.3 / D 34.8 / 80.1 / D
	Project Driveway to SR 174 NB SB	Class I Highway	33.9 / 67.4 / C 33.2 / 80.9 / D	33.7 / 67.9 / D 33.2 / 83.9 / D
E. Bennett Rd	Project Driveway to Brunswick Rd EB WB	Class III Highway	35.0 / 36.1 / B 35.9 / 52.7 / B	36.1 / 37.6 / B 34.8 / 53.4 / B
SR 174	Brunswick Rd to Empire St EB WB	Class I Highway	30.3 / 59.8 / E 29.3 / 76.9 / E	30.2 / 59.8 / E 29.2 / 78.2 / E

Notes:

- ATS = average travel speed
- PTSF = percent time spent following
- **Bold** indicates applicable threshold of significance exceeded

Source: KDAnderson & Associates, Inc., 2021.



EPAP Plus Project Scenario #2

Table 4.12-13 summarizes the LOS based on the EPAP Condition and EPAP Plus Project Scenario #2 Condition traffic volumes on study area roads with the existing roadway configuration. Similar to EPAP Scenario #1 Conditions, all segments along Brunswick Road and E. Bennett Road would continue to operate at LOS D or better, while the SR 174 segment would continue to operate at LOS E, under EPAP Plus Project Scenario #2 Conditions. The SR 174 segment would continue to exceed the LOS C threshold of significance in both directions under EPAP Plus Project Scenario #2 Conditions. However, the proposed project would have a minimal effect on the projected conditions along the segment of SR 174 from Brunswick Road to Empire Street, with an increase in the PTSF from 76.9 percent to 78.2 percent in the westbound direction; the ATS would decrease by 0.1 mph. The PTSF in the eastbound direction would remain unchanged at 59.8 percent and the ATS would decrease by 0.1 mph.

Conclusion

Although the segment of SR 174 from Brunswick Road to Empire Street would operate unacceptably under EPAP Plus Project Conditions, the proposed project would have minimal effect on the segment from EPAP Conditions. In addition, under County Policy LU-4.16, relative to the State highway system, additional growth and development may be allowed within the County, notwithstanding any adverse impacts that may result in the short term by such growth and development. Therefore, impacts to study roadway segments under the EPAP Plus Project Condition would be considered ***less than significant***.

Mitigation Measure(s)

None required.

4.12-3 Conflict with a program, plan, ordinance or policy addressing intersection queues under the EPAP Plus Project scenario. Based on the analysis below, the impact is *less than significant*.

The results of the proposed project analysis of study intersection queue lengths under EPAP Plus Project Conditions for the two proposed project scenarios are presented separately in detail below.

EPAP Plus Project Scenario #1

Table 4.12-14 presents a comparison of EPAP Plus Project Scenario #1 to EPAP (No Project) Conditions for the project traffic hours (6:30-7:30 AM; 3:30-4:30 PM; 6:30-7:30 PM). The following intersections would have queue lengths in excess of available storage length under EPAP (No Project) Conditions, and would continue to exceed available storage length under EPAP Plus Project Scenario #1:

1. Neal St/Tinloy St EB;
2. S. Auburn St/Tinloy St NB through, SB, and WB;
6. Idaho Maryland Rd/SR 49 EB Ramps WB;
9. Brunswick Rd/SR 49 WB Off-Ramp – Maltman Dr NB right and EB;



**Table 4.12-13
Roadway Segment LOS – EPAP Plus Project Conditions (Scenario #2)**

Roadway	Location	Facility Classification	ATS/PTSF/LOS	ATS/PTSF/LOS
			EPAP PM Peak Hour	EPAP Plus Project PM Peak Hour
Brunswick Road	SR 49 to Whispering Pines Ln NB SB	Class I Highway	31.5 / 76.4 / D 31.4 / 77.1 / D	31.2 / 77.7 / D 31.1 / 78.0 / D
	Whispering Pines Ln to E. Bennett Rd NB SB	Class I Highway	37.1 / 67.7 / C 36.3 / 82.9 / D	36.1 / 72.5 / D 35.5 / 83.6 / D
	E. Bennett Rd to Project Driveway NB SB	Class I Highway	35.6 / 61.7 / C 35.5 / 78.1 / C	34.9 / 68.3 / D 34.8 / 80.1 / D
	Project Driveway to SR 174 NB SB	Class I Highway	33.9 / 67.4 / C 33.2 / 80.9 / D	33.7 / 67.9 / D 33.2 / 83.9 / D
E. Bennett Rd	Project Driveway to Brunswick Rd EB WB	Class III Highway	35.0 / 36.1 / B 35.9 / 52.7 / B	36.1 / 37.6 / B 34.8 / 53.4 / B
SR 174	Brunswick Rd to Empire St EB WB	Class I Highway	30.3 / 59.8 / E 29.3 / 76.9 / E	30.2 / 59.8 / E 29.2 / 78.2 / E
Notes: <ul style="list-style-type: none"> • ATS = average travel speed • PTSF = percent time spent following • Bold indicates applicable threshold of significance exceeded 				
Source: <i>KDAnderson & Associates, Inc., 2021.</i>				



**Table 4.12-14
EPAP Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
1. Neal St / Tinloy St							
EB	70	67	69	105	103	99	99
WB	150	86	86	139	126	95	92
2. S. Auburn St / Tinloy St							
NB through	80	78	73	115	117	78	73
NB through-left	80	55	53	76	78	53	52
SB	75	78	76	109	109	101	101
WB	95	84	85	99	99	79	75
3. E. Bennett Rd / Tinloy St – SR 49 WB Off-Ramp							
NB left turn	60	27	28	41	42	31	28
NB through	150	46	45	54	56	47	47
4. E. Bennett Rd / Hansen Way – SR 49 EB On-Ramp							
SB left turn	60	<25	<25	38	38	<25	<25
SB through	150	<25	<25	95	95	35	35
5. E. Main St / Idaho Maryland Rd - SR 49 WB Ramps							
NB	---	<25	<25	26	26	<25	<25
SB	---	<25	<25	49	51	<25	<25
EB	---	30	32	63	60	28	29
WB	---	<25	<25	53	53	26	27
6. Idaho Maryland Rd / SR 49 EB Ramps							
NB right	---	120	163	55	55	<25	<25
NB left	355	33	38	63	63	<25	<25
WB	90	30	35	203	220	33	40
7. Idaho Maryland Rd / Railroad Ave							
EB	90	75	88	80	83	<25	<25
8. E. Main St / Brunswick Rd – W. Olympia Dr							
NB left	110	<25	<25	<25	<25	<25	<25
NB right	125	43	42	119	114	60	55

(Continued on next page)



**Table 4.12-14
EPAP Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
SB left (2 lanes)	355	60	66	179	173	99	100
WB left (2 lanes)	150	45	41	90	88	61	63
WB right	150	54	57	153	148	71	72
9. Brunswick Rd / SR 49 WB Off-Ramp – Maltman Dr							
NB left	100	<25	<25	75	77	57	54
NB right	100	32	28	135	131	85	82
SB left (2 lanes)	260	117	125	191	197	136	135
SB right	260	47	50	86	79	52	55
EB	160	47	63	210	207	123	135
WB left	145	62	62	107	103	89	96
10. Brunswick Rd / SR 49 EB Ramps							
NB left	200	165	159	225	221	177	177
NB right	---	93	98	245	250	91	96
11. Brunswick Rd / Sutton Way							
NB left (2 lanes)	280	56	53	241	247	110	112
SB left	190	43	41	102	110	55	57
SB right	180	---	---	---	<25	---	---
EB left (2 lanes)	185	59	55	124	122	67	64
EB right	250	45	47	150	155	87	82
WB left	125	44	44	144	137	69	64
12. Brunswick Rd / Idaho Maryland Rd							
NB left	540	<25	<25	<25	<25	<25	<25
SB left	120	<25	<25	<25	<25	<25	<25
EB right	---	<25	25	40	40	<25	<25
WB left	60	25	40	68	73	<25	<25
13. Brunswick Rd / Whispering Pines Ln							
NB left	210	<25	<25	<25	<25	<25	<25

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**Table 4.12-14
EPAP Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
EB left	110	<25	<25	<25	<25	<25	<25
14. Brunswick Rd / E. Bennett Rd – Greenhorn Rd							
NB left	225	<25	<25	<25	<25	<25	<25
SB left	260	<25	<25	<25	<25	<25	<25
EB	---	<25	<25	<25	<25	<25	<25
WB	---	<25	<25	<25	<25	<25	<25
15. Brunswick Rd / SR 174							
SB left	90	25	30	205	215	43	48
EB left	130	<25	<25	<25	<25	<25	<25
16. Brunswick Rd / Project Driveway							
NB left	350	---	<25	---	<25	---	<25
EB	---	---	<25	---	<25	---	<25
17. E. Bennett Rd / Millsite Rd							
NB right	---	---	<25	---	<25	---	<25
18. Whispering Pines Ln / Project Driveway							
NB	---	--	<25	---	<25	---	<25
WB left	100	---	<25	---	<25	---	<25
19. Idaho Maryland Rd / Centennial Dr							
NB	---	<25	<25	315	335	<25	<25
WB left	130	<25	<25	<25	<25	<25	<25
20. Idaho Maryland Rd /Sutton Way							
SB right	90	<25	<25	45	45	<25	<25
SB left	---	<25	<25	<25	<25	<25	<25
EB	---	<25	25	98	100	<25	<25
WB	---	<25	<25	63	70	<25	<25
21. Sutton Way / Dorsey Dr							
SB right	120	<25	<25	38	38	<25	<25

(Continued on next page)



**Table 4.12-14
EPAP Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
SB thru	---	<25	<25	43	45	<25	<25
NB	---	<25	<25	98	98	<25	<25
EB	---	<25	<25	110	110	40	40
22. Dorsey Dr / SR 49 EB Ramps							
NB Left (2 lanes)	215	112	113	104	108	56	60
NB right	215	41	43	98	96	48	51
EB left	180	60	60	155	150	56	66
23. Dorsey Dr / SR 49 EB Ramps							
SB right	400	50	50	58	60	48	48
SB left-thru	400	53	52	154	165	67	68
EB right	155	36	40	199	205	41	44
WB left	180	81	81	184	183	84	82
24. Brunswick Rd / Loma Rica Dr							
NB right	410	31	31	26	26	<25	<25
SB left	400	133	146	135	135	64	68
WB left	100	32	35	160	160	35	38
Notes:							
<ul style="list-style-type: none"> Highlighted values indicate queue length in excess of available storage. Queuing distances based on stochastic modeling. * indicates longest lane for multiple turn lane approaches. 							
Source: KAnderson & Associates, Inc., 2021.							



10. Brunswick Rd/SR 49 EB Ramps NB left;
11. Brunswick Rd/Sutton Way WB left;
15. Brunswick Rd/SR 174 SB left;
23. Dorsey Dr/SR 49 EB Ramps EB right and WB left; and
24. Brunswick Rd/Loma Rica Dr WB left.

As discussed in the Methods of Analysis section above, this analysis assumes that a 25-foot segment can store one additional vehicle. Therefore, “Plus Project” queues exceeding the turn lane are assumed to have a substantial impact only if the “Plus Project” queue is greater than 25 feet of the “No Project” queue. During “Plus Project” conditions, none of the study intersections would have a storage lane length that is greater than 25 feet when compared to the “No Project” condition. The intersections of Neal Street at Tinloy Street and Tinloy Street at S. Auburn Street have queues that would continue to exceed the available storage and back up through the adjacent intersection. Similar conditions would continue to exist at the westbound approach of the Idaho Maryland Road / SR 49 EB Ramps intersection and the eastbound approach of Brunswick Road at SR 49 Westbound Off-Ramp - Maltman Drive intersection. It is assumed that one additional vehicle (25 feet) can store in the available left or right turn taper and this occurs at four locations. Consequently, none of the “Plus Project” condition queues are considered significant under EPAP Plus Project Conditions Scenario #1.

EPAP Plus Project Scenario #2

Table 4.12-15 presents a comparison of EPAP plus Project Scenario #2 to EPAP (No Project) Conditions. The following intersections would have queue lengths in excess of available storage length under EPAP (No Project) Conditions, and would continue to exceed available storage length under EPAP Plus Project Scenario #2:

1. Neal St/Tinloy St EB;
2. S. Auburn St/Tinloy St NB through, SB, and WB;
6. Idaho Maryland Rd/SR 49 EB Ramps WB;
9. Brunswick Rd/SR 49 WB Off-Ramp – Maltman Dr NB right and EB;
10. Brunswick Rd/SR 49 EB Ramps NB left;
11. Brunswick Rd/Sutton Way WB left;
15. Brunswick Rd/SR 174 SB left;
23. Dorsey Dr/SR 49 EB Ramps EB right; and
24. Brunswick Rd/Loma Rica Dr WB left.

In addition, project traffic under EPAP Scenario #2 would cause the following two additional intersections to have queue lengths in excess of available storage:

8. E. Main St/Brunswick Rd – W. Olympia Dr NB right;
12. Brunswick Rd/Idaho Maryland Rd WB left;

As presented in the Table 4.12-15, during “Plus Project” conditions, none of the study intersections would have a storage lane length that is greater than 25 feet when compared to the “No Project” condition. Consequently, none of the “Plus Project” condition queues are considered significant under EPAP Plus Project Conditions Scenario #2.



**Table 4.12-15
EPAP Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
1. Neal St / Tinloy St							
EB	70	67	66	105	103	99	94
WB	150	86	87	139	138	95	89
2. S. Auburn St / Tinloy St							
NB through	80	78	71	115	109	78	76
NB through-left	80	55	52	76	67	53	52
SB	75	78	71	109	104	101	100
WB	95	84	82	99	103	79	75
3. E. Bennett Rd / Tinloy St – SR 49 WB Off-Ramp							
NB left turn	60	27	27	41	43	31	32
NB through	150	46	45	54	56	47	45
4. E. Bennett Rd / Hansen Way – SR 49 EB On-Ramp							
SB left turn	60	<25	<25	38	38	<25	<25
SB through	150	<25	<25	95	95	35	35
5. E. Main St / Idaho Maryland Rd - SR 49 WB Ramps							
NB	---	<25	<25	26	26	<25	<25
SB	---	<25	<25	49	51	<25	<25
EB	---	30	32	63	60	28	29
WB	---	<25	<25	53	53	26	27
6. Idaho Maryland Rd / SR 49 EB Ramps							
NB right	---	120	163	55	55	<25	<25
NB left	355	33	33	63	63	<25	<25
WB	90	30	35	203	220	33	40
7. Idaho Maryland Rd / Railroad Ave							
EB	90	75	88	80	83	<25	<25
8. E. Main St / Brunswick Rd – W. Olympia Dr							
NB left	110	<25	<25	<25	<25	<25	<25
NB right	125	43	39	119	126	60	59

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**Table 4.12-15
EPAP Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
SB left (2 lanes)	355	60	64	179	177	99	99
WB left (2 lanes)	150	45	36	90	88	61	60
WB right	150	54	56	153	149	71	74
9. Brunswick Rd / SR 49 WB Off-Ramp – Maltman Dr							
NB left	100	<25	<25	75	75	57	52
NB right	100	32	28	135	129	85	83
SB left (2 lanes)	260	117	127	191	199	136	143
SB right	260	47	50	86	76	52	54
EB	160	47	56	210	204	123	128
WB left	145	62	63	107	104	89	85
10. Brunswick Rd / SR 49 EB Ramps							
NB left	200	165	160	225	226	177	172
NB right	---	93	100	245	259	91	99
11. Brunswick Rd / Sutton Way							
NB left (2 lanes)	280	56	52	241	251	110	111
SB left	190	43	41	102	105	55	56
SB right	180	---	---	---	<25	---	---
EB left (2 lanes)	185	59	60	124	128	67	63
EB right	250	45	46	150	161	87	86
WB left	125	44	45	144	147	69	67
12. Brunswick Rd / Idaho Maryland Rd							
NB left	540	<25	<25	<25	<25	<25	<25
SB left	120	<25	<25	<25	<25	<25	<25
EB right	---	<25	25	40	40	<25	<25
WB left	60	25	43	68	75	<25	<25
13. Brunswick Rd / Whispering Pines Ln							
NB left	210	<25	<25	<25	<25	<25	<25

(Continued on next page)



**Table 4.12-15
EPAP Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
EB left	110	<25	<25	<25	<25	<25	<25
14. Brunswick Rd / E. Bennett Rd – Greenhorn Rd							
NB left	225	<25	<25	<25	<25	<25	<25
SB left	260	<25	<25	<25	<25	<25	<25
EB	---	<25	<25	<25	<25	<25	<25
WB	---	<25	<25	<25	<25	<25	<25
15. Brunswick Rd / SR 174							
SB left	90	25	30	205	215	43	48
EB left	130	<25	<25	<25	<25	<25	<25
16. Brunswick Rd / Project Driveway							
NB left	350	---	<25	---	<25	---	<25
EB	---	---	<25	---	<25	---	<25
17. E. Bennett Rd / Millsite Rd							
NB right	---	---	<25	---	<25	---	<25
18. Whispering Pines Ln / Project Driveway – Not Applicable							
19. Idaho Maryland Rd / Centennial Dr							
NB	---	<25	<25	315	335	<25	<25
WB left	130	<25	<25	<25	<25	<25	<25
20. Idaho Maryland Rd / Sutton Way							
SB right	90	<25	<25	45	45	<25	<25
SB left	---	<25	<25	<25	<25	<25	<25
EB	---	<25	25	98	100	<25	<25
WB	---	<25	<25	63	70	<25	<25
21. Sutton Way / Dorsey Dr							
SB right	120	<25	<25	38	38	<25	<25
SB thru	---	<25	<25	43	45	<25	<25
NB	---	<25	<25	98	98	<25	<25

(Continued on next page)



**Table 4.12-15
EPAP Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
EB	---	<25	<25	110	110	40	40
22. Dorsey Dr / SR 49 EB Ramps							
NB Left (2 lanes)	215	112	107	104	113	56	59
NB right	215	41	41	98	99	48	54
EB left	180	60	62	155	157	56	65
23. Dorsey Dr / SR 49 EB Ramps							
SB right	400	50	50	58	57	48	49
SB left-thru	400	53	57	154	151	67	69
EB right	155	36	39	199	196	41	41
WB left	180	81	77	184	179	84	84
24. Brunswick Rd / Loma Rica Dr							
NB right	410	31	31	26	26	<25	<25
SB left	400	133	146	135	135	64	68
WB left	100	32	35	160	160	35	38
Notes:							
<ul style="list-style-type: none"> • Highlighted values indicate queue length in excess of available storage. • Queuing distances based on stochastic modeling. • * indicates longest lane for multiple turn lane approaches. 							
Source: KAnderson & Associates, Inc., 2021.							



Conclusion

Although the proposed project could result in longer queue lengths at several study intersections, queue lengths in excess of 25 feet from “No Project” conditions would not occur. Therefore, impacts to study intersection queues under the EPAP Plus Project Conditions would be considered ***less than significant***.

Mitigation Measure(s)

None required.

4.12-4 Conflict with a program, plan, ordinance or policy addressing transit, bicycle, and pedestrian facilities. Based on the analysis below, the impact is *less than significant*.

As noted previously, minimal sidewalks exist near the Brunswick Industrial Site and the Centennial Industrial Site, with only a discontinuous sidewalk along the northern portion of Idaho Maryland Road near the Centennial Industrial Site being present. In addition, according to the Nevada County Bicycle Master Plan,¹¹ Idaho Maryland Road near the Centennial Industrial Site, specifically from E. Main Street to Sutton Way, is identified as being an existing Class II bike lane.¹² Although a wide shoulder is provided along a portion of Idaho Maryland Road north of the Centennial Industrial Site, the shoulder is not marked as a bike lane. The Nevada County Bicycle Master Plan identifies the remainder of Idaho Maryland Road from Sutton Way to Brunswick Road for a proposed Class II bike lane. The proposed project would not involve any truck trips along Idaho Maryland Road and thus, would not have the potential to conflict with any existing conditions or plans related to bicycle or pedestrian facilities along Idaho Maryland Road.

Whispering Pines Lane, which would provide access to the Centennial Industrial Site, has a wide shoulder that is not marked as a bike lane. The proposed haul truck trips from the Brunswick Industrial Site to the Centennial Industrial Site would involve travel along Brunswick Road and Whispering Pines Lane. The proposed project would involve widening of Whispering Pines Lane near the Centennial Industrial Site, which would include a provision of a bicycle lane. The proposed bicycle lane would provide a safe route and access to the area for bicyclists currently using the existing shoulder along Whispering Pines Lane for bicycle travel.

Marked bicycle facilities do not exist near the Brunswick Industrial Site. The NCTC's Active Transportation Plan identifies Brunswick Road from Idaho Maryland Road south to Loma Rica Drive as a proposed Class II bike lane, and then as a Class III¹³ with

¹¹ Fehr & Peers. *Nevada County Bicycle Master Plan Amendment 1*. December 2016.

¹² A Class II Bike Lane provides a striped and stenciled lane for one way travel on a street or highway. Bike lane minimum widths are: four feet without gutter where parking is prohibited, five feet with gutter where parking is prohibited and five feet where parking is permitted.

¹³ A Class III Bike Route provides for shared use with pedestrian or motor vehicle traffic and is identified by items including signage and shared roadway bicycle markings, also known as “sharrows.” These markings provide increased awareness of cyclists to motorists, and may guide cyclists to ride to the left of roadside hazards like parked vehicle “door zones.” A Class III Bike Route with Multi-Use Shoulder provides a striped shoulder of variable width. This facility is used when jurisdictions wish to maximize road space for bicycles but do not have sufficient right-of-way to meet minimum requirements for Class II bike lanes. Class III Bike Routes with Multi-Use Shoulder are common in mountainous areas similar to rural Nevada County.



multi-use shoulder facility from Loma Rica Drive south to SR 174, and along both directions of SR 174.¹⁴ While the proposed project would involve haul truck trips from the Brunswick Industrial Site to the Centennial Industrial Site along Brunswick Road, this road already carries regular truck traffic and the project's incremental contribution of truck traffic would only add, on average, 1.2 round trips every 10 minutes. Thus, although additional traffic would be added to the roadway, the proposed project would not involve any improvements or operations that would conflict with any plans related to bicycle or pedestrian facilities along Brunswick Road.

For those employees who would like to bike to the Brunswick Industrial Site using the future Class III bike route with multi-use shoulder along Brunswick Road, the proposed project would include an area for bicycle racks at the Brunswick Industrial Site, which would provide a minimum of 11 racks (44 bicycle spaces).

It is noted that the City of Grass Valley Parks and Recreation Master Plan (2001), as well as other subsequent City planning efforts, identify a potential trail along Wolf Creek, including the portion traversing the northern edge of the Centennial Industrial Site. As the proposed placement of fill at the Centennial Industrial Site avoids Wolf Creek and its riparian habitat, the project would not preclude potential placement of a trail along Wolf Creek should the City pursue such an effort in the future.

The project is not currently served by transit and the Nevada County Transit Services Division does not have any plans to bring service to the project area. Currently, the nearest bus route to the Brunswick Industrial Site is Route #3, the Grass Valley Loma Rica Loop route, which operates between the Tinloy Street/Bank Street Transit Center and the Nevada County Airport. Route #3 passes within 0.5-mile of the Brunswick Industrial Site and directly by the Centennial Industrial Site. Due to the nature of the proposed project, the proposed project would not involve any improvements or operations that would conflict with any existing conditions or plans associated with transit facilities in the area.

Overall, the proposed project would not conflict with a program, plan, ordinance or policy addressing transit, bicycle, and pedestrian facilities, and impacts would be ***less than significant***.

Mitigation Measure(s)

None required.

4.12-5 Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). Based on the analysis below, the impact is *less than significant*.

Because the proposed project is an industrial land use project, the County determined that the preferred significance threshold metric shall be VMT per worker (i.e., project employee). The Grass Valley subarea was used as the basis due to the project's proximity to the City. As shown in Table 4.12-4, the Grass Valley subarea has an associated home-based VMT per worker of 18.6. As shown in Table 4.12-16 on a per

¹⁴ Fehr & Peers. *Nevada County Active Transportation Plan*. July 2019, Figure 33.



worker basis, the proposed project is modeled to generate a daily rate per employee of 13.9 VMT (under 2035 Plus Project Conditions), which is more than 14.3 percent below the Grass Valley area metric of 18.6 VMT per worker. Therefore, the proposed project would result in a reduced VMT per service population for the applicable subarea.

Table 4.12-16	
Rise Grass Valley Project Generated VMT Summary	
Metric	2035 Future Year
Total Daily Project VMT	1,538
Maximum Employees on Site (including Centennial employees)	111
Daily VMT per Employee	13.9

Source: Fehr & Peers, 2020.

In addition, because the proposed project is anticipated to employ approximately 312 direct employees during full operations, pursuant to Section L-II 4.1.9 of the Nevada County LUDC, the project applicant would be required to submit a detailed analysis of transportation alternatives, documenting feasible measures for reducing auto dependence.

Although the overall project site is not currently served by transit and the Nevada County Transit Services Division does not have plans to bring service to the project area, the nearest bus route to either the Brunswick Industrial Site or Centennial Industrial Site is Route #3, which operates between the Tinloy Street/Bank Street Transit Center and the Nevada County Airport and passes directly by the Centennial Industrial Site. The proposed project would incorporate an area for bicycle racks at the Brunswick Industrial Site, which would provide a minimum of 11 racks (44 bicycle spaces). Pursuant to Nevada County LUDC, additional potential transportation reduction alternatives for the proposed project were identified in the Traffic Impact Analysis prepared for the proposed project, based on the Transportation Demand Management strategies included in the Vehicle Miles Traveled Implementation report prepared by Fehr & Peers for the NCTC, and include the following:

- **Commute Trip Reduction, #3.4.11, TRT-11: Provide Employer-Sponsored Vanpool/Shuttle:** This strategy would make a company sponsored vanpool/shuttle available to allow employees to commute in a single vehicle. Because employees of the proposed project are likely to be coming from throughout the area, the use of specific locations for pick up, such as existing Park-and-Ride lots in the County, would facilitate the reduction of commute vehicles.

The proposed project could also institute a shuttle service between the project site(s) and the Tinloy Street/Bank Street Transit Center to provide a convenient location for employees to transfer from public transit or to be dropped off. A shuttle could operate several times each day, during the 7:00 AM and 7:00 PM shift changes and at the end of the administrative workday, after 3:30 PM.

- **Commute Trip Reduction, #3.4.3, TRT-3: Provide Ride-Sharing Programs:** This strategy involves the employer providing ride-share coordination and parking facilities to provide information for employees to ride share to and from work. This



strategy is intended to match employees by location resulting in a reduction of commute vehicles. Rideshare activities would provide incentives for employees commuting to and from the site. Ridesharing could be coordinated between employees along a similar route from their residence to the work site. The use of existing Park-and-Ride lots may provide a location for employees to meet and commute together, reducing the number of vehicles in the roadway network. Three Caltrans Park-and-Ride locations exist in Nevada County, two in Penn Valley and one in Grass Valley; all are located along SR 20. A Park-and-Ride location also exists in Auburn for employees commuting along SR 49 from Placer County. Incentives may include the use of high-occupancy vehicle (HOV) lanes, less maintenance on a single vehicle due to reduced use, and cost sharing between employees/employer.

Given that the proposed project would result in a VMT per worker ratio that is greater than 14.3 percent below the subarea mean for the Grass Valley subarea of 18.6, impacts associated with a conflict or being inconsistent with CEQA Guidelines section 15064.3, subdivision (b), would be ***less than significant***.

Mitigation Measure(s)

None required.

4.12-6 Substantially increase hazards to vehicle safety due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Potential impacts related to construction traffic, roadway design features, and incompatible uses are discussed below.

Construction Traffic

Construction activities of the proposed project would generate vehicle trips on local roadways, including heavy-duty truck trips. In addition, the project would include widening of Whispering Pines Lane and construction of a potable water pipeline to supply residences along a portion of E. Bennett Road, which could temporarily impede traffic. As a result, construction activities could include disruptions to the transportation network near the project site, including the possibility of temporary lane closures.

Nonetheless, construction workers typically arrive before the morning peak hour and leave before the evening peak hours of the traditional commute time periods. Deliveries of building material would also normally occur outside of the traditional commute time periods. However, without proper planning of construction activities, construction traffic and potential street closures could interfere with existing roadway operations during the construction phase.

Roadway Design Features and Incompatible Uses

Due to the nature of the project, a number of potential issues related to roadway design features and incompatible uses could occur as a result of implementation of the



proposed project, including the adequacy of pavement conditions for truck traffic, routes to handle truck turning movements, sight distance along proposed haul routes, and acceleration of trucks on grade. Each of the potential issues is discussed in further detail below.

Pavement Conditions

Truck traffic is the primary factor affecting pavement design life and is, therefore, used to engineer pavement thickness. Passenger cars and pick-up trucks are considered to have a negligible impact when considering traffic loads. Traffic loads are transmitted to the pavement surface from the vehicle axles, and the loading is determined by using established constants to convert truck data into 18,000-pound ESAL. The ESAL's are converted into a Traffic Index value (TI), which is then used to calculate the minimum pavement thickness. An increase in the TI as a result of a new project creates a corresponding decrease in the expected life of the existing pavement. Therefore, if the TI value for conditions with the proposed project is higher than the TI value without the project, a project-related decrease in the expected life of the pavement would occur and is considered an adverse impact.

A pavement condition analysis was conducted as part of the Traffic Impact Analysis prepared for the proposed project in order to assess the impact of the project on the roadway pavement where engineered fill haul trucks and other trucks, such as deliveries and concentrate shipments, are expected to travel. Pavement impacts were analyzed based on a comparison of the TI under Plus Project and No Project conditions. Caltrans identifies 20- and 40-year design life periods when constructing or rehabilitating pavement. For this analysis, a 20-year design life was used to calculate the TI. Vehicle classification counts were conducted along Brunswick Road, E. Bennett Road, and Whispering Pines Lane during the week of September 23, 2019, while school was in session to determine the existing daily truck volumes. The classification count provided a breakdown, by direction and axle, of the types of trucks along each of the roadways. The impact of the proposed project on pavement condition was analyzed for the following roadways, which includes the Centennial Industrial Site haul route for five of the 20 years and the SR 49 haul route for 15 of the 20 years:

- Brunswick Road between E. Bennett Road and Project Driveway;
- Brunswick Road between E. Bennett Road and Whispering Pines Lane;
- Brunswick Road between SR 49 and Whispering Pines Lane;
- E. Bennett Road between Project Driveway and Brunswick Road;
- Whispering Pines Lane between Brunswick Road and Crown Point Circle; and
- Whispering Pines Lane between Crown Point Circle and the Centennial Industrial Site.

Table 4.12-17 presents a breakdown of the existing average daily traffic conditions along the roadway segments including the vehicle classification in each direction along the roadway, and the truck type, by axle.



Table 4.12-17 Average Daily Traffic/Truck Classification					
Location	Daily Traffic	2-Axle Volume	3-Axle Volume	4-Axle Volume	5+ Axle Volume
Brunswick Road					
102 North of Whispering Pines Ln					
NB	6,185	313	0	28	4
SB	6,109	297	0	24	3
105 Whispering Pines Ln to E. Bennett Rd					
NB	7,752	703	50	31	31
SB	7,614	534	50	26	14
107 E. Bennett Rd to Project Driveway					
NB	4,680	319	13	12	7
SB	4,752	170	13	7	14
E. Bennett Rd					
106 Millsite Rd to Brunswick Rd					
EB	721	50	4	1	2
WB	763	57	4	1	0
Whispering Pines Lane					
104 Brunswick Rd to Crown Point Cir					
EB	1,339	84	12	3	5
WB	1,136	100	12	3	2
103 Crown Point Cir to Centennial Site					
EB	1,608	61	11	2	2
WB	1,744	51	11	4	4
Source: KDAnderson & Associates, Inc., 2021.					

Based on the Traffic Impact Analysis, implementation of the proposed project would result in an increase in the TI value on the following roadway segments:

- To Centennial Industrial Site Haul Route
 - Brunswick Road northbound between E. Bennett Road and Whispering Pines Lane;
 - E. Bennett Road between Project Driveway and Brunswick Road (eastbound)
- To SR 49 Haul Route
 - Brunswick Road northbound between E. Bennett Road and Whispering Pines Lane;
 - Brunswick Road northbound between Whispering Pines Lane and SR 49;
 - E. Bennett Road between Project Driveway and Brunswick Road (eastbound)

Because the design pavement thickness depends on the projected TI, the additional project truck traffic would result in a shorter lifespan of the pavement or increased maintenance at the above roadway segments.

Truck Turning Movements

The Traffic Impact Analysis included an assessment of the adequacy of routes to and from the Brunswick Industrial Site on Brunswick Road, specifically to determine



whether key intersections along each route, as currently configured, would be capable of accommodating the proposed haul trucks and to identify the approximate level of roadway widening improvements that may be necessary to allow haul truck movements. The haul trucks that would be used for the proposed project would be single unit, four-axle Superior Super Tag SST100 trucks.

It is important to note that the City of Grass Valley has no designated truck routes within the Grass Valley City limits, although trucks are prohibited on East Maryland Drive.¹⁵ Similarly, the Nevada County General Plan does not identify specific truck routes within unincorporated Nevada County.

Haul truck traffic to and from the Brunswick Industrial Site would consist of inbound and outbound routes to both the Centennial Industrial Site and to the SR 49/Brunswick Road interchange. The following five intersections along the haul truck routes were analyzed:

- **Brunswick Industrial Site Driveway:** This entrance would be used for haul trucks entering the Brunswick Industrial Site from the north and would include right turning traffic into the site.
- **Millsite Road/E. Bennett Road Exit:** This location would be used only for haul trucks departing the Brunswick Industrial Site and heading to either the Centennial Industrial Site or SR 49 and would include right turning traffic departing the site.
- **Brunswick Road/E. Bennett Road/Greenhorn Road:** This location includes southbound through traffic and eastbound to northbound left turning traffic. The analysis only considered the turning movement.
- **Brunswick Road/Whispering Pines Lane:** This location includes northbound to westbound traffic heading to the Centennial Industrial Site and eastbound to southbound traffic heading from the Centennial Industrial Site. Truck traffic would also use this intersection heading to SR 49; however, the through movements were not analyzed.
- **Centennial Industrial Site Driveway.** This location includes westbound left-turn movements into the proposed Centennial Industrial Site driveway and northbound right-turn movements departing the driveway.

The results of the truck turn assessment for each of the intersections analyzed are presented below.

Brunswick Industrial Site Driveway

Trucks would approach the project driveway from the north, from either SR 49 or the Centennial Industrial Site. The truck turn assessment shows that the trucks would be able to enter the wide driveway unimpeded, while allowing any outbound vehicles to queue adjacent to the inbound movements.

¹⁵ City of Grass Valley. *City of Grass Valley 2020 General Plan* [pg. 4-4]. Adopted November 1999 [Updates through 2014].



Millsite Road/E. Bennett Road Exit

The truck turn assessment considered the existing gravel road as well as a former road looping around the mine shaft. Because the road allows departing trucks to approach E. Bennett Road at a 90-degree angle, the road is proposed to be used, as visibility is maximized for departing drivers. Based on the truck turn assessment, the intersection would require new pavement along the Millsite Road approach.

Brunswick Road/E. Bennett Road/Greenhorn Road

The truck turn assessment determined that the trucks leaving the Brunswick Industrial Site and heading north on Brunswick Road to either the Centennial Industrial Site or SR 49 could complete the left-turn without entering the southbound left-turn lane. Additionally, the vehicle envelope would remain on the roadway along northbound Brunswick Road.

Brunswick Road/Whispering Pines Lane

The truck turn assessment determined that northbound to westbound movements could be completed without entering the eastbound left-turn lane or the westbound shoulder. The assessment also indicates that the eastbound to southbound right-turn would be completed with trucks able to complete the right turn while staying within the eastbound approach and the outside departure lane along Brunswick Road. The truck wheels are not anticipated to overtop the curb in the southwest quadrant of the intersection.

Centennial Industrial Site Driveway

The existing center median east of the project frontage along Whispering Pines Lane ends about 60 feet east of the property. The east end of the property is the approximate location where the full width roadway section ends, and a two-way roadway begins and continues to Idaho Maryland Road. To provide access to the Centennial Industrial Site, widening of the south side of Whispering Pines Lane is proposed. Whispering Pines Lane would be widened to provide a 12-foot, two-way, left-turn lane, a 12-foot travel lane, and a six-foot bicycle lane. The proposed layout would allow an area for haul trucks to queue while waiting to enter the site. The truck turn assessment determined that inbound and outbound trucks could turn simultaneously without interfering with the opposing vehicle.

Sight Distance

A sight distance analysis was completed as part of the Traffic Impact Analysis for several locations along the proposed haul routes, including the Brunswick Road driveway, the Millsite Road driveway, the Centennial Industrial Site driveway, and the Brunswick Road/Whispering Pines Lane intersection, in order to determine consistency with available sight distance standards. Available sight distance was evaluated using the standards documented in the Caltrans *Highway Design Manual*. Based on the locations of the driveways, the Minimum Stopping Sight Distance (MSSD) and Corner Sight Distance (CSD) was considered. The *Highway Design Manual* notes that the MSSD criterion is used for CSD evaluation at driveways.



The results of the sight distance analysis for each of the locations evaluated are presented below.

Brunswick Road Driveway

The posted speed limit along Brunswick Road is 50 mph. Considering CSD requirements, the corresponding minimum sight distance standard for this speed is 700 feet for left turning vehicles and 775 feet for right turning vehicles. Considering MSSD for driveways, 430 feet would be needed. According to the sight distance analysis, the line of sight looking north would be 800 feet and the line of sight looking south would be 750 feet. Thus, the sight line in both directions meet the applicable CSD requirements. Any landscaping material over two feet in height inside the sight line should be removed.

Millsite Road Driveway

The posted speed limit along E. Bennett Road is 35 mph. Considering CSD requirements, the corresponding minimum sight distance standard for this speed is 540 feet. The sight line was reviewed for eastbound traffic, as this access would be restricted to right-turning movements. Considering MSSD for driveways, 250 feet would be needed. According to the sight distance analysis, the line of sight looking west would be 580 feet, which meets the CSD requirement. Any proposed landscaping material over two feet in height inside the sight line should be removed.

Centennial Industrial Site driveway

The posted speed limit along Whispering Pines Lane and Centennial Drive is 30 mph. However, traffic heading south on Centennial Drive is required to make a 90-degree turn to the east onto Brunswick Road. Warning signs along Centennial Drive note that truck traffic is present on the road and a left-turn sign with a suggested speed of 15 mph is present just prior to the 90-degree turn. The sight line was reviewed for eastbound traffic, as haul trucks leaving the site would head east back to the Brunswick Industrial Site.

MSSD requirements for vehicles completing the 90° left turn at the suggested 15 mph speed requires a minimum sight distance of 100 feet. According to the sight distance analysis, the sight line looking west would be 210 feet, which meets the MSSD requirement. The entire sight line is along paved roads.

Whispering Pines Lane

The posted speed limit along Brunswick Road is 45 mph. Considering CSD requirements, the corresponding minimum sight distance standard for this speed is 695 feet. The sight line was reviewed for southbound traffic, as all truck traffic from the Centennial Industrial Site would be turning right heading to the Brunswick Industrial Site. According to the sight distance analysis, the line of sight looking north would be 1,000 feet, which meets the CSD requirement.

Truck Acceleration on Grade

The location of the Brunswick Industrial Site relative to hauling engineered fill to either the Centennial Industrial Site or SR 49 requires loaded trucks to travel northbound



uphill on Brunswick Road from E. Bennett Road, approximately ¼-mile north, until reaching the crest just west of Loma Rica Drive. Brunswick Road has a posted speed limit of 50 mph and is used by truck traffic between SR 174 and SR 49. Trucks currently account for approximately six percent of all traffic between SR 49 and SR 174, with the truck traffic increasing to about nine percent between Whispering Pines Lane and E. Bennett Road. Trucks also account for approximately eight percent of traffic along Whispering Pines Lane.

Heading north along Brunswick Road, the grade departing the E. Bennett Road intersection is approximately one percent for approximately 800 feet, after which the grade increases to approximately eight percent for approximately 600 feet. From the crest to Whispering Pines Lane, the grade declines at approximately five percent. Trucks returning from the Centennial Industrial Site or SR 49 would travel unloaded and would be able to accelerate more quickly, especially when entering southbound Brunswick Road from Whispering Pines Lane.

Section 3.4 of the AASHTO document, “A Policy on Geometric Design of Highways and Streets” (i.e., the Green Book), was reviewed to estimate the speeds of trucks on the aforementioned grades. As trucks depart the E. Bennett Road intersection, the northbound grade is flat and allows trucks to accelerate smoothly. According to the AASHTO Green Book, a fully laden “typical truck” could reach approximately 42 mph prior to arriving at the eight percent grade west of Loma Rica Drive. Trucks would then decelerate to approximately 35 mph as they travel up the grade.

Southbound trucks heading towards the Brunswick Industrial Site would either be traveling at a higher rate of speed (i.e., 45 mph) as they travel south through the intersection or would be accelerating from a stopped condition as they turn right from Whispering Pines Lane. As noted in the discussion above regarding the sight distance analysis, vehicles turning right from this location would have 1,000 feet of sight distance looking north. While these trucks are accelerating from a stopped condition, they are anticipated to be able to accelerate faster and to a higher speed as they would be unloaded. Two southbound lanes are present along Brunswick Road north of Whispering Pines Lane. The outside lane continues for approximately 325 feet before ending and merging into the inside lane. The uphill five percent grade continues past Loma Rica Drive for approximately 1,500 feet prior to reaching the crest. Under a fully laden condition, trucks would be expected to be able to reach the merge point with a speed of approximately 26 mph and reach a speed of approximately 33 mph by the time they reach the crest. Project trucks would reach higher speeds because they would be empty, and the available sight distance would allow drivers to enter Brunswick Road when road conditions permit.

TJKM’s peer review also notes the presence of “ICY” signs on Brunswick Road, north of the Brunswick Industrial Site, also implies difficult traffic conditions during periods of inclement weather. Loaded trucks on the downhill section of Brunswick Road, approaching the Loma Rica Drive signals during poor weather, should be addressed. As mentioned above, this portion of Brunswick Road is already regularly used by heavy-duty haul trucks. An approximate length of just over 900 feet exists from the crest of the hill on Brunswick Road to its down grade intersection with Loma Rica Drive. As is currently the case, it is incumbent upon individual truck drivers to drive with caution during periods of inclement weather.



Conclusion

Based on the above, without proper planning of construction activities, short-term construction traffic and potential street closures could interfere with existing roadway operations during the construction phase. In addition, the additional project truck traffic would result in a shorter lifespan of the pavement or increased maintenance at a number of study roadway segments, and pavement improvements would be required at the E. Bennett Road/Millsite Road intersection to ensure adequate truck turning movements. Therefore, the proposed project could substantially increase hazards to vehicle safety due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) associated with the proposed project, and a **significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impacts to a *less-than-significant* level.

4.12-6(a) *Prior to the commencement of construction and issuance of Encroachment Permits, construction signing and traffic control plans shall be provided to the Nevada County Public Works Department and the City of Grass Valley for review and acceptance. The construction signing and traffic control plans shall include (but not necessarily be limited to) items such as:*

- *Guidance on the number and size of trucks per day entering and leaving the project site;*
- *Identification of arrival/departure times that would minimize traffic impacts;*
- *Approved truck circulation patterns;*
- *Locations of staging areas;*
- *Locations of employee parking and methods to encourage carpooling and use of alternative transportation;*
- *Methods for partial/complete street closures (e.g., timing, signage, location and duration restrictions);*
- *Criteria for use of flaggers and other traffic controls;*
- *Preservation of safe and convenient passage for bicyclists and pedestrians through/around construction areas;*
- *Monitoring for roadbed damage and timing for completing repairs;*
- *Limitations on construction activity during peak/holiday weekends and special events;*
- *Preservation of emergency vehicle access;*
- *Coordination of construction activities with construction of other projects that occur concurrently to minimize potential additive construction traffic disruptions, avoid duplicative efforts (e.g., multiple occurrences if similar signage), and maximize effectiveness of traffic mitigation measures (e.g., joint employee alternative transportation programs);*
- *Removing traffic obstructions during emergency evacuation events; and*



- *Providing a point of contact for residents and guests to obtain construction information, have questions answered, and convey complaints.*

The construction signing and traffic control plans shall be developed such that the following minimum set of performance standards is achieved throughout project construction.

- *All construction employees shall park in designated lots owned by the project applicant or on private lots otherwise arranged for by the project applicant.*
- *Roadways shall be maintained clear of debris (e.g., rocks) that could otherwise impede travel and impact public safety.*

4.12-6(b) *Prior to commencement of engineered fill hauling, the project applicant shall enter into separate road maintenance agreements with Nevada County and the City of Grass Valley to provide the project's fair share of funding for maintenance of roadways commensurate with the project's impact to pavement conditions on both Nevada County and Grass Valley roadways including Brunswick Road between E. Bennett Road and SR 49 and E. Bennett Road between project driveway and Brunswick Road.*

4.12-6(c) *Prior to approval of an Encroachment Permit for driveway construction at the intersection of E. Bennett Road/Millsite Road, the Nevada County Public Works Department shall review and approve the improvement plans for the E. Bennett Road/Millsite Road intersection which need to include pavement widening and designation that only right-hand turns are allowed from the project site at this location. Prior to commencement of project operations, the E. Bennett Road/Millsite Road intersection shall be improved to the satisfaction of Nevada County Public Works Department, at the expense of the project applicant.*

4.12-6(d) *Prior to the County issuing any permits for work on the Centennial Industrial Site: 1) the project applicant shall submit plans to the Grass Valley Engineering Division and receive approval from the City of Grass Valley for widening of Whispering Pines Lane along the Centennial Industrial Site's frontage for purposes of facilitating adequate truck turn movements into and out of the Site. The plans shall reflect a 12-foot two-way-left-turn-lane (TWLTL), a 12-foot travel lane, and a six-foot bicycle lane; 2) In addition, the applicant shall designate and record a landscape easement to mitigate sight distance concerns. The plans shall be approved by the City of Grass Valley and the project applicant shall be responsible for 100 percent of the cost for this improvement.*

4.12-6(e) *Prior to commencement of operations, the project applicant shall obtain an encroachment permit from Nevada County and install: 1) W51 "Slow Trucks" road sign along Brunswick Road, about 500 feet north of the E.*



Bennett Road intersection; 2) A second sign shall be installed at the applicant's expense just south of the crest of the grade, warning truck drivers of the transition in grade and presence of the downgrade Loma Rica Drive intersection.

- 4.12-6(f) *Prior to the County issuing any permits for work on the Brunswick Site, the project applicant shall remove any landscaping over 2 feet in height inside the sight line from the project driveway to Brunswick Road.*

4.12-7 Result in inadequate emergency access. Based on the analysis below, the impact is *less than significant*.

Several factors determine whether a project has sufficient access for emergency vehicles, including the following:

- Number of access points (both public and emergency access only);
- Width of access points; and
- Width of internal roadways.

Access to the Brunswick Industrial Site is currently provided by gated entrances on both E. Bennett Road and Brunswick Road. The existing Brunswick Road access would be the primary entrance/exit for project employees, vendors, and haul trucks, while the existing E. Bennett Road access would be used as an exit for haul trucks and large delivery trucks turning right onto E. Bennett Road, full access for emergency personnel and, as necessary, for equipment movement.

The south side of Whispering Pines Lane is proposed to be widened in order to provide access to the Centennial Industrial Site. Specifically, Whispering Pines Lane would be widened to provide a 12-foot, two-way, left-turn lane, a 12-foot travel lane, and a six-foot bicycle lane. The proposed layout would allow an area for haul trucks to queue while waiting to enter the site and sufficient space for inbound and outbound trucks to turn simultaneously without interfering with the opposing vehicle.

The gated access points would be required to comply with the emergency vehicle access conditions established by the Nevada County Code. In addition, all internal roadways would be required to comply with applicable County standards for roadway widths. Accordingly, emergency vehicles would be afforded unimpeded access to the site. In addition, with implementation of Mitigation Measure 4.12-6, temporary construction activities associated with the proposed project would not impede access to existing nearby uses. Therefore, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

Cumulative methodology for the transportation analysis has already been described in this Chapter. In addition, for further detail related to the cumulative setting of the proposed project, refer to Chapter 5, Statutorily Required Sections, of this EIR.



4.12-8 Conflict with a program, plan, ordinance or policy addressing study intersections under Cumulative Plus Project Conditions. Based on the analysis below, impacts to all study intersections under Cumulative Plus Project Conditions would be less than significant, with the exception of the Brunswick Road/SR 174 and Sutton Way/Dorsey Drive intersections. With implementation of mitigation, the project's incremental contribution to the significant cumulative impact at the Sutton Way/Dorsey Drive intersection would be reduced to less-than-cumulatively considerable. However, even after mitigation, the project's incremental contribution to the significant cumulative impact at the Brunswick Road/SR 174 intersection would be *cumulatively considerable and significant and unavoidable*.

Similar to the EPAP analysis, this cumulative section evaluates two proposed project scenarios, where Scenario #1 considers transport of engineered fill to the Centennial Industrial Site and Scenario #2 considers transport of engineered fill to construction sites accessible via SR 49. The results of the analysis of study intersections under Cumulative Plus Project Conditions for the two scenarios are presented separately in detail below.

Cumulative Plus Project Scenario #1

Figure 4.12-25 through Figure 4.12-27 display the Cumulative Plus Project Condition under Scenario #1 traffic volumes at each study intersection for each of the study time periods. Table 4.12-18 summarizes operating LOS at the study intersections under Cumulative No Project Conditions and Scenario #1 of Cumulative Plus Project Conditions for each of the study time periods.

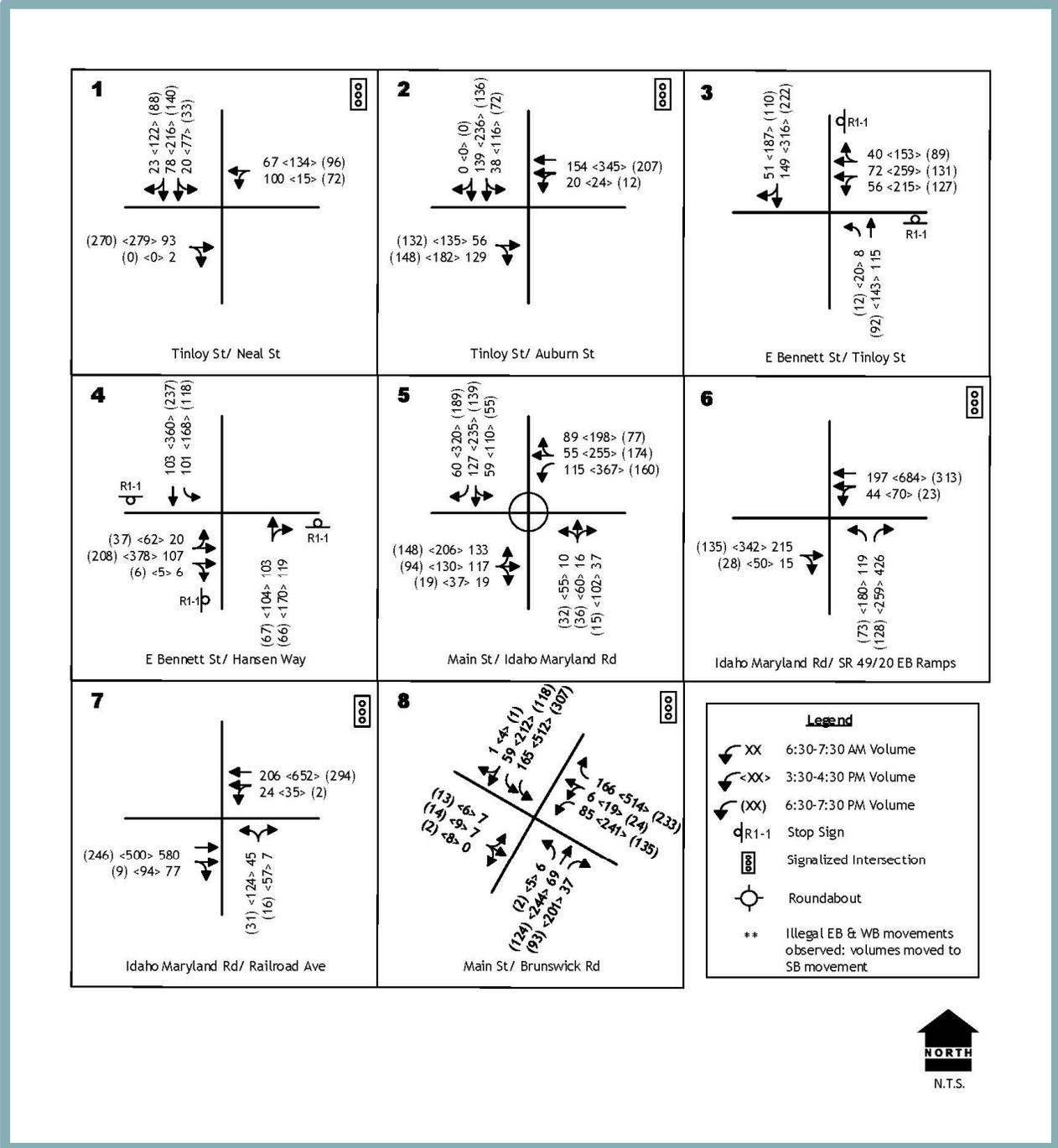
As shown in the table, two intersections are anticipated to operate unacceptably under Cumulative No Project Conditions (3:30-4:30 PM) and would worsen as a result of project traffic under Cumulative Plus Project Scenario #1 Conditions, as follows:

15. Brunswick Road/SR 174 (SB, LOS E)
21. Sutton Way/Dorsey Drive (LOS F)

Eight intersections are projected to meet the 3:30 to 4:30 PM project traffic hour signal warrant under Cumulative Plus Project Scenario #1 Conditions, seven of which would also be met under Cumulative No Project Conditions. These include E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp, E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp, Brunswick Road/Whispering Pines Lane, Brunswick Road/E. Bennett Road-Greenhorn Road, SR 174/Brunswick Road, Idaho-Maryland Road/Sutton Way, and Sutton Way/Dorsey Drive. The eighth intersection meeting the project traffic hour signal warrant under the Plus Project condition is the Brunswick Road/Project Driveway intersection (during the 3:30 to 4:30 PM project traffic hour scenario). However, only the SR 174 at Brunswick Road and Sutton Way at Dorsey Drive intersections would operate below the accepted LOS threshold.



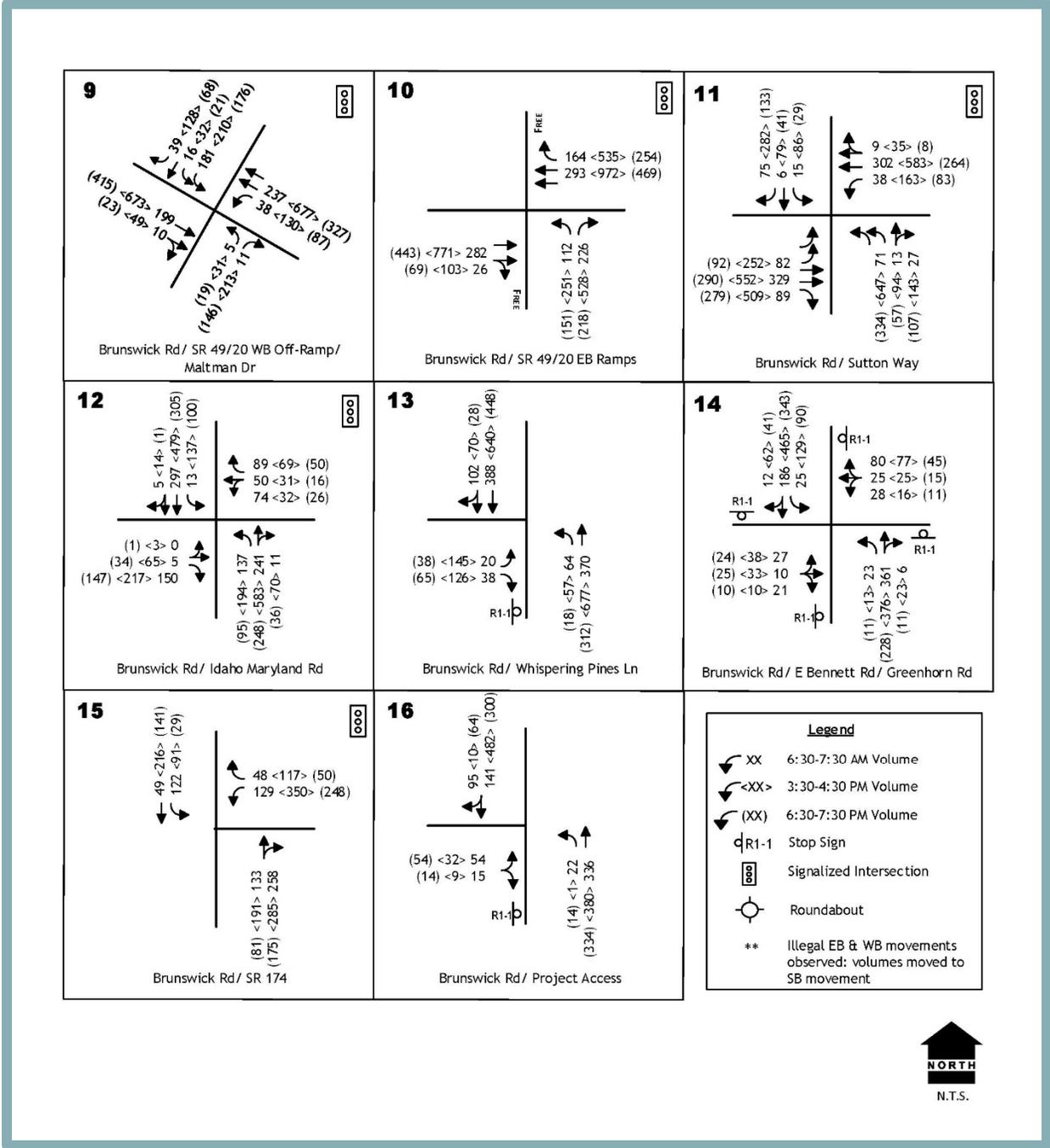
Figure 4.12-25
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – Cumulative Plus Project Conditions
(Scenario #1)



Source: KAnderson & Associates, Inc., 2021.



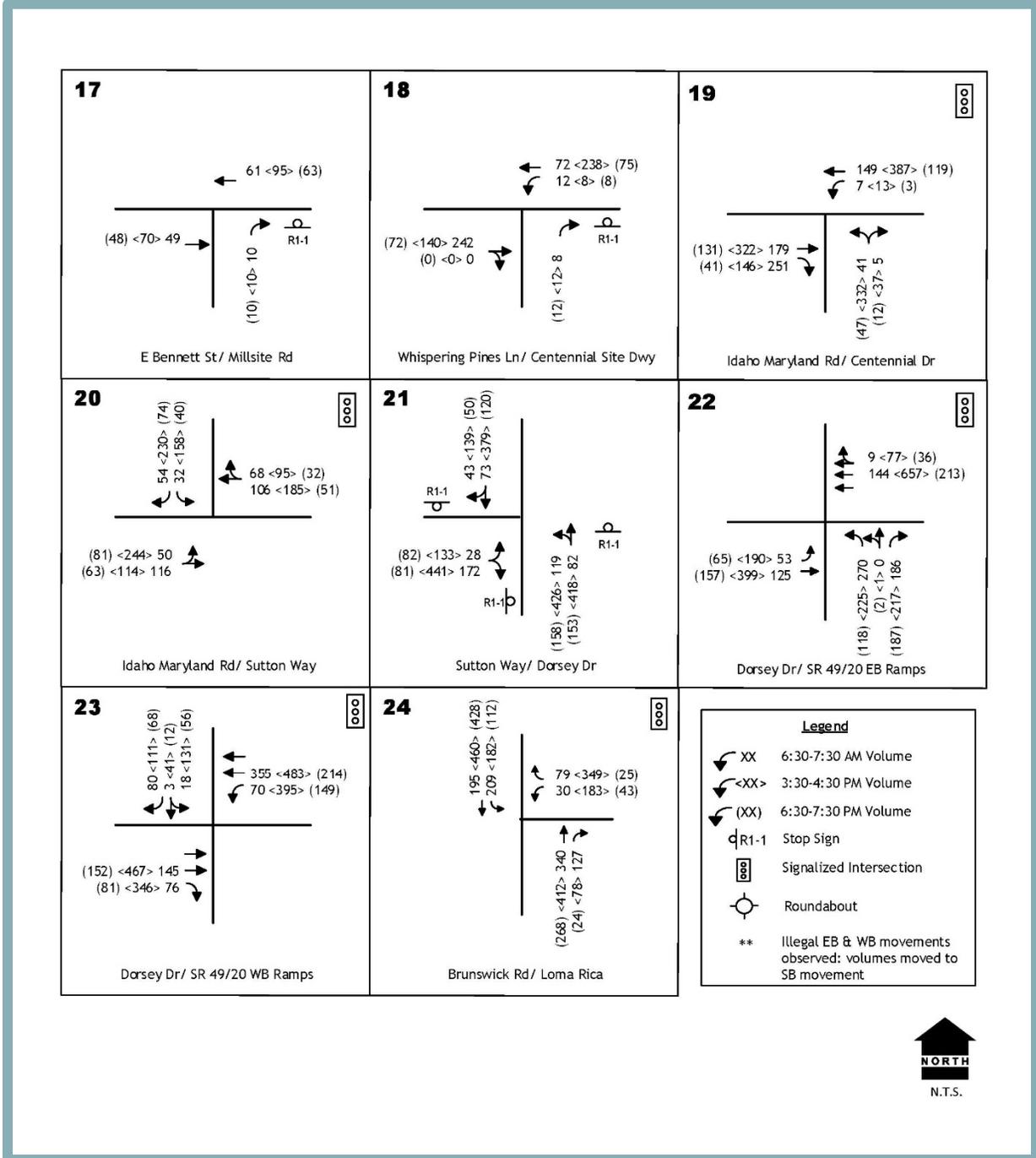
Figure 4.12-26
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – Cumulative Plus Project Conditions
(Scenario #1)



Source: KDAnderson & Associates, Inc., 2021.



Figure 4.12-27
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – Cumulative Plus Project Conditions
(Scenario #1)



Source: KDAnderson & Associates, Inc., 2021.



**Table 4.12-18
Project Traffic Hours Intersection LOS – Cumulative Plus Project Conditions (Scenario #1)**

Location - Jurisdiction	Control	6:30 – 7:30 AM				3:30 – 4:30 PM				6:30 – 7:30 PM				Meets Traffic Signal Warrant?
		Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project		
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	
1. Neal St/Tinloy St ‡	Signal	A	6.7	A	6.9	A	9.0	A	9.0	B	11.7	B	12.2	N/A
2. S. Auburn St/Tinloy St ‡	Signal	A	7.2	A	7.1	A	9.9	A	9.5	A	9.0	A	9.1	N/A
3. E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp ‡	SB/WB Stop	A	4.1	A	4.1	A	8.0	A	7.6	A	4.4	A	4.5	Yes*
4. E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp ‡	AWS	A	9.6	A	9.6	C	18.3	C	18.3	B	10.7	B	10.8	Yes*
5. Main St/Idaho Maryland Rd/SR 49 WB Ramps ‡	Roundabout	A	5.1	A	5.3	A	8.3	A	8.4	A	4.9	A	5.1	N/A
6. Idaho Maryland Rd/SR 49 EB Ramps ‡	AWS	B	12.7	B	13.3	B	19.4	B	19.6	B	11.9	B	12.0	N/A
7. Idaho Maryland Rd/Railroad Ave ‡	AWS	B	11.5	B	11.7	B	19.3	B	19.4	B	12.2	B	12.4	N/A
8. Main St/Brunswick Rd/W. Olympia Dr ‡	Signal	A	6.1	A	6.2	B	14.0	B	14.2	A	9.8	A	9.7	N/A
9. Brunswick Rd/SR 49 WB Off-Ramp/Maltman Dr ‡	Signal	B	17.1	B	18.1	B	16.9	B	17.2	B	16.1	B	16.4	N/A
10. Brunswick Rd/SR 49 EB Ramps ‡	Signal	A	8.3	A	8.4	B	14.9	B	14.8	A	8.9	A	8.7	N/A
11. Brunswick Rd/Sutton Way ‡	Signal	A	5.3	A	5.2	C	28.2	C	30.2	B	10.7	B	10.5	N/A
12. Brunswick Rd/Idaho Maryland Rd ‡ NB Left SB Left EB WB	EB/WB Stop	B	17.3	B	18.5	C	31.6	C	32.5	B	18.1	B	18.7	N/A
13. Brunswick Rd/Whispering Pines Ln ‡ NB Left EB	EB Stop	A B	8.4 11.0	A B	8.7 11.4	A C	9.4 19.3	A C	9.4 19.9	A B	8.3 11.0	A B	8.5 11.3	Yes*
14. Brunswick Rd/E. Bennett Rd/Greenhorn Rd †	AWS	B	11.0	B	13.0	C	23.7	D	27.2	B	10.9	B	12.6	Yes*
15. Brunswick Rd/SR 174 † SB EB Left	SB Stop	A B	7.7 12.8	A B	7.8 13.4	A E	7.8 46.2	A E	7.8 48.9	A C	8.2 17.5	A B	7.4 13.1	Yes*
16. Brunswick Rd/Project Driveway † NB Left EB	EB Stop	Not Studied		A B	7.8 11.4	Not Studied		A B	8.5 12.9	Not Studied		A B	8.1 12.2	Yes*
17. E. Bennett Rd/Millsite Rd † NB	NB Stop	Not Studied		A	8.6	Not Studied		A	8.7	Not Studied		A	8.6	No
18. Whispering Pines Ln/Centennial Industrial Site Driveway ‡ NB WB Left	NB Stop	Not Studied		A A	9.7 7.8	Not Studied		A A	9.1 7.5	Not Studied		A A	8.7 7.4	No
19. Idaho Maryland Rd/Centennial Dr ‡ NB WB Left	NB Stop	A	6.7	A	6.6	B	11.5	B	11.5	A	7.5	A	7.4	N/A
20. Idaho Maryland Rd /Sutton Way ‡	AWS	A	8.0	A	8.4	B	14.2	B	14.5	A	7.9	A	8.1	Yes*
21. Sutton Way/Dorsey Dr ‡	AWS	A	9.0	A	9.1	F	213.1	F	214.3	B	10.4	B	10.5	Yes*
22. Dorsey Dr/SR 49 EB Ramps ‡	Signal	A	8.9	A	8.6	B	14.8	B	15.0	A	8.7	A	8.9	N/A
23. Dorsey Dr/SR 49 WB Ramps ‡	Signal	A	5.6	A	5.5	B	17.6	B	16.9	A	8.2	A	8.4	N/A
24. Brunswick Rd/Loma Rica Dr †	Signal	B	11.9	B	11.6	B	14.8	B	15.5	A	8.1	A	8.2	N/A

- AWS = all way stop
- † = Nevada County jurisdiction
- ‡ = Grass Valley jurisdiction
- **Red** indicates intersection operates below the applicable threshold of significance
- * = meets warrant in 3:30 PM hour

Source: KDAAnderson & Associates, Inc., 2021.



Cumulative Plus Project Scenario #2

Figure 4.12-28 through Figure 4.12-30 display the Cumulative Plus Project Condition under Scenario #2 traffic volumes at each study intersection for each of the study time periods. Table 4.12-19 summarizes operating LOS at the study intersections under Cumulative No Project Conditions and Scenario #2 of Cumulative Plus Project Conditions for each of the study time periods. The conclusions for Scenario #2 are the same as Scenario #1.

As shown in the table, two intersections are anticipated to operate unacceptably under Cumulative No Project Conditions (3:30-4:30 PM) and would worsen as a result of project traffic under Cumulative Plus Project Scenario #1 Conditions, as follows:

15. Brunswick Road/SR 174 (SB, LOS E)
21. Sutton Way/Dorsey Drive (LOS F)

Eight intersections are projected to meet the 3:30 to 4:30 PM project traffic hour signal warrant under Cumulative Plus Project Scenario #2 Conditions, seven of which would also be met under Cumulative No Project Conditions. These include E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp, E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp, Brunswick Road/Whispering Pines Lane, Brunswick Road/E. Bennett Road-Greenhorn Road, SR 174/Brunswick Road, Idaho-Maryland Road/Sutton Way, and Sutton Way/Dorsey Drive. The eighth intersection meeting the project traffic hour signal warrant under the Plus Project condition is the Brunswick Road/Project Driveway intersection (during the 3:30 to 4:30 PM project traffic hour scenario). However, only the SR 174 at Brunswick Road and Sutton Way at Dorsey Drive intersections would operate below the accepted LOS threshold.

Conclusion

Based on the above, under both Scenarios #1 and 2 the proposed project would increase traffic through two intersections already identified as operating unacceptably under Cumulative No Project Conditions. Thus, the proposed project's incremental contribution to the significant cumulative impact to the Brunswick Road/SR 174 and Sutton Way/Dorsey Drive intersections would be considered **cumulatively considerable** and **significant**.

Mitigation Measure(s)

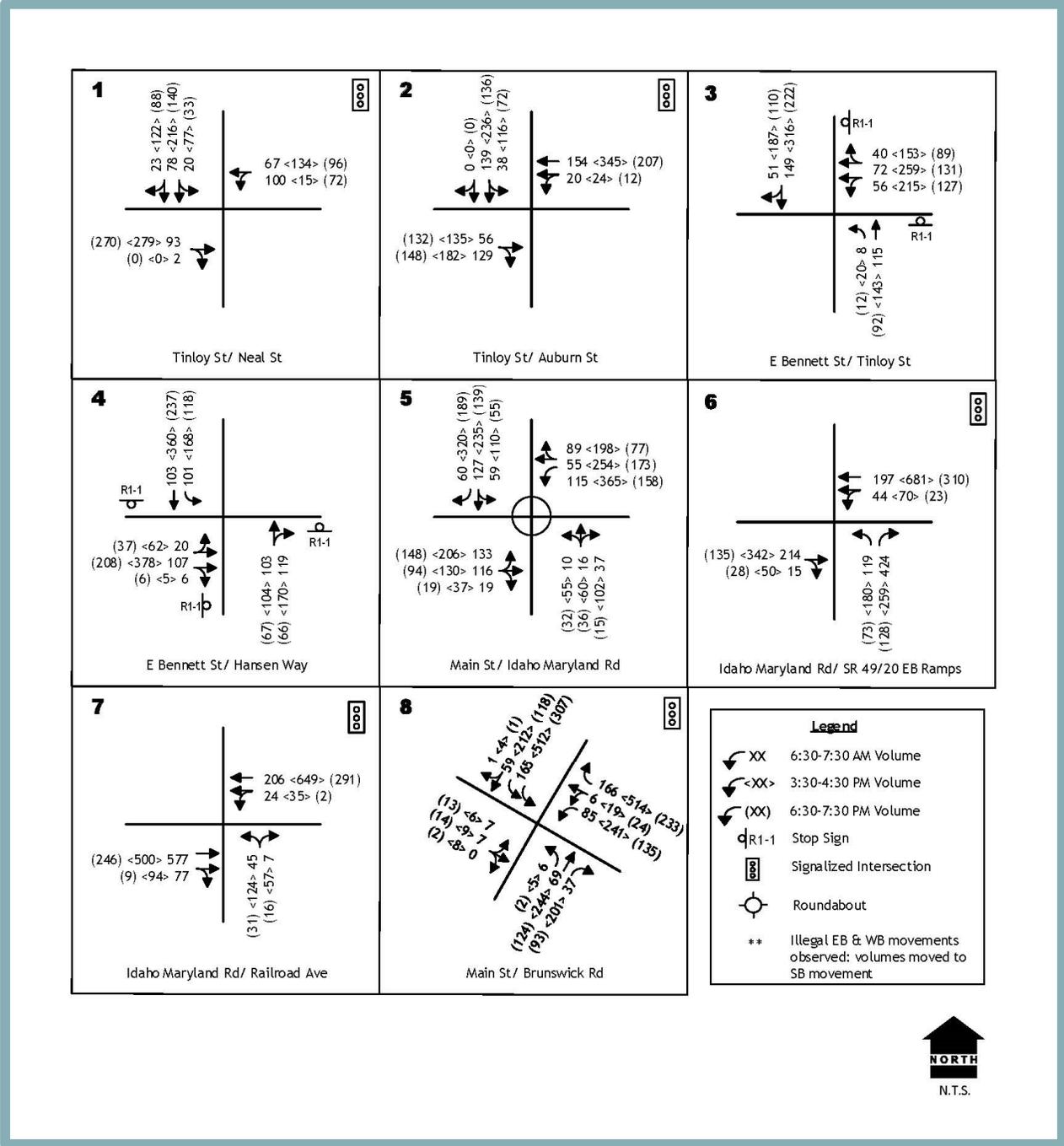
The mitigation measures for the two intersections impacted by the proposed project in the Cumulative scenario are discussed below.

SR 174/Brunswick Road

Signalization or a roundabout would improve the intersection to acceptable LOS conditions. Under Cumulative Plus Project Scenarios #1 and #2, the project is expected to add 10 additional vehicles through the intersection during the 3:30 to 4:30 PM time period. NCTC removed this intersection from their RTMF program in their 2016 Nexus Study, while Caltrans has the intersection identified as a planned, but unfunded improvement in their SR 174 TCR. Mitigation Measure 4.12-1(b) requires the project applicant to enter into a traffic mitigation agreement with Caltrans and provide the project's fair share contribution toward the improvements needed to improve intersection operations to an acceptable level.



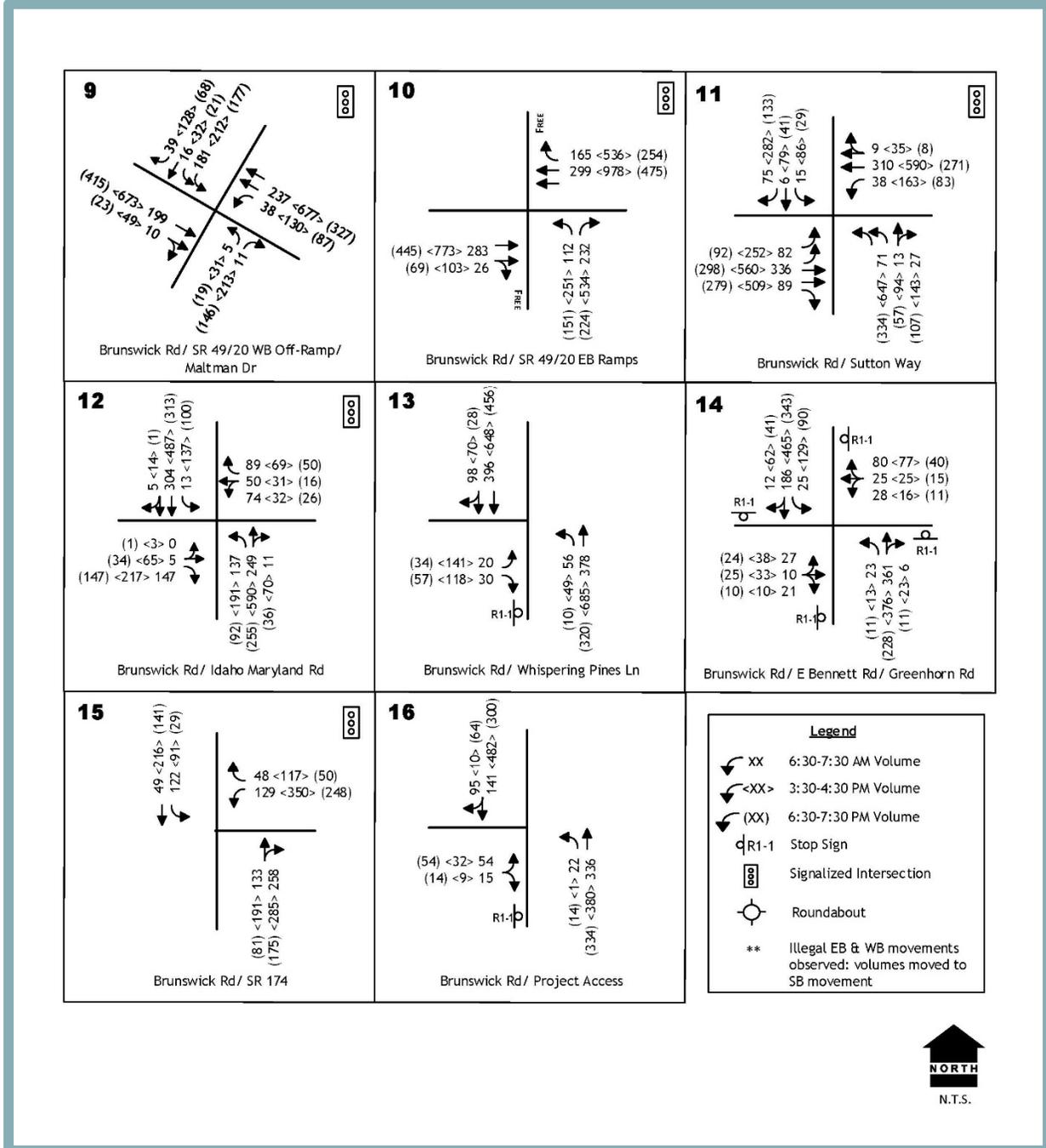
Figure 4.12-28
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – Cumulative Plus Project Conditions
(Scenario #2)



Source: KDAAnderson & Associates, Inc., 2021.



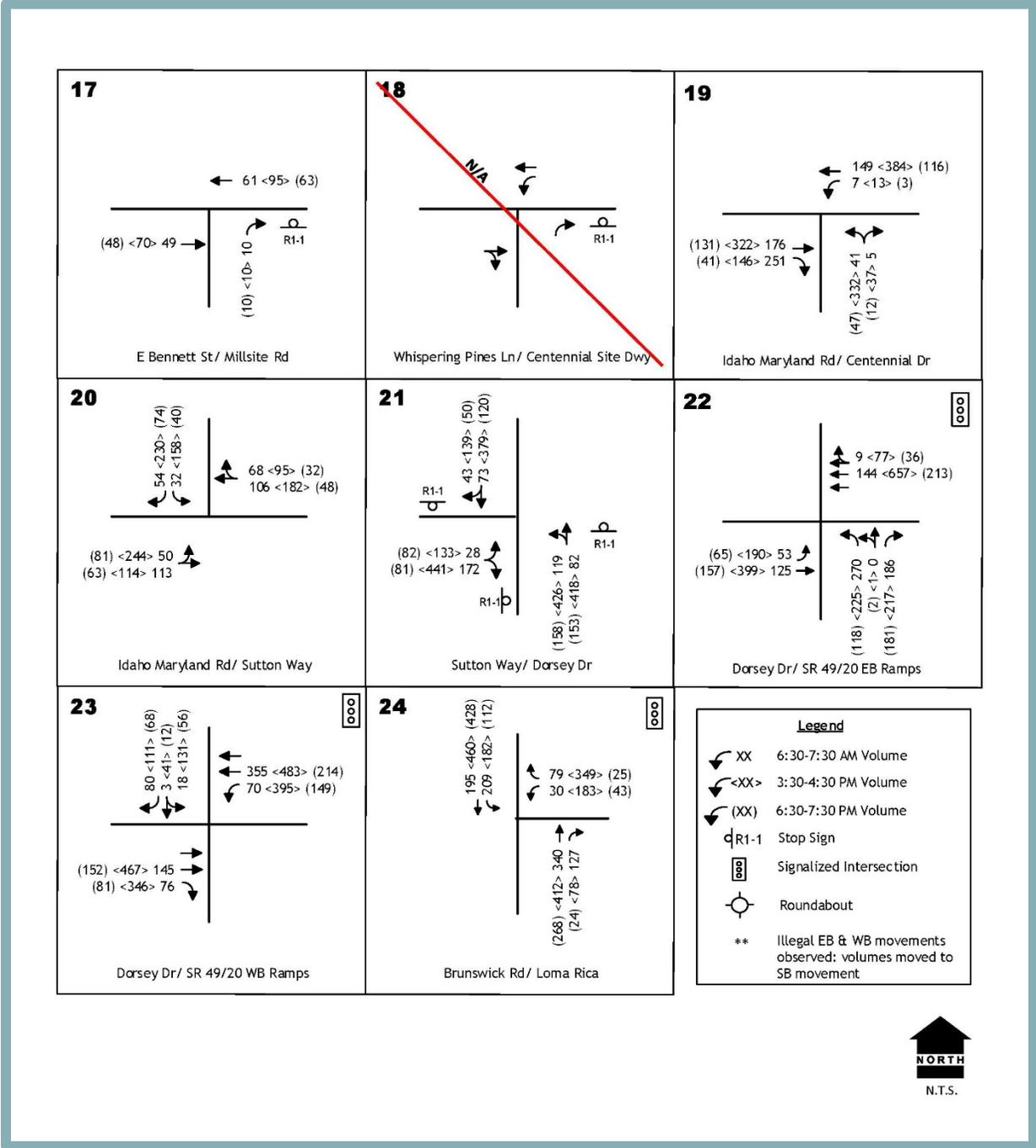
**Figure 4.12-29
 Project Traffic Hours Traffic Volumes and Lane Configurations
 (Intersections 9 through 16) – Cumulative Plus Project Conditions
 (Scenario #2)**



Source: KAnderson & Associates, Inc., 2021.



Figure 4.12-30
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – Cumulative Plus Project Conditions
(Scenario #2)



Source: KAnderson & Associates, Inc., 2021.



**Table 4.12-19
Project Traffic Hours Intersection LOS – Cumulative Plus Project Conditions (Scenario #2)**

Location - Jurisdiction	Control	6:30 – 7:30 AM				3:30 – 4:30 PM				6:30 – 7:30 PM				Meets Traffic Signal Warrant?
		Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project		
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	
1. Neal St/Tinloy St ‡	Signal	A	6.7	A	7.2	A	9.0	A	9.7	B	11.7	B	12.4	N/A
2. S. Auburn St/Tinloy St ‡	Signal	A	7.2	A	7.2	A	9.9	B	10.0	A	9.0	A	9.0	N/A
3. E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp ‡	SB/WB Stop	A	4.1	A	4.0	A	8.0	A	7.6	A	4.4	A	4.5	Yes*
4. E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp ‡	AWS	A	9.6	A	9.6	C	18.3	C	18.3	B	10.7	B	10.8	Yes*
5. Main St/Idaho Maryland Rd/SR 49 WB Ramps ‡	Roundabout	A	5.1	A	5.3	A	8.3	A	8.4	A	4.9	A	5.0	N/A
6. Idaho Maryland Rd/SR 49 EB Ramps ‡	AWS	B	12.7	B	13.3	B	19.4	B	19.6	B	11.9	B	12.0	N/A
7. Idaho Maryland Rd/Railroad Ave ‡	AWS	B	11.5	B	11.7	B	19.3	B	19.4	B	12.2	B	12.4	N/A
8. Main St/Brunswick Rd/W. Olympia Dr ‡	Signal	A	6.1	A	6.5	B	14.0	B	14.3	A	9.8	B	10.2	N/A
9. Brunswick Rd/SR 49 WB Off-Ramp/Maltman Dr ‡	Signal	B	17.1	B	17.7	B	16.9	B	17.8	B	16.1	B	16.4	N/A
10. Brunswick Rd/SR 49 EB Ramps ‡	Signal	A	8.3	A	8.2	B	14.9	B	14.9	A	8.9	A	8.7	N/A
11. Brunswick Rd/Sutton Way ‡	Signal	A	5.3	A	5.3	C	28.2	C	30.0	B	10.7	B	10.7	N/A
12. Brunswick Rd/Idaho Maryland Rd ‡ NB Left SB Left EB WB	EB/WB Stop	B	17.3	B	18.5	C	31.6	C	33.0	B	18.1	B	18.8	N/A
13. Brunswick Rd/Whispering Pines Ln ‡ NB Left EB	EB Stop	A B	8.4 11.0	A B	8.7 11.6	A C	9.4 19.3	A C	9.4 20.0	A B	8.3 11.0	A B	8.5 11.3	Yes*
14. Brunswick Rd/E. Bennett Rd/Greenhorn Rd ‡	AWS	B	11.0	B	13.0	C	23.7	D	27.2	B	10.9	B	12.6	Yes*
15. Brunswick Rd/SR 174 ‡ SB EB Left	SB Stop	A B	7.7 12.8	A B	7.8 13.4	A E	7.8 46.2	A E	7.8 48.9	A C	8.2 17.5	A B	7.4 13.1	Yes*
16. Brunswick Rd/Project Driveway ‡ NB Left EB	EB Stop	Not Studied		A B	7.8 11.4	Not Studied		A B	8.5 12.9	Not Studied		A B	8.1 12.2	Yes*
17. E. Bennett Rd/Millsite Rd ‡ NB	NB Stop	Not Studied		A	8.6	Not Studied		A	8.7	Not Studied		A	8.6	No
18. Whispering Pines Ln/Centennial Industrial Site Driveway ‡	NB Stop	Not Studied		Not Applicable		Not Studied		Not Applicable		Not Studied		Not Applicable		
19. Idaho Maryland Rd/Centennial Dr ‡ NB WB Left	NB Stop	A	6.7	A	6.6	B	11.5	B	11.5	A	7.5	A	7.4	N/A
20. Idaho Maryland Rd /Sutton Way ‡	AWS	A	8.0	A	8.4	B	14.2	B	14.5	A	7.9	A	8.1	Yes*
21. Sutton Way/Dorsey Dr ‡	AWS	A	9.0	A	9.1	F	213.1	F	214.3	B	10.4	B	10.5	Yes*
22. Dorsey Dr/SR 49 EB Ramps ‡	Signal	A	8.9	A	8.7	B	14.8	B	15.3	A	8.7	A	9.3	N/A
23. Dorsey Dr/SR 49 WB Ramps ‡	Signal	A	5.6	A	5.8	B	17.6	B	17.6	A	8.2	A	8.5	N/A
24. Brunswick Rd/Loma Rica Dr ‡	Signal	B	11.9	B	11.6	B	14.8	B	15.5	A	8.1	A	8.2	N/A

- Notes:
- AWS = all way stop
 - † = Nevada County jurisdiction
 - ‡ = Grass Valley jurisdiction
 - **Red** indicates intersection operates below the applicable threshold of significance
 - * = meets warrant in 3:30 PM hour

Source: KAnderson & Associates, Inc., 2021.



Because the remaining funds for the intersection improvements are unknown, in terms of timing and contributing parties, the successful implementation of the intersection improvements is uncertain. Therefore, the project's incremental impact to the SR 174/Brunswick Road intersection is *significant and unavoidable*.

Sutton Way/Dorsey Drive

As part of the Dorsey Marketplace project, the Sutton Way/Dorsey Drive intersection will be realigned to create two three-legged intersections. Construction of this project is slated to begin in Spring 2021. The City of Grass Valley has noted that signalization is not anticipated for this intersection and that stop controls are to be determined. The proposed Idaho-Maryland Mine Project is expected to generate two additional vehicles in a total of 1,936 vehicles passing through the intersection during the 3:30 – 4:30 PM period. Mitigation Measure 4.12-8(b) requires the applicant to pay the GVTIF to the City of Grass Valley, given that the needed intersection improvement is included in the City's TIF. Thus, payment of the GVTIF would reduce the impact to a *less-than-significant* level.

4.12-8(a) SR 174/Brunswick Road – Implement Mitigation Measure 4.12-1(b).

4.12-8(b) *Sutton Way/Dorsey Drive - Prior to issuance of building permits, the applicant shall pay the GVTIF to the City of Grass Valley. Proof of payment shall be submitted to the Nevada County Community Development Agency.*

4.12-9 Conflict with a program, plan, ordinance or policy addressing study roadway segments under Cumulative Plus Project Conditions. Based on the analysis below, the project's incremental contribution to the significant cumulative impact is less than cumulatively considerable.

As presented in the discussion below, all roadway segments along Brunswick Road and E. Bennett Road would continue to operate at LOS D or better under Cumulative No Project Conditions, while the SR 174 segment would continue to operate at LOS E. The SR 174 segment exceeds the LOS C threshold of significance in both directions under Cumulative No Project Conditions.

The results of the proposed project analysis of study roadway segments under Cumulative Plus Project Conditions for the two proposed project scenarios are presented separately in detail below.

Cumulative Plus Project Scenario #1

Table 4.12-20 summarizes the LOS based on the Cumulative Plus Project, Scenario #1, Condition traffic volumes on study area roads with the existing roadway configuration. Similar to Cumulative No Project Conditions, all segments along Brunswick Road and E. Bennett Road would continue to operate acceptably at LOS D or better, while the SR 174 segment would continue to operate at LOS E, under Cumulative Plus Project, Scenario #1, Conditions.



**Table 4.12-20
Roadway Segment LOS – Cumulative Plus Project Conditions (Scenario #1)**

Roadway	Location	Facility Classification	ATS/PTSF/LOS	ATS/PTSF/LOS
			Cumulative No Project PM Peak Hour	Cumulative Plus Project PM Peak Hour
Brunswick Road	SR 49 to Whispering Pines Ln NB SB	Class I Highway	29.9 / 81.3 / D 30.0 / 80.8 / D	29.7 / 82.4 / D 29.9 / 83.2 / D
	Whispering Pines Ln to E. Bennett Rd NB SB	Class I Highway	35.0 / 85.8 / D 35.9 / 72.8 / D	34.5 / 87.2 / D 34.5 / 76.1 / D
	E. Bennett Rd to Project Driveway NB SB	Class I Highway	35.4 / 63.1 / C 35.3 / 79.7 / C	34.7 / 69.1 / D 34.5 / 81.1 / D
	Project Driveway to SR 174 NB SB	Class I Highway	33.7 / 67.8 / D 33.0 / 81.7 / D	33.4 / 68.8 / D 32.7 / 81.8 / D
E. Bennett Rd	Project Driveway to Brunswick Rd EB WB	Class III Highway	35.9 / 27.3 / B 35.7 / 56.5 / B	34.7 / 38.8 / C 34.7 / 57.8 / C
SR 174	Brunswick Rd to Empire St EB WB	Class I Highway	29.8 / 60.2 / E 28.6 / 80.4 / E	29.7 / 60.8 / E 28.6 / 81.5 / E
Notes: <ul style="list-style-type: none"> • ATS = average travel speed • PTSF = percent time spent following • Bold indicates applicable threshold of significance exceeded 				
Source: <i>KDAnderson & Associates, Inc., 2021.</i>				



However, the proposed project would have a minimal effect on the projected conditions along the segment of SR 174 from Brunswick Road to Empire Street, with an increase in the PTSF from 80.4 percent to 81.5 percent in the westbound direction; the ATS would remain at 28.6 mph. In the eastbound direction, the PTSF would increase from 60.2 percent to 60.8 percent, while the ATS would decrease by 0.1 mph, from 29.8 mph to 29.7 mph.

Cumulative Plus Project Scenario #2

Table 4.12-21 summarizes the LOS based on the Cumulative Plus Project, Scenario #2, Condition traffic volumes on study area roads with the existing roadway configuration. Similar to Cumulative No Project Conditions, all segments along Brunswick Road and E. Bennett Road would continue to operate at LOS D or better, while the SR 174 segment would continue to operate at LOS E, under Cumulative Plus Project, Scenario #2, Conditions. The SR 174 segment would continue to exceed the LOS C threshold of significance in both directions under Cumulative Plus Project, Scenario #2, Conditions. However, the proposed project would have a minimal effect on the projected conditions along the segment of SR 174 from Brunswick Road to Empire Street, with an increase in the PTSF from 80.4 percent to 81.5 percent in the westbound direction; the ATS would remain at 28.6 mph. The PTSF in the eastbound direction would increase from 60.2 percent to 60.8 percent, while the ATS would decrease by 0.1 mph, from 29.8 mph to 29.7 mph.

Conclusion

Although the segment of SR 174 from Brunswick Road to Empire Street would operate unacceptably under Cumulative Plus Project Conditions, the proposed project would have minimal effect on the segment from Cumulative No Project Conditions. In addition, under County Policy LU-4.16, relative to the State highway system, additional growth and development may be allowed within the County, notwithstanding any adverse impacts that may result in the short term by such growth and development. Therefore, the proposed project's incremental contribution to the significant cumulative impact to study roadway segments would be considered ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.

4.12-10 Conflict with a program, plan, ordinance or policy addressing intersection queues under the cumulative scenario. Based on the analysis below, even with implementation of mitigation, the impact is determined to be *significant and unavoidable*.

The results of the proposed project analysis of intersection queues under Cumulative Plus Project Conditions for the two proposed project scenarios are presented separately below.



**Table 4.12-21
Roadway Segment LOS – Cumulative Plus Project Conditions (Scenario #2)**

Roadway	Location	Facility Classification	ATS/PTSF/LOS	ATS/PTSF/LOS
			Cumulative No Project PM Peak Hour	Cumulative Plus Project PM Peak Hour
Brunswick Road	SR 49 to Whispering Pines Ln NB SB	Class I Highway	29.9 / 81.3 / D 30.0 / 80.8 / D	29.5 / 82.5 / D 29.8 / 83.5 / D
	Whispering Pines Ln to E. Bennett Rd NB SB	Class I Highway	35.0 / 85.8 / D 35.9 / 72.8 / D	34.1 / 87.8 / D 34.5 / 76.1 / D
	E. Bennett Rd to Project Driveway NB SB	Class I Highway	35.4 / 63.1 / C 35.3 / 79.7 / C	34.6 / 69.4 / D 34.5 / 81.1 / D
	Project Driveway to SR 174 NB SB	Class I Highway	33.7 / 67.8 / D 33.0 / 81.7 / D	33.4 / 68.8 / D 32.7 / 81.8 / D
E. Bennett Rd	Project Driveway to Brunswick Rd EB WB	Class III Highway	35.9 / 27.3 / B 35.7 / 56.5 / B	34.7 / 38.8 / C 34.7 / 57.8 / C
SR 174	Brunswick Rd to Empire St EB WB	Class I Highway	29.8 / 60.2 / E 28.6 / 80.4 / E	29.7 / 60.8 / E 28.6 / 81.5 / E

Notes:

- ATS = average travel speed
- PTSF = percent time spent following
- **Bold** indicates applicable threshold of significance exceeded

Source: *KDAnderson & Associates, Inc., 2021.*



Cumulative Plus Project Scenario #1

Table 4.12-22 presents a comparison of Cumulative Plus Project Scenario #1 to Cumulative Conditions. The following intersections have queue lengths in excess of available storage length under Cumulative No Project conditions and would continue to exceed available storage length under Cumulative Plus Project Scenario #1:

1. Neal St/Tinloy St EB;
2. S. Auburn St/Tinloy St NB through, SB, and WB;
6. Idaho Maryland Rd/SR 49 EB Ramps WB;
7. Idaho Maryland Rd/Railroad Ave EB;
8. E. Main St/Brunswick Rd – W. Olympia Dr NB right;
9. Brunswick Rd/SR 49 WB Off-Ramp – Maltman Dr NB right and EB;
10. Brunswick Rd/SR 49 EB Ramps NB left;
11. Brunswick Rd/Sutton Way NB left and WB left;
12. Brunswick Rd/Idaho Maryland Rd SB left;
15. Brunswick Rd/SR 174 SB left;
23. Dorsey Dr/SR 49 EB Ramps EB right and WB left; and
24. Brunswick Rd/Loma Rica Dr WB left.

In addition, incremental project traffic under Cumulative Scenario #1 would cause the following intersection movement to have queue lengths in excess of available storage:

8. E. Main St/Brunswick Rd – W. Olympia Dr WB right

During “Plus Project” conditions one intersection -- Brunswick Road/Sutton Way -- would have a storage length that is greater than 25 feet when compared to the “No Project” condition during the 3:30-4:30 PM hour. The northbound left-turn lanes of the Brunswick Road/Sutton Road intersection would extend up to 110 feet beyond the “No Project” scenario. Thus, the project’s incremental traffic could result in a cumulatively considerable contribution to queue length at one intersection under Cumulative Plus Project Conditions Scenario #1.

Cumulative Plus Project Scenario #2

Table 4.12-23 presents a comparison of Cumulative Plus Project Scenario #2 to Cumulative conditions. The proposed project would result in queue lengths in excess of available storage length at the following intersection locations under Scenario #2:

1. Neal St/Tinloy St EB;
2. S. Auburn St/Tinloy St NB through, SB, and WB;
6. Idaho Maryland Rd/SR 49 EB Ramps WB;
7. Idaho Maryland Rd/Railroad Ave EB;
8. E. Main St/Brunswick Rd – W. Olympia Dr NB right;
9. Brunswick Rd/SR 49 WB Off-Ramp – Maltman Dr NB right and EB;
10. Brunswick Rd/SR 49 EB Ramps NB left;
11. Brunswick Rd/Sutton Way NB left and WB left;
12. Brunswick Rd/Idaho Maryland Rd SB left;
15. Brunswick Rd/SR 174 SB left;



**Table 4.12-22
Cumulative Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
1. Neal St / Tinloy St							
EB	70	84	80	116	115	119	120
WB	150	115	103	106	109	131	140
2. S. Auburn St / Tinloy St							
NB through	80	73	75	137	136	98	102
NB through-left	80	44	45	63	66	44	44
SB	75	86	84	139	134	123	133
WB	95	68	70	113	113	103	101
3. E. Bennett Rd / Tinloy St – SR 49 WB Off-Ramp							
NB left turn	60	28	28	41	40	33	34
NB through	150	46	44	66	64	46	49
4. E. Bennett Rd / Hansen Way – SR 49 EB On-Ramp							
SB left turn	60	<25	<25	40	40	<25	<25
SB through	150	<25	<25	145	145	45	45
5. E. Main St / Idaho Maryland Rd - SR 49 WB Ramps							
NB	---	<25	<25	32	32	<25	<25
SB	---	<25	<25	70	72	25	25
EB	---	39	41	86	88	34	36
WB	---	<25	<25	66	68	32	33
6. Idaho Maryland Rd / SR 49 EB Ramps							
NB right	---	39	51	48	48	<25	<25
NB left	355	81	87	151	151	50	52
WB	90	61	68	260	266	72	78
7. Idaho Maryland Rd / Railroad Ave							
EB	90	123	136	166	166	47	53
8. E. Main St / Brunswick Rd – W. Olympia Dr							
NB left	110	<25	<25	<25	<25	<25	<25
NB right	125	42	43	130	139	59	62
SB left (2 lanes)	355	68	67	175	176	106	109

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**Table 4.12-22
Cumulative Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
WB left (2 lanes)	150	43	44	97	102	75	71
WB right	150	47	51	149	159	69	74
9. Brunswick Rd / SR 49 WB Off-Ramp – Maltman Dr							
NB left	100	<25	28	68	66	54	53
NB right	100	30	30	131	117	84	85
SB left (2 lanes)	260	134	142	148	151	140	133
SB right	260	45	46	84	86	54	56
EB	160	61	65	202	203	128	141
WB left	145	61	61	106	106	90	93
10. Brunswick Rd / SR 49 EB Ramps							
NB left	200	141	152	215	218	180	177
NB right	---	106	102	262	258	110	97
11. Brunswick Rd / Sutton Way							
NB left (2 lanes)	280	58	55	435	545	141	136
SB left	190	38	37	115	110	52	57
SB right	180	---	---	---	<25	---	---
EB left (2 lanes)	185	61	53	127	138	66	63
EB right	250	52	50	224	220	98	96
WB left	125	48	49	177	179	84	79
12. Brunswick Rd / Idaho Maryland Rd							
NB left	540	90	108	151	166	56	76
SB left	120	<25	<25	188	188	103	106
EB left	150	34	25	74	74	39	39
WB left	175	100	99	68	68	43	43
13. Brunswick Rd / Whispering Pines Ln							
NB left	210	<25	<25	<25	<25	<25	<25
EB left	110	<25	<25	58	60	<25	<25
14. Brunswick Rd / E. Bennett Rd – Greenhorn Rd							
NB left	225	<25	<25	<25	<25	<25	<25

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**Table 4.12-22
Cumulative Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
SB left	260	<25	<25	<25	<25	<25	<25
EB	---	<25	<25	<25	<25	<25	<25
WB	---	<25	<25	<25	<25	<25	<25
15. Brunswick Rd / SR 174							
SB left	90	25	28	248	260	45	48
EB left	130	<25	<25	<25	<25	<25	<25
16. Brunswick Rd / Project Driveway							
NB left	350	---	<25	---	<25	---	<25
EB	---	---	<25	---	<25	---	<25
17. E. Bennett Rd / Millsite Rd							
NB right	---	---	<25	---	<25	---	<25
18. Whispering Pines Ln / Project Driveway							
NB	---	---	<25	---	<25	---	<25
WB left	100	---	<25	---	<25	---	<25
19. Idaho Maryland Rd / Centennial Dr							
NB	---	28	29	285	285	29	30
WB left	130	<25	<25	<25	<25	<25	<25
20. Idaho Maryland Rd /Sutton Way							
SB right	90	<25	<25	48	48	<25	<25
SB left	---	<25	<25	35	35	<25	<25
EB	---	<25	<25	105	105	<25	<25
WB	---	<25	<25	55	60	<25	<25
21. Sutton Way / Dorsey Dr							
SB right	120	<25	<25	28	28	<25	<25
SB thru	---	<25	<25	190	190	<25	<25
NB	---	30	30	1333	1340	58	60
EB	---	25	25	188	188	<25	25
22. Dorsey Dr / SR 49 EB Ramps							
NB Left (2 lanes)	215	98	103	125	120	58	54

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**Table 4.12-22
Cumulative Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
NB right	215	59	57	97	100	62	59
EB left	180	63	60	180	177	65	67
23. Dorsey Dr / SR 49 EB Ramps							
SB right	400	53	52	63	64	49	49
SB left-thru	400	43	42	165	162	64	67
EB right	155	41	44	218	217	40	42
WB left	180	73	74	253	250	108	111
24. Brunswick Rd / Loma Rica Dr							
NB right	410	32	32	27	27	<25	<25
SB left	400	134	146	147	147	69	74
WB left	100	35	38	178	178	36	38
Notes:							
<ul style="list-style-type: none"> • Highlighted values indicate queue length in excess of available storage. • Highlighted values indicate queue length in excess of available storage with more than 25-foot increase from No Project condition. • Queuing distances based on stochastic modeling. • * indicates longest lane for multiple turn lane approaches. 							
Source: <i>KDAnderson & Associates, Inc., 2021.</i>							



**Table 4.12-23
Cumulative Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
1. Neal St / Tinloy St							
EB	70	84	86	116	117	119	118
WB	150	115	116	106	110	131	144
2. S. Auburn St / Tinloy St							
NB through	80	73	76	137	144	98	97
NB through-left	80	44	46	63	69	44	45
SB	75	86	84	139	137	123	129
WB	95	68	69	113	117	103	93
3. E. Bennett Rd / Tinloy St – SR 49 WB Off-Ramp							
NB left turn	60	28	26	41	40	33	34
NB through	150	46	47	66	64	46	48
4. E. Bennett Rd / Hansen Way – SR 49 EB On-Ramp							
SB left turn	60	<25	<25	40	40	<25	<25
SB through	150	<25	<25	145	145	45	45
5. E. Main St / Idaho Maryland Rd - SR 49 WB Ramps							
NB	---	<25	<25	32	32	<25	<25
SB	---	<25	<25	70	71	25	25
EB	---	39	41	86	88	34	34
WB	---	<25	<25	66	67	32	32
6. Idaho Maryland Rd / SR 49 EB Ramps							
NB right	---	39	51	48	48	<25	<25
NB left	355	81	87	151	151	50	52
WB	90	61	68	260	266	72	78
7. Idaho Maryland Rd / Railroad Ave							
EB	90	123	136	166	166	47	53
8. E. Main St / Brunswick Rd – W. Olympia Dr							
NB left	110	<25	<25	<25	<25	<25	<25

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**Table 4.12-23
Cumulative Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
NB right	125	42	43	130	134	59	70
SB left (2 lanes)	355	68	66	175	177	106	117
WB left (2 lanes)	150	43	47	97	106	75	73
WB right	150	47	55	149	155	69	73
9. Brunswick Rd / SR 49 WB Off-Ramp – Maltman Dr							
NB left	100	<25	<25	68	70	54	51
NB right	100	30	30	131	128	84	83
SB left (2 lanes)	260	134	144	148	149	140	140
SB right	260	45	50	84	86	54	52
EB	160	61	62	202	205	128	139
WB left	145	61	65	106	107	90	89
10. Brunswick Rd / SR 49 EB Ramps							
NB left	200	141	153	215	225	180	179
NB right	---	106	94	262	259	110	96
11. Brunswick Rd / Sutton Way							
NB left (2 lanes)	280	58	56	435	490	141	139
SB left	190	38	39	115	113	52	54
SB right	180	---	---	---	---	---	---
EB left (2 lanes)	185	61	60	127	134	66	62
EB right	250	52	50	224	208	98	95
WB left	125	48	47	177	181	84	79
12. Brunswick Rd / Idaho Maryland Rd							
NB left	540	90	108	151	166	56	77
SB left	120	<25	<25	188	188	103	107
EB left	150	34	<25	74	74	39	39
WB left	175	100	99	68	68	43	44

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**Table 4.12-23
Cumulative Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
13. Brunswick Rd / Whispering Pines Ln							
NB left	210	<25	<25	<25	<25	<25	<25
EB left	110	<25	<25	58	60	<25	<25
14. Brunswick Rd / E. Bennett Rd – Greenhorn Rd							
NB left	225	<25	<25	<25	<25	<25	<25
SB left	260	<25	<25	<25	<25	<25	<25
EB	---	<25	<25	<25	<25	<25	<25
WB	---	<25	<25	<25	<25	<25	<25
15. Brunswick Rd / SR 174							
SB left	90	25	28	248	260	45	48
EB left	130	<25	<25	<25	<25	<25	<25
16. Brunswick Rd / Project Driveway							
NB left	350	---	<25	---	<25	---	<25
EB	---	---	<25	---	<25	---	<25
17. E. Bennett Rd / Millsite Rd							
NB right	---	---	<25	---	<25	---	<25
18. Whispering Pines Ln / Project Driveway – Not Applicable							
19. Idaho Maryland Rd / Centennial Dr							
NB	---	28	29	285	285	29	30
WB left	130	<25	<25	<25	<25	<25	<25
20. Idaho Maryland Rd / Sutton Way							
SB right	90	<25	<25	48	48	<25	<25
SB left	---	<25	<25	35	35	<25	<25
EB	---	<25	<25	105	105	<25	<25
WB	---	<25	<25	55	60	<25	<25
21. Sutton Way / Dorsey Dr							
SB right	120	<25	<25	28	28	<25	<25

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**Table 4.12-23
Cumulative Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
SB thru	---	<25	<25	190	190	<25	<25
NB	---	30	30	1333	1340	58	60
EB	---	25	25	188	188	<25	25
22. Dorsey Dr / SR 49 EB Ramps							
NB Left (2 lanes)	215	98	101	125	128	58	52
NB right	215	59	60	97	101	62	63
EB left	180	63	63	180	174	65	75
23. Dorsey Dr / SR 49 EB Ramps							
SB right	400	53	52	63	59	49	49
SB left-thru	400	43	38	165	161	64	69
EB right	155	41	42	218	220	40	49
WB left	180	73	76	253	249	108	114
24. Brunswick Rd / Loma Rica Dr							
NB right	410	32	32	27	27	<25	<25
SB left	400	134	146	147	147	69	74
WB left	100	35	38	178	178	36	38
Notes:							
<ul style="list-style-type: none"> • Highlighted values indicate queue length in excess of available storage. • Highlighted values indicate queue length in excess of available storage with more than 25-foot increase from No Project condition. • Queuing distances based on stochastic modeling. • * indicates longest lane for multiple turn lane approaches. 							
Source: KDAnderson & Associates, Inc., 2021.							



23. Dorsey Dr/SR 49 EB Ramps EB right and WB left; and
24. Brunswick Rd/Loma Rica Dr WB left.

In addition, incremental project traffic under Cumulative Scenario #1 would cause the following intersection movement to have queue lengths in excess of available storage:

8. E. Main St/Brunswick Rd – W. Olympia Dr WB right

With one exception, all of the aforementioned intersections would result in a queue length increase that is less than a 25-foot difference from the “No Project” condition. During “Plus Project” conditions, the Brunswick Road/Sutton Way intersection would have a storage length that is greater than 25 feet when compared to the “No Project” condition. The Brunswick Road/Sutton Way northbound left-turn lanes would extend up to 55 feet beyond the “No Project” scenario during the 3:30 to 4:30 PM hour. Thus, the project’s incremental traffic could result in a cumulatively considerable contribution to queue length at one intersection under Cumulative Plus Project Conditions Scenario #2.

Conclusion

The proposed project would result in longer queue lengths at several study intersections under both Scenario #1 and Scenario #2. Under both scenarios, queue lengths in excess of the 25-foot increase threshold would occur only for the northbound left at the Brunswick Road/Sutton Way intersection during the 3:30-4:30 PM hour. Therefore, the impact to study intersection queues under the Cumulative Plus Project Condition would be considered **significant**.

Mitigation Measure(s)

As noted above, queues in the northbound left turn lanes of the Brunswick Road/Sutton Way intersection would exceed the threshold of significance. Re-timing of the Brunswick Road/Sutton Way intersection would maintain LOS C conditions (29.5 seconds per vehicle) with queues declining for this movement. Following implementation of Mitigation Measure 4.12-10, the queues are shown to decrease to up to 386 feet under Scenario #1 and 434 feet under Scenario #2, both of which are less than the Cumulative No Project Condition. As such, implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level. However, because the intersection is within the jurisdiction of the City of Grass Valley, Nevada County does not have legal authority to impose this mitigation measure and ensure its eventual outcome. As a result, the impact is conservatively determined to be *significant and unavoidable*.

- 4.12-10 *Prior to commencement of project operations, the Brunswick Road/Sutton Way intersection shall be re-timed to the satisfaction of the City of Grass Valley, at the expense of the project applicant. Based on the Caltrans methodology to assess fair share percentage, the fair share is 8.5 percent. Final payment amount shall be determined by the City of Grass Valley, and shall represent the reasonable cost of re-timing the intersection.*



4.13 WILDFIRE

4.13. WILDFIRE

4.13.1 INTRODUCTION

The Wildfire chapter of the EIR summarizes the setting information and identifies wildfire potential within the project area based on state and local mapping. The chapter also includes a review of completed, active, and planned fuel treatments projects within the region and consideration of site-specific factors that could affect wildfire potential at the Centennial and Brunswick Industrial Sites.

4.13.2 EXISTING ENVIRONMENTAL SETTING

The following section describes the existing wildfire setting in the project region.

Several fire agencies provide fire protection services within the project area, including both wildland fire and structural fire response. The Centennial Industrial Site is located within both the Nevada County Consolidated Fire District (NCCFD) and the Ophir Hill Fire Protection District (FPD), whereas the Brunswick Industrial Site is located entirely within the Ophir Hill FPD. Responsibility for wildland fire suppression, however, is the sole responsibility of the state (i.e., California Department of Forestry and Fire Protection [CAL FIRE]), given that both the Centennial and Brunswick Industrial Sites are located within State Responsibility Areas (SRA), as shown in Figure 4.13-1.

As also shown in Figure 4.13-1, both the Centennial and Brunswick Industrial Sites are located on lands classified as being within a Very High Fire Hazard Severity Zone.

Public Resources Code 4201-4204 direct CAL FIRE to map fire hazards within SRAs, based on relevant factors such as fuels, terrain and weather. These statutes were passed after significant wildland-urban interface fires; consequently, these hazards are described according to their potential for causing ignitions to buildings. These zones referred to as Fire Hazard Severity Zones (FHSZ), provide the basis for application of various mitigation strategies to reduce risks to buildings associated with wildland fires. The zones also relate to the requirements for building codes designed to reduce the ignition potential to buildings in the wildland-urban interface zones.

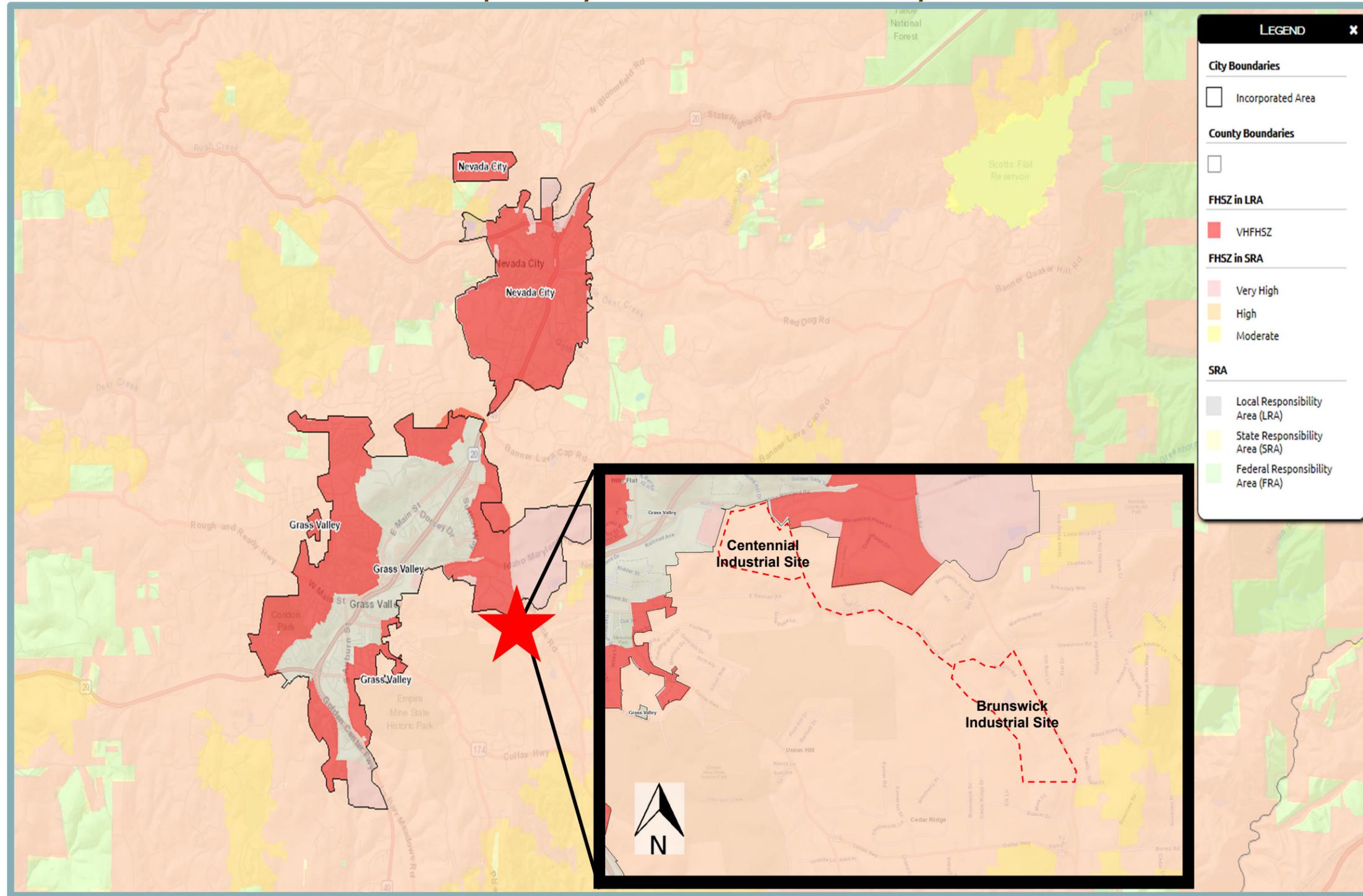
According to California Government Code Section 51178, Very High FHSZs are determined by the Director of Forestry and Fire Protection based on consistent statewide criteria and the severity of fire hazard that is expected to prevail in those areas. Very high FHSZs shall be based on fuel loading, slope, fire weather, and other relevant factors including areas where Santa Ana, Mono, and Diablo winds have been identified by CAL FIRE as a major cause of wildfire spread.

Wildland Fire Hazards

The following section includes a discussion of the potential for wildland fires to occur in the project area and the agencies and resources available for wildland fire suppression.



Figure 4.13-1
State Responsibility Areas and Fire Hazard Severity Zones



*Boundaries are approximate



Topography and Vegetation

With the exception of the developed portions of the City of Grass Valley, the region surrounding the overall project site is forested, thus, providing fuel sources for wildfire. Topography can play a significant role in wildfire risk given that fires burn faster uphill than downhill because the fuels above the fire are brought into closer contact with upward moving flames. In addition, the process of heat transfer is influenced by topography (slope and aspect). Because heat rises (convection), heat transfer through convection tends to move upward. During wildfires, burning materials on the forest floor create convection currents that preheat the leaves and branches of shrubs and trees above the fire. Heat transfer therefore occurs more rapidly through fuels up a slope causing a fire to travel more quickly upslope than downslope.

The vertical air currents can also lift burning materials. The floating embers, also called firebrands, can settle in unburned areas ahead of the fire and start small fires. This phenomenon is called spotting and can result in rapid advancement of the fire.

While topography varies across the Centennial and Brunswick Industrial Sites, as well as across the greater landscape in the project region, no significant slopes, such as those in steep-walled canyons or mountainous valleys exist. The nearest such topographical features would be approximately 3.5 to 4 miles away, and include but are not limited to Deer Creek canyon west of Nevada City and the canyons generally north and east of Rollins Lake (e.g., Greenhorn Creek, Steep Hollow Creek).

With respect to project site vegetation, based on estimates in the biological resources reports, the Brunswick Industrial Site includes approximately 58 acres of forest land and the Centennial Industrial Site (post-remediation baseline) includes up to 10 acres of forest land.

Prevailing Winds

The predominant wind direction at the project site area is from the North-East and South-West directions. This suggests, for example, that a fire burning in the forested terrain southwest of the Centennial and Brunswick Industrial Sites could burn through the Sites due to prevailing southwesterly winds.

Large Fire History

According to CAL FIRE, relatively few larger wildfires have occurred within the region surrounding the project sites over the past three years.¹

- In August 2021, the Bennett Fire burned approximately 59 acres, comprising most of the Centennial Industrial Site. Involved agencies included CAL FIRE (Nevada-Yuba-Placer Unit), NCCFD and Grass Valley Fire Department. No damaged structures were reported.
- In August 2021, the River Fire burned 2,619 acres in Nevada and Placer counties, along the Bear River and its drainages, near Milk Ranch Road and Bear River Campground Road. Damages were as follows: 21 structures damaged, 142 structures destroyed, and four injuries.
- In August 2020, the Jones Fire burned 705 acres along Jones Bar Road, South Yuba River Drainage, northwest of Nevada City, approximately seven miles northwest of the project area. Damages were as follows: three structures damaged, 21 structures

¹ CAL FIRE. *Incidents Overview*. Available at: <https://www.fire.ca.gov/incidents/>. Accessed February 16, 2021 and November 30, 2021.



destroyed, seven people injured. No other wildfires were reported by CAL FIRE for Nevada County in 2020.

- In June 2019, the only wildfire incident recorded by CAL FIRE in Nevada County was a 2-acre fire (Long Fire) north of Long Point Road, approximately 12.5 miles north of the project area. No damaged structures or injuries were reported.
- In August 2018, the only wildfire incident recorded by CAL FIRE in Nevada County was the Oak Fire, which burned 16 acres off Oak Drive and Buck Mountain Road, south of Grass Valley, approximately eight miles southwest of the project area. No damaged structures or injuries were reported.
- In 2017, seven wildfire incidents are recorded by CAL FIRE in Nevada County. The largest wildfire was the Lobo (Wind Complex) Fire (October 2017), which burned 821 acres, approximately 5.5 miles northwest of the project area, along Deer Creek Canyon. Two structures were damaged and 48 structures destroyed.
 - Approximately 3.5 miles south/southwest of the project area, the McCourtney (Wind Complex) Fire (October 2017) burned approximately 76 acres, near McCourtney Road and State Route (SR) 20. Two structures were damaged and 13 structures destroyed.
 - Approximately 9.5 miles south of the project area, the Brewer Fire (July 2017) burned approximately 10 acres off Brewer Road and Conestoga Drive in Alta Sierra.
 - Approximately 10 miles northwest of the project area, the Pleasant Fire (August 2017) burned approximately 392 acres off SR 49 and Pleasant Valley Road, south of North San Juan. One structure was damaged, no structures destroyed, and one injury was reported.
 - The Garden Fire occurred in October 2017 and burned approximately 19 acres off Wolf Road and Garden Bar Road, over 11 miles southwest of the project site. No damaged structures or injuries were reported.
 - The Greenhorn Fire occurred in July 2017 and burned approximately 15 acres near Greenhorn Access Road, Rollins Lake, approximately 4 miles southeast of the project site. No damaged structures or injuries were reported.
 - The Grizzly Fire occurred in July 2017 and burned approximately 10 acres off Grizzly Road and Turnagain Arm Road, over 10 miles northeast of the project area. No damaged structures or injuries were reported.
- In 2016, two wildfires were reported in Nevada County by CAL FIRE. The Auburn Fire burned approximately 47 acres off South Auburn Street, near Empire Mine State Park, less than two miles west of the project area. No damaged structures or injuries were reported. The Phoenix Fire burned approximately 38 acres near Soda Springs, over 25 miles northeast of the project area.
- The second largest wildfire in Nevada County within the last six years is the July 2015 Lowell Fire, which burned approximately 2,304 acres. The fire occurred in the Steep Hollow drainage, west of Alta, approximately 7.5 miles east of the project area. There was a total of one structure damaged, two structures destroyed, and six reported injuries. Only one other wildfire was reported by CAL FIRE in 2015, the 30-acre McCourtney Fire, over 13 miles southwest of the project area.

CAL FIRE strives to extinguish 95 percent of all wildland fires at 10 acres or less. There have been numerous additional fires within the region surrounding the project sites over the past three years. These fires, for the most part, were extinguished within the above stated goal of under 10 acres.



Fuel Treatment Efforts

Fuel treatment efforts have been ongoing within the project region. Forest fuel treatments are used by managers for ecological restoration and reducing fire hazard. Due to past management decisions and long-term fire exclusion, forests are more dense and are susceptible to severe wildfires. Fuel treatments aim to reduce the intensity and size of wildfires, increase species diversity, and restore forests to their historical condition. There are two common types of treatments:

- Mechanical thinning: cutting and clearing wood and brush; and
- Prescribed fire: burning existing fuel before more accumulates.

Based on proximity to homes and communities one treatment may be used over the other. Several research studies show a combination of thinning following by burning of surface fuels is most effective in promoting forest resilience to wildfire.²

Figure 4.13-2 shows the completed, active, and planned fuel treatment projects within the region surrounding the overall project site.³

The fuel treatment efforts closest to the overall project site (i.e., within an approximately 1.5 mile radius) include the active fuel treatment project within Empire Mine State Park to the south; the completed fuel treatment operation on private land directly south of the Brunswick Industrial Site, south of SR 174; the completed fuel treatment operations on portions of the Loma Rica Ranch Specific Plan property (north and south of Idaho Maryland Road); and the active fuel treatment project immediately north of the Nevada County Air Park. With respect to planned but not yet funded fuel treatment projects in the immediate vicinity (i.e., grant application submitted but award not yet confirmed), the primary project is roadside vegetation management (to create defensible space) along East Bennett Road, where the potable water pipeline would be installed, as well as the portion of Brunswick Road along the frontage of the Brunswick Industrial Site. Similar roadside vegetation management is also proposed along Greenhorn Road, east of the Brunswick Industrial Site.

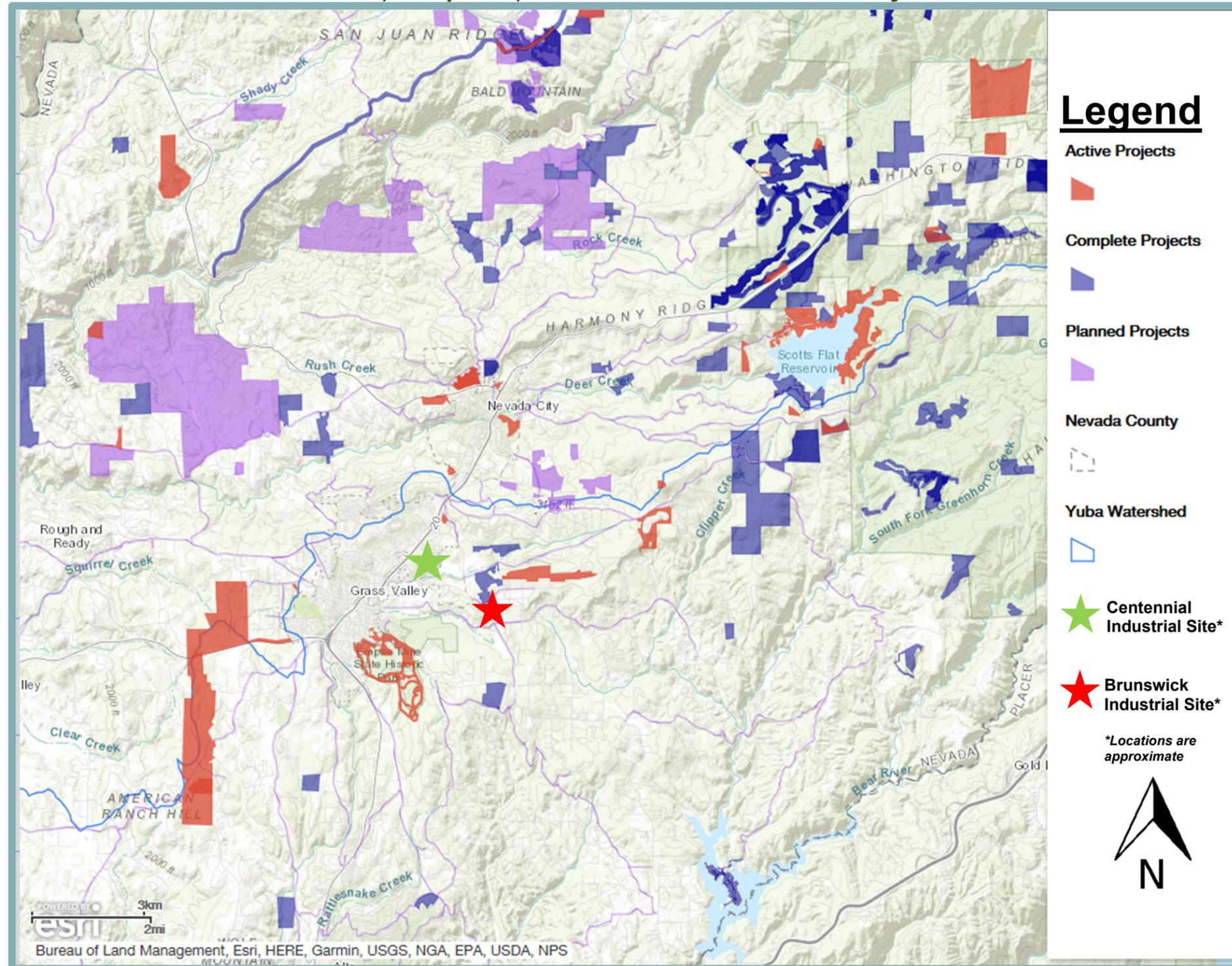
Figure 4.13-2 shows other regional fuel treatment projects that have been completed or are in the active or planning stages. Noteworthy is the fact that many of these regional fuel treatment projects are located in steep canyons or ravines where wildfire risk is increased. For example, fuel treatment was completed within the Clipper Creek drainage, east of the project site, in 2014. A relatively large fuel treatment project is funded for the Jones Ravine area, north of Newtown; this is the approximate location of the 2020 Jones Fire. The fuel treatment project is known as the Sierra Foothill Forest Climate Resilience Project. Another relatively substantial fuel treatment project in the active stage is the Ponderosa West GV Defense Zone Project – Phase 1, which is a shaded fuel break project identified as a priority project in the 2016 Nevada County Community Wildfire Protection Plan.

² For example, see United States Department of Agriculture / Forest Service, Rocky Mountain Research Station. *Review of Fuel Treatment Effectiveness in Forests and Rangelands and a Case Study from the 2007 Megafires in Central Idaho USA (General Technical Report RMRS-GTR-252)*. January 2011.

³ The source is the Yuba Forest Network Stakeholder Mapping Project which is led by the South Yuba River Citizens League's (SYRCL) Yuba Forest Network in collaboration with the County of Nevada Office of Emergency Services.



**Figure 4.13-2
 Active, Completed, and Planned Fuel Treatment Projects**



*Source: Yuba Forest Network Stakeholder Mapping Project. Accessed February 2021.



Public Safety Power Shutoffs

In an effort to prevent fires, the electrical services provider for western Nevada County, PG&E, initiated public safety power shutoff (PSPS) events in 2019, which may continue in subsequent years until fire risks associated with power lines are decreased. PSPS events involve PG&E turning off electrical service during times when the weather is predicted to have a heightened fire risk from gusty winds and dry conditions. Dependent on the fire risks, the power outage events may occur in specific areas or for all PG&E customers across the County. The PSPS events that occurred in Nevada County for 2019 impacted a majority of the western portion of the County, including Nevada City and the City of Grass Valley. Throughout the PSPS events, emergency services in Nevada County remain functional with back-up power supplies, but many businesses and agencies are not operational, potentially posing inadequate access to medical services and exposure to excessive heat or cold.

The PG&E circuit along Brunswick Road, from which the Brunswick Industrial Site operations would be served, has been subject to recent (October 2019) PSPS's due to wildfires.⁴

Fire Agencies and Resources

As discussed above, CAL FIRE has primary responsibility for wildfire suppression on lands within SRAs, wherein the Centennial and Brunswick Industrial Sites are located. The CAL FIRE Nevada-Yuba-Placer Unit serves the project area. Notwithstanding, depending upon the incident, other fire agencies may provide response during a wildfire incident through mutual and/or automatic aid agreements. These agencies are discussed in Chapter 4.11, Public Services and Utilities, of this EIR.

California Department of Forestry and Fire Protection

Wildland fire protection is provided either by the State (through CAL FIRE) or the Federal government (through the U.S. Forest Service). The State has direct protection responsibility for all state and private wildlands (or forest lands) in designated areas, and provides support and assistance to local jurisdictions in other areas of the state. CAL FIRE is responsible for wildland fire response at the Centennial and Brunswick Industrial Sites. Local fire districts may also provide wildland fire protection, depending upon the event and circumstances.

With respect to the project site, the nearest CAL FIRE station is Station 20, located at 10242 Ridge Road, Nevada City. Station 20 is typically fully staffed, 24-hours a day, year-round. A minimum of three fire personnel staff the Station at all times. During summer, the Station is equipped with two fire engines (Type 3, 500-gallon water tank), and one engine (Type 3) in the winter.

In addition to legal responsibility for wildland fires in SRAs, where the project site is located, CAL FIRE has mutual and/or automatic aid agreements, and thus, may assist local fire agencies with structural fires and medical incidents under the closest resource concept.

CAL FIRE strives to meet the National Fire Protection Association (NFPA) 1710 guideline for fire department responses of 5 minutes 90 percent of the time.

⁴ Pacific Gas & Electric. *Amended PG&E Public Safety Power Shutoff (PSPS) Report to the CPUC, October 26 & 29, 2019 De-Energization Event*. Available at: https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/PSPS-Report-Letter-10.26.19-amend.pdf. Accessed January 28, 2021.



Grass Valley Air Attack Base

Nevada County is home to an additional distinct emergency resource located at the Nevada County Airport in Grass Valley—the interagency Grass Valley Air Attack Base. This is one of only 13 Wildfire Air Attack Bases in California, and it is one of three interagency Wildfire Air Attack Bases in the State (the other two are in Redding and Porterville). The air attack base is operated and staffed by CAL FIRE (Nevada-Yuba- Placer Unit) Air Attack, and the U.S. Forest Service (Tahoe National Forest) Air Attack. CAL FIRE maintains two planes and the Forest Service maintains one plane. Two retardant air tankers are also based during the fire season at the air attack base. The strategic location of the Grass Valley air base assists CAL FIRE in achieving its goal of twenty-minute response times anywhere in California.

Wildfire Dispatch

The Grass Valley Emergency Command Center, located at the Nevada County Airport in Grass Valley, is an interagency-agency cooperative facility between the U.S. Forest Service (Tahoe National Forest) and CAL FIRE (Nevada-Yuba-Placer Unit). CAL FIRE dispatch personnel provide emergency dispatch services through cooperative agreements with all the fire districts and cities within Nevada County,⁵ and dispatch and accountability of all resources within 12 operational area/counties as The Region IV Coordination Center for the California Office of Emergency Services in the Sierra Nevada. Additionally, dispatch services are provided into the state of Nevada, with the North Lake Tahoe Fire Protection District.

4.13.3 REGULATORY CONTEXT

The following sections provide a summary of the federal, state and local regulations pertaining to wildfire that are applicable to the proposed project.

Federal Regulations

The following are the federal environmental laws relevant to wildfire.

Healthy Forest Reforestation Act

In recognition of widespread declining forest health, the Healthy Forest Restoration Act (HFRA) was passed in 2003 to expedite the development and implementation of hazardous fuel reduction projects on federal land. A key component of the HFRA is the development of Community Wildfire Protection Plans (CWPP) as a mechanism for public input and prioritization of fuel reduction projects. A CWPP provides background information about a project area, discussion of community values at risk, community base maps, a fire risk assessment, and recommendations that identify treatment areas for reducing fuels and promoting education and awareness about wildland fires, as well as monitoring and assessment strategies.

State Regulations

The following are the State environmental laws and policies relevant to wildfire.

State Responsibility Area

Pursuant to Public Resources Code (PRC) Sections 4125-4128, the Board of Forestry and Fire Protection classifies all lands in the state for the purposes of determining areas in which the

⁵ Yuba County fire districts (outside of incorporated cities), Placer County (west) fire districts in contract (Placer County Fire Department, Auburn City Fire, City of Colfax Fire, Alta Fire Protection District), Placer County (east) fire districts (North Tahoe Fire Protection District, Olympic Valley Fire Protection District, Meeks Bay Fire Protection District, and NorthStar Fire Protection District).



financial responsibility of preventing and suppressing wildfire is primarily the responsibility of the state. These lands are termed SRA.

Fire Hazard Severity Zones

FHSZs are geographical areas designated pursuant to California PRC Sections 4201 through 4204 and classified as Very High, High, or Moderate in SRAs or as Local Agency Very High FHSZs designated pursuant to California Government Code Sections 51175 through 51189.

The California Code of Regulations (CCR), Title 14, Section 1280 entitles the maps of these geographical areas as “Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California.”

California Public Resources Code Section 4291

California PRC Section 4291 sets forth minimum fire safety standards for development in or adjoining mountainous areas and forest-covered lands.

Provisions that would apply to development of the proposed project include, but are not necessarily limited to:

- Defensible space must be maintained 100 feet from the side, front and rear of a structure, or up to the property line where the property line is less than 100 feet from the structure;
- Any tree, shrub, or other plant adjacent to or overhanging a building must be free of dead or dying wood;
- The roof of any structure must be free of leaves, needles, or other vegetative materials;
- Prior to constructing a new building, the owner shall obtain a certification from the local building official that the dwelling or structure, as proposed to be built, complies with all applicable state and local building standards; and
- Prior to final inspection approval of any building, the Fire Department must inspect the building and the fire suppression facilities to certify that the fire suppression improvements comply with Building Code and fire department service requirements.

California Building Code – Chapter 7A (Materials and Construction Methods for Exterior Wildfire Exposure)

Chapter 7A of the California Building Code (CBC) includes definitions and standards for building materials, systems, and/or assemblies to be used for the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area, which is defined by the CBC as a geographical area identified by the State as a “Fire Hazard Severity Zone” in accordance with the PRC Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires.

Chapter 7A of the CBC is intended to establish minimum standards for the protection of life and property by increasing the ability of a building located in any FHSZ within SRAs or any Wildland-Urban Interface Fire Area to resist the intrusion of flames or burning embers projected by a vegetation fire and contributes to a systematic reduction in conflagration losses. All new buildings to be located in a FHSZ or Wildland-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted on or after July 1, 2008 are required to comply with Chapter 7A of the CBC. Examples of the Chapter 7A standards include, but are not limited to, use of ignition-resistant materials, fire-intrusion design of roofing and vents, and use of glazed exterior windows and doors.



Local Regulations

The following local goals and policies related to wildfire are applicable to the proposed project.

Nevada County General Plan

The following applicable goals and policies related to wildfire are from the Nevada County General Plan.

Safety Element

Goal EP-10.1 Provide a coordinated approach to hazard and disaster response preparedness.

Policy EP-10.1.4 Provide for adequate evacuation routes in areas of high fire hazard, high potential for dam failure, earthquake, seiches, avalanche, flooding or other natural disaster.

Policy EP 10.1.6 Transportation routes that are designated on the General Plan Land Use Maps as interstates, freeways, highways, and other principal arterial routes shall be considered primary evacuation routes on a Countywide basis. Such routes provide the highest levels of capacity and contiguity and serve as the primary means for egress from the County.

The routes designated on the General Plan Land Use Maps as minor arterial or major collector routes shall be considered secondary evacuation routes on a Countywide basis. These routes supplement the primary evacuation routes, and provide egress from local neighborhood and communities.

Policy EP-10.1.7 Prioritize the creation and maintenance of private road districts on existing private roads to ensure emergency ingress and egress meets Nevada County and CAL FIRE road and driveway standards and maintains these standards. Private road districts shall include the assurance that emergency ingress and egress will be maintained.

Policy EP-10.1.11 Mitigate development in areas of High and Very High Fire Hazard Severity Zones by incorporating into conditions of approval the most current data in order to assure appropriate fuel modification around the development and emergency ingress and egress for residents, visitors and emergency services.

Policy EP-10.1.12 Continue to work with CAL FIRE, California Office of Emergency Services and Nevada County Office of Emergency Services to adopt by ordinance the most current Fire Hazard Severity Zones Map, adopt the most appropriate fire-resistant building material standards and fuel modification/vegetation management requirements for



each zone as a basis for project review in accordance with Federal, State and local standards.

Policy EP-10.1.13 Nevada County shall develop policies and provide updates, as appropriate, that address recovery and redevelopment after a large fire with the intent to address the reduction of future vulnerabilities to fire hazard risks through site preparation, redevelopment layout design, fire resistant landscape planning, and fire retarding building design and materials.

Goal FP-10.7 Enhance fire safety and improve fire protection effectiveness through infrastructure and service improvements.

Policy FP-10.7.1 Ensure County-maintained roads meet design standards for current or anticipated uses, as designated on the General Plan Land Use Map. Maintain and update Nevada County road standards for both public and private roads to adequately address emergency ingress and egress.

Policy FP-10.7.2 As a condition of development, require long-term maintenance of private roads to meet current standards, including roadside vegetation management, as part of a formal private road association or similar entity.

Policy FP-10.7.3 Projects requiring a traffic study shall include in such study an assessment of the current emergency evacuation capacity of the public and/or private roads that serve the proposed project, and recommended mitigation that will increase the evacuation capacity, if needed.

Policy FP-10.7.4 Encourage fire protection agencies to determine appropriate levels of fire protection facilities and services for both Community and Rural Regions.

Policy FP-10.7.5 Encourage the upgrading of facilities within existing fire protection districts, and encourage the expansion of existing districts where warranted by the population density allowed under the General Plan.

Policy FP-10.7.6 Locate new critical facilities outside of High and Very High Fire Hazard Severity Zones, unless alternatives are not available or feasible. (Refer to Fire Hazard Severity Zone Map and Critical Facilities in Section 4.3.15 in the Local Hazard Mitigation Plan).

Policy FP-10.7.7 The County shall support community or County-wide water supply systems and the ongoing maintenance of water supply infrastructure for fire protection.



Goal FP-10.8 Reduce fire risk to life and property through land use planning, ordinances, and compliance programs.

- Policy FP-10.8.1 Nevada County shall apply and enforce State of California Public Resource Code 4290 and 4291 through County-adopted ordinances, which includes minimum fire safety standards related to defensible space that are applicable to State responsibility area lands and lands classified and designated as very high fire hazard severity zones as reflected on current and future maps defined in subdivision (i) of Section 51177 of the California State Government Code. Nevada County shall continue to adopt revisions to the California Fire and Building Codes and other standards, which address fire safety, as they are approved by inspection organizations and the State of California. Review, revise, and/or adopt existing or new local codes, ordinances, and Fire Safe Standards to reflect contemporary fire safe practices.
- Policy FP-10.8.3 Recognize the value of the "same practical effect" or "exception" process when the letter of the law may not be practically applied, but the intent of the law may be achieved through application of other measures. Develop a public information sheet to increase public awareness and understanding regarding the application of these processes.
- Policy FP-10.8.4 New development and subdivisions shall include adequate emergency infrastructure that includes but is not limited to, emergency water facilities to assist and support wildfire suppression, and adequate ingress and egress routes to facilitate emergency responders' access and the evacuation of inhabitants. Provisions shall be made on applicable projects to require the maintenance of emergency infrastructure and facilities.
- Policy FP-10.8.5 Land use patterns and development standards shall minimize fire hazards, and shall be reviewed and revised, as needed, consistent with the five-year update of the Safety Element.
- Policy FP-10.8.6 Fire safe measures shall be commensurate with the response time for emergency services (e.g. longer distance to a fire department requires more stringent mitigation measures).
- Policy FP-10.8.7 As part of the coordinated and centralized fire safe reviews, the following shall be included in the Comprehensive Site Development Standards as the basis for site plan review:



- a. Standards for roads and private driveways, which will enhance the ability of emergency service providers to respond to structural and wildland fires, and calls for medical and law enforcement emergency assistance. The standards shall provide for secondary road access to new projects where necessary for fire safety or emergency access;
- b. Each property outside of a developed water system shall maintain sufficient usable water storage to provide wildfire and structure protection on the property;
- c. Sign and address standards, which will provide for easy identification of roads, streets, driveways and buildings by emergency service providers; and
- d. Standards to reduce hazards associated with the structural and wildland intermix, including:
 - 1.) Fuel modification and vegetation management procedures adjacent to structures and fuel breaks where appropriate;
 - 2.) Vegetation management adjacent to roads and driveways to provide safe travel for residents, and firefighting, medical and police personnel; and
 - 3.) Building setbacks.

Policy FP-10.8.8 In those areas outside Community Regions, which are identified as having a high to very high fire hazard severity and/or lack adequate year-round fire protection facilities, maintain low-density land use designations (Rural or Forest) in order to minimize the potential fire hazard.

Policy FP-10.8.9 The County shall consult the fire hazard severity zones map during the review of all projects so that standards and mitigation measures appropriate to each hazard classification can be applied. Land use densities and intensities shall be determined by mitigation measures that may include development clustering, fire breaks, and fire-resistant building design and materials.

Nevada County Emergency Operations Plan

The Nevada County Emergency Operation Plan (EOP) delineates responsibilities of first responders (fire and law) and other response support organizations, e.g., Department of Public Works, Environmental Health, etc. for natural disasters and manmade emergency incidents in Nevada County. The EOP is intended to mitigate future disasters and emergency incidents.

The EOP includes a Mass Evacuation Annex (Annex B) that establishes County, city and other agency responsibilities and the concept of operation for support of a mass vehicular evacuation moving within or through the County that has been caused by a disaster or incident occurring outside of Nevada County. A new Nevada Operational Area (OA) Evacuation Annex (2020) has been drafted and is set to go to the Board of Supervisors for approval. The purpose of this OA



Evacuation Annex is to provide mass evacuation strategies for the OA's response to emergencies that involve the evacuation of people from an impacted area. This involves coordination and support for the safe and effective evacuation of the population, including people with disabilities and access and functional needs, whom may need additional support to evacuate. Focus areas within the evacuation annex include public alert and warning, transportation, and evacuation terminology.

The Annex was developed as a functional support document to the Nevada County EOP; and is consistent with the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). It is coordinated with the State's emergency plan, compliant with the recommendations from the Comprehensive Preparedness Guidance (CPG) 101 v. 2.0 and is applicable to all locations and to all agencies, organizations, and personnel with evacuation and evacuation support function responsibilities within the Nevada OA.

Nevada County Local Hazard Mitigation Plan (Update)

Nevada County and six other jurisdictions, in conjunction with a planning committee, prepared the Nevada County Local Hazard Mitigation Plan (LHMP) update to the 2011 Federal Emergency Management Agency (FEMA) approved Nevada County Local Hazard Mitigation Plan. This plan was also developed, among other things, to ensure Nevada County and participating jurisdictions' continued eligibility for certain federal disaster assistance: specifically, the FEMA Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), and the Flood Mitigation Assistance Program (FMA).

The Nevada County LHMP Update is a multi-jurisdictional plan that geographically covers the entire area within Nevada County's jurisdictional boundaries (hereinafter referred to as the Planning Area). The LHMP includes a vulnerability assessment of hazards and their potential impact on the community. Using this information, the LHMP includes a mitigation strategy, consisting of a set of goals, objectives, and mitigation actions (Table 5-3 of the LHMP). Wildfire mitigation actions consist of fuel reduction projects, among others.

Nevada County Community Wildfire Protection Plan

The Nevada County Community Wildfire Protection Plan (CWPP, 2016) represents the efforts of the Fire Safe Council of Nevada County, Inc. (FSCNC) in cooperation with a wide variety of organizations, private citizens and agencies, such as CAL FIRE, Bureau of Land Management, U.S. Forest Service, and Nevada County Office of Emergency Services (OES). The primary goal of the CWPP is to protect human life, private property, essential infrastructure and natural resources through the implementation of fire prevention projects that work to increase public awareness, improve forest health, sustain local wildlife and preserve the natural beauty of the area through a shared responsibility concept. To that end, the CWPP identifies mitigation actions, including fuels reduction projects, Firewise Community education and outreach, and fire prevention and suppression in the Wildland Urban Interface.

4.13.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to wildfire. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.



Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, Section XX. Wildfire, determination of significant impacts related to wildfire is based on whether the proposed project would result in the following, if located in or near state responsibility areas or lands classified as very high FHSZs:

- Substantially impair an adopted emergency response plan or emergency evacuation plan.
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
- 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.
- 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.

Method of Analysis

The impact analysis contained in this chapter is based on a review of available CAL FIRE wildfire hazard mapping and recent wildfire history within Nevada County. In addition, state and local fire hazard regulations were evaluated to identify applicable design requirements for the proposed project to minimize wildfire risk (e.g., defensible space). Raney also contacted local fire agencies to discuss their resources and responsibilities related to wildfires.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in comparison with the standards of significance identified above.

4.13-1 Substantially impair an adopted emergency response plan or emergency evacuation plan. Based on the analysis below, the impact is *less than significant*.

As stated in the Nevada County General Plan Safety Element and the Nevada OA Evacuation Annex to the County EOP, primary evacuation routes in Nevada County consist of the major interstates, highways, and principal arterials identified on the Nevada County General Plan Land Use Map. The routes designated on the General Plan Land Use Maps as minor arterial or major collector routes shall be considered secondary evacuation routes on a Countywide basis. These routes supplement the primary evacuation routes, and provide egress from local neighborhood and communities. According to the Table 4.1 of the Circulation Element of the General Plan, Brunswick Road is considered a Minor Arterial, and thus, is not a primary evacuation route for the County. Rather, Brunswick Road is considered a secondary evacuation route.

As discussed in the Project Description chapter, the average transport of engineered fill will be 1,000 tons per day. A maximum transport rate of up to 2,000 tons of engineered fill per day is required to make up for periodic weather or operational delays. Truck payloads will be approximately 20 tons per truck and therefore will require up to a maximum of 100 round trips per day and an average of 50 round trips per day, over a 16-hour period (6:00 AM to 10:00 PM). Up to 18 additional truck trips



could occur per day for various operations (gold concentrate shipping, materials deliveries, etc.).

For a period of approximately five years, trucks would transport barren rock from the Brunswick Industrial Site to the Centennial Industrial Site or Brunswick Industrial Site engineered fill areas. Transport of barren rock to the Centennial Industrial Site is anticipated to occur 16 hours per day, seven days per week. At these rates, it would take approximately five years to fill the approximately 44-acre fill area of the 56-acre Centennial Industrial Site using engineered fill from the Brunswick Industrial Site. Notwithstanding the priority of placing engineered fill at the Centennial Site, the ultimate approach to engineered fill placement will need to remain flexible to address any potential unforeseen circumstances. One such scenario would be if the remediation of the Centennial Industrial Site, currently under Department of Toxic Substances Control (DTSC) oversight, is not complete upon commencement of mining, in which case engineered fill would be placed at the Brunswick Industrial Site and/or transported off-site to be utilized in local and regional construction markets. If the clean-up project on the Centennial Industrial Site is not completed within the 80-year permit life of the mine project, engineered fill would be placed at the Brunswick Industrial Site and/or transported off-site to be utilized in local and regional construction markets, and no material would be placed on the Centennial Industrial Site. With respect to the Brunswick Industrial Site, engineered fill would be transported from the truck-loading area to an approximately 31-acre portion of the Brunswick Industrial Site, using only on-site private roads. Assuming the same rates for the Centennial Industrial Site, it would take approximately six years to fill the Brunswick Industrial Site engineered fill area to the design elevations.

After full placement of fill at the Centennial and Brunswick Industrial Sites to the pad design elevations, the need for hauling of engineered fill would continue due to ongoing mining over the use permit term of 80 years, and thus, hauling would shift entirely to local and regional markets, with the maximum truck trips per day remaining at 100, with a daily average of 50.

Engineered fill from the Brunswick Industrial Site will be hauled to the Centennial Industrial Site via Brunswick Road and Whispering Pines Lane. Engineered fill from the Brunswick Industrial Site to other customers will be hauled using Brunswick Road to SR 20/49. Off-site haul of gold concentrate will average one truck trip per a day using Brunswick Road to SR 20/49. Hauling of fuel and other freight, including explosives, would occur using Brunswick Road to SR 20/49. Thus, over the life of the project, up to 118 haul truck round trips would occur on Brunswick Road during the hours from 6:00 AM to 10:00 PM, seven days a week. On an hourly basis, this equates to approximately 7.4 haul truck round trips per hour on Brunswick Road.

In the event of an emergency, such as a wildfire, requiring evacuation, the incident command center would direct County OES to issue the evacuation order through its Code Red Mass Communication System to notify residents and/or utilize the Wireless Emergency Alert System to send out notifications through cell phones and/or utilize the Emergency Alert System (EAS), which broadcasts across TV screens and AM/FM radio. In addition, the Sheriff's Office will send out deputies to evacuation areas to broadcast an emergency siren (Hi-Lo System) from their patrol vehicles.



In the event of an evacuation order in the vicinity of the proposed mine, such as an evacuation of residents off of Greenhorn Road, the incident command center would contact dispatch and direct them to contact the mine and request the mine operator to shut down the mine and cease all truck hauling operations.⁶ While Brunswick Road is not a primary evacuation route, it would be the evacuation route used by residents of the Greenhorn Road area to evacuate to the primary evacuation route of SR 49/20. Ceasing haul truck operations during the emergency evacuation order would ensure that the proposed project would not have the potential to physically interfere with an emergency evacuation plan. Operation of the approximately 7.4 haul trucks per hour attributable to the proposed project could either be temporarily ceased and/or these trucks could pull off the road to enable residents to evacuate as quickly and expeditiously as possible. With the temporary cessation of mine operations, if directed by County dispatch, no further haul trucks would be entering Brunswick Road during an evacuation order. Accordingly, County OES has stated that the proposed project would not have a significant impact related to physically interfering with an adopted emergency evacuation plan.⁷

Based on the above, the proposed project would have a **less-than-significant** impact related to substantially impairing an adopted emergency response plan or emergency evacuation plan.

Mitigation Measure(s)

None required.

4.13-2 Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Based on the analysis below, and with implementation of mitigation, the impact is less than significant.

Topography varies across the Centennial and Brunswick Industrial Sites, as well as across the greater landscape in the project region, and while approximately 4 acres of steep slopes (equal to or greater than 30%) occur on Centennial and less than 7 acres occur on Brunswick, no significant slopes, such as those in steep-walled canyons or mountainous valleys exist. The nearest such topographical features would be approximately 3.5 to 4 miles away, and include but are not limited to, Deer Creek canyon west of Nevada City and the canyons generally north and east of Rollins Lake (e.g., Greenhorn Creek, Steep Hollow Creek).

The predominant wind direction at the project site area is from the North-East and South-West directions. This suggests, for example, that a fire burning in the forested terrain southwest of the Centennial and Brunswick Industrial Sites could burn through the Sites due to prevailing southwesterly winds.

⁶ Personal communication between Lieutenant Robert Jakobs, Emergency Operations Coordinator, Office of Emergency Services, Nevada County Sheriff's Office, and Nick Pappani, Vice President, Raney Planning & Management, Inc., January 5, 2021.

⁷ *Ibid.*



CEQA Guidelines Appendix G indicates that additional factors must be considered to determine the potential for a project to exacerbate wildfire risk. Among these other factors is the extent and nature of on-site vegetation. As discussed in Section 4.4 of this Draft EIR, the Brunswick Industrial Site includes approximately 58 acres of forest land and the Centennial Industrial Site (under the post-Clean-Up Project baseline discussed in Section 1.3 of this EIR) includes up to 10 acres of forest land. The proposed project would reduce on-site fuel sources by removing portions of this on-site forest land. The proposed project would remove approximately 6.5 acres of the 58 acres of forest land on the Centennial Industrial Site (assuming post-remediation baseline) and would remove approximately 18.5 acres of forest land on the Brunswick Industrial Site under existing conditions. Overall, implementation of the proposed project would result in the removal of approximately 25 acres of forest land. In addition, other mid- to low-level vegetation would be removed, such as mixed chaparral (Centennial) and annual grassland (both Sites). The reduction in on-site vegetation would result in a concomitant reduction in fuel sources, and thus, wildfire hazard.

In addition to the reduction in vegetation fuel sources on the Centennial and Brunswick Industrial Sites as a result of the proposed project, ongoing fuel treatment projects are being carried out in the project region. As shown in Figure 4.13-2, fuel treatment projects have been completed in steep-walled canyons in the greater project area and more such projects are planned and funded (i.e., Jones Bar area near South Yuba River). In addition, roadside vegetation management (to create defensible space) is planned along E. Bennett Road, where the potable water pipeline would be installed, as well as the portion of Brunswick Road along the frontage of the Brunswick Industrial Site. Similar roadside vegetation management is also proposed along Greenhorn Road, east of the Brunswick Industrial Site. Grant applications have been submitted for this work and the County is waiting for confirmation of award of funding. These completed, active, and planned fuel treatment projects would further reduce wildfire risk in the project area.

A Fire Protection Plan (FPP) (January 2021) has been prepared by the project applicant for the proposed project.⁸ The FPP identifies two defensible space zones that would be maintained around the proposed industrial buildings on the Brunswick Industrial Site. The 30-foot Zone 1 and 100-foot Zone 2 defensible space from planned structures are shown in Figure 4.13-3. The required defensible space areas are within the property boundaries and no increased property line setbacks or easements are required to maintain defensible space.

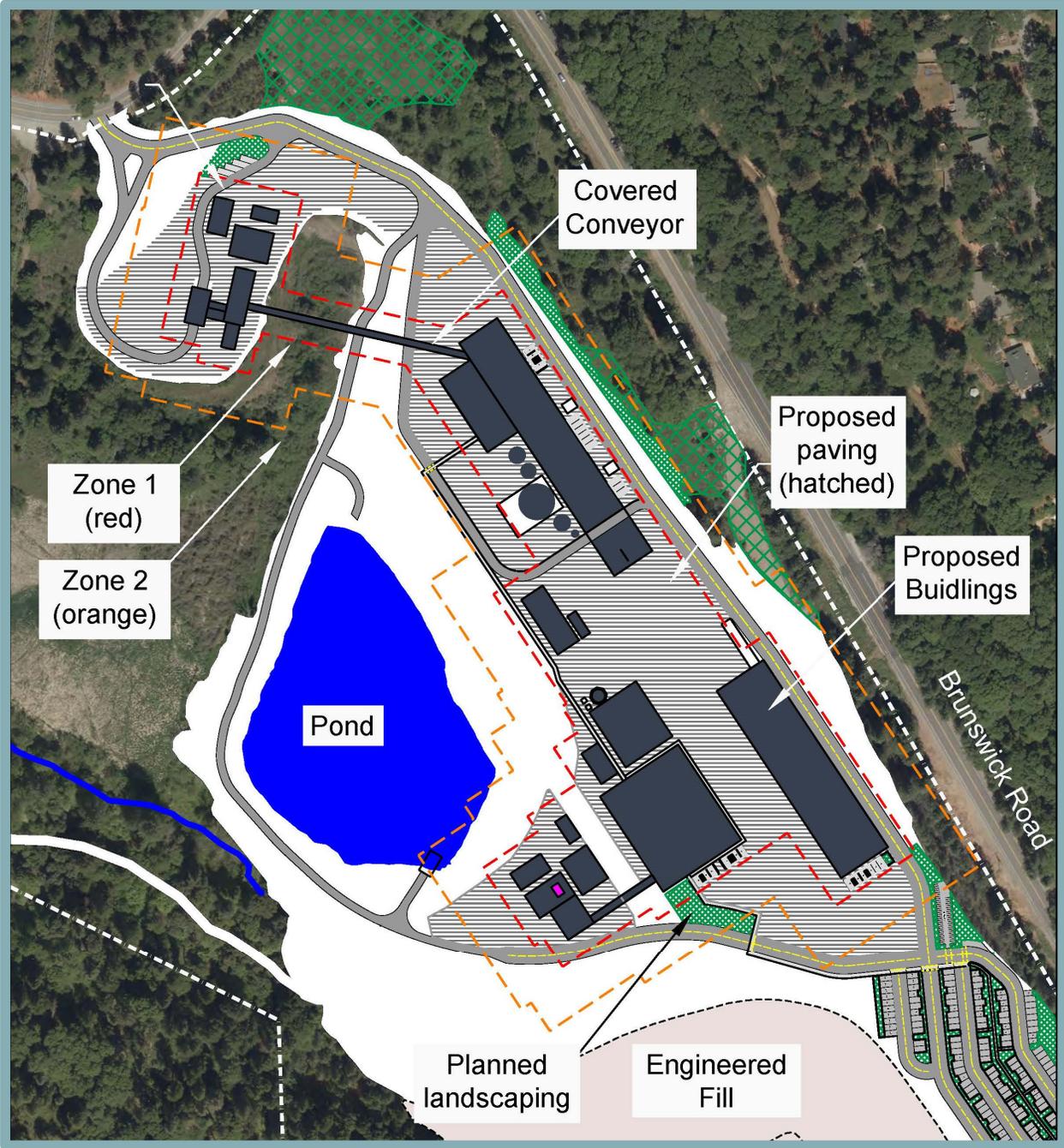
Nearly the entire Zone 1 defensible space would be paved with asphalt, except for a small area of existing vegetation adjacent to the covered conveyor and minor planned landscaping adjacent to the office and warehouse. No high fuel load areas would be present in the Zone 1 area.

All dead or dying grass, plants, shrubs, trees, branches, leaves, weeds, and pine needles would be removed from the Zone 1 area during grading and other construction activities and no dead tree or shrub branches would be in present in proximity to planned buildings. No firewood piles are proposed at the site. Flammable vegetation or items would not be allowed to be placed adjacent to buildings.

⁸ Rise Grass Valley, Inc. *Fire Protection Plan for the Idaho-Maryland Mine Project*. January 2021.



**Figure 4.13-3
Brunswick Defensible Space**



The majority of the Zone 2 defensible space would be paved with asphalt except for some areas of existing vegetation in the perimeter of the area. No high fuel load areas would be present in the Zone 2 area. Horizontal and vertical spacing among shrubs and trees would be created using the “Fuel Separation” method, the “Continuous Tree Canopy” method or a combination of both to achieve defensible space clearance requirements. Spacing would be done in accordance with the State Board of Forestry and Fire Protection's, “General Guidelines for Creating Defensible Space, February 8, 2006”. Dead and dying woody surface fuels and aerial fuels shall be removed from the Zone 2 area during grading and other construction activities. The applicant is proposing that loose surface litter, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches, be permitted to a maximum depth of three inches (3 in.); and annual grasses and forbs be cut down to a maximum height of four inches (4 in.). It is also proposed that the maximum surface litter depth and grass height in the Zone 2 area would be maintained throughout the life of the project.

In addition, due to the Brunswick Industrial Site's location within a Very High FHSZ, the proposed structures must comply with Chapter 7A of the CBC. Examples of the Chapter 7A standards include, but are not limited to, use of ignition-resistant materials, fire-intrusion design of roofing and vents, and use of glazed exterior windows and doors. All buildings shall also meet all fire code requirements as set forth by CBC and California Fire Code (CFC), which could include fire sprinklers and fire alarms, as determined by the County Fire Marshal at building permit stage, depending upon building and occupancy type.

The Brunswick Industrial Site would also include installation of a fire flow system that would connect to the 18-inch Nevada Irrigation District (NID) water main in Brunswick Road. Two existing fire service lines (6-inch and 8-inch) extend into the Brunswick Industrial Site from the 18-inch line on Brunswick Road. This fire flow infrastructure previously served the former Bohemia Lumber Mill on the Brunswick property. During final improvement plan review, the County Fire Marshal would review the fire flow system to ensure that it meets CFC requirements.

The County Fire Marshall's Office has indicated that a comprehensive vegetation management plan will be necessary for the Centennial and Brunswick Industrial Sites. Once approved, the plan shall be adhered to, in perpetuity with the project. While the applicant has prepared an FPP to address, among other things, the long-term on-site management of fuels, initial construction activities and the use of heavy equipment on-site for vegetation removal could exacerbate wildfire risk. The vegetation management plan component shall be inclusive of both the Centennial and Brunswick Industrial Sites, as well as construction and operational activities, and be reviewed and approved by the Fire Marshall's Office. According to the local fire agencies, including CAL FIRE, whose primary responsibility it is to provide wildland fire suppression for both Sites, ongoing implementation of a vegetation management plan would reduce wildfire risk at the Sites to a less-than-significant level.⁹

In the unlikely event of a vegetation fire at either the Centennial or Brunswick Industrial Sites, resulting from on-site project operations, CAL FIRE would respond out of Station

⁹ Personal communication between Nick Pappani, Vice President, Raney Planning and Management, Inc. and CAL FIRE, Grass Valley Fire Department, and Nevada County Consolidated Fire Protection District, October 15, 2020.



20, located at 10242 Ridge Road, Nevada City. Station 20 is typically fully staffed, 24-hours a day, year-round. A minimum of three fire personnel staff the Station. During summer, the Station is equipped with two fire engines (Type 3, 500-gallon water tank), and one engine (Type 3) in the winter. Depending upon the incident, other local fire agencies may be dispatched through CAL FIRE's mutual and/or automatic aid agreements. The response time for a wildland engine from Station 20 is at or slightly above the 5-minute response time goal, depending upon local traffic conditions.

As discussed in the Hazards and Hazardous Materials chapter, the transportation, storage, and use of explosives used in furtherance of the project would be required to comply with applicable federal and State laws at all times (see Mitigation Measure 4.7-1). Compliance with such would help to ensure that a significant hazard to the public or the environment through the routine transport, storage, or use of explosives would not occur. Given that storage and use of explosives would only occur underground at the Brunswick Industrial Site, an unexpected explosive event would not be likely to exacerbate above-ground wildfire risks.

Concerns were expressed by members of the public during the Notice of Preparation (NOP) public review period that the dewatering of the mine may result in reduction of the groundwater levels and associated drying of surface vegetation, thus, exacerbating wildfire risk. According to the EMKO Hydrology Report, the depth to groundwater generally mimics the topography, but the depth is greater under ridges and drainage divides and closer to the surface near creeks and valleys. In the areas away from the creeks and valleys, the depth to groundwater is typically greater than 10 feet and, in many cases, may be 100 feet or more. In addition, the normal seasonal fluctuation in the depth to groundwater may be 10 feet to 30 feet or more. Thus, in the areas away from the creeks, the existing groundwater surface is below the typical depth of rooted vegetation and tap roots from trees, especially during the drier months when the depth to groundwater is at its greatest. Discharge of treated water to South Fork Wolf Creek would prevent the lowering of the groundwater levels along the reach of that creek because the full dewatering volume would be discharged to the creek, whereas only a small fraction of the groundwater that was removed from the subsurface would come from that area. Thus, the potential increased recharge due to the enhanced base flow in South Fork Wolf Creek would more than offset any effects from dewatering in the area near the creek. Along Wolf Creek, the change in base flow would be a small percentage of the existing flow, with NID releases during the summer being a dominant factor in the dry season. Overall, it can be reasonably concluded that the dewatering of the mine would not affect the available moisture for vegetation in the project area because the depth to groundwater is already below the typical rooting depths in higher topographic areas while adequate flows would occur in South Fork Wolf Creek and Wolf Creek to maintain groundwater levels in the lower topographic areas.¹⁰ The dewatering would not, therefore, increase fire risk due to reduced groundwater levels.

Reclamation

With respect to reclamation of the Brunswick Industrial Site, underground mining would cease and the Brunswick Shaft and Service Shaft would be closed pursuant to

¹⁰ EMKO Environmental, Inc. *Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project, Nevada County, California* [pg. 121]. February 2021.



applicable state and federal regulations for safety and security purposes. The tallest structures on-site -- Brunswick Shaft and Service Shaft headframes and headframe buildings -- would be removed, along with the covered conveyor system and above-ground diesel fuel tanks. Paved surfaces and the remaining on-site building shells would remain, but internal contents would be removed. These reclamation activities would minimize potential wildfire risk at the Brunswick Industrial Site by retaining on-site paved surface.

The reclaimed condition at the Centennial Industrial Site would not include paved surfaces. Rather, an engineered fill pad would be created and the engineered fill slopes would be revegetated with an erosion-control seed mix to reduce erosion and maintain fill slope stability.

Conclusion

The Centennial and Brunswick Industrial Sites have limited steeply-sloping topography that is known to exacerbate wildfire risk and spread. Prevailing wind conditions within the surrounding area are from the North-East and South-West directions, both of which have forest lands. The incorporation of defensible space around proposed structures at the Brunswick Industrial Site, as well as designing buildings in conformance with Chapter 7A of the CBC, would help to slow the spread of wildfire moving through the area. In addition, proposed improvements at both Sites would reduce the vegetation fuel load in the area. Nevertheless, vegetation would remain on both Sites and would need to be managed on an ongoing basis. In addition, use of hydrocarbon-powered heavy-equipment on-site could exacerbate wildfire risk. Without implementation of a vegetation management plan, the proposed project could have a **significant** impact related to exacerbating wildfire risks, and thereby exposing project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

4.13-2

In conjunction with submittal of Improvement Plans, the applicant shall submit a comprehensive Vegetation Management Plan, inclusive of the Centennial and Brunswick Industrial Sites, for the review and approval by the County Fire Marshall's Office. The applicant shall implement all provisions of the Vegetation Management Plan during the project construction, operations, and reclamation activities. The Vegetation Management Plan shall include but not be limited to:

- *description of existing vegetative fuel sources;*
- *description of vegetation removal during initial construction and inventory of equipment to be used;*
- *requirement that exhausts of all equipment powered by gasoline, diesel, or other hydrocarbon fuel shall be equipped with effective spark arrestors designed to prevent the escape from the exhaust of carbon or other flammable particles over 0.0232 inches. Motor trucks, truck tractors,*



and passenger vehicles shall not be subject to this provision if their exhaust systems are equipped with mufflers;

- *requirement that all welding rigs shall be equipped with a minimum of one 20-pound or two 10-pound fire extinguishers;*
- *description of proposed landscape planting types;*
- *description and graphical presentation of defensible space zones;*
- *long-term maintenance schedule and safety practices, addressing at a minimum:*
 - *Removal of fire prone fuels and dead material.*
 - *Removal of branches beneath large trees.*
 - *Maintenance of live plants, bushes, shrubs, and trees.*
 - *Removal of needles and leaves and other combustible debris and litter from roofs and gutters.*
 - *Annual grasses and forbs shall be cut down to a maximum height of four inches within 100 feet of structures and on engineered fill slopes.*
 - *Trimming of vegetation within specified horizontal distances from roadways and overhead power line(s), the latter of which may be implemented by PG&E as the service provider, consistent with clearance requirements in PRC Sections 4292 and 4293.*
 - *Seasonal removal of all dead and dying vegetation to reduce vegetation volume and ladder fuels.*
 - *Coordination with adjacent property owners, as applicable, to maintain tree canopies, vegetation and ladder fuels on an annual basis.*
 - *Horizontal and vertical spacing among shrubs and trees shall be created using the “Fuel Separation” method, the “Continuous Tree Canopy” method or a combination of both to achieve defensible space clearance requirements. Spacing shall be done in accordance with the State Board of Forestry and Fire Protection's, “General Guidelines for Creating Defensible Space, February 8, 2006.”*



4.13-3 Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. Based on the analysis below, the impact is less than significant.

The proposed project, primarily the Brunswick Industrial Site, would include installation of various infrastructure components, the environmental effects of which have been evaluated throughout the technical sections of this EIR. For example, ground disturbance associated with installation of roads and utilities has been evaluated in the biological resources chapter of this EIR.

With limited exception, none of the infrastructure improvements would be expected to exacerbate wildfire risk. One exception is the extension of the overhead power line along Brunswick Road that would be extended onto the Brunswick Industrial Site, which would have the potential to exacerbate wildfire risk if the line comes in contact with tree limbs or other overhanging vegetation. PG&E would be the electrical service provider for the Brunswick Industrial Site. Consistent with PRC 4292, administered by CAL FIRE, PG&E maintains a firebreak of at least 10 feet in radius of a utility pole, with tree limbs within the 10-foot radius of the pole removed up to 8 feet above ground. From 8 feet to conductor height requires removal of dead, diseased or dying limbs and foliage.¹¹ This applies in SRAs during designated fire season.

In addition, PRC 4293, administered by CAL FIRE, requires a 4-foot minimum clearance be maintained for power lines between 2,400 and 72,000 volts. The PG&E line along Brunswick Road, to which the project would connect, is a 12,000-volt line, and thus, would be subject to these standards. PRC 4293 also requires the removal of dead, diseased, defective and dying trees that could fall into the lines. This applies in SRAs during designated fire season.

The project would install two, 12,000-gallon above-ground diesel fuel storage tanks on the Brunswick Industrial Site. The tanks would be located in the industrial building complex area, away from existing and proposed vegetation. Diesel fuel is considered a Class II liquid, and as such, the tanks would be regulated in accordance with Chapter 23 of the CFC. Chapter 23 of the CFC includes robust design requirements for above-ground fuel storage tanks to minimize fire hazard to the maximum extent feasible, including but not limited to requirements for overfill protection, spill containment, and dispenser emergency shutoff valve. Compliance with CFC requirements, as determined by the Fire Marshall's Office, at time of improvement plan review, would reduce fire hazards related to on-site fuel storage tanks. The proposed 1,200-gallon temporary diesel fuel tank at the Centennial Industrial Site would also comply with CFC standards related to siting and maintenance of clearance space (i.e., removal of grass and weeds).

¹¹ Pacific Gas & Electric. *Manage trees and plants near power lines*. Available at: https://www.pge.com/en_US/safety/yard-safety/powerlines-and-trees/laws-and-regulations.page#:~:text=It%20requires%20that%20PG%26E%20maintain,or%20dying%20limbs%20and%20foliage. Accessed February 23, 2021.



Based upon the above, it can be concluded that the proposed project would have a **less-than-significant** impact with respect to requiring 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.

Mitigation Measure(s)

None required.

4.13-4 Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Based on the analysis below, the impact is less than significant.

Wildfires alter landscapes and can result in post-event hazards triggered primarily by rainfall. Rainfall that is normally captured and stored by vegetation can run off almost instantly, causing creeks and drainage areas to flood much sooner during a storm and with more water than is expected under unburned conditions. Soils burned at moderate and high severity tend to have reduced infiltration capacity and are more easily eroded. The potential post-fire flooding, soil erosion, and debris flows can impact recreational areas, homes, structures, roads, and other infrastructure within, adjacent to, and downstream from burned areas.

Wildfire-related flooding and increased runoff may continue for several years in a burn area, but it is unusual for post-fire debris flows to occur beyond the second rainy season. Some of the largest debris-flow events happen during the first post-fire storm season. It takes much less rainfall to trigger debris flows from burned basins than from unburned areas. While multiple factors can affect debris-flow occurrence, post-fire debris flows generally are triggered by one of two processes: surface erosion caused by rainfall runoff, and landsliding caused by rainfall seeping into the ground. Surface-erosion runoff processes are by far the most prevalent contributors to debris flows.

Landsliding processes are much less common causes of fire-related debris flow, but prolonged heavy rains may increase soil moisture even after a wildfire.¹² The wetted soil can then fail, producing infiltration-triggered landslides. These can be shallow or deep-seated landslides (greater than 10-15 feet deep).

The United States Geological Survey (USGS) performs post-fire debris-flow hazard assessments for select fires in the Western U.S. USGS uses geospatial data related to basin morphometry, burn severity, soil properties, and rainfall characteristics to estimate the probability and volume of debris flows that may occur in response to a design storm. The nearest fire to the project area for which USGS has performed a post-fire debris-flow assessment is the 2017 McCourtney Fire. As previously discussed, the McCourtney (Wind Complex) Fire occurred approximately 3.5 miles south/southwest of the project area in October 2017, and burned approximately 76

¹² USGS. *Post-Fire Flooding and Debris Flow*. Available at: https://www.usgs.gov/centers/ca-water/science/post-fire-flooding-and-debris-flow?qt-science_center_objects=0#qt-science_center_objects. Accessed February 24, 2021.



acres, near McCourtney Road and SR 20. The post-fire debris-flow assessment performed by USGS may be instructional for the Centennial and Brunswick Industrial Sites given general similarity in topography and vegetation types. Similar to the Centennial and Brunswick Industrial Sites, areas predominated by steep slopes do not occur; the changes in elevation at the McCourtney Fire area generally do not exceed 100 feet. The primary differences between the two areas include the presence of tailings and creeks at the Centennial and Brunswick Industrial Sites.

The post-fire debris-flow assessment for the McCourtney Fire is shown in Figure 4.13-4. The map displays estimates of the likelihood of debris flow (in percentages). These predictions are made at the scale of the drainage basin. As shown, the potential for debris flow occurrence within on-site drainages is low, at 0-20 percent. This is in contrast to areas with steep drainages, such as the Lobo Fire, near Deer Creek canyon, where probability values were much higher.¹³ It is reasonable to draw some general conclusions from this assessment for the Centennial and Brunswick Industrial Sites given that they similarly lack substantial steep topography and include mildly incised drainages. The probability for post-fire debris flows at the Sites is low.

Furthermore, the largest slopes on the Sites would ultimately be the engineered fill pads. As discussed in the Geology and Soils chapter, the proposed fill slopes for the Centennial and Brunswick Industrial Sites would be relatively gradual at 3:1 (H:V). The proposed fill material would comprise a flexible composite range of blast rock and sand tailings produced underground. The inclusion of silt into these compacted granular materials would provide additional cohesion, and therefore would increase the friction angle of the fill. Following completion of fill activities, the fill slopes would be revegetated to control erosion and ensure slope stability.

In addition, although runoff from both Sites flows into creeks, the project includes drainage facilities to capture runoff prior to entering the creeks. Should a fire occur on one or both of the Sites, the proposed drainage facilities would capture and slow post-fire runoff, thus minimizing flooding potential downstream.

For the above reasons, the proposed project would have a ***less-than-significant*** impact with respect to exposing 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.

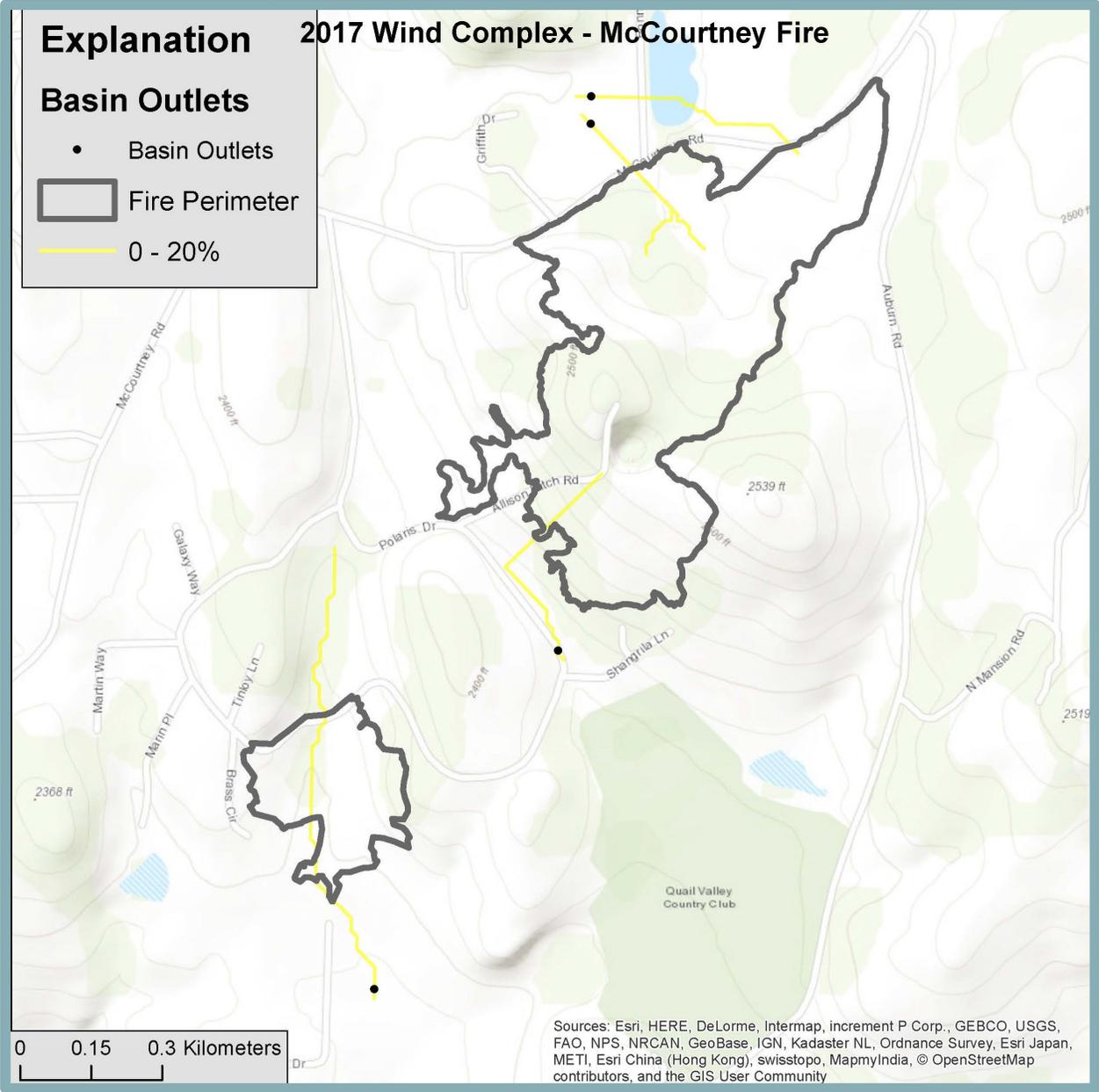
Mitigation Measure(s)

None required.

¹³ USGS. *Wind Complex – Lobo Fire (Nevada County, CA)*. Available at: https://landslides.usgs.gov/hazards/postfire_debrisflow/detail.php?objectid=170. Accessed February 24, 2021.



**Figure 4.13-4
McCourtney Fire USGS Post-Fire Debris-Flow Assessment**



Cumulative Impacts and Mitigation Measures

For detail regarding the cumulative setting for this EIR analysis, refer to Chapter 5, Statutorily Required Sections of this EIR.

4.13-5 Increase in wildfire risk attributable to the proposed project, in combination with cumulative development. Based on the analysis below, the cumulative impact is *less than significant*.

The cumulative list of projects for this EIR comprises a total of 20 projects, some of which are located within unincorporated Nevada County, while others are located within the City of Grass Valley. Similar to the proposed project, several of the cumulative projects (approximately half) are located within a Very High FHSZ, either in a Local Responsibility Area or SRA. Thus, as with the proposed project, should these projects ultimately be constructed, they would be required to comply with defensible space standards, pursuant to California PRC Section 4291, and other wildfire risk minimization standards from Chapter 7A of the CBC, including but not limited to, inclusion of ignition-resistant materials, fire-intrusion design of roofing and vents, and use of glazed exterior windows and doors. All buildings would also meet all fire code requirements as set forth by CBC and CFC, which could include fire sprinklers and fire alarms, as determined by the County Fire Marshal at building permit stage, depending upon building and occupancy type. Compliance with state and local standards would minimize wildfire risk at each cumulative project location.

Based on the above, the proposed project, with implementation of the vegetation management plan required in Mitigation Measure 4.13-2, in combination with the cumulative list of projects, would have a ***less-than-significant*** cumulative impact related exacerbating wildfire risk.

Mitigation Measure(s)

None required.



5. STATUTORILY REQUIRED SECTIONS

5. STATUTORILY REQUIRED SECTIONS

5.1 INTRODUCTION

The Statutorily Required Sections chapter of the Draft EIR includes discussions regarding those topics that are required to be included in an EIR, pursuant to CEQA Guidelines, Section 15126.2. The chapter includes a discussion of the proposed project's potential to result in growth-inducing impacts; the cumulative setting analyzed in this EIR; energy conservation; significant irreversible environmental changes; and significant and unavoidable impacts caused by the proposed project.

5.2 GROWTH-INDUCING IMPACTS

An EIR must discuss the ways in which a proposed project could foster economic or population growth in the vicinity of the project and how that growth would, in turn, affect the surrounding environment (see CEQA Guidelines, Section 15126.2[d]). Growth can be induced in a number of ways, including through the elimination of obstacles to growth or through the stimulation of economic activity within the region. Examples of projects likely to have growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or office complexes in areas that are currently only sparsely developed or are undeveloped. The discussion of the removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval.

The CEQA Guidelines are clear that while an analysis of growth-inducing effects is required, it should not be assumed that induced growth is necessarily significant or adverse. Growth-inducing impacts associated with the proposed project would be considered to be any effects of the project allowing for additional growth or increases in population beyond that proposed by the project or anticipated in the project area. The proposed project would not create housing, which would directly affect growth-inducing factors and the project would not remove obstacles to growth within the area. Rather, the proposed project would allow for underground mining of significant mineral resources as defined by the State (i.e., MRZ-2b) and Nevada County (i.e., Land Use and Development Code [LUDC] Section L-II 4.3.11). The proposed project is not driving or creating the demand for gold. Rather, the proposed project is a result of the increased demand for gold. As such, the proposed project is market driven and would not result in growth-inducing impacts.

Another form of growth inducement, according to the Population and Housing section of CEQA Guidelines Appendix G, is new businesses. This topic is addressed in Impact 4.9-3 of the Land Use and Population and Housing chapter of this EIR, which will be summarized here.

The total workforce when the Idaho-Maryland Mine Project reaches commercial production is estimated at 312 persons. Therefore, the number of jobs required during operation of the proposed project could draw more people to the area and result in indirect population growth as a result. The majority of workers (268 employees) would work 12 hour shifts with seven days of work followed by seven days of rest. The remaining workforce (44 employees) would work regular eight hour shifts with five days of work followed by the weekend of rest.



As shown in Table 4.9-5 of Chapter 4.9, as of 2018, Nevada County had 53,745 total housing units with a 22.5 percent vacancy rate (12,098 vacant housing units). The unincorporated area of Nevada County had a total of 32,182 housing units with 4,645 vacant housing units (14.4 percent vacancy rate). Therefore, the addition of 312 persons as a result of the proposed project would not impact the existing housing stock for Nevada County.

However, substantial economic incentive exists to maximize employee recruitment from the local Nevada County area. Rise Grass Valley estimates that approximately two-thirds of the workforce can be recruited locally. Rise has established local recruitment targets that they intend to achieve through the implementation of a training program. A total of 162 positions have been designated for trainees with no previous experience. Rise estimates that approximately 51 additional workers, with previous experience and training in mining, engineering, electrical or other trades, are available for local area recruitment. Therefore, at least 213 workers (approximately 68 percent of the mine's workforce) are estimated to be sourced from the immediate Nevada County area. It is anticipated that approximately 99 workers (32 percent of workforce) would be recruited from outside the local area; these positions require extensive experience in underground mining which are less likely to be possessed by persons currently residing in the immediate local area.

Considering that the average metal miner is 41.5 years of age, it is reasonable to assume that many employees would have families.¹ Conservatively assuming that each of the 99 workers recruited from outside the local area would have a family, the total new population introduced to the local Nevada County area from these 99 workers would be approximately 240 people.² As discussed above, this increase in population would not impact the available housing stock within Nevada County, nor would it require an expansion of existing facilities and services.

The proposed project also includes the installation of a potable water supply line in E. Bennett Road to deliver Nevada Irrigation District (NID) potable water to existing residents whose wells may be impacted by the proposed project. Importantly, the potable water pipeline would serve existing residents and is not intended to serve new residents or provide stubs to vacant properties for potential future potable water service.

In conclusion, the proposed project would not result in a significant impact concerning growth inducement.

5.3 CUMULATIVE IMPACTS

CEQA Guidelines Section 15130 requires that an EIR discuss the cumulative and long-term effects of the proposed project that adversely affect the environment. "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355; see also Public Resources Code (PRC), Section 21083, subd. [b]). Stated another way, "[...] a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." (CEQA Guidelines Section 15130, subd. [a][1])

¹ National Institute for Occupational Safety and Health. *National Survey of the Mining Population, Part I: Employees* [pg. 75]. Available at: <https://www.cdc.gov/niosh/mining/UserFiles/works/pdfs/2012-152.pdf>. Accessed January 26, 2021.

² Assuming 2.42 persons per household, consistent with the Nevada County 2019-2027 Housing Element, page 8-23.



“[I]ndividual effects may be changes resulting from a single project or a number of separate projects.” (CEQA Guidelines Section 15355, subd. [a]) “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.” (CEQA Guidelines Section 15355, subd. [b])

The need for cumulative impact assessment reflects the fact that, although a project may cause an “individually limited” or “individually minor” incremental impact that, by itself, is not significant, the incremental effect may be “cumulatively considerable” and, thus, significant when viewed together with environmental changes anticipated from past, present, and probable future projects (CEQA Guidelines Section 15064, subd. [h(1)], Section 15065, subd. [c], and Section 15355, subd. [b]). This formulation indicates that particular impacts may be less-than-significant on a project-specific basis, but significant on a cumulative basis, because their small incremental contribution, viewed against the larger backdrop, is cumulatively considerable.

The lead agency should define the relevant geographic area of inquiry for each impact category (id., Section 15130, subd. [b][3]), and should then identify the universe of “past, present, and probable future projects producing related or cumulative impacts” relevant to the various categories, either through the preparation of a “list” of such projects or through the use of “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 regional or area wide conditions contributing to the cumulative impact” (id., subd. [b][1]).

The possibility exists that the “cumulative impact” of multiple projects will be significant, but that the incremental contribution to that impact from a particular project may not itself be “cumulatively considerable.” Thus, CEQA Guidelines Section 15064, Subdivision (h)(5) states, “[...] the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable.” Therefore, it is not necessarily true that, even where cumulative impacts are significant, any level of incremental contribution must be deemed cumulatively considerable.

In accordance with CEQA Guidelines section 15130(b), “the discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone.”

Cumulative Setting

The cumulative setting for the cumulative analysis in this EIR is based upon a combination of available approaches identified in the CEQA Guidelines. This includes a summary of projections approach for the transportation and noise (traffic noise) analyses, using Nevada County Transportation Commission’s (NCTC’s) Regional Travel Demand Model, and a list of projects approach for the remaining CEQA topics.

Using the summary of projections approach, the cumulative transportation and noise (traffic noise) analyses are based on the NCTC Regional Travel Demand Model, which generally accounts for buildout of Nevada County in accordance with the land use designations shown on the adopted General Plan Land Use Map, as well as buildout of the incorporated cities in accordance with their adopted General Plan land use designations. It is noted that full buildout of the biggest cumulative



project, Loma Rica Ranch Specific Plan (LRRSP) (see below for further discussion), is included in the cumulative traffic modelling.

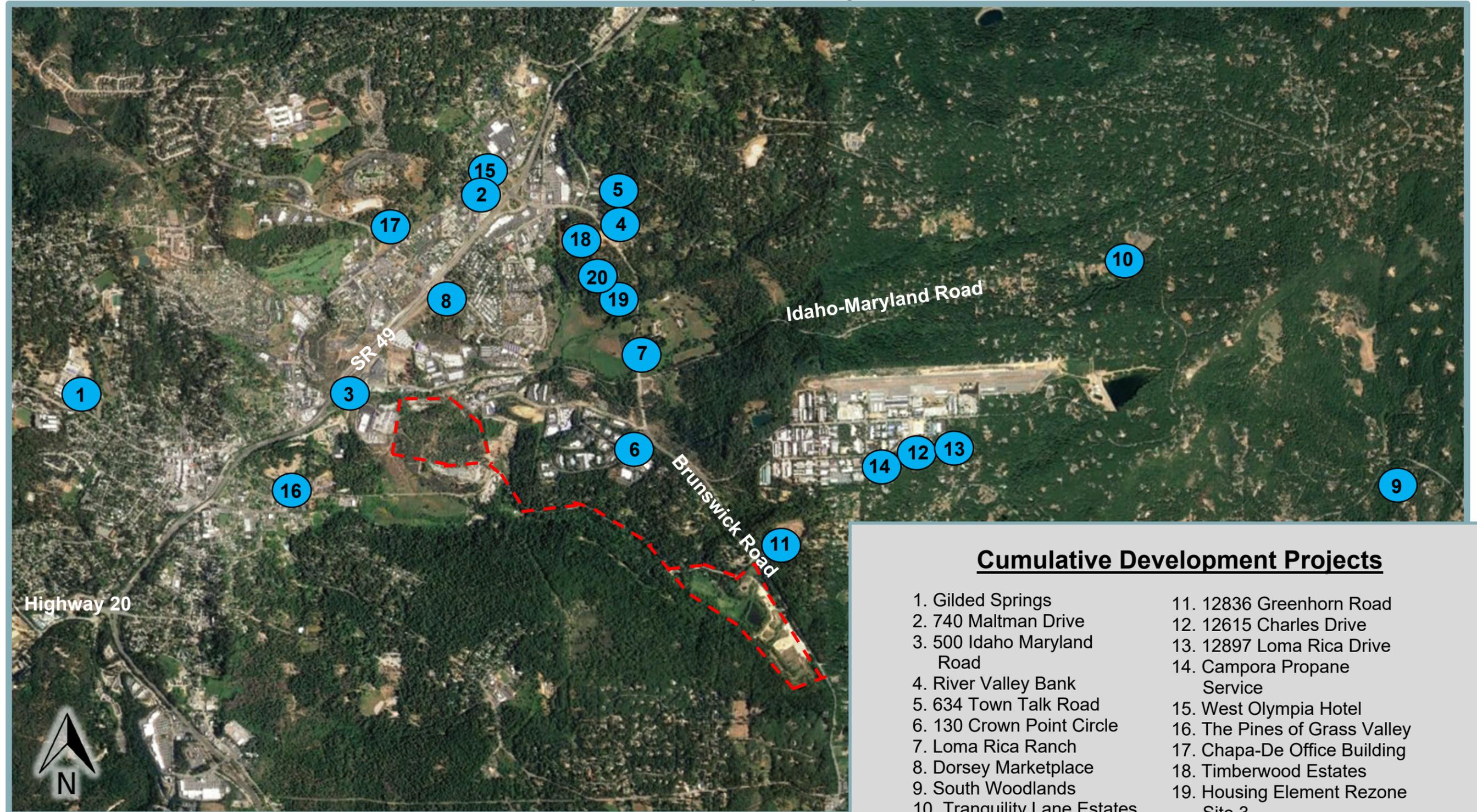
Project List

The list of projects method is used for the remaining CEQA topics evaluated in this EIR. Other related projects that need to be considered in the list of projects 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 proposed project 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 City of Grass Valley. The following 20 projects were identified based on input from Nevada County and the City of Grass Valley. The locations of the 20 identified projects are depicted in Figure 5-1.

- 1) **Gilded Springs** - The project is located at 652 Linden Avenue, west of Alta Street and north of West Main Street, in the City of Grass Valley. The project consists of division of a 6.96-acre parcel into 27 single family residential lots;
- 2) **740 Maltman Drive** - The project is located within the City of Grass Valley, south of Brunswick Road, and includes replacement of an existing 2,000-square foot building with a new 3,700-square foot professional office building;
- 3) **500 Idaho Maryland Road** - The project is located within the City of Grass Valley and includes construction of two manufacturing buildings, one of which has already been completed, consisting of 22,500 square feet. The site is located east of Railroad Avenue;
- 4) **River Valley Bank** - The project is located within the City of Grass Valley and includes construction of two buildings, a 3,500-square foot bank which has already been completed and a new 1,450-square foot professional office building;
- 5) **634 Town Talk Road** is located in the City of Grass Valley and includes division of a 1.36-acre parcel into 11 lots in an R-3 zone. The project is located just east of Brunswick Road in the vicinity of the State Route (SR) 49 interchange;
- 6) **130 Crown Point Circle** - This project is located in the City of Grass Valley, in the Whispering Pines Specific Plan zone, and includes construction of a 6,889-square foot dental office (medical office building);
- 7) **Loma Rica Ranch Specific Plan** – This project is located in the City of Grass Valley and includes the first approved phase of the LRRSP. The LRRSP area includes lands between Sutton Way to east of Brunswick Road, north of Idaho Maryland Road. This first approved phase includes 175 single family residential units and 60 duplex/ townhome lots. Total buildout is anticipated to include up to 700 housing units and 54,000 square feet of commercial uses and approximately 364,161 square feet of business park uses;
- 8) **Dorsey Marketplace** - This project is located within the City of Grass Valley. Two alternative site plans were considered in the certified EIR. Alternative A included commercial development of 181,900 square feet, construction of 90 multiple-family residential units and a 3,200 square foot clubhouse. Alternative B provided up to 172 apartments, a 3,200-square foot clubhouse, approximately 104,350 square feet of commercial space and approximately 8,500 square feet of office space.



**Figure 5-1
 Cumulative Development Projects**



Cumulative Development Projects

- | | |
|------------------------------|-----------------------------------|
| 1. Gilded Springs | 11. 12836 Greenhorn Road |
| 2. 740 Maltman Drive | 12. 12615 Charles Drive |
| 3. 500 Idaho Maryland Road | 13. 12897 Loma Rica Drive |
| 4. River Valley Bank | 14. Campora Propane Service |
| 5. 634 Town Talk Road | 15. West Olympia Hotel |
| 6. 130 Crown Point Circle | 16. The Pines of Grass Valley |
| 7. Loma Rica Ranch | 17. Chapa-De Office Building |
| 8. Dorsey Marketplace | 18. Timberwood Estates |
| 9. South Woodlands | 19. Housing Element Rezone Site 3 |
| 10. Tranquility Lane Estates | 20. Housing Element Rezone Site 5 |

Project Boundaries



For impact analysis purposes (i.e., traffic), the worst-case trip generation for this site, Alternative A, was used;

- 9) **South Woodlands** - This project is located at 15468 Greenhorn Road, east of Brunswick Road, within unincorporated Nevada County. The project consists of development of 30 single family residential lots;
- 10) **Tranquility Lane Estates** - This project is located at 13685 Idaho Maryland Road, east of Brunswick Road, within unincorporated Nevada County. The project consists of development of nine single family residential lots.
- 11) **12836 Greenhorn Road** – This project is located in unincorporated Nevada County and would subdivide 2.69 acres into five Light Industrial lots ranging from 0.38 acres to 0.78 acres in size. The project proposes the construction of five light-industrial buildings ranging in size from 2,452 square feet to 4,118 square feet;
- 12) **12615 Charles Drive (Zap Manufacturing)** –This project is located on Charles Drive, east of Brunswick Road, within unincorporated Nevada County. The project consists of an approximately 64,316-square foot manufacturing and warehouse building for ZAP Manufacturing. The proposed manufacturing building would consist of an 8,000-square foot Refurbishing Shop with storage, a 12,000-square foot aluminum warehouse, an 18,500-square foot sign shop/materials warehouse, a 15,000-square foot office, and an additional 24,316-square foot future Light Industrial Tenant Lease Space;
- 13) **12897 Loma Rica Drive (Event Helper)** – This project is located within unincorporated Nevada County and would consist of a 13,962-square foot building for the Event Helper, Inc. The proposed building would be two-stories in height and consist of an approximately 6,808-square foot first floor, a 5,328-square foot second floor and an approximately 1,826-square foot basement which would be used for parking and storage;
- 14) **Campora Propane Service** – This project is located within unincorporated Nevada County, at 12432 Charles Drive, in the Loma Rica Industrial Park. The project includes a 2,720-square foot office building, three 30,000-gallon aboveground propane tanks, two 15-foot-tall pole-mounted security lights, a parking lot including two 25-foot drive aisles and 13 parking spaces, and occasional temporary storage of tanks for residential installations, small equipment, coils of gas piping, and other propane related materials;
- 15) **West Olympia Hotel** – The project is located in Grass Valley at 1812 East Main Street/110 West Olympia Drive. This project consists of a two-story 74-room hotel and related facilities on an approximately 2.6-acre site;
- 16) **The Pines of Grass Valley** – The project is located in Grass Valley on approximately 5.6 acres at 452, 474, and 500 East Bennett Road. This project consists of a 108-unit apartment complex with four three-story apartment buildings totaling approximately 109,644 square feet, parking, landscaping, a clubhouse, and other project amenities;
- 17) **Chapa-De Indian Health Office Building** – The project is located in Grass Valley on Sierra College Drive southeast of the City of Grass Valley Fire Department Station No. 2 located at 213 Sierra College Drive. The project consists of a 10,000-square foot office building and related improvements for Chapa De Indian Health Administrative Offices;



- 18) **Timberwood Estates** – The project is located in Grass Valley at 10639 Brunswick Road, north of Idaho Maryland Road. The project consists of 45 lots, offering semi-customized homes ranging in size from 1,804 square feet to 2,224 square feet.
- 19) **Housing Element Rezone Site 3** – This project site is located at 11791 Ranchview Court, within unincorporated Nevada County, and totals 9.15 acres. Ordinance No. 2455 rezoned the site from Medium-Density Planned Development (R2-PD) to High-Density (R3-RH) with a maximum density of 118 dwelling units.
- 20) **Housing Element Rezone Site 5** – This project site is located at 11840 Ranchview Court, within unincorporated Nevada County, and totals 4.5 acres. Ordinance No. 2455 rezoned the site from R2-PD to R3-RH for a maximum density of 71 dwelling units.

Table 5-1 below presents the approximate buildout estimates for the cumulative projects.

Table 5-1 Total Cumulative Development Potential Residential and Non-Residential Projects			
Residential	Non-Residential (square feet)		
Dwelling Units	Office	Commercial	Business Park /Industrial
1,209	23,300	119,676	471,500
Note: Numbers are rounded.			

Geographic Scope

The geographic area that could be affected by the project varies depending on the type of environmental resource being considered. When the effects of the project are considered in combination with those other past, present, and probable future projects to identify cumulative impacts, the other projects that are considered may also vary depending on the type of environmental effects being assessed.

Table 5-2 presents the geographic scope for each CEQA topic area.

Table 5-2 Cumulative Geographic Scope by CEQA Topic	
Resource	Geographic Scope
Aesthetics	All cumulative projects within identified viewsheds
Agriculture and Forestry Resources	Generally defined by cumulative project locations
Air Quality /Greenhouse Gas Emissions	Mountain Counties Air Basin
Biological Resources	Generally defined by cumulative project locations
Cultural/Tribal Cultural Resources	Generally defined by cumulative project locations
Geology and Soils	Generally defined by cumulative project locations
Hazards and Hazardous Materials	Generally defined by cumulative project locations
Hydrology and Water Quality	Wolf Creek and South Fork Wolf Creek Watersheds
Land Use and Population and Housing	Generally defined by cumulative project locations
Noise	<u>Traffic Noise Analysis</u> : Nevada County and City of Grass Valley roadways within region (see Chapter 4.10)

(Continued on next page)



Resource	Geographic Scope
	<u>Stationary Noise and Vibration Analysis:</u> Nearby properties within Nevada County and City of Grass Valley containing receptors
Public Services and Utilities	<u>Water:</u> NID Service Area buildout Other: Generally defined by agency service areas
Transportation	Nevada County and City of Grass Valley roadways within region (see Chapter 4.12)
Wildfire	Generally defined by cumulative project locations

Please refer to the Cumulative Impacts and Mitigation Measures section of each technical chapter for a discussion of cumulative impacts for each CEQA topic.

5.4 ENERGY CONSERVATION

In order to ensure energy implications are considered in project decisions, Appendix G of CEQA Guidelines requires a discussion of the potential energy impacts of projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. This topic is addressed in Chapter 4.3, Air Quality, Greenhouse Gas Emissions, and Energy, of this EIR. As discussed in Impact 4.3-9, implementation of the project in combination with other cumulative development would not result in the wasteful or inefficient use of energy, resulting in a less-than-significant impact. Please refer to Chapter 4.3 for more detailed discussion and analysis (see both Impacts 4.3-5 and 4.3-9).

5.5 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines mandate that an EIR address significant irreversible environmental changes that would result if the proposed project were implemented (CEQA Guidelines, Section 15126.2[c]). An irreversible environmental change would be considered significant if any of the following would occur:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of the project would generally commit future generations to similar uses (e.g., a highway provides access to a previously remote area);
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The phasing of the proposed consumption of resources is not justified (e.g., the project involves a wasteful use of energy).

The proposed project would likely result in, or contribute to, the irreversible environmental changes listed below. The items listed are considered significant irreversible environmental *changes*, but are not considered significant adverse environmental *impacts* under CEQA:

- Mining of a non-renewable local resource;
- Irreversible consumption of energy and natural resources associated with the proposed dewatering (initial and ongoing) and water treatment; underground tunnelling, production blasting, and rock crushing; and above-ground processing and engineered fill operations; and



- Construction of a 44-acre engineered fill pad on the Centennial Industrial Site and 31-acre engineered fill pad on the Brunswick Industrial Site for potential future industrial development.

5.6 SIGNIFICANT AND UNAVOIDABLE IMPACTS

According to CEQA Guidelines, an EIR must include a description of those impacts identified as significant and unavoidable should the proposed action be implemented (CEQA Guidelines Section 15126.2[b]). Such impacts would be considered unavoidable when the determination is made that either mitigation is not feasible or only partial mitigation is feasible such that the impact is not reduced to a level that is less-than-significant. This section identifies significant impacts that could not be eliminated or reduced to a less-than-significant level by mitigations imposed by the County. The final determination of the significance of impacts and the feasibility of mitigation measures would be made by the County as part of the County's certification action. The significant and unavoidable impacts of the proposed project are summarized below.

4.1-2 In a non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality. Even after implementation of mitigation, the impact related to substantial degradation of existing visual character or quality of public views is considered significant and unavoidable.

While the Centennial and Brunswick Industrial Sites are zoned for industrial development and there are existing industrial land uses in the vicinity of the project sites, the proposed project would result in noticeable changes to the existing visual character of the project sites, as viewed from public vantage points in the project vicinity. Landscape trees would be planted at strategic locations to partially screen project elements when the trees reach maturity; however, the proposed structures and engineered fill pads are substantial in height and vegetation screening would not be sufficient to prevent a substantial degradation in visual character or quality of the sites and their surroundings when viewed from public locations. As previously discussed, several of the proposed structures require a building height Variance, subject to review and approval by the County pursuant to Nevada County LUDC Section L-X 2.29.

Implementation of Mitigation Measure 4.1-2 would reduce the significant impact by requiring more dense plantings along the project frontages to screen project structures to the maximum extent feasible. However, given the proposed heights of the structures and the permanent alteration of the views, the impact would remain *significant and unavoidable*.



4.1-4 Long-term changes in visual character associated with the proposed project in combination with cumulative development. The project's incremental contribution to this significant cumulative impact is cumulatively considerable and *significant and unavoidable*.

Cumulative buildout in the geographic area would result in a change in the visual character of the region, which would be considered a significant cumulative impact. As discussed under Impact 4.1-2 above, the proposed project would substantially degrade the character of the Centennial and Brunswick Industrial Sites, though they are zoned for industrial development and there are surrounding industrial land uses in the vicinity of the project sites. Therefore, the project's incremental contribution to the significant cumulative impact would be *cumulatively considerable and significant and unavoidable*.

4.10-1 Generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, due to initial construction activities.

Construction activities could result in substantial temporary increases in daytime noise exposure at eight receptors in the project vicinity, when compared to the baseline ambient noise levels at these locations. The substantial increase in noise levels at such locations would be due to installation of the potable water pipeline along East Bennett Road. As noted above, construction noise is exempt from the Nevada County LUDC noise standards (Section L-II 4.1.7.D.8), thus the project's construction noise would not be in violation of the County noise standards. Nevertheless, the predicted construction noise level increases at eight receptors would still be considered substantial pursuant to CEQA.

Implementation of the Mitigation Measure 4.10-1 would reduce the temporary construction-related noise impact associated with installation of the potable water pipeline. However, because the noise reductions that would be achieved by the measures cannot be definitively determined to confirm that noise levels would be reduced to below a level of significance, the impact is considered *significant and unavoidable* for the purposes of this CEQA evaluation.

4.12-1 Conflict with a program, plan, ordinance, or policy addressing study intersections under EPAP Plus Project Conditions. Even after mitigation, the project's impact to the Brunswick Road/SR 174 intersection would be *significant and unavoidable*.

Under traffic Scenarios #1 and #2, the proposed project would increase traffic through three intersections already identified as operating unacceptably under Existing and EPAP Conditions. Thus, a significant impact to the Brunswick



Road/Idaho Maryland Road, Brunswick Road/SR 174, and Idaho Maryland Road/Centennial Drive intersections would occur under the EPAP Plus Project Conditions.

The EIR requires implementation of Mitigation Measures 4.12-1(a-c), which would reduce the project's significant effect to the Brunswick Road/Idaho Maryland Road intersection and the Idaho Maryland/Centennial Drive intersection; however, the project's impact to the SR 174/Brunswick Road intersection would remain *significant and unavoidable*. The reason for this is that while Mitigation Measure 4.12-1(b) requires the applicant to enter into a traffic mitigation agreement with the County and provide the project's fair share toward needed improvements, the remaining funds for the intersection improvements are unknown, in terms of timing and contributing parties.

4.12-8 **Conflict with a program, plan, ordinance or policy addressing study intersections under Cumulative Plus Project Conditions. Even after mitigation, the project's incremental contribution to the significant cumulative impact at the Brunswick Road/SR 174 intersection would be cumulatively considerable and significant and unavoidable.**

Under traffic Scenarios #1 and 2, the proposed project would increase traffic through two intersections already identified as operating unacceptably under Cumulative No Project Conditions. Thus, the proposed project's incremental contribution to the significant cumulative impact to the Brunswick Road/SR 174 and Sutton Way/Dorsey Drive intersections would be considered cumulatively considerable and significant.

The EIR requires implementation of Mitigation Measure 4.12-8(b) which would reduce the project's incremental impact to the Sutton Way/Dorsey Drive intersection to a less-than-significant level. The project's incremental impact to the SR 174/Brunswick Road intersection would remain *significant and unavoidable* after mitigation, for the reasons described under Impact 4.12-1.

4.12-10 **Conflict with a program, plan, ordinance or policy addressing intersection queues under the cumulative scenario. Even with implementation of mitigation, the impact is determined to be significant and unavoidable.**

The proposed project would result in longer queue lengths at several study intersections under traffic Scenario #1 and Scenario #2. Under both scenarios, queue lengths in excess of the 25-foot increase threshold would occur only for the northbound left at the Brunswick Road/Sutton Way intersection during the 3:30-4:30 PM hour. Therefore, the impact to study intersection queues under the Cumulative Plus Project Condition would be considered significant.



The EIR requires implementation of Mitigation Measure 4.12-10 to re-time the intersection and improve operations and shorten the queue length. However, this mitigation measure requires approval from the City of Grass Valley, which cannot be guaranteed. Thus, the EIR conservatively concludes that the impact would remain *significant and unavoidable*.



6. ALTERNATIVES ANALYSIS

6. ALTERNATIVES ANALYSIS

6.1 INTRODUCTION

The Alternatives Analysis chapter of the EIR includes consideration and discussion of a range of reasonable alternatives to the proposed project, as required pursuant to CEQA Guidelines Section 15126.6. Generally, the chapter includes discussions of the following: the purpose of an alternatives analysis; alternatives considered but dismissed; a reasonable range of project alternatives and their associated impacts in comparison to the proposed project's impacts; and the environmentally superior alternative.

6.2 PURPOSE OF ALTERNATIVES

The primary intent of the alternatives evaluation in an EIR, as stated in Section 15126.6(a) of the CEQA Guidelines, is to “[...] describe 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, and evaluate the comparative merits of the alternatives.” In the context of CEQA Guidelines Section 21061.1, “feasible” is defined as:

...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Section 15126.6(f) of CEQA Guidelines states, “The range of alternatives required in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.” Section 15126.6(f) of CEQA Guidelines further states:

The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

In addition, an EIR is not required to analyze alternatives when the effects of the alternative “cannot be reasonably ascertained and whose implementation is remote and speculative.”

The CEQA Guidelines provide the following guidance for discussing alternatives to a proposed project:

- An EIR shall describe 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, and evaluate the comparative merits of the alternatives (CEQA Guidelines Section 15126.6[a]).
- Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable



of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly (CEQA Guidelines Section 15126.6[b]).

- The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination [...] Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts (CEQA Guidelines Section 15126.6[c]).
- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison (CEQA Guidelines Section 15126.6[d]).
- If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed (CEQA Guidelines Section 15126.6[d]).
- The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline (CEQA Guidelines Section 15126.6[e][1]).
- If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6[e][2]).

Project Objectives

Based on the above, reasonable alternatives to the project must be capable of feasibly attaining most of the basic objectives of the project. The proposed project is being pursued with the following objectives:

1. Construct a commercially viable, financeable, major underground gold mine operation that will produce 1,000 tons per day (365,000 tons per year) of gold mineralization.
2. Locate the project on property that Rise Grass Valley, Inc. owns that provides an existing access to the underground workings.
3. Utilize existing underground access points to limit new aboveground and underground surface disturbance.
4. Locate the facilities necessary to support dewatering, mining, and processing on land historically disturbed and zoned for similar industrial type uses.
5. Locate the majority of project facilities within a large property holding to provide buffer areas and minimize the potential for adverse environmental effects on neighboring properties.
6. Provide property owners along East Bennett Road a reliable and clean potable water source from the NID.
7. Provide jobs that provide a fair living wage for educated and skilled workers.



8. Increase the usable land area at the Centennial Industrial Site to allow its future use as industrial land.
9. Increase the usable land area at the Brunswick Industrial Site to allow its future use as industrial land.
10. Minimize impacts to wetlands, vernal pools, and other special-status species habitat located on the Brunswick and Centennial Industrial sites and, to the extent feasible, mitigate any such impacts identified.

Impacts Identified in the EIR

In addition to attaining the majority of project objectives, reasonable alternatives to the project must be capable of reducing the magnitude of, or avoiding, identified significant environmental impacts of the proposed project. The significance level of impacts identified in the EIR are presented below.

Less Than Significant or No Impact

As discussed in each respective section of this EIR, the proposed project would result in no impact or a less-than-significant impact related to the following specific topics associated with the resource area indicated, and mitigation would not be required. Note that subsequent sections of this analysis identify topics in most of these resource categories where there will be significant impacts and mitigation has been provided.

- ***Aesthetics.*** The EIR determined that a less-than-significant impact would occur related to substantial adverse effects on scenic vistas.
- ***Agriculture and Forestry Resources.*** The EIR determined that no impact would occur related to conversion of Farmland and conflicts with existing zoning for agricultural use and Williamson Act contracts. The EIR also determined that the proposed project would have a less-than-significant impact concerning conflicting with existing zoning for forest land, or resulting in loss of forest land. In addition, all cumulative impacts were determined to be less than significant.
- ***Air Quality, Greenhouse Gas Emissions, and Energy.*** The EIR determined that a less-than-significant impact would occur related resulting in emissions (such as those leading to odors) adversely affecting a substantial number of people. The EIR also determined that a less-than-significant impact would occur related to inefficient or wasteful use of energy and conflicts with a state or local plan for renewable energy or energy efficiency. In addition, with the exception of greenhouse gas emissions, all cumulative impacts were determined to be less than significant or less than cumulatively considerable.
- ***Biological Resources.*** The EIR determined that impacts related to interfering substantially with the movement of native resident or migratory wildlife, and conflicts with local policies or ordinances protecting biological resources would be less than significant.
- ***Cultural and Tribal Cultural Resources.*** The EIR determined that impacts related to disturbing human remains would be less than significant. In addition, all cumulative impacts were determined to be less than significant.
- ***Geology, Soils, and Mineral Resources.*** The EIR determined that impacts related to directly or indirectly destroying a unique paleontological resource or unique geologic



feature, and loss of availability of mineral resources would be less than significant. In addition, cumulative impacts were determined to be less than significant.

- **Hazards and Hazardous Materials.** The EIR determined that the proposed project would result in a less-than-significant impact related to being located within an airport land use plan and creating a safety hazard or excessive noise for people residing or working in the project area. The EIR also determined that the proposed project would not result in a significant impact related to creating a significant hazard through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment related to the Centennial Industrial Site, given the post-remediation baseline condition.
- **Hydrology and Water Quality.** The EIR determined that the proposed project would result in a less-than-significant impact related to conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan. In addition, cumulative impacts were determined to be less than significant.
- **Land Use and Population and Housing.** The EIR determined that the proposed project would result in a less-than-significant impact for all issues related to land use and population and housing.
- **Noise and Vibration.** The EIR determined that a less-than-significant impact would occur related to generation of excessive groundborne noise levels. A less-than-significant impact would also occur related to exposing people residing or working in the project area to excessive aircraft noise. In addition, cumulative impacts were determined to be less than cumulatively considerable.
- **Public Services and Utilities.** The EIR determined that all impacts related to public services and utilities (e.g., fire, law enforcement, schools, parks, water, sewer, solid waste), including cumulative impacts, would be less than significant. As discussed in the EIR, for public services impacts, the analysis appropriately focuses on an evaluation of whether the project's demand upon service providers would generate the need to build new facilities or expand existing facilities, the construction of which could cause environmental impacts.
- **Transportation and Circulation.** The EIR determined that impacts related to the following categories would be less than significant: study roadway segments and intersection queues under Existing Plus Approved Projects (EPAP) Plus Project conditions; transit, bicycle, and pedestrian facilities; vehicle miles traveled; and emergency access. Under Cumulative Plus Project conditions, a less-than-cumulatively considerable impact would occur related to study roadway segments.
- **Wildfire.** The EIR determined that the proposed project would result in a less-than-significant impact related to substantially impairing an adopted emergency response plan or emergency evacuation plan, installation or maintenance of wildfire-associated infrastructure which could exacerbate wildfire hazard, and exposing 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. In addition, cumulative impacts were determined to be less than significant.



As stated above, reasonable alternatives to the project must be capable of reducing the magnitude of, or avoiding, identified significant environmental impacts of the proposed project. Because the proposed project would not result in significant impacts related to the resource areas listed above, a comparison of potential impacts associated with the aforementioned resource areas as a result of project alternatives versus the proposed project is not provided in this chapter. Rather, this chapter focuses on those resource areas and specific impacts listed below that have been identified for the proposed project as requiring mitigation to reduce significant impacts to less than significant, or have been found to remain significant and unavoidable.

Less Than Significant with Mitigation

Environmental impacts (including cumulative impacts) of the proposed project that have been identified as requiring mitigation measures to ensure that the level of significance is ultimately less than significant include the following:

- **Air Quality and Greenhouse Gas Emissions.** The EIR determined that implementation of the proposed project could result in a conflict with implementation of the applicable air quality plan through generation of construction and operational criteria pollutant emissions that would exceed the Northern Sierra Air Quality Management District's (NSAQMD) applicable thresholds. In addition, the project could result in emissions of asbestos dust related to on-site ground disturbing activities having the potential to expose receptors to substantial concentrations of asbestos. With respect to GHG, the proposed project could result in a significant greenhouse gas (GHG) impact during the construction period. However, the EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels.
- **Biological Resources.** The EIR determined that implementation of the proposed project could result in potential significant adverse effects to special-status plants at both the Centennial and Brunswick Industrial Sites; foothill yellow-legged frog, western pond turtle, California red-legged frog, California black rail, coast horned lizard, special-status bats, and non-special status raptors and migratory birds at both Sites; and aquatic resources on both Sites that are subject to regulatory agency jurisdiction. However, the EIR requires mitigation in order to ensure that impacts related to the aforementioned biological resources would be reduced to less-than-significant levels.
- **Cultural Resources.** The EIR determined that, at both Sites, implementation of the proposed project could result in a significant impact to unknown archaeological resources and Tribal Cultural Resources, as defined in Public Resources Code, Section 21074. In addition, the EIR determined that the project would have a significant adverse effect on the underground workings of the Idaho-Maryland Mine. However, the EIR requires mitigation in order to ensure that impacts related to cultural resources would be less than significant.
- **Geology and Soils/Mineral Resources.** The EIR determined that implementation of the proposed project could result in significant impacts related to the following geology and soils issues at both Sites: soil erosion related to stockpiles, engineered fill slopes, and general site disturbance during construction; presence of undocumented fill; and thin lenses of expansive soils. In addition, within off-site areas at the industrial complex south of Idaho Maryland Road and north of Whispering Pines Lane, near surface geotechnical



features need to be closed so as to ensure that collapse would not result during dewatering of the mine.

Significant geology issues specific to the Centennial Industrial Site include the safety concern related to the presence of the South Idaho Shaft.

Significant geology issues specific to the Brunswick Industrial Site include potential seismic hazards at the Brunswick Industrial Site; slope stability associated with temporary steep cut slopes at the new service shaft collar; and an unstable portion of the clay-lined pond dam.

The EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels.

- **Hazards and Hazardous Materials.** Potentially significant hazards identified on the Brunswick Industrial Site include elevated arsenic in the southeastern paved area, potential residual petroleum contamination in a few locations, and presence of groundwater monitoring wells of unknown status. However, the EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels. The EIR also determined that the proposed project could have a significant impact related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, specifically, the transport, underground storage, and use of explosives at the Brunswick Industrial Site. Implementation of the mitigation measures required in the EIR would reduce the impact to a less-than-significant level.
- **Hydrology and Water Quality.** The EIR determined that implementation of the proposed project could result in potential construction and operational impacts related to water quality (e.g., Centennial Industrial Site: engineered fill pad construction; Brunswick Industrial Site: operations within industrial area, underground placement of Cement Paste Backfill, use of clay-lined pond for water treatment process purposes, engineered fill pad construction, treated water discharge in South Fork Wolf Creek). In addition, the proposed project would result in substantial reduction in groundwater supplies; substantial alteration of drainage patterns;¹ and for the Centennial Industrial Site, risk release of pollutants in

¹ It is important to note that the significant impact determination related to substantial alteration of drainage patterns is done so out of an abundance of caution. As noted in the Hydrology and Water Quality chapter of this EIR:

EMKO concludes that the project would not significantly alter the drainage patterns of the sites in a manner which would result in substantial erosion or siltation on- or off-site, nor substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, nor create or contribute to runoff water which would exceed the capacity of existing stormwater drainage systems, nor impede or redirect flood flows. West Yost's independent peer review concurs with this conclusion. The combined flows from the treated water discharge and existing base flow in South Fork Wolf Creek would be below the levels that could potentially result in erosion or sediment transport. Peak storm flows at both the Centennial and Brunswick Industrial Sites would be reduced to levels less than current peak storm flows due to the detention basins that would be constructed below the engineered fill areas. The reduction in peak storm flows would reduce erosion and sedimentation within South Fork Wolf Creek and enhance the capacity of storm drain systems under the City of Grass Valley. Nevertheless, the drainage analysis prepared for the Centennial and Brunswick Industrial Sites is preliminary and a final drainage analysis will need to be prepared as part of the improvement plan submittal. Thus, it is conservatively concluded that the proposed project could result in a **significant** impact related to substantially altering the drainage pattern of the site or area, or increasing the rate or amount of surface runoff.



flood hazard area. However, the EIR requires mitigation in order to ensure that impacts related to hydrology and water quality are reduced to less-than-significant levels.

- **Noise.** The EIR determined that the project could result in a substantial permanent increase in ambient noise levels in the vicinity of the project due to haul truck traffic should Jake brakes be used. In addition, the EIR conservatively concludes that the combined operational noise sources at the Brunswick Industrial Site could result in a significant noise impact. With respect to vibration, the EIR determined that while blasting is not projected to exceed applicable thresholds, a ground vibration monitoring program should be implemented to determine the actual levels of ground vibration at commencement of mining, and if necessary, implement additional protective measures. The EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to a less-than-significant level.
- **Transportation and Circulation.** The EIR determined that implementation of the proposed project would result in a significant impact related to construction traffic, truck turn movements at the Millsite Road/E. Bennett Road project egress (Brunswick Industrial Site), and pavement condition at several locations. However, the EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to a less-than-significant level.
- **Wildfire.** The EIR determined that implementation of the proposed project would result in a significant impact related to exacerbating wildfire hazards. The EIR requires mitigation in order to ensure that the aforementioned impact is reduced to a less-than-significant level.

Significant and Unavoidable

The EIR has determined that the following project impacts would remain significant and unavoidable, even after implementation of the feasible mitigation measures set forth in this EIR:

- **Aesthetics.** The EIR determined that the proposed project would result in a significant impact related to substantially degrading the visual character or quality of the site and its surroundings. Even after mitigation, the impact would remain significant and unavoidable. The EIR also determined that the project's incremental contribution to the significant cumulative impact related to substantial degradation of visual character or quality would be cumulatively considerable and significant and unavoidable.
- **Noise.** The EIR determined that during construction activities, the project could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity (i.e., residents along East Bennett Road during construction of the potable water line). Even with implementation of mitigation, the impact would remain significant and unavoidable.
- **Transportation and Circulation.** The EIR determined that the proposed project would result in a significant impact at three study intersections under the EPAP Plus Project scenarios, one of which would be significant and unavoidable even after mitigation (Brunswick Road/SR 174). The EIR also determined that the proposed project would have a cumulatively considerable incremental contribution to two intersections under both Cumulative Plus Project scenarios, one of which would be significant and unavoidable



even after mitigation (Brunswick Road/SR 174). In addition, the project's incremental traffic would cause a significant impact at one intersection queue during both Cumulative Plus Project scenarios (Brunswick Road/Sutton Way). Mitigation measures are identified and required for the aforementioned cumulative impacts, but it cannot be guaranteed that the measures would reduce the incremental impacts to a less than cumulatively considerable level.

6.3 SELECTION OF ALTERNATIVES

The requirement that an EIR evaluate alternatives to the proposed project or alternatives to the location of the proposed project is a broad one; the primary intent of the alternatives analysis is to disclose other ways that the objectives of the project could be attained, while reducing the magnitude of, or avoiding, one or more of the significant environmental impacts of the proposed project. Alternatives that are included and evaluated in the EIR must be feasible alternatives. However, the CEQA Guidelines require the EIR to "set forth only those alternatives necessary to permit a reasoned choice." As stated in Section 15126.6(a), an EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. The CEQA Guidelines provide a definition for "a range of reasonable alternatives" and thus limit the number and type of alternatives that may need to be evaluated in a given EIR. According to the CEQA Guidelines Section 15126.6(f):

The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

First and foremost, alternatives in an EIR must be feasible. In the context of CEQA Guidelines Section 21061.1, "feasible" is defined as:

...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Finally, an EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained and whose implementation is remote and speculative."

Alternatives Considered But Dismissed From Further Analysis

Consistent with CEQA, primary consideration was given to alternatives that could reduce significant impacts, while still meeting most of the basic project objectives.

As stated in Guidelines Section 15126.6(c), among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are:

- (i) failure to meet most of the basic project objectives,
- (ii) infeasibility, or
- (iii) inability to avoid significant environmental impacts.

Regarding item (ii), infeasibility, among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context),



and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

Five potential alternatives were considered but dismissed from detailed analysis in this EIR. The reason(s) for dismissal, within the context of the three above-outlined permissible reasons, are provided below.

Off-Site Alternative

According to CEQA Guidelines Section 15126.6(f)(2), regarding Alternative Locations, “*If the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR. For example, in some cases there may be no feasible alternative locations for a geothermal plant or mining project which must be in close proximity to natural resources at a given location*” (emphasis added). Based on this language, the State recognizes that there are certain instances where a project is directly tied to a certain project location due to the presence of resources on which the project depends. Such is the case for the proposed project.

As discussed in Chapter 4.6, Geology, Soils, Mineral Resources, the majority of the proposed mining areas, including the Brunswick Industrial Site, are located within MRZ 2, with some outlying areas located within MRZ 3. According to the State, MRZ 2 are those “Areas of Identified Mineral Resource Significance.” MRZ 2 is divided into two subcategories; the relevant category for the project area is -2b.

As defined by the State, MRZ-2b are areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain discovered mineral deposits that are either inferred reserves as determined by limited sample analysis, exposure, and past mining history or are deposits that presently are sub-economic. Further exploration work and/or changes in technology or economics could result in upgrading areas classified MRZ-2b to MRZ-2a.

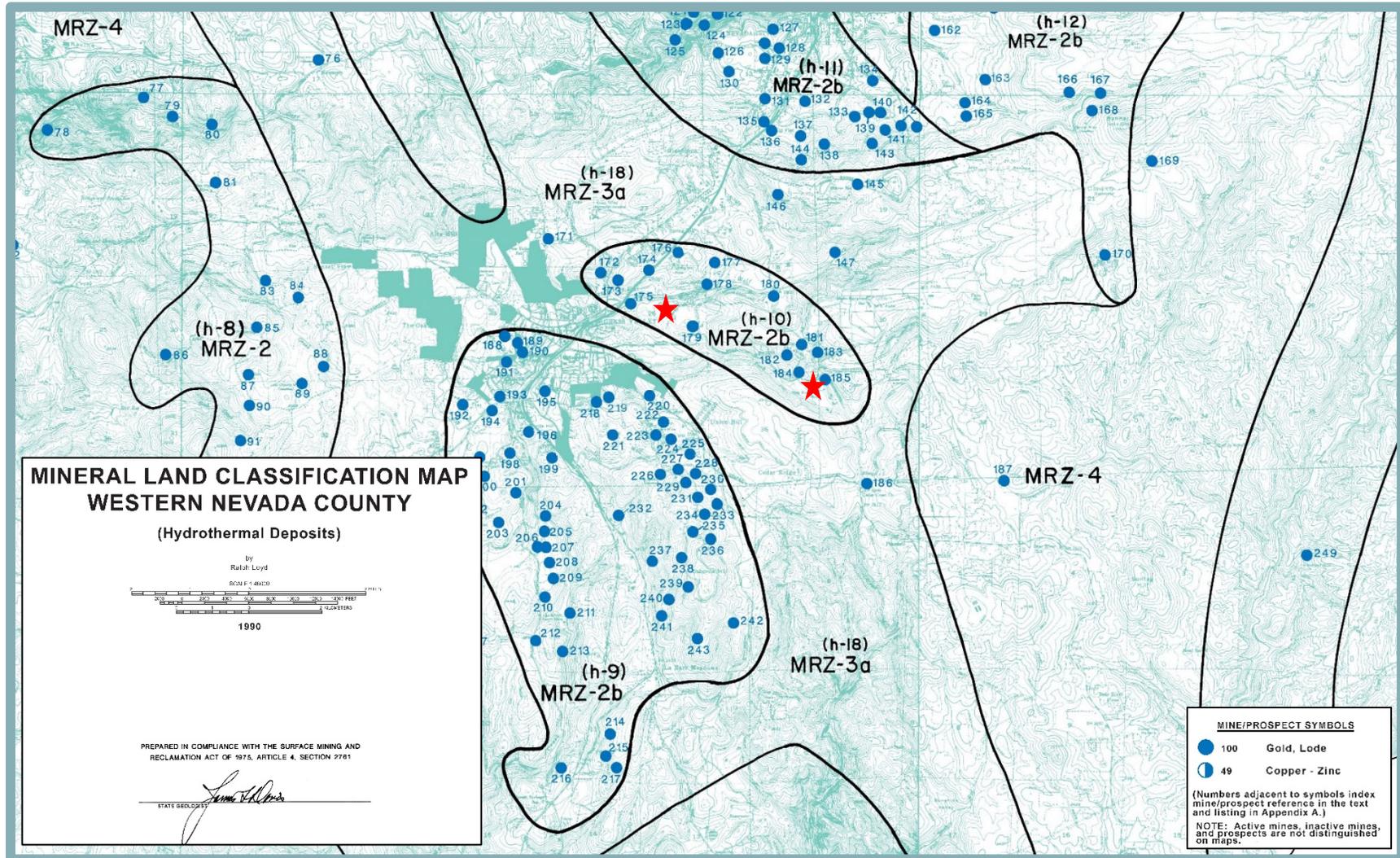
According to Nevada County Land Use and Development Code, Sec. L-II 4.3.11, *Significant Mineral Areas* are “Areas where information indicates that significant mineral deposits are likely present based on State Division of Mines and Geology’s Nevada County Mineral Classification Report Maps, referred to as Mineral Resource Zones - 2 (MRZ-2).”

The *Mineral Land Classification of Nevada County, California*² identifies the mineral deposits in the project area as superscript ‘h’ for deposits formed by hydrothermal processes. The majority of the proposed mining areas are within MRZ-2b and have an accompanying superscript reference number of 10, which is used to identify and reference specific MRZ areas discussed in the report and displayed on the maps. For example, the Grass Valley Northeast Area is identified as MRZ-2b^(h-10) – the tenth area described in the text for deposits formed by hydrothermal processes. MRZ-2b^(h-10) is described as follows (and shown in Figure 6-1):

² California Department of Conservation, Division of Mines and Geology (Ralph Loyd and John Clinkenbeard). *Mineral Land Classification of Nevada County, California. Special Report 164*. 1990.



**Figure 6-1
 Mineral Resource Zones**



★ = Approximate project site locations.



Grass Valley Northeast Area (lode gold): This area encompasses a complex system of cavity-filling quartz veins that occupy a network of faults and fissures situated between the Grass Valley and Weimar fault zones (Plate 1a). Historic mines in this area include the Idaho - Maryland mines (Locality Nos. 178 and 179, Plate 3a). Although many veins have been mined to great depth, significant amounts of gold are likely to exist at yet deeper levels. Also, significant gold resources are likely to exist along some sections of the vein system which were previously uneconomic or never explored. The geology, ore deposits, selected mines and the mining history of the Grass Valley district have been best described in detail by Johnston (1940) and summarized in Clark (1970).

In addition to having known gold resources, the Brunswick Industrial Site contains existing mine shaft infrastructure and access at the Brunswick Shaft, and substantial underground tunnelling already exists. The presence of said mine infrastructure will minimize the need for construction of above-ground and underground mining infrastructure, which would be required at an alternative location where none is currently present. As a result of these factors, feasible alternative locations to the overall project site do not exist. Therefore, this alternative is rejected from further consideration.

No Project (Alternative Use)

CEQA Guidelines Section 15126.6[e] states in part that:

“If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this ‘no project’ consequence should be discussed. In certain instances, the no project alternative means ‘no build,’ wherein the existing environmental setting is maintained. However, where failure to proceed with the project would not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project’s non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment.” (*Id.*, subd. [e][3][B]).

A project proponent could choose to develop the Brunswick Industrial Site consistent with the existing zoning should the Idaho-Maryland Mine application not be approved. Much of the Brunswick Site was utilized as a sawmill after the mine closure in the late 1950s, and the sawmill use ceased in the early 2000’s. As demonstrated below, development of the Brunswick Industrial Site with industrial uses, consistent with the current M1-SP zoning, could reasonably be expected to result in above-ground uses that are more intensive in certain respects than the proposed project.

Nevada County ordinance 1853, adopted by the County and effective February 1994, describes the current M1-SP zoning for the Brunswick Industrial Site. Presuming that the Brunswick Industrial Site was developed in accordance with the current zoning and the “Nevada County Business and Industrial Center” contemplated under ordinance 1853 was constructed the following activities would take place on-site.

Business Park	54,000 ft ² of office and professional
Service Business Light Manufacturing	242,000 ft ² of service business and light manufacturing
Industrial	238,000 ft ² of industrial buildings
Total	534,000 ft² of buildings



A large amount of buildings, up to approximately 534,000 ft², would be constructed on the site under this alternative and the site would be a major employer.

Business Park

A Business Park would be located on the northern portion of the property, generally in the area east of the pond proposed as the process plant location for the proposed project. The Business Park would be a total size of 5.4 acres, pursuant to Ordinance 1853, and accessed from E. Bennett Street. Primary uses in this area are intended to include office administration and research. In addition, the Business Park would include sales displays and meeting rooms that can host luncheons, dinner events, and lectures. Secondary uses include: incidental light manufacturing for products produced on-site, i.e.; laboratories, service and repair, and research facilities.

Building intensity of 10,000 ft² per acre would allow 54,000 ft² of buildings.

Examples of Permitted Uses:

- Office and Professional
- Administrative and Research
- Employment Center Support:
 - Restaurants
 - Fitness Center
 - Automatic Branch Bank
 - Daycare Facilities
- Sales Office / Showroom (Relative to products produced on site)
- Conference Facilities (Related to service, training, and lectures incidental to activities conducted on site)
- Other similar type uses

Service Business Light Manufacturing

A Service Business Light Manufacturing area would be located on the center portion of the property, generally in the area southeast of the pond proposed as the office location for the IMM Project. The Service Business Light Manufacturing area would be a total size of 18.6 acres, pursuant to Ordinance 1853. Primary uses in this area would include service maintenance and repair, manufacturing and processing, warehousing and distribution facilities. Secondary uses include office, professional, and conference facilities.

Building intensity of 13,000 ft² per acre would allow 242,000 ft² of buildings, including large buildings requiring up to 60,000 ft².

Examples of Permitted Uses:

- Food products
- Chemical laboratories
- Dry cleaning
- Metal fabricators
- Wholesale stores and showrooms
- Service contractors; including general, plumbing, janitorial, roofers, pool installers, etc.



- Service maintenance and repair: including parts distribution and repairs, small service shops, automotive repairs, electrical appliance repairs, business machinery repairs, upholstery and etc.
- Other similar type uses.

Industrial

An Industrial area would be located on the south portion and extending to the border of the property, generally in the area proposed as the engineered fill area for the IMM Project. The Industrial area would be a total size of 18.3 acres, pursuant to Ordinance 1853. Primary uses in this area would include uses that are site and labor intensive with minimal customer activity.

Building intensity is not specified. Using 13,000 ft² per acre would allow 238,000 ft² of industrial buildings.

Examples of Permitted Uses:

- Moving and Storage Facilities
- RV Repair and Storage Lots
- Well Drilling, Contractors Equipment and Storage Yards
- Large Equipment Storage and Repair
- Auto Dismantling Yards
- Milling and Planing Facilities
- Lumber Yards
- Truss Manufacturing Yards
- Large Truck Repair and Service
- Large Wholesaling and Distribution Facilities
- Recycling Center
- “Green Tech” Recyclers

As shown in the above list of permitted uses for the existing property zoning, intense uses such as Auto Dismantling Yards, Wholesaling and Distribution Facilities are already permitted without the need for a discretionary County permit. As such, under existing zoning, uses are allowed by right that potentially could cause substantial noise, traffic, aesthetic and air quality impacts without the need for further CEQA review or mitigation. Notably, the permitted use such as Distribution Facilities and Office/Professional would likely have substantial traffic impacts. The permitted uses including Auto Dismantling Yards and Milling and Planing Facilities would potentially create noise impacts similar or greater to the proposed project.

As demonstrated above, development of the Brunswick Industrial Site with industrial uses, consistent with the current M1-SP zoning, could reasonably be expected to result in above-ground uses that are more intensive in certain respects than the proposed project. This would be contrary to CEQA’s objectives for an alternative, which is to avoid or substantially lessen any of the significant effects of the project (Section 15126.6(f)). Therefore, this alternative is rejected from further consideration.

Reduced Hours – 12 hours per day, dayshift only

Operating the mine and plant on the Brunswick Industrial Site during day shift hours only (7AM-7PM) would eliminate most noise during nighttime hours. However, if the mine were to run only 12 hours per day all the machinery and intensity of activities would be doubled to maintain the



same production rate. Capital and operating costs would increase substantially and likely make the project economically infeasible. Further, traffic impacts would increase due to greater number of employees working during the same hours. Moreover, as determined in Chapter 4.10, Noise and Vibration, noise during nighttime hours for the project is anticipated to be below County noise standards; therefore, this alternative would not be anticipated to reduce a significant impact. As discussed above, pursuant to Section 15126.6(f) of CEQA Guidelines, alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Therefore, this alternative is rejected from further consideration.

Night Trucking – 24 hours per day trucking

Trucking of engineered fill to the Centennial Industrial Site and local construction markets via SR 49 is currently scheduled at 16 hours per day from 6AM to 10PM. With an average of 50 trucks per day this is approximately 3 trucks per hour, and with a maximum of 100 trucks per day, this is approximately 6 trucks per hour. Traffic impacts from trucks could be further reduced by trucking 24 hours per day, which would result in approximately 2 trucks per hour. However, due to the lower ambient noise level at night, this trucking would be anticipated to generate a significant noise increase at a residence along Whispering Pines Lane, when compared to the applicable criteria (i.e., FICON). This alternative is otherwise similar to the proposed project with respect to extent (e.g., use of Centennial and Brunswick Industrial Sites) and operations; thus, proposed project impacts would not be lessened or avoided. As discussed above, pursuant to Section 15126.6(f) of CEQA Guidelines, alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Therefore, this alternative is rejected from further consideration.

No Use of E. Bennett Road – Trucks exiting via Brunswick Road

Project truck traffic would enter the site from the main entrance on Brunswick Road and exit the site at E. Bennett Road. Trucks exiting the site turn right onto E. Bennett Road and then left onto Brunswick at a four-way stop sign. The closest residence on the section of E. Bennett Road used by trucks is approximately 150 feet from the road. Noise impacts from trucks have been determined to be less than significant. However, noise at this residence could be reduced if trucks exited from the Brunswick Road gate versus the E. Bennett Road gate. If trucks were to exit from the Brunswick Road gate, turning left onto Brunswick Road, they could impede traffic on Brunswick Road due to the inability to accelerate quickly enough. If a light were added to the intersection this issue could be resolved but at the expense of slowing traffic on Brunswick Road, which is a County arterial road. While this alternative would reduce noise impacts from trucks for one residence, these impacts are not considered significant, and this alternative could cause new or increased traffic impacts; therefore, it is rejected from further consideration.

Forestation of Slopes on Engineered Fill Piles

The project includes placement of six inches of topsoil and planting native grasses on the slopes of the Centennial and Brunswick engineered fill piles for erosion control. Under this alternative, the plantings of native trees and bushes on the slopes would decrease aesthetic impacts of the engineered fill piles, especially at the Centennial Industrial Site. To ensure that forestation does not increase fire hazard, spacing would be done in accordance with the State Board of Forestry and Fire Protection's, "General Guidelines for Creating Defensible Space, February 8, 2006". Based on the guidelines and 33% slope, trees would be separated horizontally by 20 feet and shrubs by 4 times its height. The spacing of trees for fire considerations would also result in a greater ability to patrol the site and identify homeless encampments. A certified landscape



architect would design the planting to achieve the best aesthetic result and consideration of wildfire safety.

The tree planting would result in a minor decrease in the GHG emissions of the project. The slope of the Centennial Industrial Site has an area of approximately four acres and at the Brunswick Industrial Site, the slope area is approximately 10 acres. Assuming a net benefit of 60 tonnes CO₂ per acre, total greenhouse gasses for the project would be reduced by 840 tonnes. However, the EIR determined that the project's operational GHG emissions would be below the applicable GHG significance threshold, and while the project's construction-period GHG emissions were determined to be significant, a reduction of 840 tonnes would not reduce the impact to below the applicable threshold. In addition, while the planting of trees along the slopes of the Centennial and Brunswick engineered fill piles would reduce the proposed project's aesthetic effects by adding screening, the substantial slopes would not be fully screened due to the required tree spacing, and the aesthetic impact would be anticipated to remain significant and unavoidable. Therefore, this alternative would not be anticipated to avoid or substantially lessen a significant impact identified for the project. Given the limited efficacy of this alternative, it is rejected from further consideration.

Alternatives Considered in this EIR

The following range of alternatives is considered and evaluated in this section:

- Alternative 1: No Project (No Build) Alternative;
- Alternative 2: Elimination of Centennial Industrial Site and Expansion of Brunswick Fill Pile;
- Alternative 3: Expansion of Centennial Engineered Fill Pile and Elimination of Brunswick Engineered Fill Pile; and
- Alternative 4: Reduced Throughput.

Each of the project alternatives is described in detail below, with a corresponding analysis of each alternative's impacts in comparison to the proposed project. While an effort has been made to include quantitative data for certain analytical topics, where possible, qualitative comparisons of the various alternatives to the project are primarily provided. Such an approach to the analysis is appropriate as evidenced by CEQA Guidelines Section 15126.6[d], which states that the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed. The analysis evaluates impacts that would occur with the alternatives relative to the significant impacts identified for the proposed project. When comparing the potential impacts resulting from implementation of the foregoing alternatives, the following terminology is used:

- "Fewer" = Less than Proposed Project;
- "Similar" = Similar to Proposed Project; and
- "Greater" = Greater than Proposed Project.

When the term "fewer" is used, the reader should not necessarily equate this to elimination of significant impacts identified for the proposed project. For example, in many cases, an alternative would reduce the relative intensity of a significant impact identified for the proposed project, but the impact would still be expected to remain significant under the alternative, thereby requiring mitigation. In other cases, the use of the term "fewer" may mean the actual elimination of an impact identified for the proposed project altogether. Similarly, use of the term "greater" does not



necessarily imply that an alternative would require additional mitigation beyond what has been required for the proposed project. To the extent possible, this analysis will distinguish between the two implications of the comparative words “fewer” and “greater”.

See Table 6-1 at the end of this chapter for a comparison of the environmental impacts resulting from the considered alternatives and the proposed project.

Alternative 1: No Project (No Build) Alternative

CEQA requires the evaluation of the comparative impacts of the “No Project” alternative (CEQA Guidelines Section 15126.6[e]). Analysis of the no project alternative shall:

“... discuss [...] existing conditions [...] as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.” (*Id.*, subd. [e][2]) “If the project is other than a land use or regulatory plan, for example a development project on identifiable property, the ‘no project’ alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in the property’s existing state versus environmental effects that would occur if the project were approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this ‘no project’ consequence should be discussed. In certain instances, the no project alternative means ‘no build,’ wherein the existing environmental setting is maintained. However, where failure to proceed with the project would not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project’s non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment.” (*Id.*, subd. [e][3][B]).

The County has decided to evaluate a No Project (No Build) Alternative, which assumes that the Brunswick Industrial Site would remain in its current condition and would not be further developed. This alternative also assumes that the Centennial Industrial Site will be remediated under DTSC oversight, given that the clean-up effort is a separate project, but remain undeveloped.

With the exception of Project Objective 10, which is focused on minimizing impacts to sensitive habitats and species, the No Project (No Build) Alternative, would not meet any of the project objectives.

While fully described in the other sections of the EIR, the environmental settings of the Centennial and Brunswick Industrial Sites and East Bennett Right of Way (ROW) are provided here for the reader’s convenience.

Centennial Industrial Site Environmental Setting

Similar to the EIR analysis, this Alternative assumes that the Centennial Industrial Site would still undergo remediation given that Rise Grass Valley Inc. has entered into a Voluntary Cleanup Agreement (VCA; Docket No. HSA-FY18/19-014) with the Department of Toxic Substances Control (DTSC) for the voluntary cleanup of soil contamination on the Centennial Industrial Site. A Centennial Industrial Site Remedial Action Plan (RAP; 2020) has been prepared by NV5, on behalf of Rise, and describes the proposed procedures for conducting remedial activities needed to meet Remedial Action Objectives (RAO’s). Separate CEQA review of the RAP is being conducted with DTSC as the CEQA lead agency, and an Initial Study/Mitigated Negative Declaration has been released for public review. The CEQA document identifies mitigation



measures with which Rise will need to comply, prior to and during remedial activities, which would ensure that physical impacts to the environment are mitigated to a less-than-significant level.

It is estimated that approximately half of the Centennial Industrial Site will consist of graded and revegetated areas under the post-remediation condition. An engineered fill pad would be located along the eastern portion of the site. The remaining areas will consist of varying topography covered with natural vegetation communities and a limited amount of aquatic resources, the primary feature of which is Wolf Creek. Wolf Creek is a perennial feature that runs along the northern portion of the Centennial Industrial Site.

Brunswick Industrial Site Environmental Setting

The approximately 119-acre Brunswick Industrial Site is characterized by both natural and disturbed areas. Disturbed areas are generally a result of historic mining and lumber mill practices, public access, and ongoing management for many years. Within the Brunswick Industrial Site, the dumping of soils, landscape materials, and other miscellaneous items has also occurred for many years. A large section of the Brunswick Industrial Site located in the eastern areas along Brunswick Road would be characterized as disturbed and/or developed given the amount of pavement and impervious surfaces in those areas, as well as the remaining infrastructure related to historic mining and mill operations. Areas not subject to this regular type of previous disturbance are dominated by native habitat and, therefore, are also the baseline condition within the Brunswick Industrial Site.

The Brunswick Area is located in an area containing South Fork Wolf Creek, a perennial stream. Several intermittent and ephemeral streams connect directly to South Fork Wolf Creek within the Brunswick Industrial Site. South Fork Wolf Creek also flows to the south of the East Bennett Road ROW within the Brunswick Area. South Fork Wolf Creek contains associated riparian woodland and scrub and large tracks of wet meadow wetlands dominant in the northwestern section of the Brunswick Industrial Site.

South Fork Wolf Creek surfaces within the Brunswick Industrial Site south of a large manmade clay-lined pond and flows northwest across the Brunswick Area. South Fork Wolf Creek daylights from an existing 48-inch diameter culvert, which is approximately 1,600 feet long (Regional Water Quality Control Board [RWQCB] Order No. 88-185, December 18th, 1990). The 48-inch culvert is fed by surface drainage and road runoff on both the east and west sides of Brunswick Road, which crosses Brunswick Road through a culvert. Additionally, perennial surface drainage from the west side of Brunswick Road drains north to the 48-inch culvert inlet.

East Bennett Road ROW Environmental Setting

The approximately 10-acre East Bennett Road ROW contains a developed and paved public road and ROW that has been used for decades. In addition, the shoulders of East Bennett Road that are included as part of the East Bennett Road ROW are also developed given the grading and fill material associated with the development of the road.

Aesthetics

The proposed project would place waste rock and sand tailings (i.e., engineered fill) at the Centennial Industrial Site. The engineered fill would be generated from underground mining operations and mineral processing conducted at the Brunswick Industrial Site. Under the No Project (No Build) Alternative, no underground mining operations would occur on the Brunswick Industrial Site, and thus, no waste rock or sand tailings would be generated, eliminating the need



to place engineered fill at the Centennial Industrial Site. While this would substantially improve the aesthetic condition of the Centennial Industrial Site, it is important to note that vegetation removal and earthmoving would still take place on the Centennial Industrial Site as a result of the separate Centennial Clean-Up Project. Thus, the visual character or quality of the Centennial Industrial Site will change regardless of the proposed project.

Given that this Alternative would not include development of the above-ground structures at the Brunswick Industrial Site, nor the placement of substantial engineered fill on the southern portion of the Site, the visual character or quality of the site and its surroundings would not be subject to substantial degradation.

Based on the above considerations, the significant and unavoidable aesthetic impacts identified for the proposed project would be eliminated under the No Project (No Build) Alternative, resulting in fewer impacts than the proposed project.

Air Quality, Greenhouse Gas Emissions, and Energy

Because the No Project (No Build) Alternative would not involve construction activities, the Alternative would not result in construction emissions and would not generate ROG, NO_x, and PM₁₀ emissions in exceedance of the NSAQMD's significance thresholds. In addition, the Alternative would not result in the generation of ROG, NO_x, and PM₁₀ emissions in excess of the NSAQMD's significance thresholds during the operational and reclamation phases of the proposed project. The Alternative would not disturb naturally-occurring asbestos as could possibly occur during underground mining, though the proposed project would implement an Asbestos, Serpentine, and Ultramafic Rock Management Plan (ASUR). Nevertheless, there would be no potentially significant adverse effect under this Alternative related to emissions of asbestos dust attributable to on-site ground disturbing activities and use of tailing material as fill having the potential to expose receptors to substantial concentrations of asbestos. With respect to GHG emissions, the Alternative would not result in a significant GHG impact as a result of construction activities. Thus, the impacts identified for the proposed project related to air quality and GHG emissions would not occur under the No Project (No Build) Alternative. Overall, no impacts related to Air Quality and GHG emissions would occur under the No Project (No Build) Alternative.

Biological Resources

Under the No Project (No Build) Alternative, construction activities, including ground disturbance, would not occur on the Centennial and Brunswick Industrial Sites. As such, the Alternative would not have the potential to impact special-status plants, foothill yellow-legged frog, western pond turtle, California red-legged frog, California black rail, coast horned lizard, special-status bats, and non-special status raptors and migratory birds. In addition, the Alternative would not result in any substantial adverse effects on riparian habitat and/or other sensitive natural communities and/or have a substantial adverse effect on federal or State protected aquatic resources. Overall, the impacts identified for the proposed project related to biological resources would not occur under the No Project (No Build) Alternative.

Cultural and Tribal Cultural Resources

Because underground mining would not occur under the No Project (No Build) Alternative, a substantial adverse effect would not occur to the underground mine workings, which were determined to be historically significant pursuant to the National Register of Historic Places (NRHP) and California Register of Historic Resources (CRHR) criteria A/1 and C/3. Because land disturbance would not occur under the No Project (No Build) Alternative, the Alternative would



not have the potential to result in impacts to archaeological resources, though the EIR analysis found no evidence of archaeological resources at either Site. Nevertheless, out of an abundance of caution the EIR includes mitigation measures aimed at protecting any unknown cultural and tribal cultural resources should they be encountered during construction. Overall, the impacts identified for the proposed project related to cultural resources would not occur under the No Project (No Build) Alternative.

Geology, Soils, and Mineral Resources

Because the No Project (No Build) Alternative would not include underground mining and generation of engineered fill, grading or other ground-disturbing activities, substantial soil erosion would not occur. In addition, the near-surface geotechnical features identified for closure due to dewatering of the mine would not be adversely impacted, though they may currently pose some level of risk that would continue under the Alternative. Other geotechnical issues that could pose a significant effect under the proposed project, but would not pose an adverse effect under the Alternative, include potential seismic hazards at the Brunswick Industrial Site and slope stability associated with temporary steep cut slopes at the new service shaft collar. However, the proposed project would fix a few existing geotechnical issues that would remain under this Alternative, including the safety concern related to the presence of the South Idaho Shaft on the Centennial Industrial Site, and an unstable portion of the clay-lined pond dam on the Brunswick Industrial Site.

Overall, impacts related to Geology, Soils, and Mineral Resources would be fewer under the No Project (No Build) Alternative compared to the proposed project.

Hazards and Hazardous Materials

As previously noted, the EIR determined that the proposed project would not result in a significant impact related to creating a significant hazard through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment related to operations at the Centennial Industrial Site, given the post-remediation baseline condition.

The EIR determined that the proposed project could result in a significant impact related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, specifically, the transport and underground storage and use of explosives at the Brunswick Industrial Site. Compliance with applicable federal (MSHA, OSHA), State (CCR), and local regulations, and the additional mitigation measures in this EIR, would reduce the significant hazard related to transport, underground storage and use of explosives to a less-than-significant level. Because the use of explosives would be eliminated under the No Project (No Build) Alternative, the significant impact would also be eliminated.

The EIR determined that the proposed project could result in a significant impact related to creating a significant hazard through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment related to the Brunswick Industrial Site, given the presence of elevated arsenic in the southeastern paved area, potential residual petroleum contamination in a few locations, and presence of groundwater monitoring wells of unknown status. While the Alternative would not include development that could disturb, and potentially, exacerbate these hazards, on the other hand the Alternative would not remove these hazards from the Brunswick Industrial Site, as would be the case under the proposed project due to the mitigation required in the EIR. Thus, the hazards would remain on the Brunswick Industrial Site.



Based on the above considerations, the No Project (No Build) Alternative would result in fewer impacts related to hazards and hazardous materials (at the Brunswick Industrial Site) as compared to the proposed project.

Hydrology and Water Quality

The No Project (No Build) Alternative would not result in on-site construction disturbance or above-ground operations such that the following project-related significant impacts to water quality would not occur: Centennial Industrial Site: engineered fill pad construction; Brunswick Industrial Site: operations within industrial area, underground placement of Cement Paste Backfill, use of clay-lined pond for water treatment process purposes, engineered fill pad construction, and treated water discharge in South Fork Wolf Creek. In addition, the No Project (No Build) Alternative would not necessitate dewatering of the mine; thus, there would not be a substantial reduction in groundwater supplies resulting in effects to nearby wells, though the proposed project includes mitigation to offset impacts to wells (i.e., provision of potable water service). Further, due to the lack of on-site operations, the No Project (No Build) Alternative would not result in the substantial alteration of drainage patterns, and for the Centennial Industrial Site, risk release of pollutants in a flood hazard area. It is worth noting, however, that the proposed project's detention systems on both the Centennial and Brunswick Industrial Sites would reduce peak flows in Wolf Creek and South Fork Wolf Creek, respectively, below predevelopment levels. For example, the Centennial Industrial Site detention basin and outlet structure would reduce the peak discharge to Wolf Creek by over 27 cubic feet per second (cfs) for the 10-year storm and by over 44 cfs for the 100-year storm. Similarly, the Brunswick Industrial Site detention basin and outlet structure would reduce the peak discharge to South Fork Wolf Creek by over 48 cfs for the 2-year storm, by over 60 cfs for the 10-year storm, by over 40 cfs for the 25-year storm, and by over 25 cfs for the 100-year storm.

Overall, the impacts identified for the proposed project related to hydrology and water quality would not occur under the No Project (No Build) Alternative.

Noise and Vibration

The No Project (No Build) Alternative would not involve construction and operational activities, with the exception of temporary activities on the Brunswick Industrial Site, such as the firewood program. Thus, unlike the proposed project, the Alternative would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity, nor a substantial permanent increase in ambient noise levels in the vicinity of the project due to haul truck traffic should Jake brakes be used. In addition, the EIR conservatively concludes that the combined operational noise sources at the Brunswick Industrial Site could result in a significant noise impact. With respect to vibration, the EIR determined that while blasting is not projected to exceed applicable thresholds, a ground vibration monitoring program should be implemented to determine the actual levels of ground vibration at commencement of mining. These operational noise and vibration impacts would not occur under the No Project (No Build) Alternative. It is noteworthy that the significant and unavoidable construction noise impact related to installation of the potable water line in East Bennett Road would be eliminated under this Alternative.

Overall, substantial impacts related to Noise and Vibration would not occur under the No Project (No Build) Alternative.



Transportation and Circulation

The No Project (No Build) Alternative would not generate construction traffic or operational vehicle traffic on local roadways and, thus, unlike the proposed project, the Alternative would not result in a significant construction traffic impact, nor would General Plan LOS policy conflicts occur under the EPAP Plus Project conditions to the intersections of Brunswick Road/Idaho Maryland Road, Brunswick Road/SR 174, and Idaho Maryland Road/Centennial Drive; and under the Cumulative Plus Project scenarios to the intersections of Brunswick Road/SR 174 and Sutton Way/Dorsey Drive. The proposed project would also result in a significant effect to the intersection queue during the Cumulative Plus Project scenarios (Brunswick Road/Sutton Way), which would not occur under this Alternative. Further, the EIR determined that proposed project (Brunswick Industrial Site operations) would have an impact related to truck turn movements at the Millsite Road/E. Bennett Road project egress at the Brunswick Industrial Site; this effect would not occur under this Alternative.

The EIR determined that some of the above-noted impacts would be considered significant and unavoidable due to the uncertainty concerning certain mitigation measures. The subject impacts are the EPAP Plus Project and Cumulative Plus Project intersection impacts to Brunswick Road/SR 174 and the Cumulative Plus Project intersection queue at Brunswick Road/Sutton Way. These significant and unavoidable impacts would be eliminated under this Alternative.

Overall, significant transportation impacts would not occur under the No Project (No Build) Alternative.

Wildfire

The No Project (No Build) Alternative would not result in a significant impact related to exacerbating wildfire hazards, as compared to the proposed project. For example, above-ground machinery would not be operated at both project sites, with the exception of limited equipment use associated with the senior firewood program at the Brunswick Industrial Site. Therefore, potential vegetation fires associated with on-site equipment operations would be substantially reduced under this Alternative. However, whereas the proposed project would reduce on-site fuel sources by removing on-site forest land, such would not be the case for the No Project (No Build) Alternative. The proposed project would result in the loss of up to approximately 6.5 acres of forest land on the Centennial Industrial Site (assuming post-remediation baseline) and approximately 18.5 acres of forest land on the Brunswick Industrial Site. The reduction in on-site vegetation would result in a concomitant reduction in fuel sources, and thus, wildfire hazard.

Overall, it is anticipated that the No Project (No Build) Alternative would result in fewer wildfire hazards as compared to the proposed project.

Alternative 2: Elimination of Centennial Industrial Site and Expansion of Brunswick Fill Pile

The IMM Project proposes to transport and place approximately 1,600,000 tons of engineered fill at the Centennial Industrial Site in order to create 31 acres of flat usable industrial land at that site. The Centennial Industrial Site could be excluded from the proposed project as the equivalent amount of engineered fill could be placed by increasing the height of the planned engineered fill area at the Brunswick Industrial Site.

This alternative would eliminate the Centennial Industrial Site, and any related impacts, entirely from the IMM Project. The indirect economic benefit from the creation of 52 acres of flat industrial



land would be lost (31 acres of flat industrial land at the Centennial Industrial Site and 21 acres at the Brunswick Site – Brunswick acreage included here because the final pad configuration under this alternative would not be conducive to future development).

Project Objectives 1 through 7 and 10 would be achieved with this alternative and operating costs decreased due to the elimination of trucking from the Brunswick to Centennial Industrial Site. Project Objectives 8 and 9, related to increasing usable land for future industrial use at the Centennial and Brunswick Industrial Sites, respectively, would not be achieved.

The design of the engineered fill pad at Brunswick Industrial Site, under the proposed project scenario, slopes from a final elevation of approximately 2,830 ft mean sea level (msl) at the hillside to an elevation of 2,820 ft msl at the crest of the pad. The engineered fill pad at the Brunswick Industrial Site is designed to maximize usable area after construction. Alternative 2 would continue placing fill within the existing footprint to an elevation of ~2,880 ft msl, or approximately 50 feet higher, as shown in Figure 6-2 and Figure 6-3. The placement of this additional fill would add additional volume of approximately 30 million ft³, or approximately 1.7 million tons, and allow for the replacement of storage lost from the elimination of the Centennial Industrial Site. The additional fill would have an area at the base elevation at 2,830 ft msl of approximately 18.5 acres and at the top 2,880 ft msl elevation of approximately 6.5 acres. The intensity of activity related to construction of the larger engineered fill pad under this Alternative would not increase, but the duration of the activity would be lengthened due to the increase in material volume. Other aspects of the proposed project would remain unchanged.

Aesthetics

The proposed project would place waste rock and sand tailings (i.e., engineered fill) at the Centennial Industrial Site. The engineered fill would be generated from underground mining operations and mineral processing conducted at the Brunswick Industrial Site. The EIR determined that the placement of substantial engineered fill at the Centennial Industrial Site would result in a significant and unavoidable impact related to the substantial degradation or the visual character of quality of the site and its surroundings. Under the Elimination of Centennial Industrial Site and Expansion of Brunswick Fill Pile Alternative (“Alternative”), engineered fill generated at the Brunswick Industrial Site would not be placed on the Centennial Industrial Site. Therefore, the significant and unavoidable aesthetic impact created at the Centennial Industrial Site by the proposed project would be eliminated under this Alternative. It is important to note that vegetation and earthmoving would still take place on the Centennial Industrial Site as a result of the separate Centennial Clean-Up Project. Thus, the visual character or quality of the Centennial Industrial Site will change regardless of the proposed project.

With respect to the Brunswick Industrial Site, this Alternative would place substantially more engineered fill on the southern portion of the site, as compared to the proposed project. As previously discussed, the placement of this additional fill would add additional volume of approximately 30 million ft³, or approximately 1.7 million tons, and allow for the replacement of storage lost from the elimination of the Centennial Industrial Site. The engineered fill pad would be approximately 50 feet higher than the top of the fill pad created by the proposed project. As shown in Figure 6-3, the fill pad would be more visible through the buffer of trees from nearby properties but would still be below the elevation of residences on neighboring properties. The trees that partially screen public views of the property from Brunswick Road would remain and partially obscure the visibility of the expanded fill pile from the roadway.



Figure 6-2
Alternative 2 Site Plan (Elimination of Centennial Industrial Site)

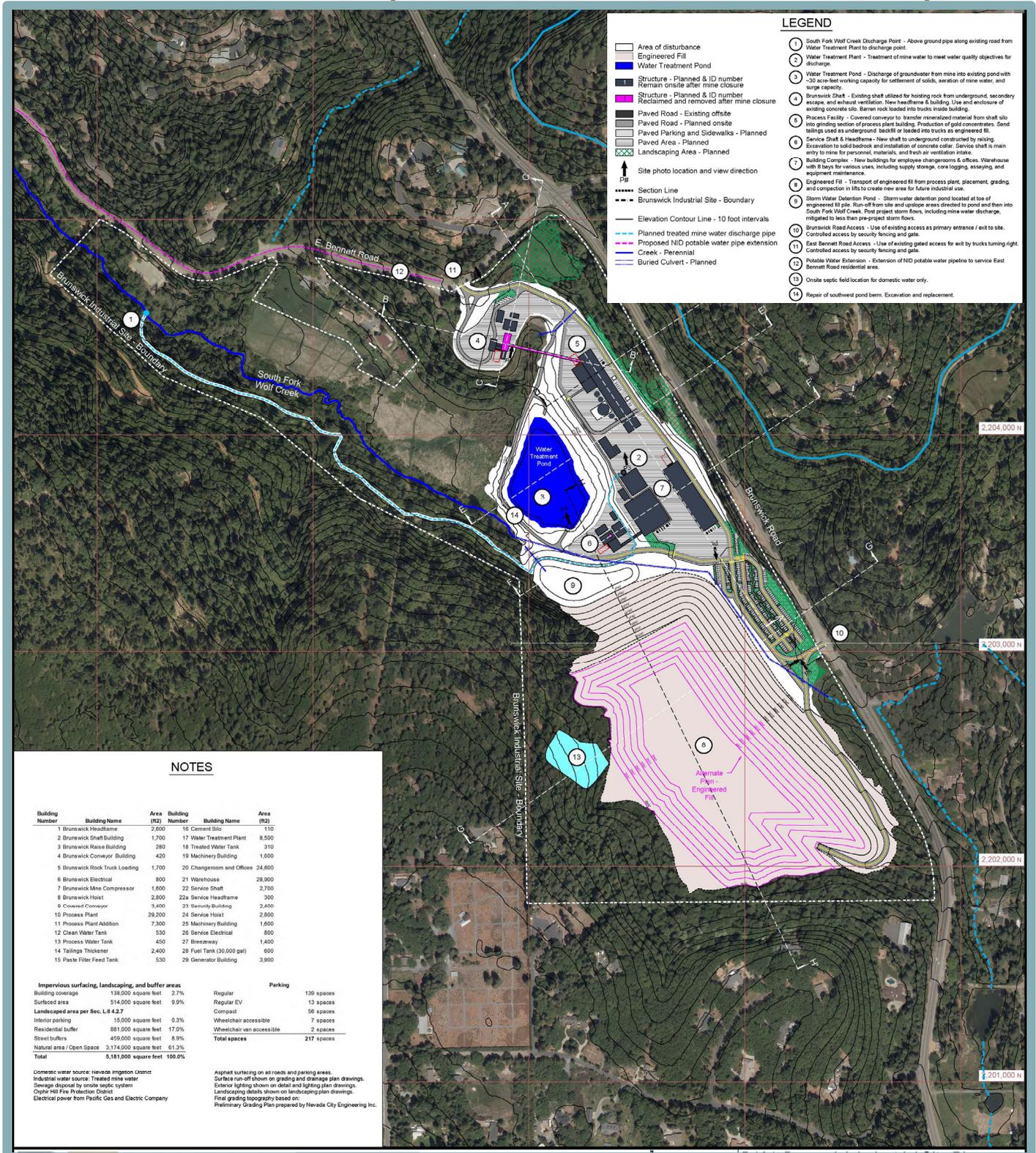
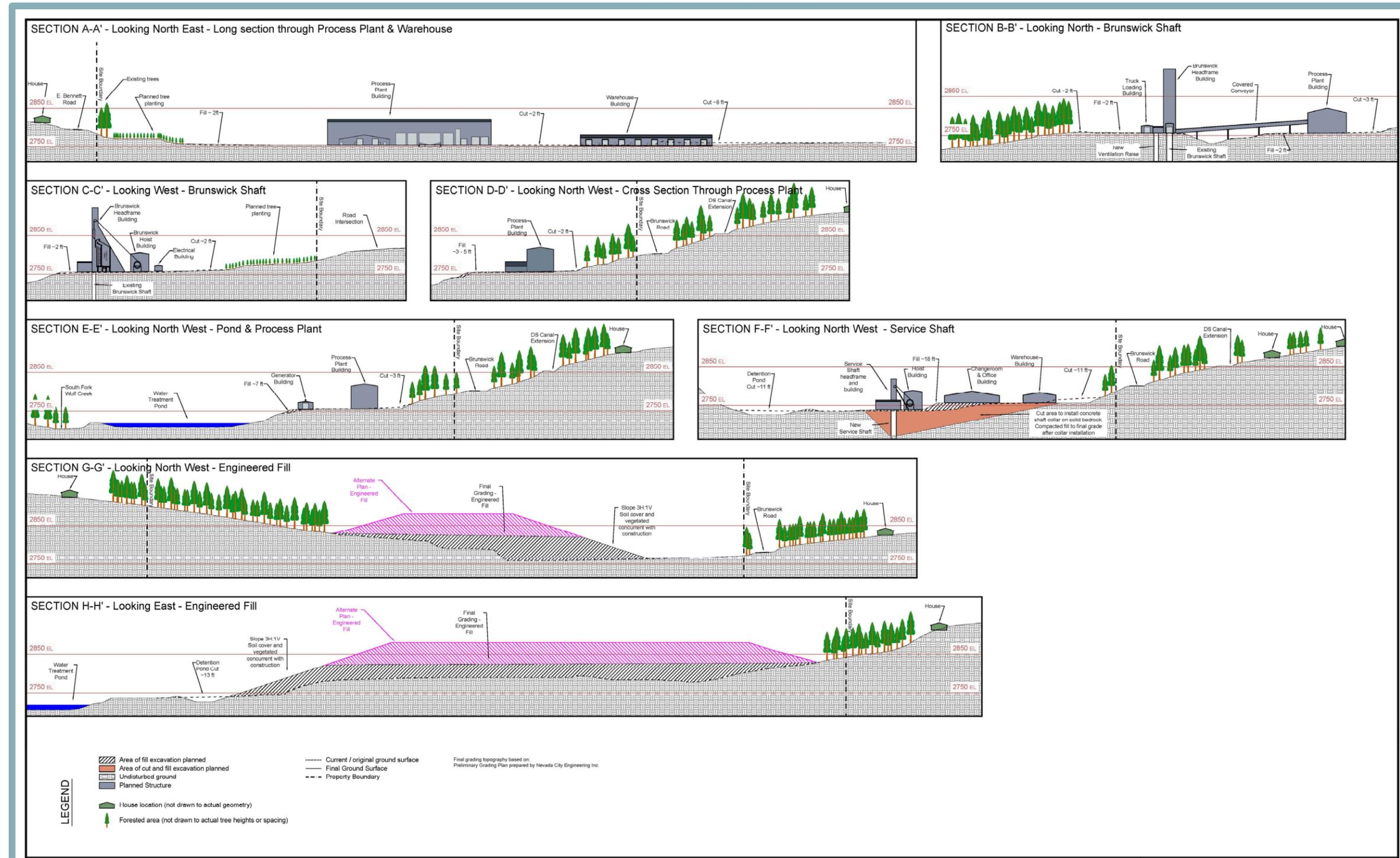


Figure 6-3
Alternative 2: Cross-Sections



Notwithstanding, the expanded fill pad would increase the severity of the significant and unavoidable aesthetic impact identified in the EIR.

Overall, this Alternative could be considered to have fewer aesthetic impacts as compared to the proposed project, given it would eliminate the significant and unavoidable aesthetic impact at the Centennial Industrial Site. It is recognized, however, the severity of the significant aesthetic impact at the Brunswick Industrial Site would be increased.

Air Quality, Greenhouse Gas Emissions, and Energy

The EIR determined that implementation of the proposed project could result in a conflict with implementation of the applicable air quality plan through generation of construction and operational criteria pollutant emissions that would exceed the NSAQMD's applicable thresholds. With respect to GHG, the proposed project could result in a significant GHG impact during the construction period. However, the EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels. Overall initial construction activity would be reduced for this Alternative, given that the Centennial Industrial Site would not need to be prepped in any way. However, given the estimated construction emission levels in Table 4.3-13 of the Air Quality, GHG, and Energy chapter of this EIR, similar to the proposed project, the Alternative would be expected to generate a significant temporary air quality and GHG construction impact.

While the Centennial Industrial Site would be eliminated under this Alternative, the engineered fill that would have been placed at Centennial would need to be deposited at the Brunswick Industrial Site. In other words, the same level of overall operational activities associated with placement of engineered fill would be expected to occur under this Alternative. Reduced mobile emissions could be generated during this phase, however, due to the elimination of trucking to/from Centennial, as compared to the proposed project. Overall, similar to the proposed project, this Alternative would be expected to have a significant air quality operational impact that could be mitigated to a less-than-significant level.

Haul truck use from the Brunswick Industrial Site to the Centennial Industrial Site would be eliminated under this Alternative. Thus, sensitive receptors along this haul route would not be exposed to diesel particulate matter (DPM), which would reduce cancer risk, as compared to the proposed project (note: the EIR determined a less-than-significant DPM-related impact would occur). It is noted that, similar to the proposed project, the haul route from the Brunswick Industrial Site to the highway would still be utilized with this Alternative once the Brunswick fill pad reaches its design elevation.

In addition, the Alternative, similar to the proposed project, could result in emissions of asbestos dust related to on-site ground disturbing activities having the potential to expose receptors to substantial concentrations of asbestos. However, given the elimination of the Centennial Industrial Site, the potential disturbance of Centennial mine tailings containing NOA would not occur. Similar mitigation (e.g., Asbestos Dust Mitigation Plan) would be required for this Alternative to ensure the impact is less than significant.

Overall, the air quality and GHG impacts associated with this Alternative could be fewer as compared to the proposed project.



Biological Resources

The EIR determined that implementation of the proposed project could result in potential significant adverse effects to special-status plants at both the Centennial and Brunswick Industrial Sites; foothill yellow-legged frog, western pond turtle, California red-legged frog, California black rail, coast horned lizard, special-status bats, and non-special status raptors and migratory birds at both Sites. However, the EIR requires mitigation in order to ensure that impacts related to the aforementioned biological resources would be reduced to less-than-significant levels. Given that this Alternative would eliminate the Centennial Industrial Site, the potential adverse effects to all of the aforementioned biological resources would be reduced, though they would still potentially occur at the Brunswick Industrial Site. It is important to note that the project impacts to Pine Hill flannelbush are specific to the Centennial Industrial Site; thus, they would be avoided under this Alternative.

The EIR determined that the proposed project would result in approximately 0.033-acre of impact to mapped streams within the Centennial Industrial Site. The impact to mapped streams on the Centennial Industrial Site would be avoided under this Alternative.

Overall, the biological resources impacts associated with this Alternative would be fewer when compared to the proposed project.

Cultural and Tribal Cultural Resources

The EIR determined that, at both Sites, implementation of the proposed project could result in a significant but mitigable impact to unknown archaeological resources and Tribal Cultural Resources, as defined in Public Resources Code, Section 21074. The potential for impact to such resources would be eliminated at the Centennial Industrial Site under this Alternative. In addition, the EIR determined that the project would have a significant adverse effect on the underground workings of the Idaho-Maryland Mine. However, the EIR requires mitigation in order to ensure that impacts related to cultural resources would be less than significant. The potential impact to the historic underground workings would still occur under this Alternative.

Overall, this Alternative could result in reduced impacts to cultural/tribal cultural resources when compared to the proposed project.

Geology, Soils, and Mineral Resources

The EIR determined that implementation of the proposed project could result in significant impacts related to the following geology and soils issues at both Sites: soil erosion related to stockpiles, engineered fill slopes, and general site disturbance during construction; presence of undocumented fill; and thin lenses of expansive soils. Significant geology issues specific to the Centennial Industrial Site include the safety concern related to the presence of the South Idaho Shaft. The above-noted geology and soils impacts at the Centennial Industrial Site would be eliminated under this Alternative. The potential geology and soils impacts that could occur at the Brunswick Industrial Site during construction and operational activities would remain with the Alternative, and some may be increased given the substantial increase in the engineered fill pad that would occur at the Brunswick Industrial Site (e.g., soil erosion).

Overall, this Alternative could result in fewer impacts to geology and soils when compared to the proposed project.



Hazards and Hazardous Materials

The EIR did not identify any significant project-related impacts concerning hazards and hazardous materials at the Centennial Industrial Site. This is due to the fact that the Centennial Industrial Site is subject to a separate remediation project. As previously discussed, Rise Grass Valley Inc. has entered into a Voluntary Cleanup Agreement (VCA; Docket No. HSA-FY18/19-014) with the DTSC for the voluntary cleanup of soil contamination on the Centennial Industrial Site.

The EIR determined that significant hazards/hazardous materials impacts would be limited to the Brunswick Industrial Site. For example, potentially significant hazards identified on the Brunswick Industrial Site include elevated arsenic in the southeastern paved area, potential residual petroleum contamination in a few locations, and presence of groundwater monitoring wells of unknown status. However, the EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels.

The EIR also determined that the proposed project could have a significant impact related to transport, underground storage and use of explosives at the Brunswick Industrial Site. With implementation of mitigation in this EIR, the impact would be reduced to a less-than-significant level.

The above-noted project-related impacts associated with construction and operational activities at the Brunswick Industrial Site would also occur as part of this Alternative.

Overall, given that the EIR found significant hazards/hazardous materials impacts would be limited to the Brunswick Industrial Site, and these same significant impacts would occur under this Alternative, the Alternative would have similar impacts related to hazards/hazardous materials when compared to the proposed project.

Hydrology and Water Quality

The EIR determined that implementation of the proposed project at the Centennial Industrial Site could result in potential construction and operational impacts related to water quality at the Centennial Industrial Site (e.g., engineered fill pad construction); risk release of pollutants in flood hazard area associated with Wolf Creek; and substantial alteration of drainage patterns. These significant project-related effects would be avoided with implementation of this Alternative.

The project-related significant effects specific to the Brunswick Industrial Site would still occur under this Alternative, including impacts to substantial alteration of drainage patterns and water quality associated with operations within the industrial area, underground placement of Cement Paste Backfill, use of clay-lined pond for water treatment process purposes, engineered fill pad construction, treated water discharge in South Fork Wolf Creek, and substantial reduction in groundwater supplies due to operation of the mine. Similar to the proposed project, the Alternative would be required to implement mitigation in order to ensure that impacts related to hydrology and water quality are reduced to less-than-significant levels.

Overall, this Alternative could result in fewer impacts to hydrology and water quality when compared to the proposed project.

Noise

The EIR determined that the majority of project-related significant noise and vibration impacts would occur as a result of operations at the Brunswick Industrial Site. For example, the EIR



conservatively concludes that the combined operational noise sources at the Brunswick Industrial Site could result in a significant noise impact. With respect to vibration, the EIR determined that while blasting is not projected to exceed applicable thresholds, a ground vibration monitoring program should be implemented to determine the actual levels of ground vibration at commencement of mining, and if necessary, implement additional protective measures. The EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to a less-than-significant level.

Likewise, the significant and unavoidable construction noise impact, which would result from installation of the potable water line along E. Bennett Road, would still occur as part of this Alternative.

One significant project-related impact could be avoided with implementation of this Alternative; this is the impact related to potential use of Jake brakes along the haul route connecting the Brunswick and Centennial Industrial Sites. The EIR determined that the proposed project could result in a substantial increase in ambient noise levels in the vicinity of the project due to haul truck traffic should Jake brakes be used.

While equipment noise associated with placement of engineered fill at the Brunswick Industrial Site would occur for a longer period of time due to the substantial amount of additional fill that would be placed at Brunswick under this Alternative, the EIR determined that equipment-related noise at the nearest sensitive receptors would be in compliance with the County's noise standards.

Overall, this Alternative could result in slightly fewer noise impacts when compared to the proposed project.

Transportation and Circulation

As discussed in the Transportation and Circulation chapter of the EIR, for the proposed project, the Centennial Industrial Site is expected to be an active site with delivery of engineered fill occurring for a period of approximately five years. The engineered fill is projected to be delivered to construction sites accessible from SR 49 for the remaining period of the transportation analysis. Therefore, two scenarios were analyzed:

- **Scenario 1:** Transport of engineered fill to the Centennial Industrial Site.
- **Scenario 2:** Transport of engineered fill to construction sites accessible via SR 49.

Based on a review of Chapter 4.12, Transportation and Circulation, of this EIR, it can be seen that Scenario 1 would result in several intersection impacts (i.e., level of service conflicts). Based on a review of the intersection locations, these impacts would occur at locations that are unaffected by project truck traffic. In other words, the intersection impacts are a result of project employee commute trips. Therefore, while this Alternative would reduce the amount of truck travel on local roads, the significant intersection impacts identified for the proposed project would remain with implementation of this Alternative. A similar situation exists for the Cumulative Plus Project intersection queue impact at Brunswick Road/Sutton Way. This location is unaffected by project truck traffic, so this significant impact would remain with implementation of this Alternative.

The EIR also determined that proposed project truck traffic to the Centennial Industrial Site would result in pavement impacts on the following roadway segments:



- Brunswick Road northbound between E. Bennett Road and Whispering Pines Lane.
- E. Bennett Road between Project Driveway and Brunswick Road (eastbound).

These impacts would be eliminated with implementation of this Alternative, at least until such time that haul truck traffic commences to the highway when the design height of the Brunswick fill pad is achieved.

Implementation of this Alternative would also eliminate the truck turning movements along Whispering Pines Lane into the Centennial Industrial Site driveway; thus, widening along the Centennial Industrial Site's frontage for purposes of facilitating adequate truck turn movements into and out of the Site would not be required for this Alternative.

Overall, this Alternative could result in slightly fewer impacts to transportation when compared to the proposed project, though the significant and unavoidable transportation impacts identified for the proposed project would remain.

Wildfire

The EIR determined that implementation of the proposed project would result in a significant impact related to exacerbating wildfire hazards at both the Centennial and Brunswick Industrial Sites. The EIR requires mitigation in order to ensure that the aforementioned impact is reduced to a less-than-significant level. Thus, while elimination of the Centennial Industrial Site would reduce the overall potential for wildfire hazards to be exacerbated, in comparison to the proposed project, a significant impact, prior to mitigation, would still occur under this Alternative due to operations at the Brunswick Industrial Site.

Overall, this Alternative could result in fewer impacts related to exacerbating wildfire hazards when compared to the proposed project.

Alternative 3: Expansion of Centennial Fill Pile and Elimination of Brunswick Fill Pile

The proposed project includes the placement of approximately 2,200,000 tons of engineered fill at the Brunswick Industrial Site in order to create 21 acres of flat usable industrial land at that site. The equivalent amount of engineered fill could be placed by increasing the height of the planned engineered fill area at the Centennial Industrial Site.

Alternative 3 would eliminate the engineered fill pile at the Brunswick Industrial Site, and any related impacts, from the IMM Project, while the Centennial engineered fill pile would be higher with reduced usable area. The indirect economic benefit from the creation of 19 acres of flat industrial land would be lost (18 acres of flat industrial land in alternate plan versus 31 acres in base plan at the Centennial Industrial Site and 15 acres of flat industrial land in alternate plan versus 21 acres in base plan at the Brunswick Industrial Site).

This alternative would fully meet Project Objectives 1 through 7 and 10; however, operating costs would increase due to the additional trucking from the Brunswick to Centennial Industrial Site. Project Objectives 8 and 9, related to increasing usable land area at the Centennial and Brunswick Industrial Sites to allow future industrial use, while being met with this alternative, would be better met by the proposed project. This is because the proposed project would create 31 acres of land suitable for future industrial use at Centennial, whereas this alternative would create 18 acres.



Similarly, the project would create 21 acres of land suitable for future industrial use at Brunswick, whereas this alternative would create 15 acres.

The design of the engineered fill pad at Centennial Industrial Site, under the proposed project scenario, slopes from a final elevation of approximately 2,560 ft msl at the east side to an elevation of 2,520 ft msl at the west side. The engineered fill pad at the Centennial Industrial Site is designed to maximize usable area after construction. The Alternative 3 plan would continue placing fill within the existing footprint to an elevation of approximately 2,580 ft msl as shown in Figure 6-4. The placement of this additional fill would add additional volume of approximately 41 million ft³, or approximately 2.3 million tons, and allow for the replacement of storage lost from the elimination of the fill pile at Brunswick Industrial Site. The additional fill would have an area at the top 2,580 ft msl elevation of approximately 17.8 acres.

Aesthetics

The EIR determined that the placement of substantial engineered fill at the Centennial Industrial Site would result in a significant and unavoidable impact related to the substantial degradation of the visual character or quality of the site and its surroundings. Under the Expansion of Centennial Fill Pile and Elimination of Brunswick Fill Pile Alternative (“Alternative”), the engineered fill that would have been placed on the Brunswick Industrial Site would instead be placed at the Centennial Industrial Site, thus adding substantially more fill (approximately 2.3 million tons) to the Centennial Industrial Site than is proposed for the project. As shown in Figure 6-4, the fill pad would be increased in height, from 20-60 feet, depending upon location. Therefore, the proposed project’s significant and unavoidable aesthetic impact at the Centennial Industrial Site would be substantially increased in severity by this Alternative. On the other hand, the severity of the aesthetic impacts at the Brunswick Industrial Site would be lessened by this Alternative, and for those public viewpoints along Brunswick Road where only the engineered fill pad would be visible, the proposed project’s aesthetic impact would be eliminated.

However, given that the majority of public viewpoints evaluated in the Aesthetics chapter of this EIR for the Brunswick Site would contain industrial mine structures (e.g., Process Plant Building, Brunswick headframe), and these would still be developed for this Alternative, most of the viewpoints would still be subject to a significant and unavoidable aesthetic impact.

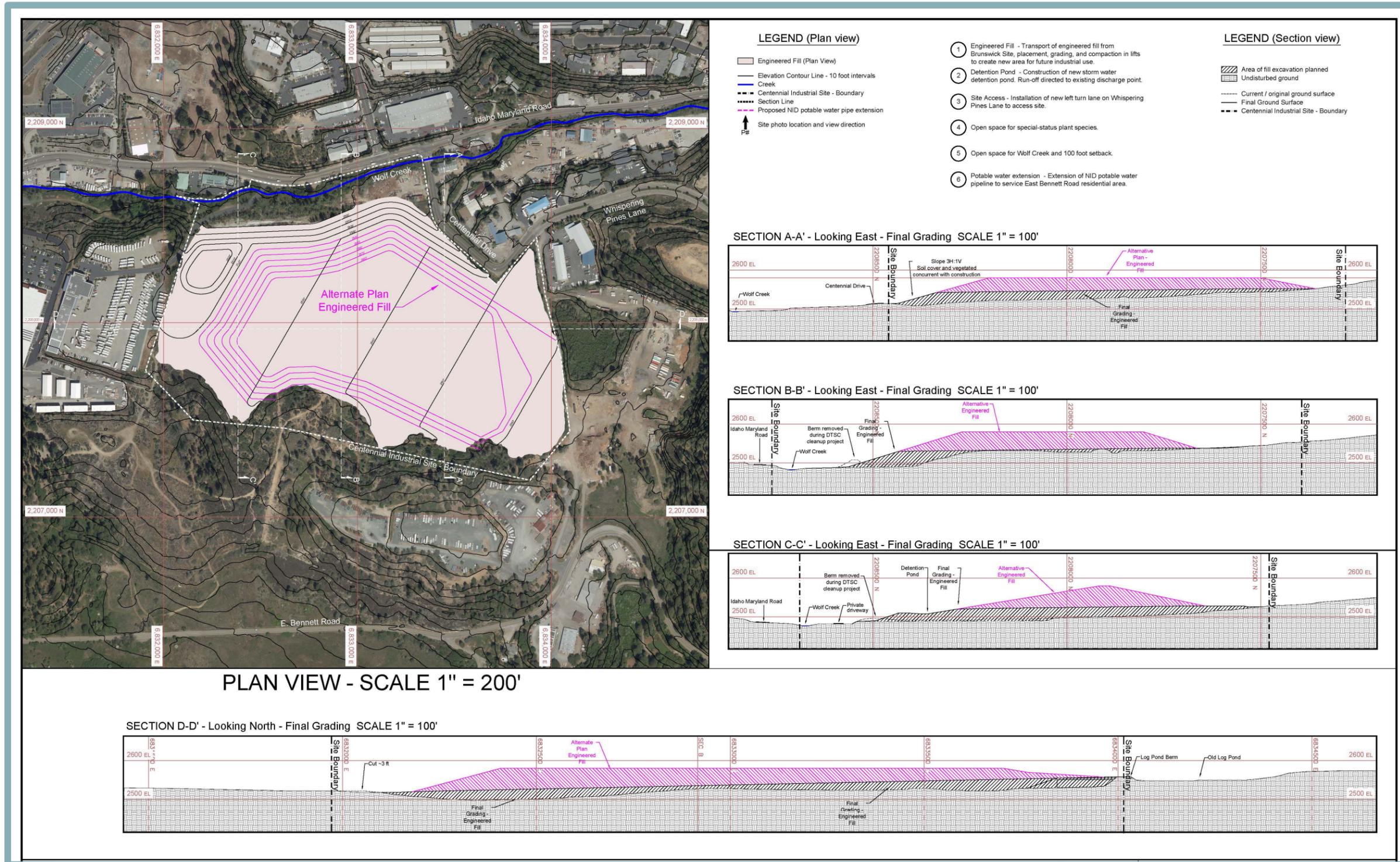
Overall, this Alternative could be considered to have similar or slightly fewer aesthetic impacts as compared to the proposed project, given it would reduce the severity of significant aesthetic impacts at the Brunswick Industrial Site (and, for Viewpoints 8 and 10, eliminate the impact), but substantially increase the severity of the significant aesthetic impact at the Centennial Industrial Site.

Air Quality, Greenhouse Gas Emissions, and Energy

The EIR determined that implementation of the proposed project could result in a conflict with implementation of the applicable air quality plan through generation of construction and operational criteria pollutant emissions that would exceed the NSAQMD’s applicable thresholds. With respect to GHG, the proposed project could result in a significant GHG impact during the construction period. However, the EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels. Overall initial construction activity would be reduced for this Alternative, given that the Brunswick Industrial Site fill pad area would not need to be prepped in any way.



Figure 6-4
Alternative 3: Site Plan



However, given the estimated construction emission levels in Table 4.3-13 of the Air Quality, GHG, and Energy chapter of this EIR, similar to the proposed project, the Alternative would be expected to generate a significant temporary air quality and GHG construction impact.

While the Brunswick fill pile would be eliminated under this Alternative, the engineered fill that would have been placed at Brunswick would need to be deposited at the Centennial Industrial Site. In other words, a similar level of overall operational activities associated with placement of engineered fill would be expected to occur under this Alternative. Additional mobile emissions could be generated during this phase, however, due to the extended duration that haul trucks would be travelling to/from Centennial, as compared to the proposed project. Overall, similar to the proposed project, this Alternative would be expected to have a significant air quality operational impact that could be mitigated to a less-than-significant level.

The amount/duration of haul truck use from the Brunswick Industrial Site to the Centennial Industrial Site would increase under this Alternative, given that the duration would essentially double (approximately 5 years of trucking to Centennial under the proposed project scenario vs. approximately 11 years for the Alternative). This would result in exposing sensitive receptors along the haul route to more diesel particulate matter (DPM), which could translate to increased cancer risk, as compared to the proposed project, for which the EIR determined a less-than-significant TAC-related impact would occur.

The Alternative, similar to the proposed project, could result in emissions of asbestos dust related to on-site ground disturbing activities having the potential to expose receptors to substantial concentrations of asbestos. However, given the elimination of the Brunswick engineered fill pad and associated ground disturbance within the fill pad's footprint, the potential disturbance of NOA could be reduced. Similar mitigation (Asbestos Dust Mitigation Plan) would be required for this Alternative to ensure the impact is less than significant.

Overall, the air quality and GHG impacts associated with this Alternative would be similar as compared to the proposed project.

Biological Resources

The EIR determined that implementation of the proposed project could result in potential significant adverse effects to special-status plants at both the Centennial and Brunswick Industrial Sites; foothill yellow-legged frog, western pond turtle, California red-legged frog, California black rail, coast horned lizard, special-status bats, and non-special status raptors and migratory birds at both Sites. However, the EIR requires mitigation in order to ensure that impacts related to the aforementioned biological resources would be reduced to less-than-significant levels.

The elimination of the fill pile at the Brunswick site would avoid an additional 15.7 acres of Sierran Mixed Conifer habitat, and approximately 15 acres of currently open/disturbed areas, as compared to the proposed project. The alternative would also preserve 0.34-acre of wetlands (WM-1, WM-2, WM-3 and MA-2) within the southern portion of the Brunswick Site (i.e., where the fill pad would otherwise be located). Given that this Alternative would reduce the above-noted disturbances by eliminating the Brunswick Industrial Site fill pad, the potential adverse effects to some of the aforementioned biological resources (e.g., special-status bats, coast horned lizard, nesting birds) would be reduced, though other impacts would still occur given that their suitable habitat primarily consists of South Fork Wolf Creek and the wet meadow habitat in the western portion of the Site that would be impacted by the proposed project and the Alternative.



The proposed project's biological resources impacts at the Centennial Industrial Site would still occur under this Alternative.

Overall, the biological resources impacts associated with this Alternative would be fewer when compared to the proposed project.

Cultural and Tribal Cultural Resources

The EIR determined that, at both Sites, implementation of the proposed project could result in a significant but mitigable impact to unknown archaeological resources and Tribal Cultural Resources, as defined in Public Resources Code, Section 21074. The potential for impact to such resources would be reduced, but not eliminated, at the Brunswick Industrial Site under this Alternative. In addition, the EIR determined that the project would have a significant adverse effect on the underground workings of the Idaho-Maryland Mine. However, the EIR requires mitigation in order to ensure that impacts related to cultural resources would be less than significant. The potential impact to the historic underground workings would still occur under this Alternative.

Overall, this Alternative could result in fewer impacts to cultural/tribal cultural resources when compared to the proposed project.

Geology, Soils, and Mineral Resources

The EIR determined that implementation of the proposed project could result in significant impacts related to the following geology and soils issues at both Sites: soil erosion related to stockpiles, engineered fill slopes, and general site disturbance during construction; presence of undocumented fill; and thin lenses of expansive soils. The above-noted geology and soils impacts at the Brunswick Industrial Site would be reduced, but not eliminated, under this Alternative. It is also noted that the majority of steep slopes (greater than 30 percent) on the Brunswick Industrial Site, which are proposed for grading in the proposed project scenario, are located within the fill pad footprint (see Figure 4.6-5 of the Geology, Soils, and Mineral Resources chapter). Thus, these steep slopes would not be graded by this Alternative. The potential geology and soils impacts that could occur at the Centennial Industrial Site during construction and operational activities would remain with the Alternative, and some may be increased given the substantial increase in the engineered fill pad that would occur at the Centennial Industrial Site (e.g., soil erosion).

Overall, this Alternative could result in fewer impacts to geology and soils when compared to the proposed project.

Hazards and Hazardous Materials

The EIR did not identify any significant project-related impacts concerning hazards and hazardous materials at the Centennial Industrial Site. This is due to the fact that the Centennial Industrial Site is subject to a separate remediation project. As previously discussed, Rise Grass Valley Inc. has entered into a Voluntary Cleanup Agreement (VCA; Docket No. HSA-FY18/19-014) with the DTSC for the voluntary cleanup of soil contamination on the Centennial Industrial Site.

The EIR determined that significant hazards/hazardous materials impacts would be limited to the Brunswick Industrial Site. For example, potentially significant hazards identified on the Brunswick Industrial Site include elevated arsenic in the southeastern paved area, potential residual petroleum contamination in a few locations, and presence of groundwater monitoring wells of



unknown status. However, the EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels.

The EIR also determined that the proposed project could have a significant impact related to transport, underground storage and use of explosives at the Brunswick Industrial Site. With implementation of the mitigation measures in this EIR, the impact would be reduced to a less-than-significant level.

The above-noted project-related impacts associated with construction and operational activities at the Brunswick Industrial Site would also occur as part of this Alternative.

Overall, given that the EIR found significant hazards/hazardous materials impacts would be limited to the Brunswick Industrial Site, and these same significant impacts would occur under this Alternative, the Alternative would have similar impacts related to hazards/hazardous materials when compared to the proposed project.

Hydrology and Water Quality

The EIR determined that implementation of the proposed project at the Centennial Industrial Site could result in potential construction and operational impacts related to water quality at the Centennial Industrial Site (e.g., engineered fill pad construction); risk release of pollutants in flood hazard area associated with Wolf Creek; and substantial alteration of drainage patterns. These significant project-related effects would still occur with implementation of this Alternative, and for some, could possibly increase due to the placement of substantially more fill.

The following project-related significant effects specific to the Brunswick Industrial Site would still occur under this Alternative: impacts to water quality associated with operations within the industrial area, underground placement of Cement Paste Backfill, use of clay-lined pond for water treatment process purposes, treated water discharge in South Fork Wolf Creek, and substantial reduction in groundwater supplies due to operation of the mine. Similar to the proposed project, the Alternative would be required to implement mitigation in order to ensure that impacts related to hydrology and water quality are reduced to less-than-significant levels.

Elimination of the Brunswick fill pad would reduce, but not eliminate, the project's significant impacts related to substantial alteration of drainage patterns and water quality effects associated with engineered fill pad construction.

Overall, this Alternative could result in similar impacts to hydrology and water quality when compared to the proposed project.

Noise

The EIR determined that the majority of project-related significant noise and vibration impacts would occur as a result of operations at the Brunswick Industrial Site; these operations would also occur with implementation of this Alternative. For example, the EIR conservatively concludes that the combined operational noise sources at the Brunswick Industrial Site could result in a significant noise impact. With respect to vibration, the EIR determined that while blasting is not projected to exceed applicable thresholds, a ground vibration monitoring program should be implemented to determine the actual levels of ground vibration at commencement of mining, and if necessary, implement additional protective measures. The EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to a less-than-significant level.



Likewise, the significant and unavoidable construction noise impact, which would result from installation of the potable water line along E. Bennett Road, would still occur as part of this Alternative.

One significant project-related impact could be increased in severity with implementation of this Alternative; this is the impact related to potential use of Jake brakes along the haul route connecting the Brunswick and Centennial Industrial Sites. The EIR determined that the proposed project could result in a substantial permanent increase in ambient noise levels in the vicinity of the project due to haul truck traffic should Jake brakes be used. Haul truck traffic from Brunswick to Centennial would potentially increase from 5 years to 11 years as a result of this Alternative.

While equipment noise associated with placement of engineered fill at the Brunswick Industrial Site would not occur due to elimination of the fill pad, the EIR determined that equipment-related noise at the nearest sensitive receptors would be in compliance with the County's noise standards.

Overall, this Alternative could result in slightly greater noise impacts when compared to the proposed project.

Transportation and Circulation

As discussed in the Transportation and Circulation chapter of the EIR, for the proposed project, the Centennial Industrial Site is expected to be an active site with delivery of engineered fill occurring for a period of approximately five years. This Alternative would potentially increase that time period to 11 years.

As discussed for Alternative 2, the intersection (i.e., level of service conflicts) and queue impacts identified in the EIR would occur at locations that are unaffected by project truck traffic. In other words, the intersection impacts are a result of project employee commute trips. Therefore, while this Alternative would increase the amount of time that haul trucks would use local roads to drive to the Centennial Industrial Site, it would not increase the number or severity of significant intersection/queue impacts caused by the proposed project.

The EIR also determined that proposed project truck traffic to the Centennial Industrial Site would result in pavement impacts on the following roadway segments:

- Brunswick Road northbound between E. Bennett Road and Whispering Pines Lane;
- E. Bennett Road between Project Driveway and Brunswick Road (eastbound)

These pavement impacts would be increased in severity with implementation of this Alternative due to more heavy truck use (estimated to be an additional 6 years).

This alternative would still require widening along the Centennial Industrial Site's frontage for purposes of facilitating adequate truck turn movements into and out of the Site.

Overall, this Alternative could result in slightly greater impacts to transportation when compared to the proposed project.



Wildfire

The EIR determined that implementation of the proposed project would result in a significant impact related to exacerbating wildfire hazards at both the Centennial and Brunswick Industrial Sites. The EIR requires mitigation in order to ensure that the aforementioned impact is reduced to a less-than-significant level. Elimination of the Brunswick fill pad could reduce the overall potential for wildfire hazards to be exacerbated by reducing the use of equipment in close proximity to vegetation. However, a significant impact, prior to mitigation, would still occur under this Alternative.

Overall, this Alternative could result in fewer impacts related to exacerbating wildfire hazards when compared to the proposed project.

Alternative 4: Reduced Throughput – 500 tons per day gold mine

A reduced throughput alternative would reduce the proposed mine's production of 1,000 tons per day (365,000 tons per year) of gold mineralization to 500 tons per day (182,500 tons per year) of gold mineralization. The underground mining methods and aboveground production methods and facilities would remain substantially similar. Some reductions in equipment type, size, and numbers may occur but it would not result in a substantially different footprint than the proposed project. The life of the mine would be extended from 80 years to between 130-160 years to accommodate reduced daily and annual tonnage and still allow the underground resources to be fully developed. In addition, the proposed engineered fill pads on both the Centennial and Brunswick Industrial Sites would still be constructed, as proposed, but it would take approximately double the amount of time, from 5-6 years to 10-12 years, for each stockpile area to reach the proposed design capacities and elevations.

This alternative may be inconsistent with several policies of the General Plan as identified below:

Policy 17.9: Encourage the mining of previously mined land, if such land still contains economically mineable minerals, so the land can be reclaimed for alternative uses.

As discussed above, this alternative delays how quickly the land can be reclaimed to a condition suitable for an "alternative use" of industrial by extending the construction of the industrial pads on both the Centennial and Brunswick Industrial Sites and extending the overall life of the project.

Policy 17.10: Consider the socio-economic impacts associated with proposed mining operations.

As discussed below, extending the life of the project affects the economics and ability to finance the project which may impact implementation of this project including the number of jobs, sales, property, and payroll taxes, and land value.

This alternative would fully meet Project Objectives 2 through 6, and 8 through 10. Project Objective 1 would not be met by this alternative. Based on the deposit, project's location and land use constraints, market conditions, and various other factors, the project's proposed 1,000 tons per day production level was identified as an optimum operating level. A substantial reduction in throughput would not meet Project Objective 1 and would change the project's economics and



ability to be financed. This would impact the number of employees hired (Project Objective 7),³ the speed at which capital improvements could be made, and extend the life of the project. In addition, this would significantly delay rehabilitating the Centennial Industrial Site and increasing the usability of the Brunswick Industrial Site to a future use of industrial.

Aesthetics

The EIR determined that the placement of substantial engineered fill at the Centennial and Brunswick Industrial Sites would result in a significant and unavoidable impact related to the substantial degradation of the visual character or quality of the site and its surroundings. The proposed industrial mining structures would also contribute to the significant aesthetic impact at the Brunswick Industrial Site. Under the Reduced Throughput Alternative (“Alternative”), the engineered fill pad at either Site would have the same maximum height as proposed by the project; it would just take longer for these heights to be achieved due to reduced throughput at the mine. Similarly, this Alternative would develop the same industrial mining structures at the Brunswick Site. Thus, this Alternative would result in the same significant and unavoidable aesthetic impacts that would be generated by the proposed project.

Air Quality, Greenhouse Gas Emissions, and Energy

The EIR determined that implementation of the proposed project could result in a conflict with implementation of the applicable air quality plan through generation of construction and operational criteria pollutant emissions that would exceed the NSAQMD’s applicable thresholds. With respect to GHG, the proposed project could result in a significant GHG impact during the construction period. However, the EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels.

As discussed above, the proposed mine’s production of 1,000 tons per day (365,000 tons per year) of gold mineralization would be reduced to 500 tons per day (182,500 tons per year) of gold mineralization with this Alternative. The reduction in daily throughput would reduce the level of daily heavy equipment activity related to placement of engineered fill, thus, resulting in reduced air quality emissions over the course of a day.

Reduced throughput would also have the effect of reducing emissions associated with underground mining operations. For example, the operational air quality analysis conducted for the proposed project assumed that ore production through tunneling and long-hole blasting would produce 1,000 tons per day of ore. This Alternative would reduce production by 50 percent, thus, reducing emissions associated with underground mining operations.

As a result of the above factors, this Alternative would result in fewer air quality emissions than the proposed project. However, given the level of emissions that would be generated by the proposed project (see Table 4.3-13 of the Air Quality, Greenhouse Gas Emissions, and Energy Chapter), the emissions generated by this Alternative would still be expected to exceed the District’s thresholds (lbs/day), thus, requiring mitigation similar to that which is required in the EIR.

It is also noted that the reduced throughput would approximately double the amount of time, from 5-6 years to 10-12 years, for each stockpile area to reach the proposed design capacities and elevations, and double the life of the mine from 80 years to approximately 130-160. This means

³ Project Objective 7 reads as follows: “Provide jobs that provide a fair living wage for educated and skilled workers.” This objective would be partially met by this alternative, given that it would still create provide jobs that provide a fair living wage.



that emissions associated with use of heavy equipment for placement of engineered fill and underground mining equipment would occur for an extended period of time.

The amount/duration of haul truck use from the Brunswick Industrial Site to the Centennial Industrial Site would be less intense over the course of each day, but would occur for a longer period of time (i.e., approximately 5 years of trucking to Centennial under the proposed project scenario vs. approximately 10-12 years for the Alternative). Similarly, the amount of daily haul trucks transporting engineered fill to the freeway (after Centennial and Brunswick fill pads are completed) would be reduced, but haul trucks would be in use along this route for an extended period of time due to the increased life of the mine. In general, the effects of these characteristics would result in exposing sensitive receptors along the haul routes to a similar amount of diesel particulate matter (DPM), which could translate to similar cancer risks, as compared to the proposed project (note: the EIR determined a less-than-significant DPM-related impact would occur).

The Alternative would disturb a similar amount of ground surface over time, as compared to the proposed project, and thus, could result in similar emissions of asbestos dust related to on-site ground disturbing activities having the potential to expose receptors to substantial concentrations of asbestos. Similar mitigation (e.g., Asbestos Dust Mitigation Plan) would be required for this Alternative to ensure the impact is less than significant.

Overall, the air quality and GHG impacts associated with this Alternative could be fewer as compared to the proposed project.

Biological Resources

The EIR determined that, at both the Centennial and Brunswick Industrial Sites, implementation of the proposed project could result in potential significant adverse effects to special-status plants, foothill yellow-legged frog, western pond turtle, California red-legged frog, California black rail, coast horned lizard, special-status bats, and non-special status raptors and migratory birds. The proposed project would also result in a significant impact to mapped streams and wetlands. However, the EIR requires mitigation in order to ensure that impacts related to the aforementioned biological resources would be reduced to less-than-significant levels.

Due to the fact that this Alternative would result in the same areal extent of ground surface over time as the proposed project, none of the biological resources impacts resulting from the proposed project would be avoided. Overall, the biological resources impacts associated with this Alternative would be similar when compared to the proposed project.

Cultural and Tribal Cultural Resources

The EIR determined that, at both Sites, implementation of the proposed project could result in a significant but mitigable impact to unknown archaeological resources and Tribal Cultural Resources, as defined in Public Resources Code, Section 21074. In addition, the EIR determined that the project would have a significant adverse effect on the underground workings of the Idaho-Maryland Mine. However, the EIR requires mitigation in order to ensure that impacts related to cultural resources would be less than significant.

Due to the fact that this Alternative would result in the same areal extent of ground surface over time as the proposed project, the potential for the Alternative to impact archaeological and/or Tribal Cultural Resources would be similar to the proposed project. In addition, because this



Alternative would impact the same extent of underground workings over the life of the mine, as compared to the proposed project, the project's significant but mitigable impact to underground workings would also occur with this Alternative.

Overall, this Alternative could result in similar impacts to cultural/Tribal Cultural Resources when compared to the proposed project.

Geology, Soils, and Mineral Resources

The EIR determined that implementation of the proposed project could result in significant impacts related to the following geology and soils issues at both Sites: soil erosion related to stockpiles, engineered fill slopes, and general site disturbance during construction; presence of undocumented fill; and thin lenses of expansive soils. The above-noted geology and soils impacts would similarly occur with implementation of this Alternative given that the areal extent subject to disturbance/development would be the same as the proposed project. The EIR also identified geology and soils impacts specific to either the Centennial (e.g., safety concern related to the presence of the South Idaho Shaft) or Brunswick Industrial Site (e.g., slope stability associated with temporary steep cut slopes at the new service shaft collar; unstable portion of the clay-lined pond dam). These significant impacts would still occur under this Alternative, but similar to the proposed project, could be mitigated to a less-than-significant level.

Overall, this Alternative could result in similar impacts to geology and soils when compared to the proposed project.

Hazards and Hazardous Materials

The EIR did not identify any significant project-related impacts concerning hazards and hazardous materials at the Centennial Industrial Site. This is due to the fact that the Centennial Industrial Site is subject to a separate remediation project. As previously discussed, Rise Grass Valley Inc. has entered into a Voluntary Cleanup Agreement (VCA; Docket No. HSA-FY18/19-014) with the DTSC for the voluntary cleanup of soil contamination on the Centennial Industrial Site.

The EIR determined that significant hazards/hazardous materials impacts would be limited to the Brunswick Industrial Site. For example, potentially significant hazards identified on the Brunswick Industrial Site include elevated arsenic in the southeastern paved area, potential residual petroleum contamination in a few locations, and presence of groundwater monitoring wells of unknown status. However, the EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels. The preceding project-related impacts at the Brunswick Site are related to the extent of on-site disturbance/development. Because the areal extent of disturbance would be equivalent over time for the proposed project and this Alternative, the related impacts would be similar.

The EIR also determined that the proposed project could have a significant impact related to transport, underground storage and use of explosives at the Brunswick Industrial Site. With implementation of the mitigation measures in this EIR, the impact would be reduced to a less-than-significant level. Due to reduced throughput, the quantity of explosives that would be transported, and stored and used underground on a daily basis, would also be reduced. This would reduce the explosion hazard risk to the public. However, the risk due to routine transportation, underground storage and use of explosives would be present for an extended period of time due to the life of the mine being extended from 80 years to 130-160 years.



Overall, given that the EIR found a significant impact would occur due to transport, underground storage and use of explosives, and this Alternative would reduce the quantity of explosives that are routinely transported, stored and used underground on the Brunswick Site, this Alternative could result in fewer impacts related to hazards/hazardous materials when compared to the proposed project.

Hydrology and Water Quality

The EIR determined that implementation of the proposed project at the Centennial Industrial Site could result in potential construction and operational impacts related to water quality at the Centennial Industrial Site (e.g., engineered fill pad construction); risk release of pollutants in flood hazard area associated with Wolf Creek; and substantial alteration of drainage patterns. These significant project-related effects would still occur with implementation of this Alternative, and for the water quality impact related to engineered fill pad construction, this impact could possibly increase due to the extended period of time that placement of fill would occur (approximately 5 years versus 10-12 years).

The following project-related significant effects specific to the Brunswick Industrial Site would still occur under this Alternative: impacts to water quality associated with operations within the industrial area, underground placement of Cement Paste Backfill (CPB), use of clay-lined pond for water treatment process purposes, treated water discharge in South Fork Wolf Creek, and substantial reduction in groundwater supplies due to operation of the mine. These impacts are considered less than significant after implementation of mitigation. This Alternative also has the potential to increase some of these impacts due to the extended life of the mine. For example, the mine would need to remain dewatered for 130-160 years rather than 80 years for the proposed project. Use of the industrial area would be extended over the same time frame, and thus, while on-site operations would be reduced over the course of each day, these operations would occur for much longer, extending the period of time that runoff within the industrial area could come in contact with industrial pollutants. Similarly, discharge of treated water to South Fork Wolf Creek would be extended, as would use of CPB.

Similar to the proposed project, the Alternative would be required to implement mitigation in order to ensure that impacts related to hydrology and water quality are reduced to less-than-significant levels.

Overall, this Alternative could result in greater impacts to hydrology and water quality when compared to the proposed project.

Noise

The EIR determined that the majority of project-related significant noise and vibration impacts would occur as a result of operations at the Brunswick Industrial Site; these operations would also occur with implementation of this Alternative, though at a reduced intensity and longer overall period of time (80 years vs. 130-160 years) by reducing daily production levels by 50 percent. For example, the EIR conservatively concludes that the combined operational noise sources at the Brunswick Industrial Site could result in a significant noise impact. With respect to vibration, the EIR determined that while blasting is not projected to exceed applicable thresholds, a ground vibration monitoring program should be implemented to determine the actual levels of ground vibration at commencement of mining, and if necessary, implement additional protective measures. The EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to a less-than-significant level.



Likewise, the significant and unavoidable construction noise impact, which would result from installation of the potable water line along E. Bennett Road, would still occur as part of this Alternative.

One significant project-related impact could be increased in severity with implementation of this Alternative; this is the impact related to potential use of Jake brakes along the haul route connecting the Brunswick and Centennial Industrial Sites. The EIR determined that the proposed project could result in a substantial increase in ambient noise levels in the vicinity of the project due to haul truck traffic should Jake brakes be used. Haul truck traffic from Brunswick to Centennial would potentially increase from 5 years to 10-12 years as a result of this Alternative.

Overall, this Alternative could result in slightly greater noise impacts when compared to the proposed project.

Transportation and Circulation

As discussed for Alternative 2, the intersection (i.e., level of service conflicts) and queue impacts identified in the EIR would occur at locations that are unaffected by project truck traffic. In other words, the intersection impacts are a result of project employee commute trips. This Alternative would reduce the daily throughput at the mine by 50 percent, from 1,000 tons per day to 500 tons per day of gold mineralization. The reduced production levels would reduce the demand for on-site labor. As a result, this Alternative could be expected to support fewer employees, which would reduce commute traffic to/from the Centennial and Brunswick Industrial Sites. Depending upon the level of reduction, this Alternative may avoid one or more of the intersection/queue impacts identified in the EIR for the proposed project.

While vehicle miles travelled (VMT) associated with employee commute would be reduced on a daily basis, the life of the mine would be extended from 50-80 years, which would have the effect of substantially increasing VMT over the life of the mine. This could result in a significant VMT impact.

The EIR also determined that proposed project truck traffic to the Centennial Industrial Site would result in pavement impacts on the following roadway segments:

- Brunswick Road northbound between E. Bennett Road and Whispering Pines Lane;
- E. Bennett Road between Project Driveway and Brunswick Road (eastbound)

These pavement impacts would be similar with implementation of this Alternative due to similar amount of heavy truck use along the haul route from Brunswick to Centennial (i.e., while the haul route would be used for a longer duration, the amount of overall trucks occurring on the route would not increase; rather, the equivalent amount of trucks would be spread out over a longer period of time).

This alternative would still require widening along the Centennial Industrial Site's frontage for purposes of facilitating adequate truck turn movements into and out of the Site.

Overall, this Alternative could result in similar or slightly fewer impacts to transportation when compared to the proposed project.



Wildfire

The EIR determined that implementation of the proposed project would result in a significant impact related to exacerbating wildfire hazards at both the Centennial and Brunswick Industrial Sites. The EIR requires mitigation in order to ensure that the aforementioned impact is reduced to a less-than-significant level. Reduced throughput could be expected to reduce the use of on-site equipment to some degree, but not enough to substantially reduce wildfire risk, as compared to the proposed project.

Overall, this Alternative could result in similar impacts related to exacerbating wildfire hazards when compared to the proposed project.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. The environmentally superior alternative is generally the alternative that would be expected to generate the least amount of significant impacts. Identification of the environmentally superior alternative is an informational procedure and the alternative selected may not be the alternative that best meets the goals or needs of the County. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, “If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.”

Based on the preceding alternatives analysis, the No Project (No Build) Alternative would be the environmentally superior alternative. Under this Alternative, the mine would not be operated at the Brunswick Industrial Site, and as a result, engineered fill would not be hauled to the Centennial Industrial Site. In general, no significant project-related impacts to the physical environment would occur under this Alternative. Given that the environmentally superior alternative would be the “no project” alternative, another alternative must be selected to be the environmentally superior alternative. Based on the preceding analysis, and a comparison of the alternatives in Table 6-1, it can be concluded that Alternative 2, Elimination of Centennial Industrial Site, would reduce the greatest number of project impacts. The EIR determined that the proposed project would result in significant environmental impacts to 10 CEQA resource categories/topics. Alternative 2 would reduce the project’s significant environmental impacts in nine of the 10 categories. Alternatives 3 and 4 would not reduce as many impacts, and in two cases, impacts would be greater when compared to the proposed project. For these reasons, Alternative 2 would be considered the environmentally superior alternative. The main objectives of the project would be achieved with this alternative, as follows:

- Construct a commercially viable, financeable, major underground gold mine operation that will produce 1,000 tons per day (365,000 tons per year) of gold mineralization.
- Locate the project on property that Rise Grass Valley, Inc. owns that provides an existing access to the underground workings.
- Utilize existing underground access points to limit new aboveground and underground surface disturbance.
- Locate the facilities necessary to support dewatering, mining, and processing on land historically disturbed and zoned for similar industrial type uses.
- Locate the majority of project facilities within a large property holding to provide buffer areas and minimize the potential for adverse environmental effects on neighboring properties.



- Provide property owners along East Bennett Road, an area currently with no service from the Nevada Irrigation District (NID) and using groundwater from wells, a reliable and clean potable water source from the NID.
- Provide jobs that provide a fair living wage for educated and skilled workers.
- Minimize impacts to wetlands, vernal pools, and other special-status species habitat located on the property and, to the extent feasible, mitigate any such impacts identified.



**Table 6-1
Comparison of Environmental Impacts for Project Alternatives**

Resource Area	Proposed Project	No Project (No Build) Alternative	Alternative 2: Elimination of Centennial Industrial Site and Expansion of Brunswick Fill Pile	Alternative 3: Expansion of Centennial Engineered Fill Pile and Elimination of Brunswick Engineered Fill Pile	Alternative 4: Reduced Throughput
Aesthetics	Significant and Unavoidable	None	Fewer*	Similar or (Slightly) Fewer*	Similar
Air Quality, Greenhouse Gas Emissions, and Energy	Less-Than-Significant with Mitigation	None	Fewer	Similar	Fewer
Biological Resources	Less-Than-Significant with Mitigation	None	Fewer	Fewer	Similar
Cultural and Tribal Cultural Resources	Less-Than-Significant with Mitigation	None	Fewer	Fewer	Similar
Geology, Soils, and Mineral Resources	Less-Than-Significant with Mitigation	Fewer	Fewer	Fewer	Similar
Hazards and Hazardous Materials	Less-Than-Significant with Mitigation	Fewer	Similar	Similar	Fewer
Hydrology and Water Quality	Less-Than-Significant with Mitigation	None	Fewer	Similar	Greater
Noise and Vibration	Less-Than-Significant with Mitigation <u>and</u> Significant and Unavoidable	None	Fewer*	(Slightly) Greater*	(Slightly) Greater*
Transportation	Less-Than-Significant with Mitigation <u>and</u> Significant and Unavoidable	None	Fewer*	(Slightly) Greater*	Similar or (Slightly) Fewer*
Wildfire	Less-Than-Significant with Mitigation	Fewer	Fewer	Fewer	Similar
Total Fewer (or None):		10	9	4	2
Total Similar:		0	1	4	6
Total Greater:		0	0	2	2

Note: No Impact = "None"; Less than Proposed Project = "Fewer"; Similar to Proposed Project = "Similar"; Greater than the Proposed Project = "Greater"

* Significant and Unavoidable impact(s) determined for the proposed project would still be expected to occur under the Alternative.



7. REFERENCES

7. REFERENCES

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8. EIR AUTHORS AND PERSONS CONSULTED

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RANEY PLANNING & MANAGEMENT, INC.

C. Timothy Raney, AICP	President
Cindy Gnos, AICP	Senior Vice President
Nick Pappani	Vice President
Rod Stinson	Division Manager / Air Quality Specialist
Angela DaRosa	Assistant Division Manager / Air Quality Specialist
Briette Shea	Associate / Air Quality Technician

NEVADA COUNTY

Brian Foss	Planning Director
Tyler Barrington	Principal Planner
Matt Kelley	Senior Planner
Trisha Tillotson	Community Development Agency Director
Jessica Hankins	Public Works Project Manager

TECHNICAL CONSULTANTS

The following technical consultants were engaged to perform analysis of the proposed project.

BALANCE HYDROLOGICS, INC.

Brian Hastings, PG	Geomorphologist/Hydrologist
Lynell Garfield	Hydrologist
Barry Hecht, PG, CEG	Geomorphologist

BENCHMARK RESOURCES

Andrew White	Principal
--------------	-----------

BOLLARD ACOUSTICAL CONSULTANTS

Paul Bollard, INCE	President
--------------------	-----------

DUDEK

Jennifer Reed	Air Quality Services Manager
Matthew Morales	Technical Analyst

ECM CONSULTANTS

Charles Art Braun, PE, CPG, REP	Mining Engineer
Donald Stevens, PE	Principal/Senior Engineer
Chris Drabandt	Senior Geologist/Environmental Professional

EMKO ENVIROMENTAL, INC.

Andrew Kopania, Ph.D., CPG, HG	President/Principal Hydrogeologist
--------------------------------	------------------------------------



GREG MATUZAK ENVIRONMENTAL CONSULTING LLC

Greg Matuzak

Principal Biologist

INCONTEXT

Trish Fernandez, M.A., RPA

Principal

ITASKA-DENVER

Robert J. Sterrett, Ph.D., R.G.

Principal Hydrogeologist

KD ANDERSON & ASSOCIATES, INC.

Jonathan Flecker, P.E.

Traffic Engineer

LINKAN ENGINEERING

Samuel Billin, P.E., P. Eng

President

MADRONE ECOLOGICAL CONSULTING, LLC

Sarah VonderOhe

Daria Snider

Principal/Senior Biologist

Senior Biologist

NEVADA CITY ENGINEERING

Robert Rourke, P.E.

Civil Engineer

NV5

Chuck Kull, G.E.

Jason Muir, C.E.

Principal Engineer

Associate Engineer

PRECISION BLASTING SERVICES

Anthony Konya, Ph.D., M.S.

Vice President

SAXELBY ACOUSTICS LLC

Luke Saxelby

Principal Consultant

TJKM

Chris Kinzel, P.E.

Vice President

WENDY BOES BOTANICAL CONSULTANT

Wendy Boes

Principal

WEST YOST

Craig Thompson, P.E., BCEE

Jim Connell, P.E., RCE

Ken Loy, PG

Principal Engineer

Principal Engineer

Principal Hydrogeologist

