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1.0 PURPOSE AND OBJECTIVES

1.1 Purpose of Plan

This reclamation plan for the Blue Lead Gold Mine has been prepared in accordance with the requirements of the California Surface Mining and Reclamation Act (SMARA, or the statute) found in California Public Resources Code (PRC) Section 2710 et seq., Title 14 of the California Code or Regulations (CCR) Section 3700 et seq. and Nevada County's (the Lead Agency) implementing ordinance as specified in the Nevada County Land and Use Code (Chapter 11).

The plan is prepared in a format that addresses each of the reclamation plan requirements found in the statute (primarily PRC 2772), and the standards that must be met in reclamation implementation as specified in CCR 3503 and CCR 3700 through CCR 3713. Applicable PRC and CCR references are provided throughout this document.

The plan serves several purposes:

1. Provides required contents for a reclamation plan as specified in PCR2772 and CCR 3502;

2. Provides a list of intended actions necessary to comply with Annual Minimum Practices (CCR 3503) and Reclamation Standards (CCR 3800 et.seq.) where required as part of operations or final reclamation;

3. As a reference manual for the mine operator to guide site development consistent with the approved plan, and to assist in regulatory compliance for operational activities, through actions defined in response to (1) and (2) above, and by providing appended regulatory and informational materials;

4. As a compliance document for the Lead Agency in monitoring ongoing compliance with the approved plan; and

5. Provides for a set of actions to be taken in the event the operation were to become idle, that are consistent with the specified reclamation actions during operations and consistent with the final reclamation plan.

SMARA's reclamation plan requirements are found primarily in PRC 2772 and in CCR 3502. Minimum operating standards (CCR 3503) and reclamation performance standards (CCR 3700 et. seq.), as applicable to the operation and its approved plan, must be met during operations and reclamation. This plan employs a comprehensive approach to the statute

and regulations to avoid ambiguity in determining regulatory compliance during operations and following reclamation.

SMARA has several terms particular to the statute and its regulations; see Appendix B for definitions. Additionally, to minimize ambiguity and assist in use of this plan, terms typically associated with mining operations, reclamation planning, and related geological and environmental conditions are provided in Appendix C, Mining and Reclamation Terminology.

1.2 **Reclamation Objectives** (CCR 3502(a))

In enacting SMARA, the legislature clearly expressed its intent for the following in mining and reclamation:

a) *Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition, which is readily adaptable for alternative, land uses.*

b) *The production and conservation of minerals are encouraged, while giving consideration to the values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.*

c) *Residual hazards to the public health and safety are eliminated. (PRC 2712, emphasis added.)*

The reclamation actions in this plan are specifically developed and formatted to address these fundamental legislative objectives. This Reclamation Plan provides corresponding actions designed to meet these primary physical reclamation treatment objectives for the disturbed land on this site:

1. Minimizing offsite effects of erosion and sedimentation through surface drainage designed to retain surface waters on-site.

2. Maximize mineral production through an increasingly efficient extraction process, while minimizing the surface disturbance of new lands.

3. Develop mineral resources on private lands while minimizing potential public exposure to mining operations and post-reclamation mining operations, while providing for safety and long term stability.

4. Implement a revegetation program consistent with surrounding vegetation and designed to establish self-sustaining land vegetation.

1.3 Potential Second Land Use (PRC 2772(c)(7))

1.3.1 Land Use Goal

SMARA requires a description of the “proposed use or potential uses” of a mined site after reclamation.

1.3.2 Reclamation Overview

The site will be reclaimed to an open space condition as allowed under the existing Nevada County Zoning Code designation of forest (FR) which provides for production, protection, and management of timber (and support uses), and with two (2) single-family residential sites.

Following mining, the Operator will reclaim the site, which will include the following types of activities:

1. Cut slopes will be reclaimed at an angle to ensure long-term stability.

2. Grading will be completed for proper drainage.

3. Removal of remaining equipment and facilities related to mining reclamation so that subsequent land uses are not encumbered.

4. Resoil and revegetate mining area involving placement of waste materials, overburden, and/or topsoil and seeding with native grasses, brush and trees.

5. Sites designated for residential construction will be graded suitable for their construction.

2.0 SITE DESCRIPTION AND ENVIRONMENTAL SETTING (CCR 3502(b)(1))

2.1 Site Location and Size (PRC 2772(c)(5))

The approximately 75-acre Blue Lead Gold Mine project site is located near the historic communities of “You Bet” and “Red Dog”, in the Red Dog Mining District in western Nevada County (APN 38-390-12, 38-390-20 and 38-390-21; Figure 1, Site Location, Figure 4, Assessor Parcel Map). The project site is approximately eight (8) miles east of Grass Valley and seven (7) miles southeast of Nevada City, within the foothills of the Sierra Nevada Mountains. Located north of Interstate 80 and east of State Route 174, the site is within Township 16 North, Range 9 East and 10 East, Sections 25 and 30 of the Grass Valley U.S.G.S. 7.5 min. Quadrangle.

The property is located within the Greenhorn Creek watershed and lies on a hillslope east of the drainage. It is a remote area with no services or utilities, and only a scattering of residences.

2.2 Land Use

The Blue Lead Gold Mine will occupy nearly the entire 75-acre site throughout a seven-phase, 20-year plan. The land has a Nevada General Plan designation of Forest (FR) and zoned Forest (FR-40). An application for rezoning to Forest (FR-40) with a Mineral Extraction (ME) combining district (FR-40-ME) has been submitted to Nevada County Community Development Agency. (See Figure 3, Zoning Exhibit Map.) Surface mining operations are permitted within a FR zone if having a ME combining district overlay and with the issuance of an approved County Use Permit, subject to the conditions of the Nevada County Zoning Code Section L-11 3.22, Surface Mining Permits and Reclamation Plans.

The site was extensively hydraulically mined during the late 1800’s to the early 1900’s. Two mines accounted for the majority of the operations, the Star and Boston Mines. Native soils and vegetation were stripped and contoured to provide maximum support for the mine activities. Hydraulic mining exhumed millions of cubic yards of gravels before they suddenly ceased, leaving the area in a “devastated state”. Remnant hydraulic workings include mined-out gravels to bedrock, shear vertical cliff faces, exceeding 160-feet high, tailing piles and sluice channels and tunnels. Native, undisturbed gravels still exist on the property and are the focus of this mining operation (See Site Photos, Appendix B).

Greenhorn Creek and the vicinity around and including the Blue Lead Mine have been a mecca for recreational vehicles, quads and motorcycles for the last couple of decades. These off-road vehicles have greatly contributed to the erosion and degradation of the land. Public use for this purpose on the Blue Lead Mine property has been discouraged since the planning of these mining operations.

Elevations on site vary from approximately 2,632 feet above mean sea level (amsl), at bedrock in the bottom of the overflow pond in the operations area in the northern portion of the site, to approximately 2,822 amsl, at the highest point in the western portion. (See Figure 2, Aerial Site Photograph with Topography).

2.3 **Access** (PRC 2772(c)(5))

Access to the site is available on paved and unpaved State and County roads. A private access road provides access to the site. The directions to the site are:

> From Grass Valley, east on Brunswick Road 1.0 mile to the junction of California State Route 174, east on California State Route 174 for 2.1 miles to You Bet Road. North (left) on You Bet Road 4.3 miles to Red Dog Road. Left on Red Dog Road 1.1 miles, to the left fork on the dirt road. 2.1 miles to the right fork up the hill to the Blue Lead Mine property gate. This is referred to as the “lower gate”.
>
> Note: Previous access has been achieved by a private road 0.1 mile before the turnoff to the lower gate. Once taking the right turn, go 0.4 miles to the “upper gate”. This is a light duty access road scheduled for private and emergency use only.

The Blue Lead Mine proposes to construct a new access road from the lower gate through the property to meet up with the existing light duty access road above the upper gate (see Appendix C, sheet 4, Proposed Temporary Access Road). The new road will connect to Red Dog Road on Blue Lead Mine parcel APN 38-390-21, extend northward along the eastern margin of APN 38-390-20, and loop up through APN 380-390-12 where it connects to the former light duty access road. At this point, the road will cross onto the neighboring parcel APN 38-390-02, which is owned by the Bureau of Land Management (BLM). The BLM has issued a right-of-way across this parcel (see Mine Plan Phase Maps, Appendix C, sheet 4, Proposed Temporary Access Road.) This access will be used until a permanent access road can be made through the Blue Lead Mine property (see Appendix C, sheets 5-8). After a private access road has been established, the road on BLM property will be used for light-duty and emergency use only.

2.4 **Visibility**

Although the site includes a hill with an elevation of about 2288 feet amsl, it is located in a remote area and, therefore, is not conspicuous to surrounding parcels. The initial processing plant is located on the northern flank to the hill and not visible to the casual observer.

During mining operations, the upper reaches of the mine may be visible from other topographic high points in the Greenhorn Creek drainage, just as are the former hydraulic mining cliff faces. Ongoing reclamation and revegetation of these areas with native species will keep these areas from becoming a permanent landmark in the valley and will improve the esthetics of the area.

2.4 Climate

The Sierra Nevada Foothills and in particular in western Nevada County are warm during summer when temperatures tend to be in the 70's and cold during winter when temperatures tend to be in the 40's.

The warmest month of the year is July with an average maximum temperature of 86 degrees Fahrenheit, while the coldest month of the year is January with an average minimum temperature of 32 degrees Fahrenheit.

Temperature variations between night and day tend to be relatively wide during summer with a difference that can reach 30 degrees Fahrenheit, and fairly limited during winter with an average difference of 19 degrees Fahrenheit.

The annual average precipitation at Nevada City is 59 Inches. Winter months tend to be wetter than summer months. The wettest month of the year is January with an average rainfall of about 11 Inches.

2.4 Geology

The Blue Lead Mine is located within the broad geologic region of California known as the Sierra Nevada geomorphic province, which includes the Sierra Nevada Mountains and the Sierra Nevada Foothills Gold Belt. The average width of the gold belt is about 75 miles and it extends over a length of about 400 miles along a northwest-southeast orientation along the western frontal slopes of the Sierra Nevada mountain range.

The Sierra Nevada Mountains are composed of an imbricated assemblage of meta-sedimentary, meta-volcanic and ocean crustal rocks that have been highly deformed by tectonic forces and intruded by granitic rocks that caused various stages of contact metamorphism and hydrothermal alterations, including quartz veining and contact metamorphism. In the vicinity of the Blue Lead Mine, the bedrock is shale and slate of the Calaveras Formation (Carboniferous to Permian age). It is light gray to black, moderately hard to hard, moderate to highly fissile, and contains numerous discontinuous quartz veins, all of which are indicators of its torturous tectonic past. The mining operations of the Blue Lead Mine do not intend to mine the bedrock, except for the top few feet at the most.

Overlying the bedrock is a thick gravel assemblage of early Tertiary age. In some nearby areas, the gravels are overlain by a volcanic assemblage tuffs and flows, but the Blue Lead Mine area does not have these rocks. The gravels are interstratified, showing evidence of both slow and fast-water deposition, thus the particle size ranges from silt and sand to gravel and cobble. No boulder-sized rocks have been observed at the Blue Lead Mine yet. The gravels are generally well cemented, making them hard to very hard, and easily form tall resistant cliffs when exposed. The Tertiary gravels are charged with various amounts of gold and are the target of this mining operation.

2.5 Soils

Of the seven identified by the USDS, National Resource Conservation Service (NRCS), soil units found at the Blue Lead Mine, two dominate the landscape, Tailings and Placer diggings (See Figures x-xl). Together, they comprise of 49% of the soil units on the property. This is not surprising because most of the property occupies a former hydraulic mining site. Soil units that comprise balance of the site are the Horseshoe gravely loam (15-30% slope, 12.5%) and the Mariposa gravelly loam (2-30% slope, 2.3%), Josephine-Mariposa Complex (15-50% Slope, 10% and 50-75% slope, 20.5%), and Mariposa-Maymen complex (50-75% slope, 3.4%). Minor soil units complete the area-of-interest inventory.

The Horseshoe and the Mariposa series consist of well-drained soils that are underlain by stratified sands and gravel. Runoff is medium and the hazard to erosion is moderate. They tend to form on rolling hills and adjacent to streams. Undisturbed profiles are variable, but tend to be less than 60 inches thick; however, all of the Horseshoe and the Mariposa series soils on the site have been disturbed to some degree.

The Josephine-Mariposa Complex soils are derived from a metamorphic parent rock. They are generally well drained, have a moderate available water capacity and exhibit an undisturbed profile from 24-50 inches thick, depending on the slope. Mariposa-Maymen complex soils have similar characteristics, however, because they tend to occupy steeper slopes, the profiles are shallower. No undisturbed profiles of these soils are found on the property.

2.6 **Hydrology** (PRC2772 (c)(5))

2.6.1 Surface Waters

Topography divides of the Blue Lead Mine into two principal drainage areas, north and south. A minor drainage basin occurs off the western slope of the northern portion of the property. All the drainage paths are seasonal and tend to dry up early in the summer months.

The northern drainage area consists of about 27 acres and was the site of the former Boston Mine hydraulic workings. Topography is generally irregular, containing pits, basins and near-vertical slopes as a result of the extensive hydraulic mining, and have heavily modified the natural location of the drainage.

Tetra-Tech, Inc. (2004) prepared a Removal Investigation Report for the United States Department of Interior, Bureau of Land Management (BLM), and coordinated a non-time-critical removal action. The purpose of the removal action was to reduce the potential exposure of humans and wildlife to elevated levels of mercury and reduce the migration of mercury to the watershed. The removal action was summarized by Tetra-Tech EM Inc. (2006). Holdrege & Kull (2009b) prepared Report of Waste Characterization for the Blue Lead Mine that summarized the Tetra-Tech's operations, including the reclamation of the sluice channels and intake shaft to the Boston Mine's sluice tunnel.

Three ponds have been created along the northern drainage path for (1) sediment retention and flood control, (2) a water source for mining operations, and (3) a temporary storage area for mine tailings. During past wet seasons, runoff has filled the ponds and has been conveyed off the property at its designated location. The upper pond is also fed by the near-surface ground and retains water for most the year.

Holdrege & Kull (2009c) completed a study of the northern drainage for the purpose of characterizing the existing drainage conditions and providing culvert capacities for future stormwater runoff (Appendix H).

The southern drainage area consists of about 37 acres and was the site of the former Star Mine hydraulic workings. These workings were extensive and removed enormous amounts of Tertiary gravels down to bedrock. As a result, topography is generally flat in the central portion and grades to hummocky conditions along the flanks, transitioning to near-vertical slopes on the northern margin. Sluice channels and sluice tunnels were carved into the bedrock and convey the majority of runoff off of the property. One partially completed sluice tunnel shaft retains water into the mid summer months. Small depressions within the bedrock hold runoff for a couple of months before desiccating completely. A small seasonal drainage on the southern margin conveys water off of the property.

2.6.2 Groundwater

There are two distinct groundwater sources, near-surface and deep. Seasonal precipitation produces a short-term, near surface groundwater table. It tends to occupy the top 25 feet and percolates to the surface from many of the irregular topographical slopes. The gravel bedrock contact sometimes causes groundwater to accumulate and seep to the surface. However, as the wet season transitions to the dry season, the shallow groundwater source dries up.

The log for the existing well indicates the static deep groundwater elevation is at 70 feet, well below the proposed maximum depth of the mining operation (Appendix I).

2.7 Vegetation and Wildlife

Hanover Environmental Services, Inc. performed a Biological Resources Assessment (BRA) of the Blue Lead Gold Mine property. Field surveys were conducted on April 14, 2008 to determine the presence of sensitive natural resources within the site and to determine if those resources would be impacted by the proposed project. (See Appendix D, Biological Inventory Report.)

2.7.1 **Vegetation** (CCR 3705(a))

2.7.1.1 **Upland Areas Vegetation**:

The majority of the property was stripped of all vegetation during the former mining operations. Upland vegetation types present are a combination of mixed Chaparral and mixed Conifer. Large portions of the project site are nearly void of top soil and, therefore, these areas consist of limited vegetation which is primarily composed of woody species. The upland areas vegetation, which would be suitable for a replanting mix, consists of the following:

Scientific Name	**Common Name**
Arbutus menziesii	Pacific madrone
Arctostaphlos viscida	White leaf manzanita
Calocedrus decurrens	Incense cedar
Ceanthus cuneatus var*. cuneatus*	Buck brush
Chamaebatia foliolosa	Mountain misery
Cornus nuttallii	Mountain dogwood
Iris sp*.*	Iris
Lotus micranthus	Small flowered lotus
Lotus purshianus	Spanish lotus
Lupinus nanus var*. latifolius*	Sky lupine
Pinus ponderosa	Ponderosa pine
Potentilla sp.	Cinquifoil
Pseudotsuga menziesii var. *menziesii*	Douglas fir
Quercus berberidifolia	Scrub oak
Quercus chrysolepis var. *chrysolepis*	Canyon live oak
Quercus kelloggii	Black oak
Symphoricarpos albus var. *laevigatus*	Common snowberry
Trifolium sp.	Clover

2.7.1.2 Wetland Areas Vegetation:

The vegetation within the seasonal wetlands areas consists of the following:

Scientific Name	Common Name
Agoseris heterophylla	Annual agoseris
alnus rhombifolia	White alder
Bromus hordeaceous	Soft chess
Callitriche heterophylla	Water starwort
Cardamine oligosperma	Western bittercress
Crassula aquatica	Water pygmyweed
Dianthus armeria ssp. *armeria*	Deptford pink
Dodecantheon sp.	Shooting star
Erodium cicutarium	Red-stemmed filaree
Erythronium sp.	Fawn lily
Glyceria occidentalis	Western manna grass
Hordeum murinum ssp. *leporinum*	Hare barley
Hypericum perfoliatum	Klamath weed
Hypochaeris radicata	Rough cat's ear
Juncus effuses var. *exiguous*	Short rush
Juncus patens	Spreading rush
Juncus xiphioides	Iris-leaved rush
Lotus micranthus	Small flowered lotus
Lythrum portula	Water purslane
Montia Fontana	Water montia
Muhlenbergia rigens	Deer grass
Plagiobothrys bracteatus	Bracted popcorn flower
Plantago major	Common plantain
Poa annua	Annual bluegrass
Ranunculus aquatilis	Water buttercup
Rorippa curvisiliqua var. *occidentalis*	Western yellowcress
Rumex acetosella	Sheep sorrel
Rumex crispus	Curly dock
Salix laevigata	Red willow
Salix lasiolepis var. *lasiolepis*	Arroyo willow
Selaginella hansenii	Hansen's spike moss
Trifolium subterraneum	Subterranean clover
Vulpia bromoides	Six week fescue

No special status species were observed, however, known or potential biological constraints within the site include the following:

- Potential habitat for Brownish beaked-rush (*Rhynchospora capitellata*), a California Native Plant Society List 2 species.

2.7.2 **Wildlife** (CCR 3703(a), CCR 3703(b) and CCR 3703(c))

A biological resources assessment of the Blue Lead Gold Mine property was performed by Hanover Environmental Services, Inc. Field surveys were conducted on April 14, 2008 to determine the presence of sensitive natural resources within the site and to determine if those resources would be impacted by the proposed project. (See Appendix D, Biological Inventory Report.)

Very little wildlife was identified during the field surveys conducted by Hanover Environmental Services, though indications of black-tailed deer, black bear, wild turkey and coyote were visible. Numerous Pacific treefrog (Pseudacris. regilla) were observed within the Blue Lead Mine (formerly Golden Girl Placer Mine) property and American bullfrogs (Rana catesbeiana) were observed in the freshwater pond and the seasonal wetland areas. The property has potential to support numerous species of migratory birds, including raptors.

No special status species were observed, however, known or potential biological constraints within the site include the following:

- Northwestern pond turtles (*Emys marmorata*), a state listed species of special concern, were observed in the mine tailing ponds located on site. Their presence is also likely in the seasonal wetlands located in the central portion of the property.
- Foothill yellow-legged frog (*Rana boylii*), a state species of special concern, has the potential to occur within the site. There is one documented occurrence of Foothill yellow-legged frog in Greenhorn Creek, which is located northwest of the Golden Girl Placer Mine property.
- Potential nesting and foraging habitat for raptor species.

2.3.2 Utilities

Utilities necessary for the operation are provided as follows:

- Power – Electrical power is available at the site by using one (1) 45kw diesel generator and one (1) 35kw diesel generator for mining operation equipment; and two (2) 10,000 watt generators for RV trailers and hand tools.

- Water – Water for dust control and mineral processing is provided from one (1) settling pond, one (1) overflow pond and one (1) freshwater pond, which are supplemented with water from the on-site well and the diversion of stormwater. Water used in the processing of minerals is recycled into the settling pond. A water truck will be kept on site to be used for dust control as needed.

  Bottled water for drinking purposes will be brought to the site as needed.

- Sewage – The mining operations will consist of a small 2-5 person work staff and septic needs will be fairly small. On a temporary basis and until a permanent residential structure with an onsite wastewater disposal system (septic tank and leachfield) can be built, a concrete septic vault will be utilized for wastewater. A local wastewater disposal company will be contracted to pump the vault on a bi-monthly or month basis.

No additional extensions of utilities or alterations to existing utility service would be necessary to carry out mining and reclamation activities identified in this plan.

3.0 MINE OPERATIONS

The Blue Lead Mine is a relatively straightforward, phased-approach hillside operation with leapfrog-style production and reclamation procedures. It will be mined in a top down fashion using a bulldozer to rip and stockpile the material for transport to the processing facility. Prior to mining, what topsoil is there will be salvaged and stored in selected areas for use during reclamation. Once the material has been ripped, a dozer pushes the loosened material down the slope to create a surge pile at the base of the slope. A rubber-tired loader loads the gravel from the surge pile either directly into the processing facility or into a dump truck and transported to the processing facility.

Once final elevations and mining setbacks have been reached, benches will be pioneered into the slope. Bench parameters will be 30-40 feet high and a minimum of 20 feet wide. Bench excavations will adhere to standard hillside mining techniques and will comply with Mine Safety and Health Administration (MSHA) requirements.

The processing plant will consist of a primary classifier to direct oversized material to a waste pile. The material will then be transported via conveyor belts to a series of trommels and jigs that will wash and classify the gravels, and recover the gold. Concentrates will be further refined with a vibrating shaker table, and then stored in drums to be delivered to a certified offsite refiner.

The mine has roughly 6 million cubic yards of ore (gravel), and given that between 250,000 and 450,000 cubic yards will be mined annually, the mine is expected to have an operation life for up to 20 years.

3.1 Tailings Cycle

Tailings will be created at various points of the process. The coarse-grained tailings will be scooped up by the loader and taken to a temporary stockpile before being moved to sites for reclamation or used as riprap for erosion control projects.

Fine-grained tailings will be pumped through slurry pumps and sand screws to the tailings pond where dewatering? of the material will occur. The tailings pond will be periodically cleaned out and the material taken either to a stockpile or transported directly to the reclamation site.

Gravel-sized material will be stockpiled and later used for various mine improvements, such as road cover, dust and erosion control and decorative landscaping.

Offsite use of the tailings is not expected.

3.2 Water Cycle

The water cycle is fairly simple. There are three ponds used by the operation, a freshwater pond, a tailings pond, and an overflow pond. During the wet season, runoff will be captured by the three freshwater and the overflow ponds and act as a sediment retention basins before being channeled off the property at its “natural” exit points. During the dry season, the freshwater pond is supplemented by well water.

The water is pumped from the freshwater pond through the processing circuit and is collected in the tailings pond. Suspended sediment is allowed to settle before it is recycled back through the processing circuit. The overflow pond will collect overflow water from the tailings pond and subsequently be pumped back into the production circuit.

The ponds will be enlarged during the parts of the project, as time and space allows. The total hydrologic (fresh and recycled water) budget for the processing plant is about 40,000 gallons per day, and is dependant on daily mine demands.

Water will also be used, as needed, for dust suppression.

3.3 Workforce Cycle

Mining activities be conducted by a relatively small 1-5 person workforce that will be predicated upon specific seasonal conditions and market demands. Out-sourced professional contractors and service providers will routinely conduct business at the mine.

Onsite living facilities will be provided for the workforce, initially as recreational vehicles, and later as fixed foundation, wood-framed structures. There is currently no space available for the structures at this time and this will be created, as a priority, in the opening phase of the project. The plan is to construct two fully permitted structures, one for the owner/operator and the other for the workforce and guest accommodations.

The temporary recreational vehicle housing will have a centralized vault for wastewater collection, which will be pumped on a bi-monthly or monthly contract from a local provider. Water will be provided by the onsite well and power will be created by individual portable generators.

Mining will generally take place during daylight hours, six days a week (Monday – Saturday). Sunday will be used for various non-production

activities, such as but not restricted to repairs, site cleanup and concentrate refining.

3.4 Mining Phases

Mining has been separated into seven phases (see Appendix C, Mine Plan Phase Maps). While timelines for the initial phases are fairly specific, the timing of the late stage phases is less certain. For a leapfrog-style mining operation to commence, the initial tailings will need to be stockpiled while an area is made available for reclamation procedures to begin. Henceforth, areas can be reclaimed as other areas are excavated. Reclamation procedures are discussed in detail in Section 5.

Below is a synopsis of the main features of each phase:

Phase 1

Processing Area:

Assemble processing equipment and conduct testing procedures and refine processing techniques. This process could take between three to four months to complete. During this time, the ore-processing rate will be at minimum.

Main Access Road

The main access road will be constructed from Red Dog Road to the Northern Processing Area (NPA). The road will generally occupy existing access roads except for where it intersects with Red Dog Road, is cut through the remnant hydraulic mining pit wall and where it leads down from the hill to the NPA. Grades will be less than 10-percent and composed of native onsite materials. The roadbed will be approximately 16 feet wide and the surface will be rocked with tailings as needed.

Residential Building Site

An access road to the residential building site will be constructed. It extends from the main access road along the base of the remnant hydraulic pit wall, around the seasonal water features and south to the residential building pad. The pad is pre-existing; however, it will need further grading to accommodate expected use. A septic system will be installed following an approved On Site Soils Evaluation (OSSE) and Septic Permit from the Nevada County Department of Environmental Health.

Following an approved Building Permit from the Nevada County Building Department, a mobile home will be brought to the site and set up for immediate occupancy.

Operational Sequence:

Remove all surface vegetation in the area outlined as Phase 1 and the temporary soil and tailings stockpile areas. Pile, remove and stockpile vegetative material for possible salvage (chipping, reclamation, etc.). Strip overburden and topsoil and stockpile in designated areas. Initial excavations will concentrate on the areas around the NPA, and specifically near the ponds and at the northern portion of the property. This will facilitate plans to increase the size of the ponds and allow for the commencement of reclamation procedures.

The gravels will be excavated to the desired depth. Process gravels will be hauled to temporary tailings stockpile area, used for cover for the main access road and/or for erosion control measures.

Reclamation

Once an area has been sufficiently mined, reclamation procedures can begin. Initial reclamation procedures will occur at the northern most portion of the property and extend southward as the mining is complete. Tailings will be placed to desired thickness, contoured to desired topography and covered with a veneer of soil. Vegetation will be replanted as outlined in the reclamation plan and erosion control measures established. A 50-foot x 100-foot test plot for revegetation will be set up once the desired topography has been achieved.

Phase 2

Operational Sequence:

Remove all surface vegetation in the area outlined as Phase 2 and the tailings stockpile areas. Pile, remove and stockpile vegetative material for possible salvage (chipping, reclamation, etc.). Strip overburden and topsoil and stockpile in designated areas.

The temporary tailings stockpile (1S) will be moved to the northern reclamation area as mining progresses. The soils stockpiled in Phase 1 have been used in reclamation procedures.

Mining will progress southward through the hill and the remnant hydraulic mining pit wall, lowering the road grade as it progresses. Process gravels will be hauled to the reclamation area, used for cover for the main access road and/or for erosion control measures.

A tailings overflow area will be created on the southeastern portion of the property. The area will be stripped of gravels and stored in the designated stockpile.

Reclamation

Reclamation will be conducted concurrently with mining operations. Tailings will be placed to desired thickness, contoured to desired topography and covered with a veneer of soil. Vegetation will be replanted as needed and erosion control measures established.

Phase 3

Operational Sequence:

Area 3 – Move topsoil to stockpile area in Area 2. Excavate gravels to bedrock and process gravels. Place tailings in Area 2 for reclamation.

Area 2 – Reclamation will be conducted concurrently with mining operations. Tailings will be placed to desired thickness, contoured to desired topography and covered with a veneer of soil. Vegetation will be replanted as needed and erosion control measures established.

Area 4 – Strip all surface vegetation and salvage for reclamation procedures. Remove and stockpile topsoil for reclamation procedures.

Area 5 – Submit plans for secondary processing facility.

Areas 5, 6 & 7 – Submit plans for abandonment and reclamation of Star Mine sluice tunnels.

Phase 4

Operational Sequence:

Area 4 – Excavate gravels to bedrock and process gravels. Place tailings in Area 3 for reclamation.

Area 3 – Reclamation will be conducted concurrently with mining operations. Tailings will be placed to desired thickness, contoured to desired topography and covered with a veneer of soil. Vegetation will be replanted as needed and erosion control measures established.

Area 5 – Strip all surface vegetation and salvage for reclamation procedures. Remove and stockpile topsoil for reclamation procedures. Prepare site for secondary processing facility by grading site, digging ponds and drilling well. Construct shop and move processing facility.

Areas 5, 6 & 7 – Conduct abandonment and reclamation procedures of Star Mine sluice tunnels.

Phase 5

Operational Sequence:

Area 5 – Excavate gravels to bedrock and process gravels. Place tailings in Areas 4 and the former operations area for reclamation.

Areas 4, 5 and former operations area – Reclamation will be conducted concurrently with mining operations. Tailings will be placed to desired thickness, contoured to desired topography and covered with a veneer of soil. Vegetation will be replanted as needed and erosion control measures established.

Areas 6 and 7 – Strip all surface vegetation and salvage for reclamation procedures. Remove and stockpile topsoil for reclamation procedures.

Phase 6 and 7

Operational Sequence:

Areas 6 and 7 – Excavate gravels to bedrock and process gravels. Place tailings in Areas 5, 6, and 7 for reclamation.

Area 2A – move tailings stockpile as needed to other areas and perform final reclamation of area.

Areas 6 and 7 – Reclamation will be conducted concurrently with mining operations. Tailings will be placed to desired thickness, contoured to desired topography and covered with a veneer of soil. Vegetation will be replanted as needed and erosion control measured established.

Area 5 – Disassemble processing facility and move from the site. Site will be graded to desired topography and covered with a veneer of soil. Vegetation will be replanted as needed and erosion control measures established

3.5 Erosion Control

TBA

3.6 Pond Design

TBA

3.7 Slope Grading – Stability Analysis

TBA

4.0 SECOND LAND USE PLAN

4.1 **Topographic Configuration and Surface Treatment** (PRC 2772 (b)(6) and CCR 3502(3))

A plan has been developed to adapt anticipated site configurations and surface conditions for second land uses as allowed by the Nevada County General Plan and Land Use Code. Active cut slopes will be reclaimed at an angle ranging between xx to xx, consistent with the angle proscribed for the particular geologic unit, as outlined in Section 5.3.2 and Appendix G.

The access roads will remain to provide access for future land uses. The two (2) freshwater ponds will remain for wildlife habitat. Two (2) shop buildings are proposed to be built in the operations areas. The buildings will remain on site to be used in accordinance with the end land use of two (2) single-family residential sites.

Mining tailings will be replaced into excavated areas and stockpiled topsoil will be placed over the tailings to provide a suitable substrate for revegetation with native grasses, shrubs, and trees. Appendix C, page 11, Final Reclamation (conceptual) shows the planned reclaimed topography. Cross sections depicting the anticipated surface configuration are shown in Appendix C, page 12, Final Reclamation Cross-Sections.

5.0 RECLAMATION PRACTICES AND ACTIONS

5.1 Format of this Section

SMARA's associated California Code of Regulations establish general standards for reclamation (CCR3500 *et seq*.) This section organizes reclamation practices and actions planned in accordance with these requirements as they relate to:

Section 3503 Surface Mining and /Reclamation Practice: This section of the regulations identifies minimum practices to be followed in surface mining operations, for soil erosion control, water quality control, protection of fish and wildlife habitat, disposal of mine waste, erosion and drainage, resoiling, and revegetation.

Section 3700 et seq.; Article 9 Reclamation Standards: This section provides general standards to be implemented in reclamation, to the extent that they are consistent with planned or actual subsequent use or uses of the mining site. Performance standards address: wildlife habitat; backfilling, re-grading, slope stability and recontouring; revegetation; drainage; prime and other agricultural land; stream surface and groundwater protection; topsoil; tailing and waste management; and closure of surface openings.

5.2 Annual Minimum Practices

5.2.1 Water Quality and Watershed Control (CCR 3503(b))

Mining activities begin with the removal of soil and any other overburden. Topsoil will be stockpiled. Completed areas will be graded to final slope design and reseeded. Grading and revegetation shall be designed to minimize erosion in all phases of operations.

Temporary diversion/collection ditches, berms, and catchment basins and use of erosion control materials will be employed for effective water and sediment control. Proper engineering, construction, and maintenance will provide for effective drainage and stability of the drainage installations. Maintenance includes periodic inspection, cleaning, and repair, as necessary.

5.2.2 Protection of fish and Wildlife Habitat (CCR 3503(c))

Reasonable measures to protect fish and wildlife habitat include ensuring that equipment operations are confined to the defined on-site working

areas. Where working areas are expanded, removal of vegetation will not exceed the minimum necessary to complete operations.

Fish habitat will not be affected by this operation because it is entirely off-channel. Run-off will be contained within the mine site and operations/pond area by using ditches, berms and containment basins (ponds). Dust abatement will be used to reduce impacts in the areas adjacent to the excavation and roads.

5.3 Reclamation Standards and Actions

5.3.1 **Wildlife Habitat** (CCR 3703)

SMARA performance standards for special status species require that rare, threatened or endangered species be protected as specified in the federal and state Endangered Species Acts, and that wildlife habitat be left at least as good as before mining, unless the end use precludes or the reclamation plan establishes differently. SMARA also directs that wetland habitat shall be avoided, or if impacted as a consequence of surface mining operations, mitigated at a minimum one to one ratio.

The following sections address site-specific issues related to these wildlife requirements:

5.3.1.1 **Wildlife Habitat** (CCR3703(b))

Creation of wildlife habitat is not part of the plan for reclamation of this site, however, the plant species planned for revegetation will re-establish native habitat.

5.3.1.2 **Wetland Habitat** (CCR 3703(b))

Two (2) freshwater ponds will remain on the site after mining activities have been completed. The ponds' shoreline will be contoured with coves and peninsulas. Banks will be sloped at no greater than 2:1and 6 foot benches will be created 20 feet apart on the banks for wildlife access.

Existing seasonal "wetlands" will not be disturbed during mining operations and will remain on the site after final reclamation.

5.3.1.3 **Special Status Species** (CCR3703(a))

Hanover Environmental Services, Inc. performed a biological resources assessment of the Blue Lead Gold Mine (formerly the Golden Girl Mine) property. Field surveys were conducted on April 14, 2008 to determine the presence of sensitive natural resources within the site and to determine if those resources would be impacted by the proposed project. (See Appendix D, Biological Inventory Report.)

No special status species were observed, however, known or potential biological constraints within the site include the following:

- Northwestern pond turtles (*Emys marmorata*), a state listed species of special concern, were observed in the mine tailing ponds located on site. Their presence is also likely in the seasonal wetlands located in the central portion of the property.
- Foothill yellow-legged frog (*Rana boylii*), a state species of special concern, has the potential to occur within the site. There is one documented occurrence of Foothill yellow-legged frog in Greenhorn Creek, which is located northwest of the Golden Girl Placer Mine property.
- Potential nesting and foraging habitat for raptor species.
- Potential habitat for Brownish beaked-rush (*Rhynchospora capitellata*), a California Native Plant Society List 2 species.
- Potential Waters of the U.S. subject to Section 401 and 404 of the Clean Water Act.

Implementation of site reclamation is expected to be a beneficial effect of the Project as areas disturbed by mining will be returned to a natural state and the current state of devastation left by former hydraulic mining activities will be returned to a natural environment that is in conformance with the surrounding areas.

Creation of habitat for special status species is not part of the plan for reclamation of the site.

ACTIONS

No additional reclamation activities are necessary for special status species habitat.

5.3.2 **Backfilling, Regrading, Slope Stability and Recontouring** (CCR 3704)

Reclamation plans under SMARA are to include the designed steepness and proposed treatment of final slopes and performance standards for backfilling and grading, including settlement of filled areas. Where

backfilling is proposed, fill material shall be compacted in accordance with appropriate codes for the approved end use. Stockpiling is to be done in a manner as to facilitate phased reclamation and final reclaimed fill slopes will not exceed 2 (Horizontal):1 (Vertical).

The following sections address site specific issues related to these backfilling, re-grading, slope stability, and recontouring requirements:

5.3.2.1 Backfilling for Urban Land Uses and Resource Conservation Use (CCR 3704(a)(b))

Urban and resource conservation uses are not the proposed end use of the site. The site will be reclaimed to an open space condition as allowed under the existing County Zoning Code designation of forest (FR) which provides for production, protection, and management of timber (and support uses), two (2) family residential sites, and open space emphasizing wildlife habitat.

The property will be contoured and replanted with a combination of mixed Chaparral and mixed Conifer, consistent with the surrounding area. Two fresh water ponds will remain on the site, each will have banks that will be sloped at no greater than 2:1 with 6 foot benches spaced every 20 feet and contoured with coves and peninsulas.

5.3.2.2 Manage Stockpiles to Facilitate Phased Reclamation (CCR 3704(c))

Processed waste material will be stockpiled for reclamation. Stockpiled material will be replaced into fully excavated areas, groomed to conform with the surrounding topography, covered with topsoil and revegetated with native plants.

ACTIONS

SBR-1: As part of mining, growth media would be removed and separately stockpiled within the mine area to facilitate phased reclamation of the excavated areas.

SBR-2: Stockpiles would be minimally compacted in order to allow gas exchange between the atmosphere and micro-organisms in the soil.

SBR-3: Stockpiles that would be unused over winter rainy seasons will be protected from erosion by covering with vegetative material/mulch and surrounded with fiber rolls at their base.

5.3.2.3 Fill Slopes, Stability and Conformity with Surrounding Topography or End Use (CCR 3704(d)(e))

The site is located in a former hydraulic mine site. Remnant hydraulic workings include mined-out gravels to bedrock, shear vertical cliff faces, and sluice tailings, intermixed with small pockets of undisturbed land with moderate to steep sloping terrain (see **Site Photos, Appendix A**). Mine operations will include the development of cut slopes that may exceed 2:1 (h:v). Backfilling and soiling with available topsoil and mine waste will occur in fully excavated areas, in accordance with the revegetation plan.

5.3.2.4 Cut Slope Stability (CCR 3704(f))

ACTIONS

CSS-1: Cut slopes will be monitored on a daily basis by Blue Lead Gold Mine personnel to ensure stable operating conditions and identify geologic conditions or failed slopes. In the event operations encounter geologic conditions that significantly differ from the conclusions in Slope Stability Report (see Appendix G) or slopes show indications of instability that may affect the final slope angle provided in Table 1 above, a qualified geotechnical engineer will be retained to perform an inspection and provide a recommendation on the proper course of action.

5.3.2.5 Protection for Wetlands from Permanent Mine Waste (CCR3704(g))

ACTIONS

No permanent placement of mining waste and overburden will occur within the seasonal wetlands. All material will be replaced into excavated areas for final reclamation.

5.3.3 Revegetation (CCR 3705)

SMGB regulations require that the vegetation cover be capable of self-regeneration without continued irrigation, soil amendments or fertilizer. Cover, density, and species richness of natural habitats must be documented in baseline studies. Test plots are required to be planted simultaneously with mining, unless revegetation success has been

documented from experience. Revegetation standards for roads include mitigating for compaction of soils.

Regulations also recommend that native plants be used for revegetation, unless other species are necessary for the end uses. Planting is to be conducted in the most favorable season and soil stabilization is to be practiced where necessary. If irrigation is used, it must be demonstrated that vegetation has been self-sustaining without irrigation for a period of two years. Noxious weeds are to be managed, and protective measures for plants used.

A site specific revegetation plan, including detailing of seeding and test plots, has been prepared and included as Appendix E to the Reclamation Plan. The following sections provide a summary of site-specific issues related to these revegetation requirements that are described in more detail in Appendix E.

5.3.3.1 **Soils Analysis** (CCR 3705(e) and CCR 3707(d))

Reclamation will make use of the surface materials as available which may include fines, organic matter, and seeds. Fines remaining from materials processing may be placed over replaced tailings as a substrate for native vegetation.

ACTIONS

R-1: Chemically unaltered, native growth media from the site will be replaced over the replaced mine tailings.

5.3.3.2 **Test Plot** (CCR 3705(b))

5.3.3.3 **Site Preparation** (CCR 3705(c)) **and Reclamation of Roads** (CCR3705(d))

Prior to seeding, surface areas will be tilled or harrowed, as necessary, depending on how compacted the surface is. Severely compacted areas (e.g., operations areas where equipment traffic is regular) will be deep-ripped to a minimum depth of 2 feet, followed by disking with a tractor. Vegetation and its plant communities will be created by broadcast seeding all areas with a variety of shrubland species presently known to occur at the site. Native perennial grasses and forbs will also be included in the seed mix to promote species diversity, provide soil stability, increase organic matter, minimize noxious weed establishment, and provide interim cover. All seeds shall be of quality which has a minimum pure live seed content of

80% and weed seed shall not exceed 0.5%. All seeds will be broadcast seeded using and ATV and broadcast seeder-spreader or by hand where access is difficult. A slow-release fertilizer (e.g., 22-11-9) will be applied with the seed mix to assist with initial revegetation efforts. All seeded areas will then be lightly harrowed to ensure good contact with the soil and minimize seed movement from surface hydrology. In addition to the grassland and shrubland seeding efforts, containerized seedlings of Jeffrey pines and/or Ponderosa pines will be planted throughout the resoiled areas to facilitate the establishment of future overstory vegetation and pine forest community.

Roads used to access the mine operations sites will, however, remain at the conclusion of mining operations. These roads are necessary for the property owner to access their property for the proposed two (2) single-family residential sites.

5.3.3.4 Species, Planting Densities and Schedule (CCR 3705(a)(g)(h))

ACTIONS

R-2: Species to be planted in reclamation will consist of grasses, shrubs, and pine tree seedlings that have evidenced good success on test plots that will be grown on the Blue Lead Gold Mine site, and are consistent with vegetation used in the region for this purpose. Source: Jason N. Jackson, District Conservationist, CPESC, Natural Resources Conservation Service, 113 Presley Way, Suite 1, Grass Valley, CA 95945 The selected seed mix and application rate consists of:

Table 1
Proposed Seed Mix for Reclamation at the Blue Lead Gold Mine

Common Name	Scientific Name	Seeding Rate (lbs/acre)
'Blando' brome	Bromus hordeaceus (formerly Bromus mollis)	4
'Zorro' annual fescue	Festuca megalura	2
'Hykon' rose clover	Trifolium hirtum	1
	TOTAL 7	lbs/acre

Modifications to this seed mix may be used based on the availability from suppliers, cost, and improved seed success rates.

R-3: A seeding application rate of 7 pounds/acre will be used.

R-4: Seeding will be carried out in the fall and/or spring, depending on the appropriate season for each species.

R-5: A total of 100 pine seedlings per acre will be planted following resoiling efforts. Plantings will occur during the appropriate season, roughly defined as early spring or immediately following snowmelt.

5.3.3.5 Irrigation (CCR 3705(j))

Irrigation would not be required to support the seed mix.

5.3.3.6 Weed Abatement (CCR3705(k))

The Blue Lead Gold Mine property is potentially subject to a number of invasive or noxious weeds, particularly during the reclamation process as new areas are disturbed and being revegetated. Potentially invasive species, such as Scotch Broom (Cytisus scoparius) has been identified on the property. The presence of these plants can threaten shrubland habitat establishment and overall site diversity.

ACTIONS

R-6: Noxious weeds will be managed annually throughout each of the reclamation areas in which monitoring is required. Management may include hand-pulling or recommended chemical methods, or a combination of these. Best management practices to minimize noxious weed establishment will be determined at the time of its presence and based on the species, extent of infestation, and latest scientific information available. Adjacent areas within the property boundaries will also be managed for noxious weeds to prevent future spreading into reclamation areas.

5.3.3.7 Revegetation Protection Measures (CCR 3705(l))

The primary goal of a monitoring program is to document the success of failure in attaining designated objectives and performance standards. For the Blue Lead Gold Mine Project, these goals relate to success in vegetation establishment of native plant communities. Monitoring is also designed to provide sufficient data to identify and evaluate the cause of problems in attaining success should they occur, and assist in devising appropriate corrective measures. A biologist or revegetation specialist with qualifications acceptable to the County of Nevada and Department of

Conservation will conduct all monitoring and reporting requirements for the project.

ACTIONS

R-7: Implement monitoring and performance standards as described below:

Table 2
Monitoring and Performance Standards for Reclaimed Areas

Item	Monitoring	Performance Standards
Native Plant Density	In each monitoring year, a summer survey will be conducted to determine native shrub and tree densities. Specific survey methods and sample sizes will be sufficient to produce at least an 80 percent confidence level with a confidence interval width within 20 percent of the mean.	1. Establish a minimum density of 90 target plants (shrub and tree species as those identified in Table 1) per acre. 2. Establish a minimum density of 50 Jeffrey or Ponderosa pine seedlings per acre.
Native Plant Cover	In each monitoring year, a summer survey will be conducted to determine native plant cover. Specific survey methods and sample sizes will be sufficient to produce at least an 80 percent confidence level with a confidence interval width within 20 percent of the mean.	1. Establish a minimum 40 percent absolute cover of native plant species. 2. Establish a minimum 10 percent absolute canopy cover of the targeted woody vegetation identified in Table 1.
Native Plant Species Richness	In each monitoring year, a summer survey will be conducted to determine species richness of native plants. Specific survey methods and sample sizes will be sufficient to produce at least an 80 percent confidence interval width within 20 percent of the mean.	1. Successfully establish a minimum of 5 target species/200 sq. meters. Target species will include trees and shrubs such as those identified in Table1.
Noxious Weeds	In each monitoring year, a summer survey will be conducted to determine species richness of native plants. Specific survey methods and sample sizes will be sufficient to produce at least an 80 percent confidence level with a confidence interval width within 20 percent of the mean.	1. Noxious weeds shall not exceed 5 percent absolute cover.

R-8: A minimum of four permanent photo stations will be selected for each reclamation phase to qualitatively document vegetation establishment and changes in development over successive

monitoring periods. All photos will be taken in the summer while vegetative conditions are at their peak. Photos will include permanent features (e.g., existing mature trees, hillsides, transmission towers, etc.) to provide a consistent reference against which yearly comparisons can be made.

R-9: A written report, presenting and summarizing all of the above data, shall be prepared in each of the monitoring years. Maps, photographs, maintenance logs, and appendices of raw data will be included. Existing and potential threats shall be addressed along with future recommendations. Reports will be provided by October 31st of each calendar year in which monitoring is required. All reports shall be submitted to the Nevada County Planning Department, California Department of Conservation (Mines and Geology), and all other interested agencies and individuals until all performance standards are met.

5.3.3.8 Soil Stabilizing Practices (CCR 3705 (l))

Soil stabilizing practices shall be used where necessary to control erosion and for successful plant establishment.

ACTIONS

R-10: Should soil stabilizing practices be needed, straw mulch will be used to control erosion of growth media over revegetated areas.

5.3.3.9 Short-Term Uses on Arid Lands (CCR 3705(f))

Not applicable, as the site is not located in an arid environment.

5.3.4 Drainage, Diversion Structures, Waterways and Erosion Control (CCR 3706)

SMARA regulations require that erosion and sedimentation be controlled during all phases of construction, operation, reclamation and closure, ensuring that surrounding land and water resources are protected. The regulations require that the removal of vegetation and overburden, if any, must be kept to a minimum. Additionally, stockpiles are to be managed, and erosion control facilities be constructed and maintained where necessary to check erosion. Grading and revegetation must be designed in a way to minimize erosion and to convey surface runoff to natural drainage courses or interior basins designed for water storage. On-site and downstream

beneficial uses of water must be protected, and the quality of water recharge potential and storage capacity of groundwater aquifers are not to be diminished, except as allowed in the approved reclamation plan.

The following sections address site-specific issues related to these drainage, diversion structures, waterways, and erosion control requirements.

5.3.4.1 Erosion and Sedimentation (CCR 3706(c)(d))

Erosion control facilities will be constructed as required. Erosion control measures will be designed to accommodate a minimum 20 year/1 hour storm event per CCR 3706(d). Temporary measures such as silt fences, berms, straw bales, or similar means to deter erosion may be employed as necessary until final reclamation and permanent erosion control measures are in place.

ACTIONS

EC-1: Areas subject to previous ground disturbance that are not actively being utilized for mining would be stabilized with vegetative ground cover at the earliest feasible time.

EC-2: Erosion and sediment control Best Management Practices (BMPs) shall be employed as applicable to an active mining area, including, but not limited to, use of: straw mulch, earth dikes, drainage swales, fiber rolls, silt fencing, etc. as specified in the California Stormwater BMP Habndbook.

5.3.4.2 Protection of On-Site and Downstream Beneficial Uses of Water (CCR 3706(a))

Potential sedimentation and handling of potential contaminants will be conducted to protect on-site and downstream beneficial uses of water. Mining activities will not involve the placement of fill in the waters of the United States.

Actions in response to controlling drainage, siltation and erosion (see EC-1 and EC-2, discussed above) will be effective in protecting downstream beneficial uses of surface water in accordance with the Porter-Cologne Water Quality Control Act, Water Code section 13000, *et seq.*, and the Federal Clean Water Act, 33 U.S.C. section 1251, *et seq.*

5.3.4.3 Groundwater Quality, Recharge Potential and Storage Capicity (CCR 3706(b) and CCR 3706(c))

Mining operations will be conducted at levels above groundwater and will not interfere with surface waters potential to recharge the groundwater basin. No chemicals will be utilized during processing. Servicing and fueling of equipment will be done in the designated service area of the operations area.

ACTIONS

The following actions will be taken to minimize inadvertent contamination of groundwater during operations:

GW-1: Fuel or other chemicals present on the mine site will be handled and stored using appropriate containment to prevent accidental spillage into open water bodies.

GW-2: County-approved spill prevention and emergency response plans outlining guidelines and procedures for handling hazardous materials will be implemented.

5.3.5 Prime Agricultural Land (CCR 3707)

Not applicable; none of the parcels on which mining and reclamation will occur are designated by the State Department of Conservation's Farmland Mapping Program as *Prime Farmland.*

5.3.6 Other Agricultural Lands (CCR 3708)

Not applicable; none of the parcels on which mining and reclamation will occur are designated by the State Department of Conservation's Farmland Mapping Program as either *Farmland of Statewide Importance,* or *Unique Farmland of Local Importance.*

5.3.7 Building, Structure, and Equipment Removal (CCR 3709)

SMARA regulations require reclamation plans to include the disposition of all equipment, buildings and structures and that all waste must be disposed of properly.

The following sections address site-specific issues related to these building, structure, and equipment removal requirements:

5.3.7.1 Supplies, Material Storage and Waste Disposal (CCR 3709(a))

No post-reclamation storage of supplies or other mining related materials is expected.

5.3.7.2 Removal of Buildings, Structures and Equipment (CCR 3709(b))

ACTIONS

The following actions will be undertaken:

SER-1: As per Public Resources Code 3709, following completion of mining and reclamation activities, mobile equipment associated with mining and stationary machines at the processing plant will be removed from the site.

Two (2) shop buildings will remain on site in support of proposed two (2) single-family residential sites.

SER-2: During active mining operations, old and non-functioning equipment will be removed from the site after the equipment is no longer necessary for parts or maintenance and will be disposed of according to applicable law and standards.

5.3.8 Stream Protection, Including Surface Groundwater (CCR 3710)

SMARA regulations require that surface and groundwater be protected from siltation and pollutants, which may diminish water quality, and that the control of contaminants and mining waste be described in reclamation plans.

The following sections address site-specific issues related to these stream protections, including surface and groundwater requirements:

5.3.8.1 Siltation, Pollutants and Control of Contaminants (CCR 3503(b)(2), CCR 3710(a) and PRC 2772(c)(8)(A))

ACTIONS

SP-1: Siltation potential of the reclaimed site will be minimized by the reclaimed configuration of gently rolling topography sloped no greater than 2:1 and revegetated with native plants.

5.3.8.2 In-Stream Surface Mining (CCR 3710(b)(c)(d))

Not applicable; this operation does not involve in-stream extraction of materials.

5.3.9 Topsoil Salvage, Maintenance and Redistribution (CCR 3711)

SMARA regulation standards require that all topsoil for vegetation shall be removed and stored. Prior to removal, the soil must be mapped and shown in the reclamation plan. Soil salvage operations must be scheduled and topsoil used to phase reclamation as soon as can be accommodated.

The following sections address site-specific issues related to these topsoil salvage, maintenance and redistribution requirements:

5.3.9.1 Topsoil Mapping and Analysis (CCR 3705(e) and CCR 3711(b))

5.3.9.2 Soil Salvage Operations and Phasing Schedule (CCR 3711(a) and CCR 3711(c))

ACTIONS

SMR-1: Soil salvage operations will be phased and completed as access into each new surface mining area is obtained, as needed. Soil will be placed in designated topsoil storage areas for future, concurrent and final reclamation uses.

5.3.9.3 Topsoil Storage and Use (CCR 3711(d))

ACTIONS

SMR-2: Growth media stockpiles will be protected from inadvertent destruction by being located a sufficient distance from areas under active mining or surface disturbance.

SMR-3: Stockpiles will not be compacted, in order to maintain oxygen availability to soil micro-organisms.

SMR-4: If weeds become a problem, they will be controlled with herbicides and/or physical removal (mechanical or manual).

5.3.9.4 Redistribution of Topsoil; Establishment of a Growth Medium (CCR 3711(e))

ACTIONS

SMR-5: Redistribution of topsoil will be done in a manner to establish stable, uniform thickness consistent with re-establishing native vegetation and drainage patterns.

5.3.10 Tailing and Mine Waste Management (CCR 3712)

Mine waste disposal is required to be consistent with Article 1 of Chapter 7 of Title 27 of the CCR.

All mine wastes will be stockpiled in designated locations for replacement into fully excavated areas of the mine site. Replaced tailings will be graded to be consistent with the surrounding topography, covered with topsoil and revegetated.

5.3.11 Closure of Surface Openings (CCR 3713)

STANDARDS

SMARA standards for the closure of surface openings, including drill holes, water wells, and monitoring wells requires that they be abandoned in accordance with applicable state and local ordinances. Also, it is required that prior to closure, openings will be gated or protected from public entry.

5.3.11.1 Public Protection from Surface Openings to Underground Workings (CCR 3713(b))

Coordinated efforts will be made with Nevada County, State and Federal authorities to safely close all surface openings (sluice tunnels) that currently remain open on the site from previous mining operations (See “Existing” site map, Appendix C, page 1).

5.3.12 Summary of Reclamation Standards and Actions

Table 1, Summary of Reclamation Standards and Actions, summarizes the actions outlined above.

Table 1

DRAFT

Summary of Reclamation Standards and Actions

Action No.	Description of Action	Reclamation Plan Section
BACKFILLING, REGRADING, SLOPE STABILITYAND RECONTOURING (CCR 3704)		
SBR-1	As part of mining, growth media would be removed and separately stockpiled within the mine area to facilitate phased reclamation of the excavated areas.	5.3.2
SBR-2	Stockpiles would be minimally compacted in order to allow gas exchange between the atmosphere and micro-organisms in the soil.	5.3.2
SBR-3	Stockpiles that would be unused over winter rainy seasons will be protected from erosion by covering with vegetative material/mulch and surrounded with fiber rolls at their base.	5.3.2
CSS-1	Cut slopes will be monitored on a daily basis by Blue Lead Gold Mine personnel to ensure stable operating conditions and identify geologic conditions or failed slopes. In the event operations encounter geologic conditions that significantly differ from the conclusions in Slope Stability Report (see Appendix G) or slopes show indications of instability that may affect the final slope angle provided in Table 1 above, a qualified geotechnical engineer will be retained to perform an inspection and provide a recommendation on the proper course of action.	5.3.2
REVEGETATION		
R-1	Chemically unaltered, native growth media from the site will be replaced over the replaced mine tailings.	5.3.3
R-2	Species to be planted in reclamation will consist of grasses, shrubs, and pine tree seedlings that have evidenced good success on a test plot that will be grown on the Blue Lead Gold Mine site, and are consistent with vegetation used in the region for this purpose.	5.3.3
R-3	A seeding application rate of 7 pounds/acre will be used.	5.3.3
R-4	Seeding will be carried out in the fall and/or spring, depending on the appropriate season for each species.	5.3.3
R-5	A total of 100 pine seedlings per acre will be planted following resoiling efforts. Plantings will occur during the appropriate season, roughly defined as early spring or immediately following snowmelt.	5.3.3
R-6	Noxious weeds will be managed annually throughout each of the reclamation areas in which monitoring is required. Management may include hand-pulling or recommended chemical methods, or a combination of these. Best management practices to minimize noxious weed establishment will be determined at the time of its presence and based on the species, extent of infestation, and latest scientific information available. Adjacent areas within the property boundaries will also be managed for noxious weeds to prevent future spreading into	5.3.3

	reclamation areas.	
R-7	Implement monitoring and performance standards as shown in the table on page x.	5.3.3
R-8	A minimum of four permanent photo stations will be selected for each reclamation phase to qualitatively document vegetation establishment and changes in development over successive monitoring periods. All photos will be taken in the summer while vegetative conditions are at their peak. Photos will include permanent features (e.g., existing mature trees, hillsides, transmission towers, etc.) to provide a consistent reference against which yearly comparisons can be made.	5.3.3
R-9	A written report, presenting and summarizing all of the above data, shall be prepared in each of the monitoring years. Maps, photographs, maintenance logs, and appendices of raw data will be included. Existing and potential threats shall be addressed along with future recommendations. Reports will be provided by October 31st of each calendar year in which monitoring is required. All reports shall be submitted to the Nevada County Planning Department, California Department of Conservation (Mines and Geology), and all other interested agencies and individuals until all performance standards are met.	5.3.3
R-10	Should soil stabilizing practices be needed, straw mulch will be used to control erosion of growth media over revegetated areas.	5.3.3
DRAINAGE, DIVERSION STRUCTURES, WATERWAYS AND EROSION CONTROL (CCR3706)		
EC-1	Areas subject to previous ground disturbance that are not actively being utilized for mining would be stabilized with vegetative ground cover at the earliest feasible time.	5.3.4
EC-2	Erosion and sediment control Best Management Practices (BMPs) shall be employed as applicable to an active mining area, including, but not limited to, use of: straw mulch, earth dikes, drainage swales, fiber rolls, silt fencing, etc. as specified in the California Stormwater BMP Habndbook.	5.3.4
GW-1	Fuel or other chemicals present on the mine site will be handled and stored using appropriate containment to prevent accidental spillage into open water bodies.	5.3.4
GW-2	County-approved spill prevention and emergency response plans outlining guidelines and procedures for handling hazardous materials will be implemented.	5.3.4
BUILDING, STRUCTURE AND EQUIPMENT REMOVAL (CCR 3709)		
SER-1	Following completion of mining and reclamation activities, mobile equipment associated with mining and stationary machines at the processing plant will be removed.	5.3.7

SER-2	During active mining operations, old and non-functioning equipment will be removed from the site after the equipment is no longer necessary for parts or maintenance and will be disposed of according to applicable law and standards.	5.3.7
STREAM PROTECTION, INCLUDING SURFACE AND GROUNDWATER (CCR 3710)		
SP-1	Siltation potential of the reclaimed site will be minimized by the reclaimed configuration of gently rolling topography sloped no greater than 2:1 and revegetated with native plants.	5.3.8
TOPSOIL SALVAGE, MAINTENANCE AND REDISTRIBUTION		
SMR-1	Soil salvage operations will be phased and completed as access into each new surface mining area is obtained, as needed. Soil will be placed in designated topsoil storage areas for future, concurrent and final reclamation uses.	5.3.9
SMR-2	Growth media stockpiles will be protected from inadvertent destruction by being located a sufficient distance from areas under active mining or surface disturbance.	5.3.9
SMR-3	Stockpiles will not be compacted, in order to maintain oxygen availability to soil micro-organisms.	5.3.9
SMR-4	If weeds become a problem, they will be controlled with herbicides and/or physical removal (mechanical or manual).	5.3.9
SMR-5	Redistribution of topsoil will be done in a manner to establish stable, uniform thickness consistent with re-establishing native vegetation and drainage patterns.	5.3.9

6.1 **Purpose** (PRC 2770 and PRC 2773.1)

SMARA requires surface mining operators to obtain lead agency approved financial assurance for reclamation of mined lands so the public does not bear the cost of reclaiming abandoned operations. In the event of financial incapability by the operator, financial assurance funds are used by the lead agency (or the Department of Conservation) to reclaim the mined site.

6.2 Basis of Costs to Complete Reclamation Actions

Financial assurance estimates for the initiation of the operation are based on (1) an analysis of the physical activities necessary to implement the approved reclamation plan; (2) the lead agency's (or third party contract) unit costs for each of these activities; (3) the number of units of each of these activities; and (4) an amount to cover contingency costs, (not to exceed 10 percent of the above calculated reclamation cost) and actual lead agency administrative costs.

The following tasks will need to be completed to implement this reclamation plan:

- Equipment and facilities removal
  - Remove heavy duty equipment
- Grading
  - Contour surfaces as necessary to conform to the existing topography and establish proper drainage
- Revegetation
  - Manage growth media stockpiles against erosion
- Monitoring/Maintenance
  - Planting and seeding inspection
  - Maintenance and weeding
  - Data collection and reporting
  - Replanting contingency

6.3 Annual Adjustments

Financial assurances are reviewed annually by the lead agency. They are adjusted, if necessary, to reflect changes in the estimated cost of reclamation activities, lands reclaimed the previous year.

6.4 Financial Assurance Mechanism

Financial assurance will be secured by the Operator in the form of a Corporate Surety Bond.

7.0 INTERIM MANAGEMENT PLAN

7.1 Purpose and Definition (PRC 2770(h))

An interim management plan (IMP) is required for each idle mine under SMARA. The purpose of an IMP is to prevent or minimize adverse environmental effects from an idle mining operation and to ensure that residual hazards to the public health and safety are eliminated while the mine is idle. As defined in SMARA, "idle" means "to curtail for a period of one year or more surface mining operations by more than 90 percent of the operation's previous maximum annual mineral production, with the intent to resume those surface mining operations at a future date" (PRC 2727.1).

An IMP must be consistent with the approved reclamation plan, and shall describe the measures the Operator will implement to maintain the site in compliance with the SMARA, including, but not limited to, all permit conditions (PRC 2770(h)(l)).

This section is intended to fulfill state and adopted Nevada County interim management requirements. The County and the Office of Mine Reclamation will be notified if the Operator decides to curtail operations for a period specified in SMARA and/or the Nevada County interim management requirements.

7.2 Interim Management Plan Actions

The Actions from Chapter 5, Reclamation Practices and Actions, that would be implemented in the event that mining operations at the Blue Lead Gold Mine become idle, are outlined in Table 2, Summary of Reclamation Actions Implementation and Monitoring Schedule.

Table 2
Summary of Reclamation Actions
Implementation and Monitoring Schedule

Actions	Schedule			
	Pre-Mining	**Concurrent with Mining**	**Post-Mining**	**IM**
5.3.2 Backfilling, Regrading, Slope Stability and Recontouring		SBR-1 through SBR-3 CSS-1 through CSS-3		CSS-3
5.3.4 Drainage, Diversion Structures, Waterways and Erosion Control	GW-1 GW-2	EC-1 EC-2 GW-1	EC-1 EC-2 GW-1	GW-1 GW-2

		GW-2	GW-2	
5.3.8 Stream Protection, Including Surface and Groundwater			SP-1	
IN CONSIDERATION OF SECOND LAND USE VALUES				
5.3.3 Revegetation			R-1 Through R-10	
5.3.9 Topsoil Salvage, Maintenance and Redistribution		SMR-1 Through SMR-4	SMR-5	SMR-5
TO ELIMINATE HAZARDS				
5.3.2 Building, Structure and Equipment Removal		SER-2	SER-1 SER-2	SER-1 SER-2
5.3.4 Drainage, Diversion Structures, Waterways and Erosion Control	GW-1	GW-1	GW-1	GW-1

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