



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Winnemucca District Office
Humboldt River Field Office
5100 East Winnemucca Boulevard
Winnemucca, Nevada 89445-2921
Phone: (775) 623-1500 Fax: (775) 623-1503
Email: wfoweb@nv.blm.gov
www.blm.gov/nv/st/en/fo/wfo.html



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Dear Interested Public:

The Bureau of Land Management (BLM), Winnemucca District Office (WDO), Humboldt River Field Office (HRFO) has completed a preliminary Environmental Assessment (EA) for the Jipangu International, Inc. (Jipangu) Standard Mine expansion. The Standard Mine is located in the Humboldt Range approximately forty-seven miles southwest of Winnemucca in Pershing County, Nevada (Township 30 North, Range 33 East, sections 1, 2 and 6 and Township 31 North, Range 33 East, sections 34, 35 and 36).

In accordance with Council on Environmental Quality Regulations at 40 CFR 1500, for implementing the procedural provisions of the National Environmental Policy Act (NEPA), the BLM HRFO prepared an environmental analysis of the proposed project. The preliminary EA evaluates, analyzes and discloses to the public the direct, indirect, and cumulative environmental impacts that would result from the implementation of this project and identifies resource protection measures that could be implemented to reduce the level of expected impacts. The EA can be reviewed online at <http://www.blm.gov/nv/st/en/fo/wfo.html> or viewed in hardcopy at the BLM Winnemucca District Office. Hardcopies are also available upon request.

Jipangu's existing operation is approximately 370 acres in size and includes open pits, waste rock facilities, heap leach facilities and miscellaneous ancillary facilities. The proposed expansion onto public land would disturb up to 151 additional acres. The total surface disturbance (existing and proposed) would be up to 521 acres of combined public and private surface disturbance in connection with mining activities within the plan of operations boundary (see attached maps). Reclamation would include recontouring the surface disturbances and revegetation.

Proposed activities include:

- Expansion of existing open mine pits, for a total of three open pits;
- Waste rock storage areas (in-pit backfill);
- Expansion of heap leach pad facility (all on private land);
- Crushing facilities; and

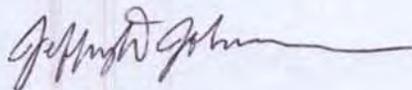
- Ancillary facilities proposed for public and or private lands include roads, warehouse, maintenance and storage facilities, stormwater diversions, pipeline corridors, fuel storage, explosive magazine, fresh water and process water storage ponds, monitoring wells, security building and soil stockpiles.

The public is invited to review and submit comments on the preliminary EA for the next 30 days from the date of this letter. Timely submitted comments will be taken into consideration as part of the decision process. Please send written comments to Mr. Fred Holzel, project lead, at the WDO address or e-mail wfoweb@nv.blm.gov with "Standard Mine Project (Holzel)" in the subject line. This letter and map are also available on our NEPA webpage at www.blm.gov/nv/st/en/fo/wfo/blm_information/nepa0.html.

Public comments submitted for this project, including names and addresses of commenters, will be available for public review at the WDO during regular business hours 7:30 a.m. to 4:30 p.m., Monday through Friday, except federal holidays. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment -- including personal identifying information -- may be made publicly available at any time. While you can ask us in your comment to withhold personal identifying information from public review, we cannot guarantee that we will be able to do so.

If you have any questions, please contact Fred R. Holzel at (775) 623-1528 or at the above address.

Sincerely,



Jeffrey D. Johnson
Field Manager
Humboldt River Field Office

Preliminary Environmental Assessment

[DOI-BLM-NV-W010-2010-0002-EA]

Standard Gold Mining, Inc. Standard Mine Project Expansion

Pershing County, Nevada

November 2009

Prepared by:

U.S. Bureau of Land Management
Winnemucca District Office
5100 E. Winnemucca Blvd.
Winnemucca, Nevada 89445-2921



It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/NV/WM/EA-10/07+1792

DOI-BLM-NV-W010-2010-0002-EA

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CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION

The Standard Mine Project (Project) is located approximately 30 miles northeast of Lovelock, Nevada and approximately 47 miles southwest of Winnemucca, Nevada, in Pershing County adjacent to Interstate 80 near the Humboldt exit (Figure 1). The Project is located on the western flanks of the Humboldt Range at elevations ranging from 4,200 feet above mean sea level (amsl) to 6,600 feet amsl.

Standard Gold Mining, Inc. (SGMI) proposes to expand the existing Project area that is currently authorized on private land through the Nevada Division of Environmental Protection's (NDEP) state regulatory program onto public land administered by the Bureau of Land Management (BLM), Winnemucca District Office, Humboldt River Field Office (HRFO). The existing Project encompasses approximately 330 acres of private land in Township 31 North (T31N), Range 33 East (R33E), sections 34 and 35, Mount Diablo Base & Meridian (MDB&M). SGMI also conducts exploration activities that are currently authorized for up to 75 acres of surface disturbance on private land and public land administered by the BLM in Township 30 North (T30N), R33E, sections 1 and 2, and in T31N, R33E, sections 24, 26, 34 and 36, MDB&M.

1.2 EXISTING OPERATIONS

The existing Project is located on private land controlled by SGMI in T31N, R33E, sections 34 and 35, MDB&M and on public land for existing exploration activities as described above and shown in Figure 2. SGMI obtained all necessary permits to begin operation in 2004. Table 1-1 shows the major permits and authorizations currently held by SGMI for the existing Project. Current operations include the following permitted facilities:

- Open Pits (Cordex and North/Intermediate)
- Waste Rock Facilities (Cordex and North Pit)
- Heap Leach Pad/Process Facilities (including design and construction permit for Phase 2)
- Ancillary Facilities
- Access Roads
- Haul Roads
- Exploration Activities

Table 1-1 Existing Authorizations

Authorizing Action/Permit	Agency
43 Code of Federal Regulations 3809 Plan of Operations Authorization – Exploration Plan	BLM
Reclamation Permit – Mining and Exploration	Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation
Water Pollution Control Permit	Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation
Class III Air Quality Operating Permit	Nevada Division of Environmental Protection, Bureau of Air Pollution Control
Hazardous Materials Storage Permit	Nevada State Fire Marshal
Class III Waivered Landfill – Florida Canyon	Nevada Division of Environmental Protection Bureau of Waste Management
Explosives Permit	U.S. Department of the Treasury, Bureau of Alcohol, Tobacco, and Firearms
Mining General Stormwater Permit	Nevada Division of Environmental Protection, Bureau of Water Pollution Control
Section 404 Nationwide Permit	U.S. Army Corps of Engineers
Permit to Appropriate Water	Nevada Division of Water Resources
Industrial Artificial Pond Permit	Nevada Department of Wildlife
Rights-of-Way	BLM

1.2.1 Open Pits

Mining at the existing Project has been accomplished through conventional open pit methods at a rate of approximately 7.5 million tons of ore per year. The open pits consist of the Cordex pit and the North/Intermediate pit (Figure 2). As described below, some in-pit backfill with waste rock material has occurred in both pits.

Conventional open pit mining methods include drilling and blasting with either ammonium nitrate and fuel oil mixture (known as ANFO) or ammonium nitrate and polyglycol ether (known as ULTRAN), or their equivalent mixture used as blasting agents. Blasting at the Standard Mine Site has not occurred since the year 2007. One Cat 992 loader is the primary equipment used to load the blasted material into haul trucks. The ore is transported directly to the heap leach pad for processing as run-of-mine ore or to an ore stockpile for crushing prior to placement on the heap leach pad. The waste rock material is hauled to either in-pit backfill areas or the Cordex Waste Rock Facility as described below.

1.2.2 Waste Rock Facilities

Waste rock generated by existing operations is disposed of either as pit backfill material or in the Cordex Waste Rock Facility. Specifically, waste rock from the Cordex pit is disposed of in the

Cordex Waste Rock Facility or used as partial backfill within the pit. Waste rock generated from the North/Intermediate pit is either used as backfill in the Cordex pit or portions of the North/Intermediate pit.

Disposal through in-pit backfill has been used where possible to minimize surface disturbance. Figure 2 shows the locations of the existing waste rock facilities and pits.

1.2.3 Process Facilities

The existing operation includes Phase 1 of a heap leach facility that has been permitted in two phases with a total design capacity of 25 million tons of ore. Phase 1 is currently constructed and has a total capacity of 15.8 million tons of ore. Leaching commenced on the Phase 1 system in 2004 and continues to date.

The heap leach facility design, *Standard Mine Heap Leach Design Report* (SRK 2003), was approved by the NDEP, Bureau of Mining Regulation and Reclamation (BMRR) pursuant to Nevada Administrative Code (NAC) 445A regulations which require 100 percent containment of process solutions. The facility is permitted through Water Pollution Control Permit NEV2003103. The heap leach pad liner system design consists of a compacted sub-base with a primary and secondary synthetic liner, leak detection and solution collection systems. Phase I of the facility is constructed and operated in accordance with the approved design report and permit conditions.

Pregnant (gold bearing) solutions from the heap leach facility are routed to the existing process pond for temporary storage or directly to adsorption columns to recover the dissolved gold and silver onto activated carbon. The resulting barren solution is then returned to the desired level of cyanide concentration and recycled back to the heap leach pad for additional recovery. The permitted design of the process solution ponds is double-lined with high-density polyethylene (HDPE) liners and includes leak detection and solution recovery systems between the liners. One process solution pond was constructed for Phase 1 heap leach facility. The existing process pond is constructed and operated in accordance with the requirements of NAC 445A.433 through 435.

The heap leach facility includes an event pond designed to contain solution following sizeable storm events in order to achieve 100 percent containment of all process solutions. The event pond and all associated channels and spillways are designed to accommodate the 100-year, 24-hour storm event. The event pond is constructed with a single, 60-mil HDPE liner system and is limited to short-term containment of solutions for no more than 20 consecutive days pursuant to the Water Pollution Control Permit. The use of this pond for longer than a short-term time period should require an upgrade to the liner system.

The carbon adsorption plant consists of two sets of five carbon adsorption vessels (columns) in series with a pumping tank. Pregnant solution from the heap leach facility is pumped through a feed line into column #1 and the solution then flows by gravity through each of the remaining columns in the series. Solution is fed from the bottom of the carbon columns up through a bed of activated carbon which provides contact between the carbon and the cyanide metal complexes. The carbon collects the precious metals and is periodically removed and clean carbon is then reintroduced to the system. The precious-metal bearing carbon solution is gravity fed to an open-top tank, dewatered and transported to the carbon strip plant at the Florida Canyon Mine (Figure 1) where it is further processed and the carbon is regenerated. The regenerated carbon is returned to the carbon adsorption plant for reuse in the carbon columns. The excess solution from the carbon columns is returned to the heap leach system. The area surrounding the carbon adsorption plant is designed and constructed with full containment. The liner and collection system buried beneath the plant is designed to contain any process solution released from the carbon adsorption plant. The carbon adsorption plant is constructed and operated in accordance with the requirements of NAC 445A and is included as part of the 2003 SRK design report and the Water Pollution Control Permit.

1.2.4 Haul and Access Roads

Access to the Project is via the Pershing County highway frontage road on the east side of Interstate 80 from the Humboldt exit 138 and the Right-of-Way in T31N, R33E, section 34 (Figure 1). The access road continues within the Project boundary into T31N, R33E, section 35 as shown on Figure 2.

Haul roads within the existing Project area include the Cordex and North/Intermediate pit haul roads. The Cordex haul road extends from the south side of the Cordex pit and runs to the west and north to the heap leach facility. The North pit haul road extends from the northwest side of the North pit and intersects with the Cordex haul road. The location of the haul roads are shown on Figure 2.

1.2.5 Ancillary Facilities

The following ancillary facilities are permitted on private land through the NDEP:

- Fuel Farm
- Mine Office
- Contractor's Laydown Yard
- Electrical Substation

The mine office and laydown yard facilities would be relocated to T31N, R33E, section 34, as part of the Proposed Action during Phase 2 of heap leach construction. The permitted fuel farm has not been constructed and would be located in T31N, R33E, section 34 with the other

ancillary facilities as part of the Proposed Action. The electrical substation is located in T31N, R33E, section 34.

1.2.6 Fuels and Reagents

Small quantities of solvents, paints and other materials are stored in the maintenance area. Used oil is recycled. All activities are performed in accordance with federal, state, and local regulations.

Sodium cyanide used in the heap leach process is stored at the carbon plant within the engineered secondary containment of the existing authorized heap leach facility. The engineered secondary containment at the existing authorized heap leach facility is described in Section 1.2.3. Reagents are transported, stored and used in accordance with federal, state and local regulations. Transportation of reagents from Interstate 80 to the Project site is via the main access route as described in Section 1.2.4 and shown on Figure 1. Maximum quantities of fuels and reagents are described below, in Table 1-2.

Table 1-2 Reagent Volume and Containment

Reagents	Storage (gallons)	Location	Secondary Containment Volume (est. gallons)	Reportable Quantities (40 CFR 302.4)
Diesel Fuel	500 (est)	Carbon Plant	2,300	25 gallons unless sheen on water
Diesel Fuel	41,233	Fuel Farm	1,150,000	25 gallons unless sheen on water
Unleaded Fuel	55	Fuel Farm	1,150,000	25 gallons unless sheen on water
Diesel Engine Oil	110	Fuel Farm	1,150,000	25 gallons unless sheen on water
Drive Train Oil	220	Fuel Farm	1,150,000	25 gallons unless sheet on water
Coolant	55	Fuel Farm	1,150,000	25 gallons unless sheen on water
Hydraulic Oil	55	Fuel Farm	1,150,000	25 gallons unless sheen on water
Solvent	300	Fuel Farm	1,150,000	25 gallons unless sheen on water
Waste Oil	2,208 (est)	Fuel Farm	1,150,000	25 gallons unless sheen on water
Transmission Oil	110	Fuel Farm	1,150,000	25 gallons unless sheen on water
Torque Oil	55	Fuel Farm	1,150,000	25 gallons unless sheen on water

Reagents	Storage (gallons)	Location	Secondary Containment Volume (est. gallons)	Reportable Quantities (40 CFR 302.4)
ISO 32 Oil	4,000	Fuel Farm	1,150,000	25 gallons unless sheen on water
ISO 40 Oil	1,500	Fuel Farm	1,150,000	25 gallons unless sheen on water
Hydraulic Transmission Fluid	165	Fuel Farm	1,150,000	25 gallons unless sheen on water
SAE 80W Gear Lubricant	736 (est)	Fuel Farm	1,150,000	25 gallons unless sheen on water
SAE 30W Drive Train Oil	1,470 (est)	Fuel Farm	1,150,000	25 gallons unless sheen on water
SAE 10W Drive Train Oil	2,208 (est)	Fuel Farm	1,150,000	25 gallons unless sheen on water
Prill Silos	11,300	Prill Storage Area	1,325,000 (est)	N/A
Sodium Cyanide	5,300 (est)	Carbon Plant	419,788 (Phase I Pond)	10 pounds

Source: Standard Mine Plan of Operations (2008)

1.2.7 Exploration Activities

SGMI conducts exploration activities on public and private land in the Project area under the Standard Mine Exploration Project Plan of Operations and Reclamation Permit (Table 1-1). The permitted activities have been evaluated in two Environmental Assessments (EAs) that were completed in 2000 and 2004. Existing exploration-related disturbance in and outside of the Project area is shown on Figure 2.

1.3 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to expand the existing open pit mining facilities in order to economically extract recoverable gold reserves that are known to exist in the Project area. The Proposed Action is needed to allow continued mining to recover precious metals to meet national and world demands.

The BLM has determined that an EA must be prepared to fulfill the National Environmental Policy Act (NEPA) requirements. This EA is prepared in compliance with the NEPA and associated Council on Environmental Quality (CEQ) regulations (40 CFR § 1500-1508). This EA considers the quality of the human environment based on the physical impacts to public lands that may result from the Proposed Action and possible alternatives.

1.4 LAND USE PLAN CONFORMANCE

The Proposed Action and action alternatives evaluated in this EA are in conformance with the Sonoma-Gerlach Management Framework Plan (MFP) III (BLM 1982), which states that the BLM should “Make no land-use decisions that would interfere with the potential development of economically important minerals occurring on public lands or other federally owned minerals within mining districts or other areas outside of designated mining districts.”

The Proposed Action and alternatives are also consistent with the Pershing County Master Plan (Pershing County 2002), which designates the Project area as agriculture-mining-housing. The intent of areas in this designation is “to allow agricultural and mining uses, along with housing needed in conjunction with these activities. This designation applies to open areas with limited or no road access, water, sewer, and emergency services.”

1.5 RELATIONSHIP TO LAWS, REGULATIONS, AND OTHER PLANS

The BLM is responsible for administering mineral rights access on certain federal lands as authorized by the General Mining Law of 1872. Under the law, qualified prospectors are entitled to reasonable access to mineral deposits on public domain lands that have not been withdrawn from mineral entry.

The BLM HRFO has the responsibility and authority to manage the surface and subsurface mineral resources on public lands located within the HRFO jurisdiction of the Winnemucca BLM District. SGMI’s use of public land in this district requires conformance with the BLM’s Surface Management Regulations (43 CFR § 3809) and other applicable statutes, including the Mining and Mineral Policy Act of 1970 (as amended), and the Federal Land Policy Management Act (FLPMA) of 1976 (as amended). The BLM must review the Proposed Action to ensure: that adequate provisions are included to prevent unnecessary or undue degradation of federal lands and to protect the non-mineral resources of the federal lands; that measures are included to provide for reclamation of disturbed areas; and compliance with applicable state and federal laws is achieved.

In order to conduct the Proposed Action on public lands, SGMI has submitted a Plan of Operations in accordance with the FLPMA and corresponding Surface Management Regulations (43 Code of Federal Regulations (CFR) § 3809).

1.6 ISSUES

Internal BLM scoping was conducted through interdisciplinary meetings and field visits in addition to external public scoping. Key issues for analysis through the NEPA process in this EA have been determined through the evaluation of the comments received and from the internal BLM scoping. Internal issues include growth medium availability, lighting, design of proposed haul roads, and proximity of drainage.

On October 3, 2008, a “dear interested public” letter was mailed to about 1,000 names/addresses regarding the Proposed Action seeking public input. The letter and Project description was also posted on the BLM public NEPA webpage. Written comments received during the 30-day comment period have been recorded and are on file with the BLM HRFO. Issues and concerns that were raised include property values, air quality, water quality, water quantity, impacts to wildlife, noise, visual aesthetics, land use access (residential and recreational), health and safety, increased traffic, road maintenance, chemical or fuel spills, effects from blasting, and compliance with regulatory programs. These issues and concerns brought forward through scoping have been taken into consideration for analysis in the EA. Refer to Chapter 3 and Table 3-1 for the list of resources and elements that are within the scope of this document and will be analyzed in this document.

[Figure 1: General Location Map]

[Figure 2: Existing Operation]

CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

2.1 BACKGROUND

The Standard Mine is an existing open pit mining operation located on private land with a cyanide heap leach processing facility. The current mining operation is authorized through a Water Pollution Control Permit (NEV2003103) and a Reclamation Permit (0222) both issued by NDEP in 2004. Heap leaching operations continue to date.

The Project area contains historic mining disturbance related to operations dating back to 1935. Open pit mining took place intermittently from 1939 to 1949. The 1942 Mines Register reported that a cyanide slime plant was located on the property. The cyanide slime plant was removed in 1949 when the mine was closed. Existing historic disturbance includes the South pit, haul roads, three waste rock facilities, mill ruins, and miscellaneous equipment debris (Figure 2).

Exploration activities began again in the area in the 1970's. SGMI currently has one active exploration Plan of Operations (NVN-75564) to conduct exploration activities on public land and a Nevada State Reclamation Permit (0191) to conduct exploration activities on private land.

Table 2-1 lists the existing authorized disturbances for the project and exploration areas. Table 2-1 includes surface disturbances occurring within the proposed expanded Project boundary only, including the values listed for exploration related disturbance.

2.2 LOCATION AND ACCESS

The location of the Project area is shown on Figure 1. Access to the Project is via Interstate 80 to the Humboldt exit (138) and onto the Pershing County highway frontage road to the Project area (Figure 2).

2.3 PROPOSED ACTION

The proposed expansion of the Project into T30N, R33E, sections 1 and 2, and T31N, R33E, sections 26, 34, and 36 (Proposed Action) includes the following activities:

- Expand mining in the North, Intermediate and previously mined South pits
- Dispose of waste rock as pit backfill into the Cordex, North, Intermediate and South pits
- Expand the existing heap leach facility by constructing Phase 2 (Phase 1 and Phase 2 permitted by WPCP NEV2003103).
- Operate and close the heap leach pad and process facilities.
- Construct additional mine haul roads and modify existing haul roads to access the Proposed Action

- Relocate existing and/or construct new ancillary facilities
- Continue exploration activities

Table 2-1 outlines the total acres of disturbance associated with the existing facilities and the Proposed Action within the proposed expanded project boundary, the limits of which are depicted on Figure 3. The currently authorized activities include 329.6 acres of public and private land associated with the existing Project and the Standard Mine Exploration Project. The Proposed Action would incrementally disturb 181.5 acres of public and private land. The total proposed disturbance for the Project, including exploration disturbance, is 511.1 acres, all of which would occur within the proposed expanded Project boundary.

Table 2-1 Existing and Proposed Surface Disturbance¹

Project Component	Currently Authorized Disturbance			Proposed Disturbance			Total Disturbance		
	Private	Public	Total	Private	Public	Total	Private	Public	Total
Pits									
Cordex Pit	54.0	0	54.0	0	0	0	54.0	0	54.0
North Pit	7.4	0	7.4	0.6	12.0	12.6	8.0	12.0	20.0
Intermediate Pit	24.1	0	24.1	4.3	1.3	5.6	28.4	1.3	29.7
South Pit	0	0	0	13.4	63.7	77.1	13.4	63.7	77.1
Subtotal	85.5	0	85.5	18.3	77.0	95.3	103.8	77.0	180.8
Waste Rock Facilities									
Cordex Waste Rock	31.1	0	31.1	0	0	0	31.1	0	31.1
North Pit WRF Area	22.2	0	22.2	1.4	0	1.4	23.6	0	23.6
Subtotal	53.3	0	53.3	1.4	0	1.4	54.7	0	54.7
Heap Leach Facility									
Heap Leach (Phase I)	74.7	0	74.7	0	0	0	74.7	0	74.7
Heap Leach (Phase II)	0	0	0	40.2	0	40.2	40.2	0	40.2
Subtotal	74.7	0	74.7	40.2	0	40.2	114.9	0	114.9
Roads									
Mine Access/Water Supply Road	7.6	0	7.6	0	0	0	7.6	0	7.6
Upper South Pit Haul Road	0	0	0	0.3	41.4	41.7	0.3	41.4	41.7
Lower South Pit Haul Road	6.8	0	6.8	2.9	4.3	7.2	9.7	4.3	14.0
Small Vehicle/Exploration Roads (Lower)	18.5	0	18.5	0	0	0	18.5	0	18.5
Exploration Roads and Pads (Upper)	16.1	9.5	25.6	-6.1 ²	0	-6.1	10.0	9.5	19.5
Cordex Haul Road	24.0	0	24.0	-2.7 ²	0	-2.7 ²	21.3	0	21.3
Subtotal	73.0	9.5	82.5	-5.6²	45.7	40.1	67.4	55.2	122.6
Misc. Disturbance									
Ancillary Facilities Area	0	0	0	13.9	0	13.9	13.9	0	13.9
Monitoring Well Access Roads	0	0	0	0	0.6	0.6	0	0.6	0.6
Misc. Phase 2 disturbance	13.0	0	13.0	-13.0 ²	0	-13.0 ²	0	0	0
Ponds	10.0	0	10.0	3.0	0	3.0	13.0	0	13.0
Misc. Disturbance	10.6	0	10.6	0	0	0	10.6	0	10.6
Subtotal	33.6	0	33.6	3.9	0.6	4.5	37.5	0.6	38.1
Total Disturbance In All Categories									
Grand Total	320.1	9.5	329.6	58.2	123.3	181.5	378.3	132.8	511.1

¹Table 2.1 includes authorized, authorized and existing, or proposed surface disturbances within the proposed expanded Project boundary only, including the values listed for exploration activities. Any previously approved exploration activity or related surface disturbance occurring outside of the Proposed Action Project Boundary is not depicted in this table.

²Negative numbers indicate that proposed disturbance would take place in an area already authorized to be disturbed; therefore, there would be no net increase in total disturbance for these categories as a result of the proposed action.

2.3.1 Work Force and Schedule

Mining and processing activities would take place for approximately eight years following receipt of all necessary approvals. Reclamation, site closure activities and post-closure monitoring would continue for approximately 10 more years. The operational and reclamation schedule is shown on Figure 4.

The workforce that would implement the Proposed Action would consist of 138 persons, and would be made up of a portion of the employees currently working at the Florida Canyon Mine. The Proposed Action would extend the term of employment for the current workforce into 2015 when mining and pit backfilling activities are anticipated to end. Total employment would then begin to decline because fewer employees would be needed to process ore through mine closure in 2027.

2.3.2 Open Pits

The Proposed Action would use conventional open pit mining methods (truck and shovel) to extract ore and waste rock from the proposed open pits. All proposed open pits are located above the local groundwater levels and require no dewatering activities. Drilling and blasting would be used to break the rock. Drilling would be accomplished using diesel powered and/or electric blast hole drill rigs. A maximum of 1,200 blast holes would be shot sequentially, which is equivalent to the maximum blast patterns that were completed for the existing Project. Blasting would utilize a mixture of ANFO or an approved explosive slurry for use in inclement weather. Blasting would be performed only during daylight hours and would adhere to the safety procedures required by the Mine Safety and Health Administration (MSHA). Explosives would be handled by licensed haulers and stored on site in compliance with the Department of Homeland Security, Bureau of Alcohol, Tobacco and Firearms and MSHA regulations.

Ore would be loaded into haul trucks for transport directly to the crusher, conveyor, or heap leach pad. Waste rock would be hauled to waste rock storage areas for permanent placement. Mining would be conducted 24 hours per day and seven days per week.

The Proposed Action includes three open pit expansions – North, Intermediate and South (Figure 3). The North and Intermediate pits represent expansions of the North/Intermediate pit at the existing operation. The South pit is an existing historic open pit associated with the historic Standard Mine and is located on public land. The proposed action would expand the historic Lally Pit and will be discussed in Section 4.2.2. The estimated ore and waste rock tonnages to be mined are shown in Table 2-2. The mining rate would average approximately 30,000 tons per day over the life of the Project. Table 2-3 provides an approximate schedule for mining in each pit and Figure 4 shows the overall mining schedule. No further mining is proposed in the existing Cordex pit and it would be backfilled completely by the Proposed Action.

[Figure 3: Proposed Action]

[Figure 4: Expansion Reclamation Schedule]

Table 2-2 Ore and Waste Tonnages

Pit	Ore (tons)	Waste (tons)	Total (tons)
Cordex	0	0	0
Intermediate	153,000	298,000	451,000
North	634,000	479,000	1,113,000
South	13,406,000	21,400,000	34,806,000
Total	14,193,000	22,177,000	36,370,000

Source: Standard Mine Plan of Operations (2008)

Table 2-3 Open Pit Mining Schedule

Pit	Duration (Months)
Intermediate	3-6
North	3-6
South	20-26

Source: Standard Mine Plan of Operations (2008)

2.3.3 Intermediate Pit Expansion

The southwest portion of the existing North pit is known as the Intermediate pit. Exploration activities have identified additional reserves to the southeast. The expansion would involve mineralization that is located on private land in T31N, R33E, section 35, but some surface disturbance associated with the pit would occur on public land in T31N, R33E, section 36 and T30N, R33E, section 2 (Figure 3).

Mining would be initiated from an elevation of approximately 5,440 feet amsl down to an ultimate bottom elevation of 5,380 feet amsl for a depth of 60 feet, which would be the extent of mining. The groundwater level in the area of the Intermediate pit is approximately 5,050 feet amsl as measured in monitoring well MW2-7 (Figure 2). A pit lake is not expected to form due to an estimated distance of 300 feet to groundwater from the ultimate pit bottom elevation (SRK 2008).

Waste rock from the Intermediate pit would be placed into the existing Cordex pit which would be completely backfilled. When mining in the Intermediate pit is complete, it would be completely backfilled with waste rock received from the North and South pits. Due to the depth to groundwater in the vicinity and the pit backfill, no pit lake is anticipated.

2.3.4 North Pit Expansion

The North pit is proposed to expand onto public lands in T31N, R33E, section 36. Mining would be initiated from an elevation of approximately 5,700 to 5,780 feet amsl to an ultimate bottom elevation of approximately 5,640 feet amsl (60- to 120-foot depth), which would be the extent of mining. Per the Plan of Operations, the groundwater elevation in the area of the North pit is

approximately 5,050 feet amsl (approximately 500 feet below the pre-mining ground surface), as measured by MW2-7, which is approximately 600 feet below the proposed ultimate pit bottom elevation. Due to the depth to groundwater, no pit lake is anticipated to form (SRK 2008).

Waste rock mined from the North pit would be placed into the Intermediate pit. When mining is complete, the North pit would be completely backfilled with waste rock received from the South pit.

2.3.5 South Pit Expansion

Exploration activities have identified ore reserves that are adjoining and beneath the existing, historic South pit of the historic Standard Mine and will be discussed in Section 4.2.2. The proposed action would expand the pit into T30N, R33E, section 1, and T31N, R33E, section 36 (Figure 3). The Proposed Action would involve a pit highwall layback and deeper open pit mining of the existing pit into T31N, R33E, section 36. Mining would be initiated from an upper elevation of approximately 5,750 to 6,370 feet amsl and mined down to an ultimate bottom elevation of approximately 5,500 feet amsl. Groundwater levels measured at monitoring well MW2-9, located within the footprint of the proposed pit expansion (Figure 2), was at an elevation of 5,267 feet amsl in February 2003 and 5,246 feet amsl in January 2007 (SRK 2008). Based upon this information, it is anticipated that groundwater would be approximately 250 feet below the proposed pit bottom. Monitoring well MW2-9 would be mined through by the Proposed Action. This well would be abandoned prior to commencement of mining, and all necessary permits for well abandonment would be obtained prior to abandonment.

Waste rock mined from the South pit would be placed in the Cordex, Intermediate and North pits in addition to the northern portion of the South pit near the completion of mining at the Project. The South pit would be the last pit in the mining schedule of the Proposed Action. It would receive partial backfill from the material mined in the northern section of the pit. Due to the depth to groundwater in the vicinity, no pit lake is anticipated.

2.3.6 In-Pit Waste Rock Disposal

As described in the above sections, waste rock material is proposed to be placed entirely within the open pits. All open pits (existing and proposed), with the exception of the South pit, would be completely backfilled. The South pit would be partially backfilled. The Proposed Action would sequentially mine the deposits thus allowing each pit to be backfilled. The sequence of mining (Table 2-3) would begin with the Intermediate pit, followed by the North pit and then the South pit. Waste rock generated from the Proposed Action would be placed into pits sequentially as mining is completed.

Waste rock would be placed into the Cordex, Intermediate and North pits by end-dumping with haul trucks into 40-foot lift heights. The toe of subsequent lifts would be set back approximately 69 feet from the rim of the previous lift to achieve an overall operating slope of 2.5H:1V. The waste rock would be placed in 100-foot high benches in the north side of the South pit with sufficient setbacks of subsequent lifts to achieve an overall operating slope of 2.5H:1V.

All waste rock material would be regraded as part of reclamation activities to an overall slope of 2.5H:1V. The toes of the waste rock material would remain inside the pit limits following reclamation. The final backfill configuration is described above. The reclamation plan for the Proposed Action is described further in Section 2.3.13.

The waste rock material that would be generated by the Proposed Action has been analyzed in a geochemical test program that is described in detail in the updated *Standard Mine Waste Rock Management Plan* (WRMP) that is included in the *Standard Mine Project Plan of Operations* (SRK 2008 revised). The results indicate that the ore and waste rock lithotypes (i.e. geologic units) that would be encountered during mining have acid neutralizing capacity and there is little to no potential for acid generation or metals and metalloid leaching, with the exception of arsenic and mercury in the North and Intermediate pits. The results of the Meteoric Water Mobility Procedure (MWMP) tests indicate that there is a potential for arsenic to be leached from the three main lithotypes that would be extracted from the North and Intermediate pits. Mercury in the deposit is generally associated with the gold mineralization in the ore but several samples of limestone waste rock from the North and Intermediate pits indicate some potential to leach low levels of mercury. The volume of waste rock from the North and Intermediate pits in which arsenic and mercury leaching could occur represents less than one percent of the total waste rock that would be mined by the Proposed Action. The potential for mobilization of arsenic and mercury is expected to be limited due to the semi-arid climate conditions, dilution with the other waste rock material and coverage of the material by waste rock from the South pit. MWMP test results in the South pit indicate that there is little to no potential for arsenic leaching, and less potential for mercury leaching than in the North and Intermediate pits.

During mining, waste rock would be sampled to verify that the material is accurately characterized and to confirm that the proposed handling and management techniques are appropriate for the site conditions. Substantial variability is not expected from this additional testing due to the internal consistency of the characterization data.

2.3.7 Haul Roads

The Proposed Action would include the modification of existing and construction of new haul roads as shown in Figure 3. A haul road would be constructed for access to and from the South pit and the North pit. Portions of the haul road are located on existing disturbance and roads

associated with the historic Standard Mine and will be discussed in Section 4.2.2. A haul road would also be constructed along the northern end of the South pit for use in transporting waste rock from the southern portion to the northern portion of the pit.

Haul roads would be constructed at widths of approximately 120 feet with a minimum running width of approximately 75 feet, including ditches and berms. The haul roads would be constructed with a maximum gradient of approximately ten percent and would meet MSHA standards. These standards include a berm height of half the wheel height of the largest vehicle utilizing the road. Stormwater runoff from the roads would be diverted and routed to sediment traps as necessary and in accordance with the Project’s stormwater permit (Table 1-1).

2.3.8 Mobile Equipment

A list of anticipated mobile equipment required for the Proposed Action is shown in Table 2-4. Vehicles may be upgraded over time as larger or more efficient equipment is developed.

Table 2-4 Proposed Mobile Equipment

Units	Peak Quantity During Production
Blasthole Drill	4
992 Wheel Loader	4
785 Haul Trucks	9
D9 and D10 Dozers	3
Motor Grader	2
Water Truck	2
Rubber Tire Dozer	1

Source: Standard Mine Plan of Operations (2008)

2.3.9 Growth Media Salvage and Stockpiles

Any available growth media or suitable waste rock material would be salvaged from areas of new disturbance associated with the Proposed Action. The material would be stockpiled in existing facilities (Figure 2) for use in reclamation. Due to the steep terrain associated with most of the proposed facilities, it is anticipated that little growth media would be available for salvage.

It is estimated that 79,515 cubic yards of growth media was salvaged during the Phase I heap leach pad construction, and approximately 64,900 cubic yards can be salvaged during the construction of the Phase 2 heap leach pad (total available growth media estimated at 144,415 cubic yards). Approximately 206,087 cubic yards of material would be needed (minimum) to reclaim the Proposed Action and 650,318 cubic yards of material would be needed (minimum) to reclaim both existing and proposed facilities (assuming 24 inches of cover on the heap leach pad). Aside from the estimated amount of growth media salvageable from the heap leach facility, it is anticipated that little growth media would be available for salvage in other areas due to steep slopes. However, disturbance associated with the South pit expansion may result in

salvaging the upper two inches of topsoil as growth media. Salvage of this growth media is dependent on the safety of personnel and equipment. The potential growth media is located on steep slopes near existing South pit walls, and could prove to be a dangerous location, not suitable for the operation of equipment necessary for salvage activities. A determination of safety will be made based on actual mining conditions as they occur and in concurrence with the BLM. If salvage of this growth media is determined a safe activity, an additional 5,395 cubic yards (approximate) would be stockpiled (Constant 2009a).

Approximately 8.6 million cubic yards of material would be available for reclamation cover from the Cordex waste rock facility. Waste rock material is currently being analyzed through vegetation test plots for viability as a replacement growth media. Waste rock material that is soft and weathers to fine material is most likely suitable for growth medium. Potential waste rock for growth medium would be shale and slate; limestone material makes poorer growth medium. Results to date have shown positive results (Great Bear Restoration 2009a; Great Bear Restoration 2009b). NDEP approval to use existing Cordex waste rock material identified for use as the cover material for Phase I of the heap leach facility in the existing reclamation plan is pending demonstration that the material will meet revegetation release criteria identified in the Reclamation Permit conditions.

2.3.10 Exploration

Exploration activities would continue within and outside of the proposed expanded Project boundary as needed to identify new reserves or expand existing reserves. Activities within the project area are currently permitted through the Standard Exploration Plan of Operations and include drill road and pad construction, surface sampling, bulk sampling and drilling using both reverse circulation and core rigs. Exploration activities outside of the proposed expanded Project area would continue and are currently permitted through the Standard Exploration Plan.

All drill holes would be closed in accordance with Nevada Revised Statutes (NRS) 534 prior to removal of the drill rig. All disturbed areas would be reclaimed in accordance with the reclamation plan that is a component of the Plan of Operations to be approved by the BLM and the NDEP.

Total disturbance associated with the exploration activities within the expanded project boundary would not exceed 19.5 acres as shown on Table 2-1. The exploration-related disturbance could occur anywhere within the proposed expanded Project boundary and the 19.5 acre disturbance maximum includes all existing exploration disturbance within the proposed expanded Project boundary (Figure 3). The Standard Exploration Plan would be modified to remove the area within the Proposed Action from its boundaries.

The size and types of equipment used for exploration activities would typically be four-wheel drive pick-ups, utility vehicles, track mounted drills, rubber tired truck-mounted drills, track-mounted drill support vehicles and D-7 Caterpillar equivalent bulldozers.

2.3.11 Heap Leach Facility

Phase 1 of the heap leach facility was previously approved through a Nevada State Permit for Reclamation (No. 0222) and a Water Pollution Control Permit (No. NEV2003103). Phase 1 of the facility is constructed, and operational, with a total capacity of 15.8 million tons of ore. The facility includes the heap leach pad, process pond, event pond, carbon absorption plant, and associated channel features as described in Section 1.2.3. Leaching commenced on the Phase I system in 2004 and continues to date.

The engineering design of Phase 2 of the Standard Mine heap leach facility was approved by NDEP at the same time as Phase 1 of the facility through the Water Pollution Control Permit (SRK 2003). However, Phase 2 of this facility was not included in the reclamation permit (SRK 2009). Phase 2 of the heap leach pad would be located immediately adjacent (to the south) to the existing Phase 1 of the heap leach pad (Figure 3). The area that Phase 2 of the pad would occupy is partially disturbed by the existing fuel farm, the pad crusher site constructed during Phase 1, and a maintenance and contractor laydown area. The design of Phase 2 of the pad incorporates these existing disturbances. These existing facilities would be filled and regraded to meet the engineering design of the heap expansion. The facility has been designed with a synthetic liner to prevent the loss of precious metal process solution, consisting of HDPE overlying a secondary liner of compacted low-permeability natural material.

The expanded heap leach facility is designed to contain leach material and solution in accordance with NAC 445A.432. The approved facility employs the design principle of 100 percent containment (zero-discharge design) under both normal operating and specific emergency conditions. Phase 2 expansion of the heap leach facility would involve the construction and operation of one additional process solution pond. As with the existing facility constructed during Phase 1, the new solution pond and collection ditches would be double-lined with synthetic liners and would incorporate continuous leak collection and recovery systems between the liners. Solution that could be toxic to wildlife and domestic animals would be fenced and covered to prevent access, as required by the Nevada Department of Wildlife (NDOW) Industrial Artificial Pond Permit.

The completion of Phase 2 of the pad expansion (and pregnant solution pond during Phase 2) would increase solution flows from the pad to approximately 4,950 gallons per minute (gpm) through the combination of primary and secondary leaching. Fresh water additions to the system to “make up” for evaporation and ore moisture retention would continue to be added to the

Pregnant Solution Pond, the Carbon Adsorption Plant discharge box, or directly to the leach pad ore depending on make-up requirements.

Leaching solution is applied to the ore using drip lines, wobblers and water cannons. As the cyanide solution percolates through the ore, it dissolves and washes out the gold and silver it contacts. As the metal-bearing solution reaches the 80-mil HDPE liner beneath the ore, it is captured in 12-inch diameter corrugated, perforated HDPE drain pipes and routed to 12-inch and 18-inch diameter corrugated, perforated HDPE pipes which are routed to an 18-inch smooth-walled solid HDPE primary solution header pipe at the western heap toe which connects an 8-inch smooth-walled HDPE pipe placed in the solution control ditch to transport solution to the solution ponds.

The solution control ditch along the perimeter of the heap would be formed by the 10-foot offset from the heap toe to the perimeter containment berm and is sufficient to accommodate the predicted run-off within the pad perimeter from the 100-year, 24-hour design storm. The channel and 18-inch pipes would terminate at the pregnant solution pond.

Pregnant solutions from the leach pad are routed to process ponds for temporary storage or directly to adsorption columns to recover the dissolved gold and silver onto activated carbon. After returning the cyanide concentration to the desired level, the resultant barren solution is recycled back to the heap leach pad to leach additional precious metals. Solution ponds are double-lined with HDPE liners and have leak collection and recovery systems between the liners. Ponds are designed and operated in compliance with NAC 445A.433 through .435 and 43 CFR §3809.420. The design includes freeboard, the 24-hour draindown, the volume of water associated with the 25-year, 24-hour storm event and power outages, and snowmelt events. Reclamation and closure of this facility is described in Section 2.3.13.

2.3.12 Ancillary Facilities

A contractor laydown yard would be constructed on private land in T31N, R33E, section 34, adjacent to the proposed fuel farm (Figure 3). This area is approximately 400 feet by 750 feet in size and would be excavated to achieve a fairly level configuration and covered with up to 12-inches of crushed waste rock. The yard would be used to store miscellaneous mining construction materials in accordance with all applicable federal, state and local regulations.

The proposed fuel/lube facility (fuel farm) would include a 250 foot by 250 foot area consisting of an excavated containment area and constructed dispensing area. Both areas would be lined with 80-mil HDPE liner. The lined area would be filled with a minimum of two feet of crushed rock. The fuel/lube equipment would be placed on top of the crushed rock inside the containment area. The containment area would be large enough to hold 110 percent of the largest tank volume

or total volume of tanks in series. A sump would be located in one corner of the containment where any accumulated meteoric water or spilled petroleum product would accumulate. The sump would be evacuated as necessary and the contents disposed of in accordance with all applicable state and federal regulations.

2.3.13 Reclamation Plan

Reclamation activities described in this section would be implemented for the facilities or disturbance associated with the Proposed Action. Reclamation of current or existing facilities has been addressed and approved under the previously approved NDEP reclamation permit (Table 1-1). Reclamation of disturbed areas resulting from activities associated with the Proposed Action would be completed in accordance with BLM and NDEP regulations. BLM Surface Management Regulations, 43 CFR §3809, establish procedures and standards for prevention of unnecessary or undue degradation of public lands by operations authorized by the mining laws and provide for the maximum possible coordination with appropriate State agencies to avoid duplication. The State of Nevada requires that a reclamation plan be developed for any new mining projects or expansion of existing operations (NRS 519A). The draft Standard Mine Reclamation Plan (SRK 2009) incorporates the previously authorized reclamation plan and addresses activities associated with the Proposed Action.

The objectives of the proposed reclamation program are as follows:

- To provide a stable post-mining landform that supports defined land uses;
- To minimize erosion damage and protect water resources through control of water runoff and stabilization of components;
- To revegetate disturbed areas with a diverse mixture of plant species in order to establish productive plant communities compatible with existing land uses;
- To maintain public safety by stabilizing or limiting access to mine features that could constitute a public hazard; and
- To minimize impacts to visual resources.

Schedule

Under the Proposed Action, the Standard Mine would be active for approximately eight years. The combined life of the current and Proposed Action, including mining, ore processing, and reclamation, is estimated to extend to the year 2027. The projected operational and reclamation schedule is shown in Figure 4. Concurrent reclamation would involve contouring and revegetating the permanently inactive areas during operations. Upon completion of mining, final recontouring and seeding would be completed pursuant to the Reclamation Plan and Final Permanent Closure Plan as approved by the NDEP and BLM.

Post-Mining Land Use

The post-mining land use would be consistent with pre-mining land uses, including mineral exploration and development, livestock grazing, wildlife habitat and dispersed recreation. The proposed reclamation activities and post-mining land uses are designed to be in conformance with the approved Sonoma-Gerlach Management Framework Plan (BLM 1982) and with Pershing County zoning ordinances.

Post-Mining Topography

The final grading plan for the project is designed in part to minimize the visual impacts of the disturbance proposed by the operator. Slopes would be regraded with SGMI mobile equipment (dozers, trucks, loaders, scrapers) to blend with surrounding topography, interrupt straight-line features, and facilitate revegetation where practical. If natural drainages cross reclaimed slopes, the natural drainage channel would be re-established and best management practices (BMPs) would be implemented for erosion control.

Where practical, large constructed topographic features, such as the waste rock storage/backfill area in the pits, would have rounded crests and variable slope angles to resemble natural landforms. The South pit would be partially backfilled and remain as a large depression.

Growth Medium Management

Growth medium, to the extent possible, would be salvaged prior to construction of mine components, including pits. Growth medium would be hauled or otherwise placed to facilitate preservation during mining activities (e.g. stockpiles). Stockpiles would be strategically located to reduce reclamation costs associated with reuse. Where mine facilities would be constructed in areas of moderate or severe topographic relief, complete salvaging of growth media would be more difficult and more dangerous. A determination of safety will be made based on actual mining conditions as they occur and in concurrence with the BLM.

Initial data from test plots on waste rock indicates that direct vegetation would be viable and ample amounts of the waste rock material exist in the current Cordex waste rock facility (Great Bear Restoration 2009a; Great Bear Restoration 2009b). Cover material would originate from the southern section of the Cordex waste rock facility. Approximately 8.6 million cubic yards of material would be available for reclamation cover from the Cordex waste rock facility, and approximately 650,318 (minimum) cubic yards of material would be needed to reclaim the entire site (proposed and currently authorized). Material needed at the heap leach facility would be transported on the Cordex haul road described in Section 1.2.4. Areas of the waste rock facility disturbed during removal of cover material would be reclaimed according to methods described for waste rock facilities later in this section. Waste rock for growth medium would consist of primarily shale and slate. Growth media stockpiles would be graded to a stable configuration

and seeded with an interim seed mix (Table 2-5). A borrow area may be permitted at a future date should future vegetative test plots indicate direct vegetation is not viable.

Table 2-5 Interim Seed Mixture for Growth Medium Stockpiles

Species	Common Name	Pure Live Seed (pounds per acre)
<i>Agropyron desertorum</i>	Crested wheatgrass	4.0
<i>Agropyron fragil</i>	Siberian wheatgrass	4.0
<i>Medicago sativa</i>	Alfalfa-Lodak	1.8
TOTAL		9.8

Revegetation

Reclaimed surfaces would be revegetated to control runoff, reduce erosion, provide forage for wildlife and livestock, and reduce visual impacts.

Seedbed preparation and reseeding efforts for areas to be revegetated would take place after placement of the growth media. Seedbed preparation would be performed as follows:

- Compacted surfaces would be loosened and left in a rough condition by ripping, followed by dozer tracking or other acceptable methods.
- The prepared surfaces would then be seeded using the proposed final seed mix in Tables 2-6 and 2-7 for upland and lowland (flat) areas, respectively. Seeding would be performed by broadcasting and chain harrowing.

Table 2-6 Upland Revegetation Seed Mixture

Scientific Name	Common Name	Application Rate (lbs. PLS/acre)
<i>A. Nova</i>	Black sagebrush	0.25
<i>A. Tridentate tridentata</i>	Big sagebrush	3.00
<i>Chrysothamnus</i> sp.	Rabbitbrush	0.25
<i>Atriplex canescens</i>	4-wing saltbrush	0.50
<i>Kochia</i> sp.	Forage kochia	3.00
<i>Leymus cinereus</i>	Great Basin wildrye	3.00
<i>Psuedoregenerea spicata</i>	Bluebunch wheatgrass	3.00
TOTAL		13.00

Table 2-7 Lowland (Flats) Revegetation Seed Mixture

Scientific Name	Common Name	Application Rate (lbs. PLS/acre)
<i>Grayia spinosa</i>	Spiny hogsage	0.25
<i>Atriplex canescens</i>	4-wing saltbrush	3.00
<i>Atriplex confertifolia</i>	Shadscale	0.25
<i>Kochia</i> sp.	Forage kochia	0.50
<i>Agropyron desertum</i>	Crested Wheatgrass	3.00
<i>Orizopsis hymenoides</i>	Indian rice grass	3.00
<i>Sphaeralcea coccinea</i>	Scarlet globemallow	0.25
TOTAL		10.25

* This seeding rate is for drilling method. For broadcast seeding, the seeding rates would be doubled.

During vegetation establishment, weed control practices would be implemented to limit the growth and spread of noxious weeds, and to ensure that revegetation is successful. The control program would include, but may not be limited to, the use of weed-free straw in the reclamation program, and the seed would be tested for noxious weeds before planting. If noxious weeds are found, the seed would be rejected.

Reclamation activities would be timed to take advantage of optimal climatic conditions, October through January. Scheduling of reclamation activities would occur as soon as possible after the mining activities in a particular area are completed, thus minimizing erosion and sedimentation. During the life of the project, concurrent reclamation and interim reclamation would be performed wherever possible, to reduce erosion and weed invasion. The remainder of the revegetation would occur following the cessation of all site activities.

Revegetation would be considered a success when the revegetated areas meet the requirements set forth in the *Nevada Guidelines for Successful Revegetation for the Nevada Division of Environmental Protection, the Bureau of Land Management and the U.S.D.A. Forest Service* (September 3, 1998).

Surface Water and Sediment Control

Runoff from the waste rock storage areas, heap leach areas and other slopes would occur following precipitation events; however, regraded slope angle, revegetation (including growth media placement) and BMPs would be used to limit erosion and reduce sediment in runoff. Silt fences, sediment traps, or other BMPs would be used to prevent migration of eroded material until reclaimed slopes and exposed surfaces have demonstrated erosional stability. The Proposed Action includes no surface disturbance associated with BMPs. If such features are deemed necessary it would require agency approval in the future. Sediment control structures would be engineered to control runoff downstream from waste rock areas. Sediment control structures would be approved by the BLM and installed prior to disturbance.

SGMI would maintain a site general stormwater permit (NEV300000) in compliance with the Clean Water Act. This includes maintaining reclamation activities under the permit until the BLM determines bond release is appropriate.

Road fill which has been built over drainages would be removed and the original drainage course would be reconstructed. The reconstructed drainage courses would be monitored during the post-closure monitoring period. If the drainages show signs of erosion they would be repaired and appropriate measures would be taken to protect the drainage from future erosion.

Open Pits and Waste Rock

All waste rock would be backfilled into the various pits which would be mined sequentially. Waste rock generated from mining in the Intermediate pit would be backfilled into the Cordex pit, where no mining is planned to occur. After mining of the Intermediate pit ceases, mining of the North pit would commence. Waste rock from the North pit would be deposited into the Intermediate pit. Waste rock generated during mining of the South pit, which commences upon completion of North pit mining, would be distributed in Cordex pit, Intermediate pit, and North pit. When the capacity of these pits is met, waste rock from the South pit would be deposited in the northern portion of the South pit. Approximately 45 acres in the South pit would remain open, without backfill placement as this is the final sequence of mining. Some waste rock piles would project above the pit perimeters as described in Section 2.3.5. As such, the backfilled areas would be treated as waste rock facilities for the purposes of reclamation. The waste rock facilities, including the North/Intermediate pits and the South pit waste rock facilities would be reclaimed to meet certain general objectives including: stable slopes, reduced slope erosion, mass stability, rounded edges, revegetated surfaces, and control of sediment. The final slopes of the reclaimed waste rock facilities would have overall slopes of 2.5H:1V or shallower (SRK 2008). A stability analysis was conducted by Vector Engineering, Inc. in 2009. This analysis determined that while there is the possibility of future localized slope failure, the proposed pit slope management practices, including the general slope angles, should be adequate to prevent failure. Sediment control structures would be engineered to control runoff downstream from disturbed areas and approved by the BLM and installed prior to disturbance.

Heap Leach Facility

Following initial process fluid stabilization, the top and side slopes of the heap leach facility would be covered with soil/growth media and revegetated. Per the Plan of Operations (SRK 2008), the regraded surfaces would receive a minimum thickness of approximately 18 inches of soil/growth media prior to seeding.

The waste rock materials used for the cover would be re-handled from the Cordex waste rock facility. There are currently 79,000 cubic yards of growth media stockpiled near the heap. Assuming a recovery of one foot from grubbing the footprint of phase 2 of the heap, approximately 65,000 additional cubic yards would be stockpiled.

The required cover needed for 24-inches for the heap leach facilities is 367,017 cubic yards, 238,612 cubic yards for phase 1, and 128,405 cubic yards for phase 2. Any deficit of stockpiled cover material would be hauled from the Cordex Waste Rock Facility which currently contains 8.6 million cubic yards of material.

To achieve closure, the heap leach pad would be chemically stabilized through draindown, evaporation, and passive treatment of process solutions. Draindown modeling shows that passive treatment of water from the heap leach pad is likely to be possible in less than 18 months to achieve flows of 10 gpm and 19 to 36 months to achieve less than 5 gpm after leach solution application has ceased (SRK 2007). All process fluids would be maintained within the engineered containment components of the heap leach facility throughout closure. Final details of heap stabilization and closure would be developed at least two years prior to Project closure pursuant to the requirements of NAC 445A.446 and NAC 445A.447.

Following chemical stabilization, the slopes would be regraded to a final configuration with 2.5H:1V lift face slopes and an overall slope of 3H:1V. This design would ensure stability, promote run-off and reduce infiltration. None of the heap material would be moved beyond the lined area of the pad.

Following chemical stabilization, the solution circulation piping would be removed and the perimeter ditches would be filled with clean growth media and/or barren rock. Ponding on the flat areas would be reduced by rounding the edges of the heaps, where necessary. Erosion and infiltration would be controlled by covering the recontoured heap leach pad with approximately two feet of growth media or other suitable material. Revegetation of the heap would be carried out as described previously.

Solution Ponds

Immediately following closure of the heap leach facility, the process ponds would continue to function for collection and storage, as the draindown from the heap is recirculated to the heap through the existing drip and/or sprinkler system. Once the flows reach levels that can be managed through passive evaporation, the ponds, including the event pond, would be converted to evapo-transpiration (ET) cells. The ponds would be backfilled with soil and/or waste rock. The surface would be revegetated with an appropriate seed mix approved by the BLM for E/ET cells.

Roads

Exploration, access and haul roads without a defined post-mining use would be reclaimed concurrently as they are no longer needed for access. Roads, pads and safety berms would be recontoured using excavators or dozers as appropriate. The roads would be reclaimed by pulling the road fill back onto the road cut area and grading to match the existing slope. As monitoring is completed and the facility is considered to be closed, the access road would be reclaimed.

Some haul roads in the Project area are located on very steep terrain and would result in large footprints of disturbance such as the haul road on the north side of the South pit. Reclamation of

these areas would be carried out with two excavators to replace the soil to the extent practical. Material that is more than 100 feet down slope would not be pulled back to the road cut. This area would be directly hydroseeded with the reclamation seed mix. Some steep slopes (<2.5H:1V) may remain after reclamation but would be equivalent to surrounding topography.

Roads would be recontoured to the approximate original topography or in a manner consistent with the final surrounding topography. Where roads are constructed by cutting, the edge berm would be pulled back against the inside cut of the road. Dikes and ditches that would no longer be required would be regraded.

As directed appropriate by the BLM, roads on public lands determined to be suitable for public access would be reclaimed to the minimum width necessary for public access at mine closure. At this time, this includes the Standard Gold Mine Access Road and existing mining disturbance associated with the South pit mining operations prior to SGMI operations. These facilities are shown on Figure 3.

Drill Hole Plugging

All mineral exploration and development drill holes, boreholes, monitoring and observation wells and production dewatering wells subject to Nevada Division of Water Resources regulations would be abandoned in accordance with applicable rules and regulations (NAC 534.425 through 534.428).

Monitoring wells around the facility would be maintained until SGMI is released of this requirement by the NDEP. These wells would then be plugged and abandoned according to the requirements of the Nevada State Engineer.

2.3.14 Environmental Protection Measures

SGMI would implement the following BMPs and environmental protection measures as established by regulation, policy or guidance to prevent unnecessary and undue degradation during construction, operation, reclamation, and closure of the Project. The measures are derived from applicable NDEP regulations governing mining, air quality and water quality and the general requirements established in the BLM's Surface Management Regulations at 43 CFR § 3809.

Air Quality

- SGMI would obtain all applicable air quality operating permits for the Proposed Action from the NDEP Bureau of Air Pollution Control, including surface area disturbance.

- In order to reduce potential impacts to air quality, SGMI would control fugitive dust through practices described in the Standard Mine Dust Control Plan, which is a required component of the air quality operating permit. These practices include water application on haul roads and other areas of disturbance, chemical dust suppressant, seeding areas of interim disturbance, and other dust control measures as per accepted and reasonable industry practice.
- SGMI would obtain an air quality operating permit for the temporary mobile crusher. Air emissions would be controlled by water sprays and any other emission control required by the air quality operating permit. Pollution control equipment would be installed, operated and maintained in good working order to minimize emissions.

Cultural Resources

- SGMI is subject to compliance with Section 106 of the National Historic Preservation Act and its implementation through protocol between the BLM Nevada State Director and the Nevada State Historic Preservation Office (SHPO). Six Class III cultural resource inventories have been conducted in the project area and surrounding areas totaling approximately 4,889 acres. The entire project area has been inventoried. The inventories have identified a total of 73 historic and/or prehistoric sites. Where possible SGMI will avoid cultural resources. Where avoidance is not possible a data recovery plan or appropriate mitigation will be completed in accordance with Section 106 and a Notice to Proceed has been issued by the BLM prior to disturbing activities. A detailed discussion is provided in Section 4.2.2.

Native American Religious Concerns

- The Archaeological Resources Protection Act (ARPA) codified at 43 CFR Part 7 and the Native American Graves Protection and Repatriation Act codified at 43 CFR Part 10 both provide protection for historic properties, cultural resources, and Native American funerary items and/or physical remains located on federal land. In addition, the ARPA provides for the assessment of criminal and/or civil penalties for damaging cultural resources. Any unplanned discovery of cultural resources, human remains, items of cultural patrimony, sacred objects, or funerary items requires that all activity in the vicinity of the find ceases and notification be made to the BLM Winnemucca District office: HRFO Field Manager at 5100 E. Winnemucca Blvd., Winnemucca, NV, 89445 (775-623-1500); by telephone, with written confirmation to follow, immediately upon such discovery. The location of the cultural resources will not be publicly disclosed, and any human remains must be secured and preserved in place until a Notice to Proceed is issued by the authorized BLM officer.

- If any traditional cultural properties (TCPs), tribal resources, or sacred sites are identified within or in close proximity to the project boundary SGMI will contact the BLM Winnemucca District Office. The BLM will conduct consultation with the effected Tribe(s) to determine if avoidance is possible or if other mitigation measures are required as appropriate.

Erosion and Sediment Control

- BMPs would be utilized for the Proposed Action to control erosion during construction and operation. BMPs are approaches to prevent the release of pollutants into surface and groundwater using accepted engineering practices such as diversion ditches and sediment traps. The facilities would be constructed, monitored, and maintained in accordance with the Project's stormwater permit.
- SGMI would revegetate disturbed areas to reduce the potential for wind and water erosion. Following construction activities, areas such as cut and fill embankments and growth media stockpiles would be seeded as soon as practical and safe. Concurrent reclamation would be maximized to the extent practical to accelerate revegetation of disturbed areas. All sediment and erosion control measures would be inspected periodically and repairs performed as needed.

Water Resources

- SGMI would comply with NDEP regulations governing the design, construction and operation of process components. Phase 2 of the heap leach facility would be constructed in accordance with the NDEP-approved engineered design and requirement for zero discharge of process solution from the constructed containment.
- Waste rock mined as part of the Proposed Action would be routinely monitored and evaluated for the potential to generate acid and/or mobilize contaminants or sediment pursuant to the Standard Mine Waste Rock Management Plan and NDEP Water Pollution Control Permit and associated regulations.
- SGMI would maintain a Mining Stormwater General Permit from the NDEP for any stormwater discharges associated with the Proposed Action. A Stormwater Pollution Prevention Plan would be completed for the Proposed Action and SGMI would maintain compliance with the conditions to ensure protection of water quality in waters of the United States and other area surface waters. In accordance with permit requirements, SGMI would implement spill prevention and cleanup procedures.

- SGMI would implement the Site-Wide Monitoring Plan (which is included in the Plan of Operations; SRK 2008) that identifies specific points within the Standard Mine fluid management system and environmental management program that would be routinely monitored for potential impacts to water resources by the mining and mineral processing operations and to characterize certain materials for their potential impacts to the environment (e.g. waste rock management).

Solid and Hazardous Waste/Hazardous Materials

- SGMI would comply with all applicable local, state, and federal regulations for the transportation, use, storage, and disposal of hazardous materials. Hazardous waste, including used solvent, liquids drained from aerosol cans, accumulations of mercury fluorescent lights, and used antifreeze would be managed in accordance with the Resource Conservation and Recovery Act (RCRA) as applicable.
- An Emergency Response Plan, including spill prevention and cleanup procedures would be developed and implemented for the Proposed Action.
- Solid waste would be managed on the site by providing employee training for appropriate landfill practices and transfer of the waste to appropriate disposal facilities.

Paleontological Resources

- If paleontological resources are identified, activities would cease in the vicinity of the find and notification would be made immediately to the BLM Winnemucca District office. Actions by the BLM could include mitigating measures such as data recovery, restrictions on development and deletion of some areas from development on a case by case basis.

Wildlife

- Surface disturbing activities may be restricted during the migratory bird nesting season (April 15 to July 15) to avoid potential violation with the Migratory Bird Treaty Act (MBTA). In consultation with the BLM, migratory bird surveys would be conducted during the bird nesting season prior to disturbance activities to evaluate the presence of active nests. If active nests are located, SGMI would coordinate with the BLM to establish appropriate protection measures which may include avoidance or restriction of activities during the nesting period.
- If activities are anticipated to occur between April 15 and July 15, a nesting raptor survey would be completed in any area of appropriate habitat. If active nests are identified, a one-half-mile buffer zone would be established in which no activity would occur.

- Artificial ponds created in association with the Proposed Action would adhere to the standards of the NDOW Artificial Pond Permits (NRS 502.390) which require wildlife fencing and netting or bird balls to exclude and protect wildlife, including migratory birds.
- SGMI would train operators to monitor the mining and process areas for the presence of larger wildlife such as deer and antelope as well as avian and other terrestrial wildlife. Mortality information would be collected in accordance with the Industrial Artificial Pond Permit. SGMI would continue to operate in accordance with established wildlife protection policies that prohibit feeding or harassment of wildlife.

Vegetation

- Areas of surface disturbance associated with the Proposed Action would be reclaimed pursuant to a reclamation plan approved by the BLM (43 CFR § 3809) and the NDEP (NAC 519A). Activities would include recontouring of disturbed areas, stabilization of process fluids and use of a BLM-approved seed mix.

Noxious Weeds

- SGMI would maintain a noxious weed control program consisting of monitoring and eradication for species listed on the Nevada Designated Noxious Weed List (NRS 555.010). SGMI would develop and implement a noxious weed monitoring and control plan that would contain a risk assessment, management strategies, and provisions for annual monitoring and treatment evaluation. The results of the annual monitoring would be the basis for updating the plan and developing annual treatment programs.

2.4 ALTERNATIVES TO THE PROPOSED ACTION

The following alternatives to the Proposed Action were identified during the scoping process for this EA.

2.4.1 Proposed Action with Upper South Pit Haul Road Cut Alternative

The proposed Upper South Pit Haul Road (Figure 5A) utilizes a cut and fill method of construction which, due to the steep natural slope, causes a large amount of material to be cast down the hill into a natural drainage. Some of this material would not be recovered during reclamation. The proposed construction method would create approximately 41.7 acres of surface disturbance.

[Figure 5A: Upper South Pit Haul Road Proposed Action]

The Upper South Pit Haul Road Cut Alternative would reduce the amount of material cast downhill by excavating the road entirely into native material and removing the excavated material to a temporary stockpile located within the North Pit (Figure 5B). Because of the height of the road cut in some of the steeper areas, the road cut would be constructed with benches to catch any rock-fall as a safety feature. This alternative would create approximately 38.3 acres of surface disturbance. Figure 5C provides a cross section for a typical segment of the Upper South Pit Haul Road.

The road would be reclaimed by hauling the excavated material from the temporary stockpile back onto the road surface. A dozer or excavator would be used to contour the fill to match the surrounding terrain. The slope would then be seeded with an approved reclamation seed mix.

[Figure 5B: Upper South Pit Haul Road Alternative]

[Figure 5C: Upper South Pit Haul Road Cross Section]

2.4.2 Proposed Action with Lower South Pit Haul Road Alternative

The proposed Lower South Pit Haul Road Alternative route would be located in the historic Standard Mine site. The alternative route would be utilized only if the portions of the historic Standard Mine site that would be affected through the proposed alternative could be successfully mitigated as mentioned in Section 4.2.2. Figure 6 shows both the proposed and alternative route.

The proposed Lower South Pit Haul Road would create approximately 7.2 acres of new surface disturbance. The Lower South Pit Haul Road Alternative would create approximately 6.5 acres of new surface disturbance. Reclamation for either route would be performed in accordance with the procedures outlined in Section 2.3.13.

2.4.3 Proposed Action with Borrow Pit Alternative

The near-surface material that would typically be stripped and stored for use as cover material and growth medium in reclamation and closure as part of the Proposed Action contains relatively little suitable material. This alternative would obtain additional material by constructing a borrow pit within the footprint of the proposed Ancillary Facilities (contractor lay down yards and fuel storage) in T31N, R33E, section 34. The borrow pit would be utilized during closure following the removal of any equipment and facilities associated with the lay down yard and fuel storage area. Figure 7A shows the configuration of the proposed Ancillary Facilities during mining operations and Figure 7B shows the configuration of the proposed borrow pit alternative. The borrow pit and a new haul road to the heap leach facility would add approximately 2.6 acres of surface disturbance to that included in the Proposed Action.

The borrow pit would be approximately 400 feet wide by 1,000 feet long and would yield approximately 320,000 bank cubic yards of cover material for use in reclamation and closure of facilities at the Standard Mine. An additional 144,415 cubic yards of growth medium is available from past and proposed salvage (total available quantity to 464,415 cubic yards). Assuming 6 inches of cover is needed to reclaim the majority of the Standard Mine (existing and proposed) and 24 inches of cover is needed to reclaim the heap leach (existing and proposed), a minimum of approximately 650,318 total cubic yards of material is required for reclamation (reclamation of both existing and proposed facilities). Use of the borrow pit alternative would provide enough growth medium to reclaim the Proposed Action; however, additional material would be needed to reclaim both the existing and Proposed Action. As described in Section 2.3.9, the salvage of approximately 5,395 cubic yards of additional growth media from disturbances associated with the South pit expansion could occur if salvage activities are determined safe for equipment operators (Constant 2009a) and in concurrence with the BLM. Use of material from the Cordex dump in reclamation is pending NDEP review.

The pit would be constructed to a maximum depth of 50 feet and would be free-draining to the west. To allow drainage and minimize ponding of water, the pit base would be constructed with a two percent slope to the west. The sides would be constructed with a slope of 2.5H:1V. A new haul road would be utilized for placement of cover material on the heap leach facility.

Well logs in the vicinity of the proposed borrow pit indicate alluvium depths range from ground level to 150 to 370 feet. Logs generated during boring of wells indicate water levels in this area range from 180 to 243 feet below ground surface. Therefore it is anticipated that the pit would provide adequate alluvial material and no groundwater would be encountered.

Upon completion of the borrow area, a berm would be constructed around the north, south and east sides to direct surface water way from the depression. The borrow pit would be reclaimed by shaping to round the edges and break up straight lines. The area would then be ripped and seeded with an approved reclamation seed mix.

2.4.4 No Action Alternative

Under the No Action Alternative, gold mining, processing, and exploration activities would continue under the current authorizations for the Standard Mine (Table 1-1). Activities associated with the Proposed Action would not occur, excluding the operation of phase I of the heap leach facility, which was previously authorized and located on private land. Phase 1 of the heap leach pad and process facilities were authorized through a Nevada State Permit for Reclamation (No. 0222) and a Water Pollution Control Permit (No. NEV2003103). Mineral resources in the area of the expansion on public land would remain undeveloped. It is anticipated that activities currently authorized would be completed in 2012.

2.4.5 Alternatives Considered but Eliminated From Detailed Analysis

Several alternatives to the Proposed Action that were eliminated from further analysis are described in this section.

Proposed Action with Waste Rock Facility Alternative

Waste rock facilities located outside of the proposed open pits were considered for their economic and environmental benefit. Due to topographic and land use constraints, the areas available for waste rock facilities are limited. It was determined that the haul distances required for this alternative were not economically feasible. The areas where waste rock facilities could be located are near residential areas and Interstate 80. This alternative would cause a large amount of additional surface disturbance and would bring potential noise, visual and air quality impacts closer to the residential area. It was determined that the waste rock facility alternative would result in no environmental or economic benefit at this time and has not been carried forward for analysis in this EA.

Proposed Action with Conveyor to Transport Waste in South Pit Alternative

A conveyor from the active mining areas of the proposed South pit to the in-pit backfill area of this same pit was considered as an alternative to using haul trucks for this activity. Use of the conveyor was considered for economic feasibility and potential environmental impacts. It was determined that the conveyor would be marginally feasible economically but would provide an additional source of noise and air pollution (fugitive dust) in the area. The use of the conveyor also did not reduce the amount of surface disturbance required for haul roads as heavy equipment and support vehicles would still be required to access both ends of the South pit based upon the required mining and backfill sequence. It was determined that the conveyor alternative would result in no environmental or economic benefit and has not been carried forward for analysis in this EA.

[Figure 6: Lower South Pit Haul Road Proposed Action]

[Figure 7A: Proposed Ancillary Facilities with Borrow Source Proposed Action]

[*Figure 7B: Borrow Source Area Alternative*]

CHAPTER 3 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This chapter describes elements of the environment in the Project area that may be affected by either the Proposed Action or alternatives. This information was derived from data gathered during field investigations; files of the BLM and other agencies; interviews with BLM and other federal, state, and local agency resource personnel; and literature review. Anticipated direct and indirect impacts (short and long term) from the Proposed Action and alternatives are discussed in Chapter 4 and cumulative effects are discussed in Chapter 5.

3.2 SUPPLEMENTAL AUTHORITIES (CRITICAL ELEMENTS)

To comply with the NEPA, the BLM requires that EAs consider elements of the human environment that are subject to requirements specified in statute, regulation or by executive order (BLM 2008). Table 3-1 outlines these elements and states whether they would be potentially affected by the Proposed Action or alternatives based upon review by BLM personnel through internal and external scoping as described in Chapter 1.

Table 3-1 Supplemental Authorities (Critical Elements of the Human Environment)

Supplemental Authority	Present Yes/No	Affected Yes/No	Section Reference/Comments
Air Quality	Yes	Yes	Section 3.2.1
Areas of Critical Environmental Concern (ACEC)	No	No	There are no ACECs in the vicinity of the Proposed Action.
Cultural Resources	Yes	Yes	Section 3.2.2
Environmental Justice	No	No	Environmental justice would not be affected.
Farmlands (Prime or Unique)	No	No	Not Applicable
Floodplains	No	No	Not Applicable
Migratory Birds	Yes	Yes	Section 3.2.3
Native American Religious Concerns	Yes	Yes	Section 3.2.4
Invasive, Non-native Species	Yes	Yes	Section 3.2.5
Threatened and Endangered plants and animals	No	No	No Threatened or Endangered species (plant or animals) are known to exist in the project. Any potential habitat is addressed in the Special Status Species sections.
Wastes, Hazardous or Solid	Yes	Yes	Section 3.2.6
Water Quality (surface and ground)	Yes	Yes	Section 3.2.7

Supplemental Authority	Present Yes/No	Affected Yes/No	Section Reference/Comments
Wetland/Riparian Zones	Yes	Yes	Section 3.2.8
Wild and Scenic Rivers	No	No	No designated Wild and Scenic rivers are located in the vicinity of the Proposed Action.
Wilderness	No	No	There is no designated Wilderness area in the vicinity of the Proposed Action.
Other Resources	Present Yes/No	Affected Yes/No	Section Reference/Comments
Geology and Minerals	Yes	Yes	Section 3.3.1
Land Use Authorizations	Yes	Yes	Section 3.3.2
Noise and Vibration	Yes	Yes	Section 3.3.3
Paleontology	Yes	Yes	Section 3.3.4
Range Resources (livestock/grazing)	Yes	Yes	Section 3.3.5
Recreation	Yes	Yes	Section 3.3.6
Social Values and Economics	Yes	Yes	Section 3.3.7
Soils	Yes	Yes	Section 3.3.8
Special Status Species	Yes	Yes	Section 3.3.9
Vegetation	Yes	Yes	Section 3.3.10
Visual Resources	Yes	Yes	Section 3.3.11
Wildlife	Yes	Yes	Section 3.3.12

The following supplemental authorities have been identified in Table 3-1 as being present and affected by the Proposed Action or alternatives.

3.2.1 Air Quality

Climate in the Project area is considered semi-arid as characterized by low rainfall, low humidity, clear skies, and relatively large annual and diurnal temperature ranges. Meteorological parameters including temperature, precipitation, and wind speed and direction were measured at the Florida Canyon Mine, located 4 miles north of the Project Area, in 1995 and 1996 (BLM 1997). Average temperatures range from the 30's (degrees Fahrenheit [°F]) in January to highs in the upper 70s °F. Most annual precipitation falls as snow during the winter months, with the remainder spread throughout the year. The Florida Canyon Mine monitoring data shows annual average precipitation of approximately 14 inches.

The mine is located in an area where the winds are affected by the local topographic features. The wind data collected at the Florida Canyon Mine meteorological station in 1995 and 1996 shows predominant winds blowing from the south along the valley parallel to the major mountain ranges (BLM 1997).

The Project area is located in Hydrographic Basin 72 (Imlay area) which is considered “unclassified” by the NDEP. An area is designated as being in attainment for an air pollutant if its concentrations are below National Ambient Air Quality Standards (NAAQS). Areas which do not have sufficient amounts of ambient air quality monitoring data available are designated as unclassified and are considered to be in attainment with these standards. The existing air quality of the Project area is typical of largely undeveloped regions of the western United States. Sources of air emissions in the Project area are particulate matter from windblown dust, vehicle traffic and mining activities, and combustion emissions from motor vehicles, including heavy equipment. Additional air emission sources associated with the Proposed Action are discussed and analyzed in Chapter 4 and other sources of emissions in the region are described in the cumulative impacts analysis in Chapter 5.

The Standard Mine currently holds a Class 3 Air Quality Operating Permit (Table 1-1) with the NDEP Bureau of Air Pollution Control for the operation of a lime silo and the surface disturbance associated with the existing Project. The emissions threshold for a Class 3 Air Quality Operating Permit is 5 tons or less in total of any regulated air pollutant and no emission units can be subject to Federal Emission Standards (NDEP 2009). The existing Standard Mine permitted emissions are below the NAAQS as required by NDEP for the issuance of a permit. The Standard Mine Fugitive Dust Control Plan is a component of the existing air quality permit and specifies measures, such as road watering and interim vegetation, for the control of fugitive dust associated with the Project’s surface disturbance.

3.2.2 Cultural Resources

The project area is located in the Humboldt Range of the Northern Great Basin. The Humboldt Range is a large dynamic area with a rich prehistoric and historic cultural history and has been occupied for up to the last 12,000 years (Cressman 1986: 120; Elston 1986: 135). Occupation of the mountain range has varied over time, driven by changes of the environment from the lakes of Lahontan to the dry climate of modern time, the historic rush to the west, the boom and bust of mining, and the resilience and persistence of settlers.

The cultural use of the area would have varied over time. During the early periods of the cultural use of the area the shore lines of Lake Lahontan were to the west of the project area. Cultural use of the project area would have been primarily for hunting and plant gathering with the potential for temporary or longer term campsites. During the Archaic and Late Prehistoric periods these areas would have continued to be utilized for hunting and plant gathering. In the historic period the project area would have been primarily utilized by miners and associated industries, ranchers, and settlers.

Cultural resources that can be expected in and around the project area could consist of isolated prehistoric and historic artifacts, lithic scatters that could represent temporary, extended, or multiple occupation sites, and historic mine sites and debris. These sites could consist of surficial or surficial with subsurface deposits.

Six Class III cultural resource inventories have been conducted in the project area and surrounding areas. A table of cultural resource inventories performed to date and a map showing the boundaries of the inventories are included in Appendix A. During the six inventories, a total of 73 historic and/or pre-historic sites were recorded. Sixteen sites were determined as eligible for listing on the NRHP. None of these eligible sites would be adversely affected by the Proposed action. A detailed discussion of the potential effects and mitigation will be discussed in 4.2.2.

SGMI hired Chambers Group, Inc. to relocate and evaluate one site and determine the eligibility status of the site. On October 28th, 2008, Chambers Group, Inc. relocated the site and recommended the site not eligible for listing on the NRHP due to the condition of the site as lacking integrity, collection of artifacts in the past, and heavy disturbance. The report is pending the determination if addition mitigation will be required for the historic Standard Mine site.

3.2.3 Migratory Birds

Migratory birds (also referred to as neotropical migrants) include those species of birds that breed in the Project area but migrate south, out of the area, prior to the onset of winter. Migratory bird species are defined and protected by the MBTA of 1918, as amended (16 U.S.C. 703 *et seq.*) and Executive Order 13186. The MBTA, prohibits harming the nests of migratory birds and prohibits the killing or taking of migratory bird species without a permit. Executive Order 13186 directs federal agencies to promote the conservation of migratory bird populations. All birds in the BLM Winnemucca District are considered migratory birds with the exception of resident game birds (California quail (*Callipepla californica*), chukar (*Alectoris chukar*), and sage-grouse [*Centrocercus urophasianus*]). Migratory birds may be found in the Project area as seasonal residents or as migrants.

Vegetation communities in the vicinity of the Project area are dominated by sagebrush and/or shadscale community species. There are also stands of Utah juniper in the Humboldt range which is in the Cumulative Effects Study Areas (CESA). Migratory birds associated with these vegetative communities may include: black-throated sparrow (*Amphispiza bilineata*), brewer's blackbird (*Euphagus cyanocephalus*), brewer's sparrow (*Spizella breweri*), burrowing owl (*Athene cunicularia*), canyon wren (*Catherpes mexicanus*), gray flycatcher (*Empidonax wrightii*), green-tailed towhee (*Pipilo chlorurus*), juniper titmouse (*Baeolophus ridgwayi*), loggerhead shrike (*Lanius ludovicianus*), rock wren (*Salpinctes obsoletus*), sage sparrow

(*Amphispiza belli*), sage thrasher (*Oreoscoptes montanus*), western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), and vesper sparrow (*Pooecetes gramineus*) (Great Basin Bird Observatory 2003). The burrowing owl, juniper titmouse, loggerhead shrike, and vesper sparrow are BLM sensitive species which are discussed in Section 3.3.9.

Migratory birds observed during a 2007 site visit of the Project area performed by JBR included Say's phoebes (*Sayornis saya*), common ravens (*Corvus corax*), white-crowned sparrows, lark sparrows, and chipping sparrows (*Zonotrichia leucophrys*, *Chondestes grammacus*, and *Spizella passerina*, respectively). Rock wrens (*Salpinctes obsoletus*) were observed throughout the existing mine area, and black-billed magpies (*Pica hudsonia*), western scrub-jays (*Aphelocoma californica*), and mountain bluebirds (*Sialia currucoides*) were observed in pinyon-juniper and edge habitats. Western meadowlarks (*Sturnella neglecta*) were observed in the lower-elevation habitats that border the western edge of the Project Area. Of these species, common ravens, black-billed magpies, western scrub jays and horned larks are probably resident (i.e., present year-round) in and near the Project area.

Avian species composition and density in the Project area varies with season and habitat type. Avian species diversity is highest during the spring and summer months, when migrant species are present in the area. Species diversity decreases markedly during the fall and winter season, when many nesting species move south, out of the Project area. The BLM HRFO identifies the nesting season for migratory birds as beginning on April 15 and extending through July 15.

3.2.4 Native American Religious Concerns

The proposed project area is located in the traditional territory of the Kidütökadö and the Makuhadökadö bands of the Northern Paiute. Traditionally the area of the proposed action would have been utilized primarily for hunting and gathering with the potential for periods of longer term occupations (Stewart 1939). On November 14, 2008, letters providing information relating to the proposed action were sent to the Battle Mountain Band Council, the Winnemucca Indian Colony and the Lovelock Paiute Tribe. Additional, follow-up phone calls were conducted to identify if the Tribes had any concerns about the proposed action, effects it may have on TCP or sacred sites, or if the Tribe would like to have formal government to government consultation relating to the proposed action. To date, no TCPs or Executive Order 13007 sites have been identified within the Project area that might be impacted by the Proposed Action or alternatives. Consultation is on-going.

3.2.5 Invasive, Non-Native Species

The BLM defines a noxious weed as “a plant that interferes with management objectives for a given area of land at a given point in time (BLM 1996). In Nevada, noxious weeds are also defined in the NRS 555.005 as “any species of plant which is, or is likely to be, detrimental or

destructive and difficult to control or eradicate.” The Nevada Department of Agriculture website provides a list of all weeds currently listed as noxious for the State of Nevada (NDAPID 2007).

Non-native, invasive species are defined as species that are not native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112).

The Nevada noxious weed species tamarisk (*Tamarix ramosissima*) was found below a large spring in the Project area. Tamarisk is a State of Nevada category C noxious weed. Category C weeds are species that are “currently established and generally widespread in many counties of the state; actively eradicated from nursery stock dealer premises; abatement at the discretion of the state quarantine officer” (NDAPID 2007).

According to the BLM’s 2004 EA *Standard Gold Mining, Inc. Standard Mine Exploration Project Plan Amendment #2* (BLM 2004a), Russian knapweed (*Acroptilon* [formerly *Centaurea*] *repens*), a Nevada category B weed, has been found at the Florida Canyon Mine, approximately four miles north of the Standard Mine. Category B weeds are “weeds established in scattered populations in some counties of the state; actively excluded where possible, actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur” (NDAPID 2007).

Cheatgrass (*Bromus tectorum*), an invasive, nonnative species is common throughout the Project area. Halogeton (*Halogeton glomeratus*) and Russian thistle (*Salsola kali*) occur on disturbed ground at lower to middle elevations in the Project area. Halogeton and Russian thistle dominate the reclaimed area just west of the Cordex Pit. It is anticipated that these species would decline as reclaimed vegetation becomes established.

3.2.6 Wastes, Hazardous or Solid/Hazardous Materials

The potentially affected environment resulting from the presence of solid and hazardous materials and waste includes air, water, soil and biological resources. These resources could be potentially affected by an accidental release during transportation to and from the Project area or during storage and use at the Project site.

SGMI currently transports process and other mining-related chemicals to the existing Standard Mine by truck from numerous locations within Nevada and surrounding states. All hazardous materials are transported to the Standard Mine via Interstate 80 and the Pershing County highway frontage road (as described in Chapter 2) with other roads used during shipping from their origination points.

Fuel and reagents are transported to, stored and used at the existing Standard Mine in accordance with federal, state and local regulations. The storage containers are constructed with engineered secondary containment equal to 110 percent of the largest container with visual or other means of leak detection.

The Standard Mine has an existing Spill Contingency Plan which addresses the response to hazardous material spills (including hazardous waste), notification procedures, and spill cleanup procedures for on- and off-site incidents in accordance with applicable state and federal regulations.

The NDEP Bureau of Waste Management regulates the hazardous waste program in the State of Nevada as prescribed in the NRS Chapter 400. Hazardous waste management is subject to specific requirements that are dependent upon the amount of hazardous waste produced at a facility in a calendar month. The Standard Mine is currently classified as a conditionally exempt small quantity generator as it produces less than 100 kilograms of hazardous waste in a calendar month (40 CFR § 261.5). Specific on-site management, transportation, recordkeeping, and reporting requirements are determined by the generator status. Hazardous waste is temporarily stored at the Standard Mine and then transported to off-site Resource Conservation and Recovery Act program-approved recycler or treatment and disposal facilities. All hazardous wastes are stored, packaged, and manifested in compliance with applicable state and federal regulations.

Non-hazardous, solid waste is currently managed at the Standard Mine through collection and transportation to the Florida Canyon Mine for disposal in accordance with applicable state and federal regulations. SGMI performs employee training on the proper disposal practices, including allowable wastes. SGMI has a management program for regulated substances that includes used filters, oily rags, fluorescent light bulbs, and aerosol cans.

3.2.7 Water Quality

The Project area is located in the Humboldt River Basin Hydrographic Region and in the Imlay Hydrographic Area. Mean annual precipitation is approximately 14 inches, as recorded at the Florida Canyon Mine in 1995 and 1996 (BLM 1997), occurring mostly as snow during the winter. Evaporation in the area commonly averages 50 to 60 inches (BLM 2004a). The low annual precipitation and high average evaporation limits the occurrence of surface waters in the region. There is one spring and associated perennial stream in the Project area located in the south half of T31N, R33E, section 35 (Figure 3).

Four groundwater-bearing formations occur at the Standard Mine site. The aquifers occur in the Prida, Natchez Pass and Grass Valley Formations and in the alluvium. Baseline groundwater quality data was gathered in 2002 and 2003 as part of site characterization for the permitting of

the Standard Mine (SRK 2003). The SRK site characterization report states that the baseline water quality data indicates that the “water beneath the site is of marginal quality for use as drinking water due to the presence of metals.” A groundwater monitoring program was instituted at the Standard Mine in association with the Water Pollution Control Permit. To date, monitoring data indicate no degradation of groundwater quality.

3.2.8 Wetlands, Riparian Zones, Waters of the United States

Wetlands are defined by the U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA) as:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Among other characteristics, waters of the U.S. are defined as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
 - i. Which are or could be used by interstate or foreign travelers for recreational or other purposes.....

A previous delineation performed on channels draining the Standard Mine area (ERM 2002) identified two drainages and several of their tributaries within the Project area as potentially jurisdictional waters of the U.S. Specifically, this delineation identified the North Standard Canyon drainage and the South Fork of North Standard Canyon as jurisdictional features. In 2003, the Corps verified this delineation, concluding these waters share a jurisdictional connection with the Humboldt River.

In September 2007, in light of the Corps and EPA *Rapanos* guidance, JBR Environmental Consultants, Inc. (JBR) revisited the status of drainages within the Project area. Drainages were assessed for the presence of either relatively permanent flow or the presence of a significant nexus with the Humboldt River. Other than a tributary to North Standard Canyon beginning at a large spring in T31N, R33E, section 35 SW¼, no drainages were identified as potentially jurisdictional features (Appendix B). JBR is recommending only one drainage, the North Standard Canyon drainage, as being jurisdictional and regulated by the Corps. The jurisdictional

determination forms documenting the findings of the JBR assessment have been submitted to the Corps and are pending the Corps review, approval, and verification.

3.3 OTHER RESOURCES

In addition to the supplemental authority elements, the following resources or uses are present and affected by one or more alternatives.

3.3.1 Geology and Minerals

The Standard Mine is located in the Imlay Mining District in the foothills along the northwest flank of the northern end of the Humboldt Range. The Project area is located in the north-central Great Basin section of the Basin and Range Physiographic Province on the western flanks of the Humboldt Range. Block faulting in the area has resulted in generally north-south trending topography. Structural deformation has resulted in a series of valleys separated by mountain ranges. Overall, the Project area drains to the west toward the Humboldt River at the northern end of the Upper Valley between the Humboldt Range and the Trinity Range. Elevations range from approximately 4,200 feet amsl in Upper Valley to over 9,600 feet amsl at Star Peak.

The oldest rocks in the vicinity of the Standard Mine consist of Triassic Rochester Rhyolite which consists of volcanic flows, tuff, and tuffaceous sedimentary rocks that have been generally tilted to the south and form the backbone of the Humboldt Range north of the mine.

Unconformably overlying the Rochester Rhyolite is the Star Peak Group that is comprised of the Middle Triassic Prida Formation and the Upper Triassic Natchez Pass Formation. The Prida Formation grades upward from coarse clastics to cherty, carbonaceous limestone and limy siltstone and sandstone interpreted to have been deposited in a shallow marine environment (SRK 2008). The Prida Formation comprises the base of the Standard Mine and the bulk of the exposures to the east of the Project area.

The Natchez Pass Formation outcrops in the Project area and consists of massive medium-grained, medium gray limestone that interfingers with and locally overlies buff-colored, laminated, silty limestone and dolomite units. This unit forms prominent outcrops immediately adjacent to and beneath mineralized zones within the district.

Pelitic rocks of the Upper Triassic Grass Valley Formation unconformably overlie the Natchez Pass Formation in the Project area and form the foothills to the west which disappear beneath valley fill.

Mafic sills with a diabasic composition and texture crosscut the Prida Formation in the Project area and locally cut upward into the Natchez Pass Formation. These sills are strongly magnetic

within the Humboldt Range and may be responsible for a strong magnetic gradient high along the crest of the range. Within the Project area, the mafic sills are altered to chlorite, clays and limonite after pyrite and are generally 10 to 60 feet thick.

The six main lithotypes that have been identified and classified during exploration and development of the Standard Mine are; Alluvium, Jasperoid, Mafic Sills, Grass Valley Formation, Natchez Pass Limestone, and Prida Limestone.

The Standard Mine lies within the Fencemaker Thrust Belt, a regional tectonic belt that extends south along the west side of the Humboldt Range and northeast along the Humboldt River. The Fencemaker Thrust Belt is a component of the Winnemucca Thrust Belt that is a Mesozoic compressive event linked to the Sevier Orogeny. The Fencemaker Thrust Belt formed as a result of a northwest-southeast directed compression event that is related to closure of the basin in which the Grass Valley Formation sediments were deposited (SRK 2008). Following the compressive event, a shear couple developed that produces a conjugate set of steeply-dipping, northeast and northwest directed shears and fractures. The northeast trend is especially dominant in the northwest portion of the Humboldt Range at the Florida Canyon Mine area where several mineralized trends are developed along the shear zone. Intersection zones and coincidence of structure with brittle silty beds became favorable hosts for silica flooding and gold mineralization.

The final structural event of importance to mineralization in the Project area was extensional Basin and Range crustal thinning. This structural event is manifested as north-south trending high angle, range-bounding faults. There is some evidence for gravity sliding associated with this structural event at the Standard Mine. Recent hot springs activity is localized along Basin and Range structure in the district and a high geothermal gradient exists near the northwestern part of the Humboldt Range (SRK 2008).

Three main zones of mineralization are identified at the Standard Mine; the Cordex Pit deposit, the North/Intermediate Pit deposit, and the South pit deposit. In the mineralization zones, ore deposits are found as:

- Jasperoid bodies in carbonate-rich rocks of the Natchez Pass Formation with varying amounts of silicification (i.e., jasperoid alteration); or
- Vein systems and disseminated mineralization in the argillic to phyllitic shale and slates of the Grass Valley Formation.

Two geologic features appear important with respect to localization of mineralization within the ore zones (SRK 2008). The first is the contact between Grass Valley Formation argillite and the underlying Natchez Pass Formation that hosts mineralization at the Cordex and

North/Intermediate Pit deposits. The second is the presence of fractured, silty limestone units in the Natchez Pass Formation that hosts mineralization at the South pit deposit.

The State of Nevada is seismically active due to the tectonic extension associated with Basin and Range activity. The Project area is near a fault system that is located on the west side of the Humboldt Range (BLM 2004a). Seismic records compiled since 1872 indicate that no earthquakes have occurred within the Project area (UNRSL 2008).

3.3.2 Land Use Authorizations

Approximately 76 percent of the land in Pershing County is public land, most of which is administered by the BLM (Pershing County 2002). Public lands are managed by the BLM for multiple uses such as: range, watersheds, mineral extraction, recreation, wilderness, and wildlife habitat. The Project area is located within the BLM's Winnemucca District, HRFO. BLM-administered public lands within the Project area are managed in accordance with the Sonoma-Gerlach Management Framework Plan.

The BLM Winnemucca District is currently preparing a Resource Management Plan (RMP) that would cover the 7,260,001 acres of BLM-administered land in Humboldt, Pershing, Washoe, Lyon, and Churchill counties in northwestern Nevada. The RMP is being prepared to respond to changing resource conditions, respond to new issues and federal policies, and to prepare a comprehensive framework for managing public lands.

The RMP planning process began on March 25, 2005 with publication in the Federal Register of the Notice of Intent to prepare a RMP.

The Sonoma-Gerlach Management Framework Plan recognizes that the Project area contains a variety of metallic and industrial mineral deposits. One of the objectives in the plan is to make public lands available for exploration and development of these deposits.

The Pershing County Master Plan (2002) has designated land use on private lands in the project vicinity as Agriculture-Mining-Housing. One of the goals of the Master Plan is to develop and responsibly conserve Pershing County's mineral resources by considering the impact of new development on mineral extraction and reviewing proposed mining activities to ensure that they are compatible with existing and planned development.

Land use within the Project area primarily consists of mineral exploration and development, livestock grazing, wildlife habitat, and dispersed recreational use. See Section 3.3.5, Range Resources, for a discussion of livestock grazing and Section 3.3.6, Recreation, for a discussion of dispersed recreational use in the Project area.

Rights-of-Way

Interstate 80 is approximately 1.6 miles west of the Project area boundary. Table 3-2 lists BLM authorized rights-of-way in the Project area.

Table 3-2 BLM Authorized Rights-of-Way in the Project Area

Serial No.	Issued To	Type	TRS
NVN 076937	Pershing County	Road	T30N R33E s2
NVN 076938	Pershing County	Road	T31N R33E s34
NVN 075937	Pershing County	Road	T31N R33E s36

3.3.3 Noise and Vibration

Noise

Noise travels through the atmosphere as a pressure wave. As a result, the attributes of the wave and the environment that the wave moves through can dramatically affect the perceived impact of the noise. In order to assess noise impacts, noise levels are measured using a logarithmic scale known as decibels (dB). A decibel value is the combined impact of all sound waves occurring in the ambient environment. This measurement differs from the manner in which the human ear experiences noise; as a result, decibel values are weighted to create an equivalent reading to that experienced by the human ear. This is accomplished by de-emphasizing the impact of high and low frequencies so that a metric known as an A-weighted decibel reading (dBA) is created which correlates well with the human assessment of noisiness. Decibel measurements in the environment are not constant throughout time and location but represent the impact of sound waves on a receptor given the current ambient conditions including temperature, humidity, wind speed and direction and the influence of terrain or physical barriers between the various sources of the sound waves and the measuring receptor. In general, sound transmission is improved with higher temperature, lower humidity, and in the direction the wind is blowing, and is dampened by any intervening terrain or physical barriers.

Given typical ambient conditions, natural noise levels range between 35 dBA in rural areas away from roads and communities to 75 dBA in urban settings (EPA 1981). Table 3-3 below presents typical sound levels in dBA and subjective descriptions associated with various noise sources.

Table 3-3 Sound Levels Associated with Ordinary Noise Sources

Noise Source	Noise Level	Subjective Description
Commercial Jet Take-Off	120 dBA	Deafening
Road Construction Jackhammer	100 dBA	Deafening
Busy Urban Street	90 dBA	Very loud
Standard For Hearing Protection 8-Hour Exposure Permissible Exposure Limit (MSHA) Action Level within Active Mining Facilities	90 dBA 85 dBA	Very loud Loud – to very loud
Construction Equipment at 50 feet	80-75 dBA	Loud
Freeway Traffic at 50 feet	70 dBA	Loud
Noise Mitigation Level for Residential Areas Federal Housing Administration (FHA)	67 dBA	Loud
Normal Conversation at 6 feet	60 dBA	Moderate
Noise Mitigation Level for Undisturbed Lands (FHA)	57 dBA	Moderate
Typical Office (interior)	50 dBA	Moderate
Typical Residential (interior)	30 dBA	Faint

Source: Federal Highway Administration Highway Construction Noise Handbook (2006)

In order to provide an assessment of the current ambient noise conditions as they exist in the region of the Standard Mine, a noise study was undertaken (JBR 2009). The study sought to quantify the affected environment with regard to noise and to determine the existing baseline sound conditions at receptors throughout the area. This was accomplished in a two-fold process. First measurements of ambient noise levels were recorded at receptor sites (Figure 8) that were collocated with current or future residential subdivisions in the region of the mine (Figure 9). These sites represented the closest residential subdivisions to the proposed mine site and all were located down-slope to the south and west of both the current and proposed mine sites. Second, due to the fact that the currently permitted Standard Mine was not in operation during the baseline sound level recording, a calculation needed to be developed to assess the impacts of the current mine operations on background ambient noise to determine a final baseline sound level.

The first part of the study was undertaken on December 4th and 5th of 2008. Samples were collected during the afternoon of Thursday December 4th and during the morning of Friday December 5th. The data collected represented the minimum, maximum and equivalent sound levels in dBA observed for one second averages over the two 15 minute observation periods. The minimum and maximum sound levels represent the single highest and lowest sound levels observed over any time period. The equivalent sound level represents a calculated sound pressure (noise) level of an imaginary continuous signal, for the 15 minute period, that would produce the same energy as the fluctuating sound levels that were measured. Given the impacts of topography and ambient conditions on noise levels, the ambient conditions were also recorded.

[Figure 8: Sound Monitoring Locations]

[Figure 9: Noise Survey Feature Map]

The maximum and minimum sound impacts L(max) and L(min) recorded during the study were 72.4 and 29.8 dBA respectively. The equivalent sound impact L(eq) as averaged from all study sites was calculated to be 37.75 dBA which is consistent with the noise levels associated with a rural area. These measurements captured the impacts of most if not all non-mine related noise sources in the region including the impact of traffic on Interstate 80, intermittent train traffic along the Union Pacific Railroad tracks just west of Interstate 80, a nearby truck stop just off Interstate 80, gravel pit operations in the region, construction or residential activity, and natural sources such as wind. Table 3-4 estimates the average distance between these primary regional sources of noise, the mine and the observation locations.

Table 3-4 Relative Location of Noise-Emitting Features

Noise-Emitting Feature ¹	Standard Mine ²	Subdivision “A” ²	Subdivision “B1A” ²
Interstate 80	8,000 feet west of mine	100 feet west of closest residential lot	1,000 feet west of closest residential lot
Truck Stop on I-80	15,000 feet southwest of mine	400 feet west of closest residential lot	1,500 feet southwest of closest residential lot
Train traffic/Union Pacific rail lines	12,000 feet west of mine	1,500 feet west of closest residential lot	10,000 feet southwest of closest residential lot
Gravel Pit Operation	5,000 feet southwest of mine	50 feet north of closest residential lot	100 feet north of closest residential lot

¹ Includes primary sources of noise, other than those associated with the existing Standard Mine.

² Distances are approximate.

The second part of the noise study sought to incorporate the impact of the existing operations at the Standard Mine into the regional noise baseline. Because operations at the mine were not ongoing during the time of the sound measurements the mine impacts could not be directly recorded. As a result, a methodology was developed to determine the mines noise impacts at receptors in the region.

A list of equipment and activities that were occurring at the mine was developed and the noise associated with each was determined. The mine noise sources were grouped into two areas of potential noise production, the mine pit area and the heap leach pad area. A sample of an equipment list developed for ongoing activities at the mine is displayed below in Table 3-5

Table 3-5 Proposed Mine Pit Noise Generated Sources – Operation Phase

Mine Pit Equipment List	Number of Each	Specified L _{max} (dBA)	Measured L _{max} (dBA)
Blasthole drill	4	85	81
Wheel Loader ¹	4	80	79
Haul truck ²	9	84	76
D8 or D10 dozer ³	3	86	N/A
Motor grader	2	85	N/A
Water truck ⁴	2	84	76
Rubber tire dozer ¹	1	80	79
Crusher ⁵	1	89	N/A
Blasting ⁶	1	88	N/A

Noise Level Data Source: Federal Highway Administration Construction Noise Handbook (2006) Table 9.1 -Measured Values Used Where Available

1 "Front End Loader" Noise Levels Used as Surrogate

2 "Dump Truck" Noise Levels Utilized

3 Caterpillar D8 from FHACNH Table 9.5

4 "Dump Truck" Noise Values Used as Surrogate

5 Primary and Secondary Crusher Noise Levels Used from The Aggregate Handbook by The National Stone Association (1991)

6 Blasting Noise Levels Estimated Using Blasting Methodologies Proposed and Direct Noise Measurements at the Florida Canyon Mine Which Utilizes Similar Blasting Methods. Blasting has not occurred at the Standard Mine Site since the year 2007.

Due to the attenuation of sound as it moves through the atmosphere the impact of the mine operations needed to be calculated for a given distance. Because background sound monitoring was performed at the nearest residential sites as explained above, calculations of the impact of attenuated mining operation sounds were developed for the nearest residence and potential residential lots.

The distance from the leach pad to the nearest residence was calculated to be 4,360 feet. The distance from the leach pad to the nearest residential lot was calculated to be 3,450 feet. The distance from the mining pit to the nearest residence was calculated to be 5,440 feet and the distance from the mining pit to the nearest residential lot was calculated to be 4,275 feet (Figure 10) (JBR 2009).

Using these distances in the calculation of background sound, the combined impacts from the existing Standard Mine operations can be assessed. The impacts were assessed for both the noise sources associated with the heap leach pad and those sources associated with the mine pits. Table 3-6 below represents the current calculated sound impacts on the nearest residence or residential lot based on the existing operations at the mine.

[Figure 10: Proximity of Residential Land to Authorized Mine Noise Sources]

Table 3-6 Existing Calculated Background Noise Levels Due to Operation of the Standard Mine at the Nearest Residence and Residential Lot

Source	L(eq) Nearest Residence, dBA	L(eq) Nearest Residential Lot, dBA *
Heap Leach Pad Noise	48.19	50.95
Mine Pit Noise	49.25	52.28

* The residential lot closest to the heap leach pad and the lot closest to the mining pit are not the same lot but each represent the closest potential maximum impact from each noise source

Finally, in addition to onsite mining activities, the current mining operation produces vehicle traffic to and from the site with associated noise impacts. The current primary access route is located north of the nearest subdivision. The route takes traffic to and from the mine within a few hundred yards north of undeveloped residential lots, and within approximately 1,050 feet of the nearest occupied residence. Vehicle traffic patterns were developed utilizing existing mine operations. These traffic patterns were used to determine existing noise impacts of vehicle traffic associated with the ongoing mining operations. The existing noise background associated with mine vehicle traffic is presented in Table 3-7 below.

Table 3-7 Existing Calculated Background Noise Levels Due to Mine Vehicle Traffic at the Nearest Humboldt River Ranch Property

Noise Source	L _{eq} (dBA) at Nearest Undeveloped Lot	L _{eq} (dBA) at Nearest Developed Residence
Existing Mine Traffic	50.0	40.0

Based on the combination of ambient environment noise sources, the existing mine operations and vehicle traffic, the maximum baseline ambient noise impacts at the nearest residence and residential lot are estimates to be approximately 49.25 dBA at the residence and 52.28 dBA at a residential lot (JBR 2009).

Vibration

The vibrational characteristics of the ambient environment were historically dominated by blasting activity at the existing Standard Mine Site in the year 2007 and years prior to that. When blasting was exercised, the facility utilized sequential small charge blasting, no more than once per day, to fragment rock for removal and processing. In order to assess the background effect this blasting had on the regional environment, calculations were completed in a manner consistent with ISEE Blasting Handbook guidance. These calculations provided potential peak particle velocities as a result of the vibrational waves. Peak particle velocity is the maximum value associated with the motion of a particle at a point of ground being considered (Joo, Lee, Ryu, Choi, & Yun 1997). The results of the calculations are tabulated in Table 3-8 below:

Table 3-8 Potential Peak Particle Velocity Based on Blasting Activity During and Prior to 2007 at the Standard Mine Site

Distance from 2007 Blast Location (ft) ¹	Potential Peak Particle Velocity (inch/second)
2,500	0.01-0.05 ²
5,000	0.01-0.02 ²

¹ Blasting activity at the Standard Mine Site has not occurred since the year 2007.

² Depending on Confinement Scenario (ISEE Blasting Handbook guidance)

Peak particle velocities are typically assessed against the U.S. Office of Surface Mining’s acceptable thresholds, as set in 30 CFR 816.67(d)(2). The thresholds are 1.0 inch per second (ips) at 2,500 feet and 0.75 ips at 5,000 feet for any dwelling, public building, school, church, or community or institutional building outside the permitted blasting area. Additionally, a safe limit for peak particle velocities has been defined below which no damage should be expected for a house or low rise residential building. The limit is defined as 0.4 inches per second (Hagan & Mercer 1983).

The nearest offsite developable property is approximately 5,000 feet from the nearest blasting location, although blasting has not occurred since 2007 at the Standard Mine Site. Vibrational impacts of no more than 0.02 ips would be expected at this developable property. This represents impacts that are approximately 40 times below the maximum acceptable thresholds and 20 times smaller than the limit defined as the level of no impact damage (JBR 2009).

Finally, predicted peak particle velocities were calculated at the Rye Patch Reservoir Dam, approximately 23,000 feet from the mine site. The calculations were based on blasting at the Standard Mine Site in 2007 and years prior. The calculated impacts would be more than 10 times below the potential damage particle velocities of the most sensitive structures (JBR 2009).

3.3.4 Paleontology

The Project area lies within the Triassic geologic formations in the Humboldt Range. The range is known as a classic locality for Middle Triassic paleontology, mainly because fossils from this age are locally abundant at certain levels throughout the Middle Triassic portions of the Range (BLM 1997). The major fossiliferous strata in the range include the Fossil Hill Member and Upper Member of the Prida Formation, the Dun Glen Formation and the Natchez Pass Formation. The distribution of fossils is erratic due to deposition and some fossils have probably been destroyed by hydrothermal and metamorphic processes. In spite of this, the record of Middle Triassic fossils is one of the most complete of any known in the world (BLM 1997). Within this classic locality, there is a fossil record for Triassic ammonites in the east central portion of T31N, R33E, section 36 (Silberling and Wallace 1967).

The Project area includes the Triassic Grass Valley Formation, the Prida Formation, and the Natchez Pass Formation in which some coral debris has been preserved even though the units have undergone greenschist facies metamorphism (BLM 2004a). No vertebrate fossils have been located to date within the Project area.

The Prida Formation contains numerous invertebrate fossils, consisting mainly of ammonites, pelecypods, and brachiopods. The Middle Member of the Prida Formation has perhaps the most complete succession of ammonite fossils known in the world. Ammonite fossils have been found several miles north of the Project area. Conodonts are found in the Lower and Middle members of Prida Formation and are the small, tooth-like fossil remains of microscopic organisms. Skeletal remains of ichthyosaurs, large extinct, prehistoric marine reptiles, are common in the Middle Member of the Prida Formation. Ichthyosaur remains have been identified northeast of the Project area.

A site located at Rye Patch Reservoir, north-northwest of the Project area was excavated between 1975 and 1983 by Rusco and Davies (1987). Prehistoric Lake Lahontan formed Quaternary-age Pleistocene lake terraces on the western portion of the Florida Canyon Mine, four miles north of the Project area, approximately 20,000 years ago. Approximately 22,000 to 29,000 years ago, quicksand springs located adjacent to the lake trapped horses, camels, mammoths and many smaller mammals. Paleontological vertebrate remains were recovered from loosely consolidated Quaternary-age sand and salts. The site was described as the richest deposit of Pleistocene-age fossil mammal material in Nevada (Lawler 1978).

3.3.5 Range Resources

The Project area is located within the Humboldt House and Rye Patch grazing allotments. These allotments consist primarily of public and private lands in a “checkerboard” (alternating sections) pattern with a small portion of state land at the Rye Patch Reservoir recreational area. The majority of the public lands are administered by the Bureau of Land Management, Winnemucca District Office. Table 3-9 displays land ownership in the Humboldt House and Rye Patch grazing allotments (WDO GIS 2008).

Table 3-9 Allotment Ownership

Allotment	BLM ac.	BOR ac.	Water ac.	Private ac.	State ac.	Total ac.
Humboldt House	22,550	3,778	15,739	18,593	0	60,660
Rye Patch	40,019	1,488	465	25,245	20	67,237
Grand Total						127,897

There are three BLM grazing permit holders authorized to graze livestock (sheep and cows) in the Humboldt House allotment and two permit holders (sheep and cows) in the Rye Patch allotment. Permittee B grazes cows on the lower to mid elevations sites in both allotments and Permittee C grazes sheep in the mid to higher elevation sites in both allotments. Livestock graze both public and private lands in these allotments and use a total of 726 and 1989 AUMs, respectively in the Humboldt House and Rye Patch allotments during the grazing year (March 1 through February 28). An AUM is the amount of forage needed to sustain one cow, five sheep, or five goats for a month. Grazing permit information can be found in Table 3-10 and 3-11 below.

Table 3-10 Humboldt House Allotment

"Permittee A" (West of RR Tracks)				
Cattle #	On Date	Off Date	% Public Land	Animal Unit Months
111	10/15	01/15	64	217
Sub Total				217
"Permittee B" (East of RR Tracks & I-80)				
Cattle #	On Date	Off Date	% Public Land	Animal Unit Months
74	11/01	04/15	100	403
Sub Total				403
"Permittee C" (East of I-80)				
Sheep #	On Date	Off Date	% Public Land	Animal Unit Months
1000	07/16	08/05	77	106
Sub Total				106
Grand Total				726

Table 3-11 Rye Patch Allotment

"Permittee B"				
Cattle #	On Date	Off Date	% Public Land	Animal Unit Months
333	11/01	04/15	100	1818
Sub Total				1818
"Permittee C" (East of I-80)				
Sheep #	On Date	Off Date	% Public Land	Animal Unit Months
1000	08/06	08/31	100	171
Sub Total				171
Grand Total				1989

Existing range improvements in the Project area include two water pipelines, stock watering tanks and range fences (BLM 2004a). In the southern portion of the Humboldt House allotment there is a livestock watering pipeline that flows from a spring located near historic elements of the Standard Mine through a buried pipeline into stock tanks in the northern portion of the Rye Patch allotment. An existing fence in this area separates the Humboldt House and Rye Patch allotments.

3.3.6 Recreation

Recreation on public lands in the Project area is managed by the BLM for dispersed recreation, including hunting, hiking, and off-highway vehicle (OHV) use/sightseeing. Buffalo Canyon, located southeast of the Project area, is utilized by the public for dispersed recreation, including OHV use.

The access road to Buffalo Canyon is located south of the Project area (Figure 3). Rye Patch Reservoir, located southwest of the Project area, offers developed campgrounds and day-use areas.

3.3.7 Social Values and Economics

This section describes the social and economic conditions in the study area. Because the Standard Mine is located in Pershing County and the majority of mine employees reside in Humboldt County, the study area encompasses both counties.

Social

The work force for the Standard Mine would be drawn from the current employees of Jipangu's nearby Florida Canyon Mine. Approximately 25 percent of the current Florida Canyon Mine employees live in Lovelock (Pershing County) and 65 percent reside in Winnemucca (Humboldt County). The remaining 10 percent live in Imlay, Fallon, Reno, and Humboldt.

Pershing and Humboldt counties are sparsely populated, rural counties, with no large urban areas. Year 2007 estimates place the population of Pershing County at 7,075 (Lovelock 2,465 and Imlay 233) and for Humboldt County at 18,052 (Winnemucca 7,646).

Most employees either own or rent their residence. Currently, there appears to be adequate housing available (own/rent) in the event of any new hires for the Standard Mine. Also, both Lovelock and Winnemucca have abundant hotel or motel rooms available for those who choose that type of accommodation.

Community services consisting of law enforcement, fire protection, schools and medical services are adequate to meet current demands as well as any small increases in population. Both communities have adequate shopping available to meet immediate demands.

Economic

Currently, the global economy is facing many uncertainties. Commodity prices are receding from recent peak levels. The price of gold has, however, held up somewhat better than other commodities. As a result of these problems, economic activity and employment in the study area is likely to contract. If State, county, and city revenues fall as sharply as expected, cuts in government services and employment are likely to follow.

The economies of Humboldt and Pershing counties depend to a large degree on mining, ranching, agriculture, and tourism. Although the mining industry provides jobs that pay well, the level of employment and mining activity depends to a great degree on metals prices.

Boom and bust cycles tend to disrupt economic activity in rural counties that are poorly diversified by industry. The unpredictability and large variation in county revenues make financial planning challenging.

County and city finances are funded largely from sales tax, which, along with cigarette taxes, liquor taxes, real property transfer taxes, and government services taxes are referred to as “consolidated taxes” (Humboldt County 2007). Property taxes are the county’s second largest source of revenue.

An important part of the income of rural counties in Nevada that host mining activity is produced by the net proceeds tax on mining activity within the county. The net proceeds tax is based on the value of the minerals extracted after deductions such as the costs of extraction, processing, transportation, and marketing. The net proceeds tax revenue is distributed by the counties in the same way as property taxes; i.e., for schools and other government services (Nevada Taxpayers Association 2007). While a majority of the employees who would be employed at the Standard Mine reside in Humboldt County, the economic value of the net proceeds tax would go to Pershing County with the fewer number of employees.

3.3.8 Soils

According to the Soil Conservation Service (SCS), now the Natural Resources Conservation Service (NRCS), three soil map units are found within the Project area (SCS 1994). The Atlow-Wiskan association (map unit 701) occurs at lower elevations in the Project area. The Xine-Mulhop-Puffer association (map unit 1490) occurs at higher elevations in the area. A third soil type, the Misad-Golconda-Tenabo association (map unit 673) occurs at the lowest elevation of the Project area.

The Misad-Golconda-Tenabo association occurs at 4,500 to 5,500 feet amsl. The association includes 35 percent Misad gravelly very fine sandy loam, 2 to 8 percent slopes; 30 percent Golconda very fine sandy loam, 2 to 8 percent slopes; and 25 percent Tenabo gravelly very fine sandy loam, 2 to 8 percent slopes. The remainder of the association is composed of inclusions. The Misad soil occurs on fan skirts. Permeability of this soil is moderately rapid. The Golconda soil occurs on fan piedmont remnants. A strongly cemented duripan occurs at 23 to 36 inches; permeability above the duripan is slow. The Tenabo soil also occurs on fan piedmont remnants. An indurated duripan occurs from 17 to 24 inches; permeability above this duripan is moderately slow.

The Atlow-Wiskan association occurs at approximately 5,000 to 6,500 feet amsl. This association includes 45 percent Atlow very gravelly loam, 30 to 50 percent slopes; and 40 percent Wiskan very gravelly loam, 30 to 50 percent slopes. The remainder of the association is composed of inclusions. The Atlow soil occurs on south- and west-facing side slopes. The

Wiskan soil occurs on north- and east-facing side slopes. The permeability of both these soil types is moderately slow. Atlow soils overlies bedrock at a depth of approximately 15 inches. Wiskan soils tend to be deeper, overlying bedrock at a depth of about 35 inches.

The Xine-Mulhop-Puffer association occurs between approximately 5,800 and 7,500 feet amsl. This association includes 40 percent Xine very gravelly loam, 30 to 50 percent slopes; 30 percent Mulhop very gravelly loam, 30 to 50 percent slopes; and 15 percent Puffer very cobbly loam, 30 to 50 percent slopes. The remainder of the association is composed of inclusions, with rock outcrop the most common inclusion (7 percent of the association). The Xine soil occurs on north-facing side slopes. The Mulhop soil occurs on south-facing side slopes. The Puffer soil occurs on south-facing foot slopes. Permeability of these soils is moderate to moderately rapid. The Xine soil overlies unweathered bedrock at a depth of approximately 38 inches. Mulhop and Puffer soils are shallower, overlying bedrock at approximately 17 and 12 inches, respectively.

3.3.9 Special Status Species – Plants and Animals

The BLM Nevada State Office identifies sensitive species that occur or have the potential to occur throughout Nevada. The BLM Manual 6840.06 E states that native species may be listed as sensitive if the species:

1. could become endangered or extirpated from a state, or within a significant portion of its range in the foreseeable future;
2. is under review [for listing as threatened or endangered] by the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service;
3. is undergoing significant current or predicted downward trend in habitat capability that would reduce the species' existing distribution, and/or population or density such that federally listed, proposed, candidate, or State listed status may become necessary;
4. typically consists of small and widely dispersed populations;
5. inhabits ecological refugia, or specialized or unique habitats; and
6. is state-listed, but may be better conserved through application of BLM sensitive species status.

The BLM affords these species the same level of protection as federal candidate species. The BLM's policy for sensitive species is to avoid authorizing actions that would contribute to the listing of a species as threatened or endangered.

Special Status Species - Plants

No listed (threatened or endangered) vegetation species are known to occur in the Project area (USFWS 2008). The Nevada Natural Heritage Program (NNHP) also had no occurrence records for sensitive vegetation species in the Project area (NNHP 2008).

In 2003, a survey for plant species of special concern (sensitive species) that could occur in the Project area was conducted. No plant species of special concern were found during this survey (Enviroscientists 2003).

Special Status Species - Animals

According to the USFWS, no listed wildlife species are known to occur in the Project area (USFWS 2008). However, the USFWS notes that habitat for the yellow-billed cuckoo (*Coccyzus americanus*) may occur in the area. Yellow-billed cuckoos occur in extensive riparian areas. Sibley (2001) states yellow-billed cuckoos seldom breed in sites smaller than 25 acres in size. Chisholm and Neel (2002) state that an area of extensive cottonwood forest near Lahontan Reservoir on the Carson River “is now the only known site for cuckoos in northern Nevada.” A stand of locust trees and shrubby riparian habitat is present below the large spring in T31N, R33E, section 35 SW¼, but this area is much less than 25 acres in size. A large stand of riparian vegetation occurs in Eldorado Canyon, north of the Project area, but large stands of riparian habitat are not present in the Project area. Yellow-billed cuckoos would not be expected to occur in the area.

The USFWS also notes that pygmy rabbits (*Brachylagus idahoensis*) may occur in the Project area. Pygmy rabbits typically occur in habitats dominated by mature, dense stands of big sagebrush and green rabbitbrush found in relatively level areas of deep, soft soil (Katzner and Parker 1997). Pygmy rabbits forage primarily on sagebrush and construct underground burrow systems. Accordingly, the species occurs in soil types that are suitable for burrowing. Pygmy rabbits are usually found in areas of relatively dense cover but may occur in more sparse areas as well. In Nevada, pygmy rabbits are found “in broad valleys, drainage bottoms, alluvial fans and other areas with friable soils” (Ulmschneider et al. 2004). No pygmy rabbits or evidence of pygmy rabbits (burrows, concentrations of small pellets) were found in the area during surveys of the site conducted in 2007 or during previous surveys.

Sensitive raptor species that occur in the area include prairie falcons, which are known to nest in the general area, as well as golden eagles and ferruginous hawks. Two apparent prairie falcon nesting territories were identified north of the Project Area (Enviroscientists 2003). A ferruginous hawk pair and adult and young golden eagles were also observed in the area during these surveys, and may have nested locally, though no nests of either species were found. A northern goshawk (*Accipiter gentilis*) was reported to nest near the Project area in the early

1980s. In Nevada, goshawks typically nest in aspen groves over streams. Such habitat occurs in Standard Canyon above the Project area, but no goshawk nests were located in this area during surveys conducted in 2003. More extensive riparian habitat occurs to the north in Eldorado Canyon. Habitat for greater sage-grouse is also present in the area. An inactive sage-grouse lek was reported approximately two miles south of the Project area. No active leks are known in the vicinity of the Project area. No burrowing owls were observed on the fans bordering the range front during surveys conducted in 2007, but this species is expected to occur in the general area.

The USFWS also noted that springs on or near the Project area may support springsnails or other sensitive aquatic organisms. Springsnails are small snails that occur in perennial spring sources and other persistent water sources. Springsnails are believed to have been more widespread during wetter geologic periods and have subsequently become isolated as habitats in the Great Basin dried at the close of the Pleistocene (Sada 2004). At some locations, isolated springsnail populations have evolved to form unique, endemic species. Springs that are subject to even occasional drying (i.e., have not persisted since the Pleistocene) are not expected to support springsnails (Sada 2004). NNHP files included no records of springsnails in or near the Project area.

Loggerhead shrikes were not observed in the Project area, but the species occurs in the general area. No nests that resembled those of this species were found in the area. Juniper habitat in the Project area has been reduced by wildland fire, but the remaining juniper habitat could be utilized by juniper titmice. Similarly, while no vesper sparrows were recorded in the area, the burned habitats in the mountains, including areas bordering remaining juniper stands, represent potential vesper sparrow habitat. Construction of the South Pit and Upper South Pit Haul Road would impact an area of this habitat type. Similar surrounding habitat would remain available as potential vesper sparrow habitat.

According to the NNHP, two sensitive bat species, the pallid bat (*Antrozous pallidus*) and the Townsend's big-eared bat (*Corynorhinus townsendii*) have been recorded near the Project area. The pallid bat is a large, pale-colored western bat that often preys on large terrestrial insects. Pallid bats roost in a variety of situations, including trees, caves, abandoned mines, and buildings. This species is common in arid situations (Wilson and Ruff 1999), with most Nevada occurrences recorded below approximately 8,500 feet (Bradley et al. 2006). Pallid bats are thought to be hibernators (Sherwin 1998; Bradley et al. 2006). The pallid bat is considered to be a species at moderate risk in Nevada (Bradley et al. 2006).

The Townsend's big-eared bat (*Corynorhinus townsendii*) is generally a cave dweller. This species often roosts in abandoned mine shafts and adits. The Townsend's big-eared bat is generally found in desert scrub and pinyon-juniper habitats (Jameson and Peeters 1988). The

species hibernates in cold (but above freezing), well ventilated places in caves, mine adits and similar locations (Pierson et al. 1991; Kunz and Martin 1982). The revised Nevada bat conservation plan indicates that Townsend's big-eared bat occurrence in Nevada is highly correlated with available cave and abandoned underground mine sites, and that the species is at high risk in Nevada (Bradley et al. 2006).

The NDOW notes that several sensitive species of myotis bats have been recorded on the eastern side of the Humboldt Range. Some or all of these species would be expected to occur on the western side of the range, particularly near any water sources in the area.

3.3.10 Vegetation

According to the BLM's 2004 EA *Standard Gold Mining, Inc. Standard Mine Exploration Project Plan Amendment #2* (BLM 2004a), three principal vegetation communities as well as more limited areas of riparian habitat occur in the Project area. A saltbrush scrub community dominated by shadscale (*Atriplex confertifolia*) and bud sagebrush (*Artemisia spinescens*) occurs at the lowest elevations of the Project area. This community is found along the western foot of the Humboldt Range, at elevations below approximately 5,200 feet. Fingers of big sagebrush (*Artemisia tridentata*) follow drainages to the west, extending into the saltbrush scrub community.

A sagebrush scrub community occurs above approximately 5,200 feet. This community includes Wyoming big sagebrush (*Artemisia tridentata wyomingensis*), mountain big sagebrush (*A. t. vaseyana*), and black sagebrush (*Artemisia nova*), as well as smaller amounts of desert peach (*Prunus andersonii*) and spiny hopsage (*Grayia spinosa*). An understory of bottlebrush squirreltail (*Elymus elymoides*, formerly *Sitanion hystrix*) and cheatgrass (*Bromus tectorum*) is common in this community. North-facing slopes, in particular, support well developed stands of mountain brush, a sub-community of the sagebrush scrub community that includes mountain big sagebrush as well as green rabbitbrush (*Chrysothamnus viscidifloris*).

Finally, interspersed with the sagebrush scrub, and particularly on north-facing slopes and at higher elevations of the Project area, a Utah juniper (*Juniper osteosperma*) woodland occurs. Understory vegetation in this community varies from nearly nonexistent in dense stands of juniper to a well developed mountain brush community in openings in the woodland community. Portions of the juniper community, in particular, have been affected by wildland fire. Slopes above the North and Cordex Pits have been burned and now support a grass community that also includes rubber rabbitbrush (*Chrysothamnus nauseosus*), green rabbitbrush and some Nevada ephedra (*Ephedra nevadensis*). Grasses present include cheatgrass, Basin wildrye (*Elymus cinereous*), and squirreltail.

Small stands of riparian vegetation, including willow (*Salix* sp.) and the Nevada noxious weed species tamarisk (*Tamarix ramosissima*) occur in drainages in the area. A larger riparian stand, with dense willow, elderberry (*Sambucus* sp.), and locust (*Robinia* sp.) trees occurs below a spring located in T31N, R33E, section 35 SW¼, in the west-central part of the Proposed Action area.

3.3.11 Visual Resources

The BLM initiated the visual resource management (VRM) process to manage the quality of landscapes on public land and to evaluate the potential impacts to visual resources resulting from development activities. VRM class designations are determined by assessing the scenic value of the landscape, viewer sensitivity to the scenery and the distance of the viewer to the subject landscape. These management classes identify various permissible levels of landscape alteration, while protecting the overall visual quality of the region. They are divided into four levels (Classes I, II, III, and IV). Class I is the most restrictive and Class IV is the least restrictive (BLM 1986).

VRM objectives corresponding to the various management classes provide standards for analyzing and evaluating projects. Projects are evaluated using a Contrast Rating System described in Bureau Manual Section 8431. The Contrast Rating System provides a systematic way to evaluate a proposed project to determine if it meets VRM objectives as established in the Winnemucca BLM District.

The Project area is located in a VRM Class II area. The Class II objective provides for: 1) management activities that retain the existing character of the landscape; and 2) a level of change to the landscape should be low. Every attempt should be made to minimize impacts of activities by repeating the basic elements found in the natural features (form, line, color, and texture) of the landscape.

Travelers on Interstate 80, visitors to the Rye Patch Recreational Area and local residents in the nearby housing development constitute the majority of those that can view the Project area. The Project area can be viewed from Interstate 80 for eight to ten miles. The speed limit on this section of Interstate 80 is 75 miles per hour which gives an approximate viewing time of five to six minutes. The Project area is visible from the small neighborhood of houses and Rye Patch. The view shed map in Appendix C is a mathematical calculation of possible locations from which the Project can be seen. However, it does not take into account the actual ability or limitations of human eye sight.

In general, the area surrounding the Standard Mine can be described as the ‘classic’ panoramic Nevada landscape characterized by vase and open spaces and a backdrop of tall jagged

mountains. Predominate vegetation in this area consists of sagebrush, grasses and juniper trees with areas of exposed soil and rock. Dominant natural features in both the fore- and middle-ground of the Project area consist of low rolling hills. Manmade structures include Interstate 80 and associated fence lines, transmission lines, and structures associated with the existing Standard Mine. Previous mining disturbances are visible throughout the region, as are associated mining facilities and equipment. Because of previous and existing mining operations in and around the project area, the level of change to the landscape should be low.

3.3.12 Wildlife

Wildlife species occurring in the Project area include big game and non-game mammals, predatory species, game birds, migratory and resident bird species, bats, reptiles, and possibly amphibians. Wildlife occurrence in the Project area has been described in the *Standard Mine Exploration EA* (BLM 2000), the *Standard Gold Mining, Inc. Standard Mine Exploration Project Plan Amendment #2* (BLM 2004a), and in the 2003 document *Plant and Raptor Survey Report*, prepared on the Standard Gold Mining Property (Enviroscientists, Inc. 2003). Sensitive species are discussed in Section 3.3.9.

Big Game

As described in the *Standard Mine Exploration EA* (BLM 2000) and *Standard Gold Mining, Inc. Standard Mine Exploration Project Plan Amendment #2* (BLM 2004a), mule deer (*Odocoileus hemionus*) are the most common big game species in and near the Project area. The lower elevations of the Project area, below an elevation of approximately 5,700 feet, are identified as deer winter range. Higher elevations of the area are identified as mule deer summer range. Deer migration in the area is altitudinal. Use areas may vary from year to year depending on precipitation amounts, particularly snow accumulations, forage availability, and cover. The area has also been identified as potential summer and winter range for bighorn sheep, although there have been no introductions into the area and no sheep currently occur there.

Antelope

The NDOW identifies the lower elevations of the Project area (up to approximately 6,000 feet) and benches to the west as year-round antelope (*Antilocapra americana*) habitat. The presence of Interstate 80 west of the Project area probably reduces the movement of antelope from more extensive areas of suitable habitat in the flats bordering the Humboldt River and north and west of the Rye Patch Reservoir area.

Game Birds

Greater sage-grouse (*Centrocercus urophasianus*) are reported to occur in the upper elevations of the Humboldt Range, but no active strutting grounds are known near the Project area (BLM 2004a). An inactive lek is reported near the Humboldt Range front approximately two miles

south of the Project area. NDOW data indicate that the benches bordering the west side of the Humboldt Range are utilized as sage-grouse winter habitat, and that much of the remainder of the range represents summer use area. Sage-grouse utilize mesic areas along water courses and near seeps and springs as brood-rearing habitat. Chukar (*Alectoris chukar*) and mourning doves (*Zenaida macroura*) occur in the area. Chukar often frequent steep, rocky slopes and canyons. Mourning dove may be encountered throughout the area during warmer times of the year. Both species require access to water. California quail (*Callipepla californica*) were heard calling south of the mine area in 2007.

Raptors

Raptor surveys were conducted in and near the Project area in 2002 and 2003 (BLM 2004a). Several raptor species that occur in the area are identified as sensitive by the BLM. These species (northern goshawk, ferruginous hawk, prairie falcon and golden eagle) are discussed in Section 3.3.9. Other raptors observed in the area include a Cooper's hawk (*Accipiter cooperii*), which was observed in 2007 in a stand of locusts growing below the spring in T31N, R33E, section 35 SW¼. No nest was found in this area. A red-tailed hawk (*Buteo jamaicensis*) and a turkey vulture (*Cathartes aura*) were observed flying over the existing Standard Mine in the spring of 2007. The Breeding Bird Atlas of Northern Nevada (Floyd et al. 2007) includes an incidental record of a great horned owl (*Bubo virginianus*) nesting east of the Standard Mine site.

Other Wildlife

Other game and non-game mammals including mountain lions (*Felis concolor*), coyotes (*Canis latrans*), bobcats (*Lynx rufus*), and badgers (*Taxidea taxus*) occur as the larger or more common predators in the area. Mountain lions and bobcats are usually associated with more rugged, rocky areas, while coyotes and badgers are typically found in sagebrush and mountain brush communities. Mammalian prey species present in the Project area include black-tailed jackrabbits (*Lepus californicus*), mountain cottontails (*Sylvilagus nuttallii*), yellow-bellied marmots (*Marmota flaviventris*), and a variety of small rodents. Bats are discussed with sensitive species (Section 3.3.9).

Reptiles observed in the area in 2007 included western fence lizards (*Sceloporus occidentalis*). No amphibians were observed in the Project area, but the spring located in T31N, R33E, section 35 SW¼ may support Pacific chorus frogs (*Pseudacris regilla*) or other amphibian species.

Migratory birds are discussed in Section 3.2.3. No fisheries exist in the Project area.

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

The following sections identify the environmental consequences resulting from the Proposed Action and alternatives. Analysis of environmental consequences identifies both direct and indirect impacts resulting from implementation of the Proposed Action and alternatives. Cumulative impacts are discussed in Chapter 5.

The analysis of potential impacts from the Proposed Action includes implementation of appropriate environmental protection measures listed in Section 2.3.14. The terms “effects” and “impacts” as used in this chapter are synonymous. “Short-term” is defined as the life of the Proposed Action through reclamation and closure (2029). “Long-term” is defined as the future beyond reclamation and closure.

4.2 PROPOSED ACTION

4.2.1 Air Quality

Short-term direct impacts would occur to local air quality resources from activities associated with the Proposed Action which would create temporary increases in fugitive and combustion emissions. The Proposed Action includes environmental protection measures (Section 2.3.14) that would be taken to reduce fugitive dust such as the implementation of a dust control plan and compliance with other air quality permit emission controls and limits. These measures apply to activities associated with the construction, operation and closure of the components associated with the Proposed Action, including phase 2 construction expanding the heap leach facility. Reclamation activities described in Section 2.3.12 would eliminate long term impacts to air quality associated with the Proposed Action. Based upon the environmental protection measures and reclamation activities no indirect impacts are anticipated.

4.2.2 Cultural Resources

Six Class III cultural resource inventories have been conducted in the project area and surrounding areas. A table of cultural resource inventories performed to date and a map showing the boundaries of the inventories are included in Appendix A. During the six inventories, a total of 73 historic and/or pre-historic sites were recorded. Sixteen sites were determined as eligible for listing on the NRHP. None of these eligible sites would be adversely affected by the proposed action.

The proposed South Pit Expansion would encompass the historic Lally Pit. However, the Lally Pit is a non-contributing element to the historic Standard Mine. Therefore the effects to the pit would not affect the eligibility status or contributing elements of the site.

SGMI hired Chambers Group, Inc. to relocate and evaluate one site and determine the eligibility status of the site. On October 28th, 2008, Chambers Group, Inc. relocated the site and recommended the site not eligible for listing on the NRHP due to the condition of the site as lacking integrity, collection of artifacts in the past, and heavy disturbance. The report is pending the determination if additional mitigation will be required for the historic Standard Mine site.

4.2.3 Migratory Birds

Short-term direct impacts to nesting migratory birds could occur from land clearing activities and other mining and process activities associated with the Proposed Action. These activities would temporarily reduce potential nesting habitat areas and potentially disturb nesting birds in the Project area. Chemical processing, including open ponds, associated with the heap leach facility can impact migratory birds. However, based upon the environmental protection measures in Section 2.3.14 these impacts are expected to be minimal to none.

No long-term or indirect impacts to migratory birds are anticipated due to the regulatory closure requirements for chemical stabilization of process solutions and contouring and revegetation activities that are required as part of reclamation and closure as described in Section 2.3.12.

4.2.4 Native American Religious Concerns

To date no Traditional Cultural Properties or sacred sites have been identified within the project area. Consultation is on-going.

4.2.5 Invasive, Non-Native Species

Short-term direct impacts could be caused by surface disturbance activities associated with the Proposed Action which cause the establishment and/or spread of noxious weeds and non-native, invasive species. Currently, the only noxious weed known to occur in the Project area is tamarisk. This species was found below the spring located in T31N, R33E, section 35, which is not part of the Proposed Action. The non-native, cheatgrass is common in and near the Project area, and may move onto disturbed sites in the area. Halogeton and Russian thistle occur on disturbed ground at some locations in the Project area. Disturbance associated with the Proposed Action could encourage the spread or establishment of these species at other locations in the Project area. Halogeton and Russian thistle would decrease over time as reclamation plant species establish and replace these early succession weeds. These impacts are expected to be minimal due to the environmental protection measures listed in Section 2.3.14. Based upon the environmental protection measures, no long-term or indirect impacts are anticipated.

4.2.6 Wastes, Hazardous or Solid/Hazardous Materials

Short-term direct impacts to the environment would result from the accidental release of hazardous materials or solid and hazardous waste from on-site storage and use areas or during transportation to or from the site as described in Section 3.2.6. These impacts would be temporary and are expected to be minimal due to the environmental protection measures which specify compliance with applicable local, state and federal regulations for transportation, storage and use of materials as well as response, reporting, and cleanup procedures for spills within containment areas and releases outside of containment areas. SGMI has an emergency response and spill contingency plan that describes the response procedures to spills on and off-site.

Indirect impacts to the environment would occur from accidental spills during transportation to or from the Project area. In the event of a release, the commercial transportation company would be responsible for first response and cleanup. Applicable local and regional law enforcement and fire protection agencies may also be involved. The transporters are subject to local, state and federal regulations for cleanup and reporting within specified time frames. Based upon the relatively small quantity of materials transported to and from the Project area and the regulatory requirements, any impacts are expected to be minimal. No long-term impacts are anticipated due to the reclamation and closure regulations that require sampling and cleanup of any residual spills as part of the closure process.

4.2.7 Water Quality

Surface Water

Short-term direct impacts to surface water in the Project area could occur due to increased erosion from surface disturbance that mobilizes sediment. These impacts are anticipated to be minimal due to the environmental protection measures in Section 2.3.14 and the requirement for containment of process solutions and storage tanks as described in Section 3.2.6.

Long-term impacts are anticipated to be minimal due to the implementation of the reclamation plan and the regulatory release criteria associated with vegetation establishment and process fluid stabilization.

Indirect impacts to surface water quality could occur from the mobilization of sediment and contaminants downstream toward the Humboldt River either during operations or after reclamation and closure activities are complete. These impacts are expected to be minimal due to the environmental protection measures described in further detail in Section 2.3.14.

Ground Water

No direct and indirect impacts to ground water quality are expected to occur based upon the regulatory requirements for the engineered design of the process components associated with the heap leach facility that includes leak detection and groundwater monitoring, and the geochemical characterization and ongoing sampling requirement for waste rock material.

4.2.8 Wetlands, Riparian Zones, Waters of the United States

As identified in Section 3.2.9, the North Standard Canyon is recommended as jurisdictional and regulated by the Corps. No direct impacts to this drainage are anticipated. However, due to the steep slope of the area associated with the proposed Upper South Pit Haul Road, construction activities involving fill on these slopes could result in material falling into the drainage. Indirect impacts to jurisdictional waters of the United States could occur as a result of the Proposed Action through the mobilization of sediments. Impacts are expected to be minimal as the Clean Water Act requires that SGMI obtain and comply with the conditions of a stormwater permit due to the proximity to any waters of the United States.

4.2.9 Geology and Minerals

Direct impacts to geologic and mineral resources from the Proposed Action would occur from the removal of ore from the open pits and burial of any remaining material within the waste rock facilities. SGMI has evaluated exploration drilling results and determined that the waste rock facilities would not affect any known recoverable mineral resources.

4.2.10 Land Use Authorizations

The Proposed Action would result in approximately 123.3 acres of public land being closed to access for the life of the mine. Closure is necessary to protect mine property, and for the safety of the public. The Proposed Action is not anticipated to affect existing rights-of-way in the Project area. The public access to the Buffalo Valley Road would not be restricted.

4.2.11 Noise and Vibration

Noise

The Federal Noise Control Act of 1972 established a requirement that all Federal agencies administer their programs to promote an environment free of noise that jeopardizes public health or welfare.

In order to assess the potential environmental noise consequences associated with the proposed action, the change in noise production above that defined for the existing baseline environment was utilized. The rationale for this assessment methodology is based on the fact that there are no State of Nevada noise threshold standards directly applicable to noise associated with the existing Standard Mine operations. State code gives county and city governments the right to

implement noise impact restrictions but no such ordinances apply in the sections of Pershing County where the existing Standard Mine and associated proposed project components are located. The impact assessment thus utilized the background noise impacts that currently exist for the project region and the change in noise that would be caused by the proposed project. These changes in noise impacts were then compared to the threshold for detection of sound level for the human ear (JBR 2009). This threshold is typically at or below three dBA. In addition the EPA has set a non-regulatory guideline for assessing the impact of ambient outdoor noise. The guideline defines a level of 55 dBA for 24 hour averaged sound levels known as L(dn). L(dn) is an averaging scheme by which night time noises are assessed an additional impact of 10 dBA due to the negative impact of noise that occurs during the overnight hours. This guideline is not strictly enforceable but was meant to help guide state and local entities when they developed enforceable state and local noise regulations. Because the values calculated during the noise analysis (JBR 2009) were developed in 24 hour averaged L(eq) the EPA guideline defined in L(dn) needs to be converted to L(eq) so that direct comparisons can be made. For 24 hour averaged L(eq) values, the equivalent EPA threshold is calculated as 49.0 dBA (JBR 2009).

As described in Section 3.3.3 of this EA, current baseline noise impacts in the region surrounding the mine are dominated by the impacts of the existing mining operations. These produce baseline noise impacts at the nearest residence and residential lot of between 49 dBA and 52 dBA depending on the source receptors pair. The background noise impacts have been displayed below in Table 4-1.

Table 4-1 Background Noise Levels Due to Existing Operation of the Standard Mine

Source	L(eq) Nearest Residence, dBA	L(eq) Nearest Residential Lot, dBA *
Heap Leach Pad Noise	48.18560274	50.94695062
Mine Pit Noise	49.25231406	52.27756968

* The residential lot closest to the heap leach pad and the lot closest to the mining pit are not the same lot but each represent the closest potential maximum impact from each noise source

Anticipated noise emissions from construction and operation of the proposed action were compared to baseline values to determine the relative amount of change. Construction of the proposed action would involve development of new pit areas and haul roads, activities which generate noises different than those generated during operation of the proposed action. During operation, noise emissions would originate from the heap leach facility, ancillary facilities, pit areas, and other areas associated with operation of the mine. The noise impacts associated with construction and operation of the proposed action are detailed below.

Proposed Action Construction Impacts

Noise intensity associated with the existing mining activities would be reduced during construction of the proposed action. Noise from the existing heap leach facility would cease as

efforts and equipment would be focused on development of new mine pit and haul road areas elsewhere in the proposed project area. As a result, noise emissions would largely originate from equipment specifically necessary for construction efforts, and concentrated to areas where new mine development is proposed (JBR 2009). The equipment anticipated to be utilized during construction of the proposed action is displayed in Table 4-2 below. The types of equipment, as well as the quantity, represent the maximum necessary to complete construction. However, less equipment could be used if appropriate and possible.

Table 4-2 Proposed Mine Pit Noise Generated Sources - Construction Scenario

Mine Pit Equipment List	Number of Each	Specified L _{max} (dBA)	Measured L _{max} (dBA)
Wheel Loader ¹	2	80	79
Haul truck ²	4	84	76
D8 or D10 dozer ³	3	86	N/A
Motor grader	2	85	N/A
Water truck ⁴	2	84	76
Rubber tire dozer ¹	1	80	79

Noise Level Data Source: Federal Highway Administration Construction Noise Handbook (2006) Table 9.1 -Measured Values Used Where Available

1 "Front End Loader" Noise Levels Used as Surrogate

2 "Dump Truck" Noise Levels Utilized

3 Caterpillar D8 from FHACNH Table 9.5

4 "Dump Truck" Noise Values Used as Surrogate

Due to the attenuation of sound as it travels through the atmosphere, the impact of construction activities associated with the proposed action need to be quantified to fixed distances. Baseline sound levels were determined at the nearest residential structure and nearest residential lot, as explained above. Attenuated construction related noise impacts were developed for the same residential structure; however, construction activities would occur closer a different residential lot that existing authorized activities do.

The distance from the existing mining pit to the nearest residential structure and residential lot is approximately 5,440 feet and 4,275 feet, respectively (Figure 10). The distance from proposed construction activities to the nearest residential structure and residential lot is 6,260 feet and 3,740 feet, respectively (Figure 11). Using these distances, the impacts associated with construction of the proposed action were assessed. Table 4-3 below represents the total noise impacts associated with construction activities, as well as the degree of change relative to baseline noise conditions.

Table 4-3 Proposed Action Construction Phase Noise Impacts

	Source	L(eq) Nearest Residence, dBA	L(eq) Nearest Residential Lot, dBA*
Proposed Action	Mine Pit Noise	44.67	51.16
Resulting Change in Baseline Conditions	Mine Pit Noise	-4.58	-1.12

* The residential lot closest to the heap leach pad and the lot closest to the mining pit are not the same lot but each represent the closest potential maximum impact from each noise source

Noise levels, in general, would decrease at the nearest residential structure and nearest residential lot. The construction activities would require different types, and often fewer amounts of vehicles and equipment than the existing mining activities require. Additionally, noise sources would be located further from receptor locations during construction than existing sources are. The noise impacts, by and large, would not exceed the guideline value of 49 dBA for 24 hour averaged L(eq) at the nearest residence. The noise impacts, in general, would slightly exceed the guideline at the nearest residential lot (JBR 2009).

Individual and isolated noise sources, largely due to traffic in the area, may be noticeable in residential areas. Construction activities would likely increase traffic to and from the project site for approximately one month, by as much as 25 percent. These impacts would be noticeable as a few more vehicle passages, but not perceptible as a change in average sound levels (JBR 2009).

Proposed Action Operation Impacts

The operational phase of the Proposed Action would feature sound generation profiles very similar to those created by current activity at the Standard Mine. The same equipment currently used would be employed in a very similar manner (JBR 2009). The changes associated with the proposed action would only change the location of mining activities. The proposed action would develop new pits and associated haul roads to the south and east of their current location. The heap leach pad operations would occur in a similar location to current operations.

As a result, distances between the nearest residence and residential lot and operational phase noise sources will differ from the distances used in calculating impacts for the current mining operations. The distances used for the production phase analysis were calculated for both the leach pad and the new mine pit. The distance from the leach pad to the nearest residential structure and residential lot is 4,360 feet and 3,450 feet, respectively (Figure 10). The distance from the new mining pit to the nearest residence was calculated to be 6,260 feet, and the distance from the new mining pit to the nearest residential lot was calculated to be 3,740 feet (Figure 12) (JBR 2009).

[Figure 11: Proximity of Residential Land to Mine Noise Sources During Construction]

[Figure 12: Proximity of Residential Land to Mine Noise Sources During Operation]

Using the distance and equipment assumptions explained above the maximum average noise impacts L(eq) were calculated for the proposed operational phase. Table 4-4 below represents the total noise impacts associated with the operational phase noise emissions as well as the relative change from the baseline noise impacts.

Table 4-4 Proposed Action Operational Phase Noise Impacts

	Source	L(eq) Nearest Residence, dBA	L(eq) Nearest Residential Lot, dBA*
Proposed Action	Heap Leach Pad Noise	47.26	50.02
	Mine Pit Noise	47.38	53.87
Resulting Change in Baseline Conditions	Heap Leach Pad Noise	-0.93	-0.93
	Mine Pit Noise	-1.88	1.59

* The residential lot closest to the heap leach pad and the lot closest to the mining pit are not the same lot but each represent the closest potential maximum impact from each noise source

Due to the slight increase in distance between the proposed mine pit and the nearest residence, the operational phase of the proposed action would produce a slight decrease in total noise impacts at the residence. Additionally, the total sound impacts at the nearest residence would fall below the EPA guideline of 49 dBA for 24 hr averaged L(eq) for noise produced at the mine pit or the heap leach pad. In regard to the impacts at potentially developable residential lots, the impacts decrease with regard to the heap leach sources while increasing slightly with regard to the proposed mine pit sources. However, the increase falls within the three decibel range that defines the human ear's threshold for perceptibility. As a result, this increase would not be readily observable (JBR 2009).

Proposed Action Mine Access Road Corridors - Construction Phase

The construction period would likely feature an approximate 25 percent increase in traffic to and from the mine site for roughly one month. That traffic increase is estimated to increase average noise levels in the nearer portions of the closest subdivision by up to two to three dBA L(eq), and other areas in the subdivision by up to one dBA L(eq). Those impacts would be noticeable as a few more vehicle passages, but not perceptible as a change in average sound levels (JBR 2009).

Proposed Action Mine Access Road Corridors - Operational Phase

During the Operational Phase, noise impacts would match those historically occurring at the Standard Mine. No increase in average impacts would occur, except those brief and temporary impacts described during the construction phase. The location of maximum impacts may shift slightly as a result of the change in mine pit locations (JBR 2009).

Vibration

Proposed Action Construction Impacts

During the construction period associated with the proposed action, increased traffic on the access road, which could include up to three heavy truck deliveries per day, could have a minor or occasionally moderate vibration effect on the nearest residential properties. However, given the short duration of the construction period and the relatively small vehicle fleet, the overall vibration impact of the proposed action construction phase is estimated to be minimal with any vibration being highly localized near the activity areas (JBR 2009).

Proposed Action Production Impacts

During the production phase of the proposed action, blasting operations at the mining facility would produce the majority of the vibration impacts for the region. As previously used during and prior to the year 2007 at the existing Standard Mine facility, the proposed action would utilize sequential small charge blasting no more than once per day to fragment rock for removal and processing. Therefore the blasting location would be the only variable changing in association with the proposed action.

As mentioned in regard to noise impacts, the nearest residence would be approximately 6,260 feet from the proposed new mine pit (Figure 12). This distance is slightly farther than the nearest distance between the historic 2007 blasting locations and the nearest residence. As a result, blasting vibration impacts produced by proposed action would likely decrease from the levels due to the last blasting activity at the Standard Mine in the year 2007. As detailed in Table 3-8 in Section 3.3.3, and repeated below in Table 4-5, the vibration impacts due to historic blasting which last occurred in 2007 at the site are:

Table 4-5 Potential Peak Particle Velocity Based on Blasting Activity During and Prior to 2007 at the Standard Mine Site

Distance from Blast Location (ft)¹	Potential Peak Particle Velocity (inch/second)
2,500	0.01-0.05 ²
5,000	0.01-0.02 ²

¹ Blasting has not occurred at the Standard Mine Site since the year 2007.

² Depending on Confinement Scenario (ISEE Blasting Handbook guidance)

Since the distance between the blasting operation and the receptors would increase subtly in the proposed action, these values can represent the upper limit of the proposed action's operational phase impacts. When compared to the U.S. Office of Surface Mining's acceptable thresholds for Particle Peak Velocity of 1.0 inch per second (ips) at 2,500 feet and 0.75 ips at 5,000 feet for any dwelling, public building, school, church, or community or institutional building outside the permitted blasting area, it becomes clear that the vibration impacts associated with the proposed action are likely to produce negligible impacts and should reduce vibration impacts on neighboring residential areas as compared to historic blasting at the mining operations (JBR 2009).

Finally, predicted peak particle velocities were calculated at the Rye Patch Reservoir Dam, approximately 25,000 feet from the proposed mine site. Similar to the impacts described in Section 3.3.3 the impacts of the proposed action would be more than 10 times below the potential damage particle velocities of the most sensitive structures (JBR 2009).

4.2.12 Paleontology

Direct impacts to paleontological resources could occur from mining activities associated with the Proposed Action. However, due to the environmental protection measures in Section 2.3.14, the impacts are anticipated to be minimal. No indirect impacts are anticipated to occur due to the implementation of the Proposed Action.

4.2.13 Range Resources

Direct short-term impacts to livestock and grazing resources would result from the temporary loss of forage associated with 123.3 acres of public land associated with the Proposed Action due to surface disturbance and restricted access to active mining areas for security and safety reasons. It is assumed that 25 acres is needed to support one AUM in both the Humboldt House and Rye Patch allotments. Therefore the maximum potential impact would be a temporary loss of 5 AUMs.

Long-term, indirect impacts to livestock and rangeland resources would result from the loss of 45 acres associated with the South pit that would not be backfilled or reclaimed as part of the Proposed Action. This represents a permanent estimated loss of 1.8 AUMs in the Rye Patch allotment which consists of 40,019 acres of public lands administered by the BLM. This loss represents approximately 0.1 percent of the allotment area and would have a minimal effect on livestock and grazing resources.

The Proposed Action would not impact existing range improvements and would not prevent livestock access to existing water sources in the Humboldt House or Rye Patch allotments. Artificial ponds created by the Proposed Action would be fenced to prevent access by livestock.

4.2.14 Recreation

Short-term direct impacts to recreation would occur as a result of restricted access to the 123.3 acres of disturbance on public land in active mining associated with the Proposed Action for the duration of mine operations and reclamation. These impacts would be minimal as the areas which would be restricted temporarily have no developed recreational facilities and would be accessible again following reclamation activities. The Plan of Operations boundary in T30N, R33E, section 1 SW¼ (Figure 3) would not be fenced and therefore recreational access in that area, which includes the Buffalo Canyon road, would not be restricted during active operations.

Long-term, indirect impacts would occur to recreation as a result of the permanent loss of access to 45 acres associated with the South pit which would not be backfilled or reclaimed. Barriers would be placed along the perimeter as necessary to restrict vehicle access. This loss of access would have a minimal impact on recreation in the area.

4.2.15 Social Values and Economics

As described in Chapter 2, the workforce that would implement the Proposed Action would be made up of a portion of the employees currently working at the Florida Canyon Mine. The main effect of the Proposed Action would be to extend the term of employment for current mine workers. Instead of beginning to taper off in 2010, employment would continue at approximately current levels until 2015 when mining and pit backfilling activities are anticipated to end. Total employment would then begin to decline because fewer employees would be needed to process ore through mine closure in 2027. These minor changes in employment are unlikely to affect the population size, or the demand for housing and community services in the study area. The Proposed Action would therefore have direct and indirect impacts on employment as the current workforce would be sustained for a longer period of time for the Standard Mine and the Florida Canyon Mine.

Economic impacts of the Proposed Action would begin in 2010 as the existing pits are expanded and the ore is processed. Mining is projected to end in 2015 although ore processing would continue until 2018; the project would conclude in 2027. The main impact of the Proposed Action would be to generate property tax and net proceeds on minerals tax revenues that would accrue to Pershing County and the State of Nevada. Sales tax revenues would accrue to the city and county where the purchases were made, as well as to the State. The projected economic impacts of the Proposed Action are summarized in Table 4-6.

Table 4-6 Projected Economic Impacts of the Proposed Action

Year	Gold Eq. Oz. Production	Total Employ.	Payroll	Benefits	Payroll Tax	Property Tax	Net Proceeds Tax	Sales Tax	Purchases of Goods and Services in NV
2008	55,500	123	\$5,372,071	\$2,645,945	\$1,504,180	\$184,150	\$32,246	\$917,556	\$22,379,408
2009	51,250	138	\$6,208,017	\$3,057,680	\$1,738,245	\$185,071	\$29,776	\$1,060,336	\$25,861,862
2010	48,500	138	\$6,394,258	\$3,149,411	\$1,790,392	\$185,996	\$28,179	\$1,092,146	\$26,637,718
2011	47,500	138	\$6,586,086	\$3,243,893	\$1,844,104	\$186,926	\$27,598	\$1,124,911	\$27,436,850
2012	46,500	138	\$6,783,668	\$3,341,210	\$1,899,427	\$187,861	\$27,017	\$1,158,658	\$28,259,955
2013	45,000	138	\$6,987,178	\$3,441,446	\$1,956,410	\$188,800	\$26,145	\$1,193,418	\$29,107,754
2014	44,500	138	\$7,196,794	\$3,544,689	\$2,015,102	\$189,744	\$25,855	\$1,229,220	\$29,980,986
2015	43,750	138	\$7,412,697	\$3,651,030	\$2,075,555	\$190,693	\$25,419	\$1,266,097	\$30,880,416
2016	37,500	54	\$2,987,639	\$1,471,524	\$836,539	\$181,158	\$21,788	\$620,663	\$15,138,117
2017	26,500	54	\$3,077,269	\$1,515,670	\$861,635	\$172,101	\$15,397	\$507,815	\$12,385,732
2018	23,000	54	\$3,169,587	\$1,561,140	\$887,484	\$163,495	\$13,363	\$394,967	\$9,633,347
2019	17,250	54	\$3,264,674	\$1,607,974	\$914,109	\$155,321	\$10,022	\$282,119	\$6,880,962
2020	11,500	<u>22</u>	<u>\$1,369,954</u>	<u>\$674,753</u>	<u>\$383,587</u>	<u>\$100,958</u>	<u>\$6,682</u>	<u>\$169,272</u>	<u>\$4,128,577</u>
Totals	498,259		\$66,809,891	\$32,906,364	\$18,706,770	\$2,272,277	\$289,483	\$11,017,179	\$268,711,685

- Notes: 1. Price of gold assumed to be \$800 per oz.
 2. Mining ends in 2015.
 3. Dollar amounts are in 2008 dollars.

Source: (Constant 2009)

4.2.16 Soils

The Proposed Action would result in short term direct impacts to soils through new disturbance in the Atlow-Wiskan association soil type and in the Xine-Mulhop-Puffer association. Soils and accompanying vegetation would be removed from the footprint of the expanded North/Intermediate pit and South pit. Soils would be removed or buried during construction of the haul roads. Excavated topsoil or suitable waste rock would be salvaged for reclamation. Soils in the mountainous terrain of the Project area tend to be shallow, limiting the amount of topsoil that can be salvaged. Material that is not salvaged, including underlying bedrock, would be placed in the pits as part of the proposed backfilling or used during reclamation.

Dust would be controlled by watering the haul roads. At the close of mining, haul roads would be ripped, recontoured and the footprint revegetated as a part of the reclamation plan.

As described in the environmental protection measures in Section 2.3.14, SGMI would revegetate disturbed areas to reduce the potential for wind and water erosion. Following construction activities, areas such as cut and fill embankments and growth media stockpiles would be seeded as soon as practical and safe. All sediment and erosion control measures would be inspected periodically and repairs performed as needed.

4.2.17 Special Status Species Plants and Animals

Plants

No listed (threatened or endangered) or sensitive vegetation species have been reported in the Project area (USFWS 2008; NNHP 2008). A 2003 survey for sensitive plant species found no plant species of special concern in the Project area. Therefore the Proposed Action is expected to have no impact on sensitive plant species.

Animals

Direct impacts to special status animal species by the Proposed Action would be short term. The impacts would be caused by the mining activities and associated surface disturbance in areas of potential habitat. Based upon the areas of suitable habitat that exist in the Project area and the environmental protection measures to be implemented as part of the Proposed Action, these impacts are expected to be minimal.

No listed special status wildlife species have been reported in the Project area (USFWS 2008). The Project area does not represent habitat for the USFWS candidate species yellow-billed cuckoo. No sensitive wildlife species were recorded in the immediate Project area, but portions of the area appear to represent greater sage-grouse habitat. Under the Proposed Action, impacts to sagebrush habitat are limited, and no impacts to riparian areas are proposed. The Proposed Action is expected to have minimal direct impacts on sage-grouse due to the small area of

potential habitat and the lack of evidence showing their active presence in the Project area. The steep mountainous terrain present in a majority of the Project area does not represent pygmy rabbit habitat. Some areas of denser sagebrush are located along the range front in the lower elevations of the Project area, but new disturbance is not proposed in these areas. No evidence of pygmy rabbits was noted in the Project area during 2007 baseline surveys.

Sensitive bat species probably forage in the area, and may roost in pit highwalls or on cliffs and outcrops in the Project area. Mining activity in these areas could result in some bat mortalities. Impacts to sensitive bat species are expected to be minimal due to the small potential habitat area within the Project area and the relatively small scale of activities associated with the Proposed Action.

The Proposed Action is not expected to impact any raptor nests. Several sensitive raptor species including the prairie falcon, ferruginous hawk and golden eagle are believed to nest near the Project area. Due to the lack of evidence of active nesting areas within the Project area and the environmental protection measures that require a nesting raptor survey prior to new disturbance in areas of large outcrops or other suitable habitat, direct impacts to sensitive raptor species is expected to be minimal.

Based upon the implementation of the environmental protection measures and reclamation activities, no indirect impacts are anticipated. All areas, with the exception of 45 acres associated with the South pit, would be reclaimed. This area could provide habitat for nesting raptors and bats after mining and reclamation activities are complete.

4.2.18 Vegetation

Short-term direct impacts to vegetation would be caused by clearing and excavation of currently undisturbed areas associated with the Proposed Action. These impacts are expected to be minimal based upon the activities described in the reclamation plan (Section 2.3.12) and the environmental protection measures (Section 2.3.14).

Long-term, indirect impacts to vegetation would result from the loss of 45 acres associated with the South pit that would not be backfilled or reclaimed as part of the Proposed Action. This loss of vegetation would have a minimal impact in the area.

4.2.19 Visual Resources

Short-term direct impacts would occur to visual resources from the Proposed Action. While the Proposed Action would create a slight intrusion on the visual quality, combined with historical and existing mining operations within the immediate area, this is well within the objectives of the VRM Class II classification and therefore impacts are expected to be minimal. This is based on

the relative size of the project, the distance from the key observation points (KOPs) and the Interstate 80 corridor, the history and presence of previous disturbances (existing landscape character/situation) and the methods of operation and reclamation. The photos from the KOPs and the associated Contrast Rating field sheets are included in Appendix C.

A Contrast Rating field exercise was completed in accordance with Bureau Manual Section 8431. A rating of “Weak” was yielded on the landscape elements of form, color, line, and texture and structures; and a rating of “Moderate” with regards to vegetation. In addition to these parameters, the ratings of “Weak” and “Moderate” were also dependent on the amount of visual variety and elevation change in the surrounding landscape. In general, the Proposed Action would create a weak visual temporary impact for a majority of the casual viewers. Any lighting used as part of the Proposed Action would be visible as a faint glow from most KOPs.

No indirect, long-term impacts would occur to visual resources as a result of the Proposed Action. The reclamation activities would result in the blending of the facility features to match the surrounding topography and the revegetation of the surface disturbance.

4.2.20 Wildlife

Short-term direct impacts to wildlife would occur during the implementation of the Proposed Action from the removal of vegetation during land clearing activities and temporary mining and processing activities. Enlarging the existing pits may also remove some potential cliff nesting or roosting habitat. These impacts are expected to be minimal based upon the environmental protection measures in Section 2.3.14 and because they are temporary and most species of wildlife are expected to avoid areas of active mining disturbance.

Much of the proposed disturbance would occur at elevations above 5,700 feet, in areas identified as mule deer summer range. Deer use in the area is reported to be low, but deer may utilize juniper woodland as thermal and hiding cover. Deer would be displaced from areas of proposed disturbance during active mining, and from un-reclaimed pits on a permanent basis. Impacts to mule deer would be minimal due to the low deer use that occurs in the area and ample alternate habitat that is available in areas adjacent to the Proposed Action.

Indirect impacts to wildlife would occur due to noise and human presence that may cause wildlife to avoid active Project areas. Because most disturbance would be reclaimed at the close of mining, displacement of wildlife due to vegetation removal and wildlife avoidance of human activity also represent short-term impacts.

Game birds, particularly chukar, quail and mourning doves, would be expected to utilize springs and other water sources in the area. Activity near these water sources may discourage use by

game birds. However, no activities are planned near the large spring in T31N, R33E, section 35 SE¼. Disturbance on the juniper slopes present in the area of the South pit is expected to have little impact on game birds. Previous surveys did not identify raptor nests in the immediate Project area, but prairie falcon nests were identified in nearby canyons. Due to the lack of evidence of active nesting areas within the Project area and the environmental protection measures in Section 2.3.14, direct impacts to sensitive raptor species are expected to be minimal.

The un-reclaimed portion of the South pit, an area of approximately 45 acres, represents a long-term impact in terms of the vegetation community, but remaining highwalls may be selected as nesting or roost sites by birds and/or bats.

4.3 PROPOSED ACTION WITH UPPER SOUTH PIT HAUL ROAD CUT ALTERNATIVE

The potential direct and indirect impacts to: cultural resources; migratory birds; Native American religious concerns; noxious weeds, invasive, non-invasive species; wastes, solid and hazardous; water quality; geology and minerals; land use authorizations; noise and vibration; paleontology; range resources; recreation; social values and economics; soils; special status species; visual; and wildlife are the same as those analyzed for the Proposed Action in the above sections. The following sections identify the direct and indirect impacts that would result from the implementation of this alternative which differ from the Proposed Action.

4.3.1 Air Quality

Implementation of this alternative would result in a temporary increase in fugitive dust emissions during the construction period over those analyzed for the Proposed Action as excavated material is hauled to a stockpile area. This impact is expected to be minimal.

4.3.2 Wetlands, Riparian Zones, Waters of the United States

Due to the removal of material from the Upper South Pit Haul Road during construction, the impacts to the drainage below the road are expected to be less than the upper South Pit Haul Road as proposed. Any other impacts would be the same as those analyzed for the Proposed Action.

4.4 PROPOSED ACTION WITH LOWER SOUTH PIT HAUL ROAD ALTERNATIVE

This alternative would result in the same potential direct and indirect impacts analyzed for the Proposed Action for all resources except cultural resources. The alternative haul road area would be subject to the same environmental protection measures and would utilize the same reclamation techniques as the Proposed Action.

Potential direct and indirect impacts to cultural resources that would result from the implementation of this alternative are described in the following section.

4.4.1 Cultural Resources

The Lower South Pit Haul Road Alternative Route would affect a contributing element of the NRHP eligible Standard Mine. The Lower South Pit Haul Road Alternative Route travels along a historic mining road and through a historic tailings dump (non-contributing elements), as well as through a contributing element of the site under Criteria A and D. The construction of the haul road along this route would not affect the eligibility of the site under Criterion A but could affect the eligibility of the site under Criterion D.

Construction of the Lower South Pit Haul Road Alternative Route would require the following mitigation measures:

- 1) preparation and implementation of a data recovery plan approved by the BLM and the Nevada State Historic Preservation Office;
- 2) the re-recording of the Loci,
- 3) detailed inventory of associated artifact and/or features, and
- 4) monitoring by an accredited archaeologist during the construction phase. SGMI has hired Chambers Group, Inc. to develop and implement the mitigation measures. Upon completion of approved mitigation measures the eligibility status of the historic Standard Mine would not be adversely affected through the proposed alternative.

SGMI hired Chambers Group, Inc. to relocate and evaluate one site and determine the eligibility status of the site. On October 28th, 2008, Chambers Group, Inc. relocated the site and recommended the site not eligible for listing on the NRHP due to the condition of the site as lacking integrity, collection of artifacts in the past, and heavy disturbance. The report is pending the determination if additional mitigation will be required for the historic Standard Mine site.

4.5 PROPOSED ACTION WITH BORROW PIT ALTERNATIVE

The near-surface material that would typically be stripped and stored for use as cover material and growth medium in reclamation and closure as part of the Proposed Action contains relatively little suitable material. Implementation of this alternative would obtain additional material by constructing a borrow pit within the footprint of the proposed Ancillary Facilities (contractor lay down yards and fuel storage) in T31N, R33E, section 34 as described in Section 2.3.12. The borrow pit would be approximately 400 feet wide by 1,000 feet long, and require construction of a haul road to transport cover material. The borrow pit would be utilized during closure, following the removal of any equipment and facilities associated with the lay down yard and fuel storage area. Figure 7A shows the configuration of the proposed Ancillary Facilities during mining operations and Figure 7B shows the configuration of the proposed borrow pit alternative. The borrow pit and associated new haul road would add approximately 2.6 acres of surface disturbance to that included in the Proposed Action.

Because the borrow pit would be constructed primarily in areas disturbed by the Proposed Action, implementation of this alternative would result in similar potential direct and indirect impacts analyzed for the Proposed Action for all resources except vegetation. Approximately 2.6 acres of vegetation would be removed in addition to vegetation disturbances in the Proposed Action.

Implementation of the borrow pit alternative would add approximately 320,000 bank cubic yards of material to the cover material salvaged in the Proposed Action. This would provide enough growth medium to reclaim the Proposed Action; however, additional material would still be necessary to reclaim the existing facilities at Standard Mine. Despite implementation of this alternative, closure and reclamation of Standard Mine would still require cover material from elsewhere on the site, and there would be no net reduction in the haul distance of cover material. The borrow pit and haul road area would be constructed and reclaimed during the same time periods utilized for the Proposed Action and would result in no additional equipment needs or visual modifications. Reclamation techniques are the same as those utilized for the Proposed Action as described in Section 2.3.13.

4.6 NO ACTION ALTERNATIVE

Under the No Action Alternative, gold mining, processing, and exploration activities would continue under the current authorizations for the Standard Mine (Table 1-1). Currently it is anticipated that authorized mining and exploration activities would continue until 2015. The potential impacts to the resources analyzed in the Proposed Action would not occur if this alternative were implemented. In fact, social and economic resources would be impacted negatively if this alternative were implemented. Employment staffing needs at the Standard Mine would begin to decrease up to five years sooner under this alternative. Additionally, Pershing County would not benefit from increased tax revenue for as many years if this alternative were implemented. No additional impacts to public lands would occur under this Alternative. Private lands would continue to be affected at current operational level until authorized activities conclude.

CHAPTER 5 CUMULATIVE IMPACTS

5.1 INTRODUCTION

Cumulative impacts are defined as “the impact which results from the incremental impact of the action, decision, or project when added to other past, present, and reasonable foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively substantial actions taking place over a period of time” (40 CFR § 1508.7).

As required by the NEPA and its implementing regulations, this chapter addresses the cumulative effects on the environmental resources in the cumulative effects study area (CESA) which could result from the implementation of the Proposed Action and any other alternatives analyzed in combination with the past actions, present actions and reasonably foreseeable future actions. The CESAs for the specific resources vary slightly and are described below. The length of time considered for cumulative effects analysis varies according to the duration of impacts from the Proposed Action on each resource.

For the purposes of this analysis and under federal regulations, “impacts” and “effects” are assumed to have the same meaning and are used interchangeably. The cumulative impacts analysis was performed through the following steps:

1. Identify, describe and map the cumulative impacts assessment areas for each resource to be evaluated in this chapter.
2. Define the time frames, scenarios and acreage estimates for cumulative impact analysis.
3. Identify and quantify the location of potential specific impacts from the Proposed Action and determine these contributions to the overall impacts.

The environmental consequences of the Proposed Action for each resource analyzed in this EA were evaluated in Chapter 4. The following sections discuss the resources identified to be potentially impacted by the Proposed Action within their identified CESA. Based upon the previous analysis, the following resources would not be impacted by the Proposed Action and would therefore have no cumulative impacts: Native American religious concerns; cultural resources; and special status species - plants. These resources are not discussed further in the cumulative impacts section.

5.2 CUMULATIVE EFFECTS STUDY AREAS

The CESA for all resources to be analyzed, with the exception of Social and Economic Values, encompasses approximately 137 square miles (87,680 acres) and is bounded on the west and north by Rye Patch Reservoir and the Humboldt River. The south and east boundaries are

defined by the Imlay hydrographic basin boundary. The area encompasses Rye Patch State Recreation Area, upper and lower Pitt-Taylor reservoirs, and the west slopes of the northern portion of the Humboldt Range. The assessment area is a mix of BLM and private land, mostly in a checkerboard pattern.

The CESA for analysis of social values and economic impacts encompasses Humboldt and Pershing counties. All other resources analyzed for cumulative impacts in this section use the CESA boundary shown on Figure 1, including the following Sections 5.3 and 5.4.

5.3 PAST AND PRESENT ACTIONS

Past and present actions on public land within the CESA consist primarily of recreation, mining activities, livestock grazing, and transportation.

The dominant feature in the CESA is Rye Patch Reservoir, which has 72 miles of shoreline and covers 11,000 acres when full. The Emigrant Trail generally followed the Humboldt River and the Applegate-Lassen cutoff to California and Oregon left the trail near the reservoir's north end. The Pitt-Taylor reservoirs in the northern part of the recreation area were in service by 1912. Construction of Rye Patch Dam began in 1935 and was completed the following year. The 75 foot-high, earth-filled dam was built by the U.S. Bureau of Reclamation for flood control and irrigation. The reservoir can store 200,000 acre-feet of water and is capable of irrigating 38,000 acres of land. Rye Patch Reservoir became a Nevada State Recreation Area in 1971 and offers picnicking, camping, boating, and fishing. Between 2005 and 2007, annual visitation has ranged from 59,537 to 69,999 (Elwood 2008).

Interstate 80 bisects the CESA north to south. The Union Pacific railroad and a Southwest Gas natural gas pipeline generally follow the highway alignment through the CESA.

The CESA has a long history of mining in the northern Humboldt Range. The Imlay Mining District was organized in 1860 when gold was discovered in Humboldt Canyon. Numerous claims were staked and exploration continued for several years, resulting in a population of 500 in Humboldt City by 1863. The opening of the Imlay gold mine and the Black Jack mercury mine in 1906 renewed interest in mining and exploration. Continued prospecting in the district resulted in the production of gold, silver, mercury, and tungsten from various small mines. Fluorite, kaolin, and sulfur also have been mined in the district (BLM 1997).

The two largest mining operations in the CESA are the Florida Canyon Mine and the Standard Mine. The Florida Canyon Mine has been operating since 1986. Between 1969 and 1981 the mine property was explored by three mining companies but none chose to begin mining operations. The property was acquired by Montoro Gold Company, a subsidiary of Pegasus Gold Corporation in

1982. Pegasus began exploration drilling on the project in June 1983. A Plan of Operation for the Florida Canyon Mine was submitted to the BLM in October 1985 and was approved in February 1986. The Florida Canyon Mine has been expanded periodically since production began, most recently in 1997 (BLM 1997). The mining and exploration activities have created approximately 1,037 acres of surface disturbance.

Historic mining disturbance related to the Standard operations date back to 1935. Open pit mining took place intermittently from 1939 to 1949. The 1942 Mines Register reported that a cyanide slime plant was located on the property. The slime plant was removed in 1949 when the mine was closed. Existing historic disturbance includes the South pit, mill tailings, haul roads, waste rock facilities, mill ruins, and miscellaneous equipment debris. These historic mining operations disturbed approximately 150 acres on public land. Exploration activities began again in the area in the 1970s and there is one active exploration Plan of Operations to conduct exploration activities on public land. The exploration activities have created approximately 100 acres of surface disturbance on public land. The existing, currently active Standard Mine is located on private land. As described in Chapter 1, the existing Standard Mine includes facilities such as open pits (Cordex and North/Intermediate), one waste rock facility (Cordex), and an existing heap leach facility (Phase 1).

Within the CESA, the BLM has authorized rights-of-way totaling 14,000 acres, and rights-of-way totaling 459.4 acres have been closed. These rights-of-way are for uses such as railroads, telephone lines, pipelines, water pipelines, roads, power transmission lines, materials sites, and communications sites. Surface management operations have been authorized on 2,725 acres.

Natural phenomena such as fires, the encroachment of non-native invasive plants species, and spread of pinyon-juniper woodland into sagebrush habitat have also affected the assessment area.

5.4 REASONABLY FORESEEABLE FUTURE ACTIONS

Reasonably foreseeable future actions in the CESA include continued recreational use of Rye Patch Reservoir and dispersed throughout the area, mining, grazing, and residential use. Natural phenomena such as wildfires that have affected the assessment areas in the past are likely to continue into the future. The BLM has three pending rights-of-way authorizations totaling 83.73 acres; one is for a road, one is for a power line, and the other is for a land sale.

5.5 CUMULATIVE EFFECTS TO RESOURCES

The following sections identify cumulative effects to applicable resources potentially affected by the Proposed Action when combined with past, present, and reasonable foreseeable future activities within the respective cumulative assessment areas.

5.5.1 Air Quality

Past and Present Actions

Past and present actions within the CESA that may have impacted and continue to impact air quality consist primarily of recreation, mining activities, transportation, rights-of-way, and wildland fires.

The mining and exploration activities on public lands have created approximately 1,287 acres of surface disturbance in the CESA. Reclamation has been performed on the majority of the exploration projects, and on some mined lands. These activities have and continue to contribute fugitive dust and other emissions to the CESA. Mining and exploration activities are subject to applicable state and federal regulations for compliance with air quality standards and thus employ best management practices and emission control measures established through NDEP.

Recreation activities associated with Rye Patch reservoir and dispersed recreation within the CESA have and continue to contribute combustion emissions from motor vehicles, including OHVs, light vehicles, and motor boats. Unpaved road travel and unpaved roads themselves contribute fugitive dust emissions to the CESA.

Transportation activities, including vehicle travel on Interstate 80, train travel in the railroad corridor, and associated maintenance activities within the CESA have and continue to contribute combustion and fugitive emissions.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions within the CESA that may contribute to air quality impacts include: continued recreational use of Rye Patch Reservoir; natural phenomena such as wildfires; and activities associated with construction, access, operation, and maintenance of the three pending rights-of-way authorizations totaling 83.73 acres for a road, powerline, and land sale. Impacts to air quality from these activities would be from fugitive dust created by vehicle traffic or surface disturbance and vehicle and other combustion emissions in the CESA, as well as potential development that could occur within the right-of-way for the land sale.

The Proposed Action would cause temporary impacts to air quality in the CESA from fugitive and combustion emissions. The Proposed Action includes environmental protection measures (Section 2.3.14) that would be taken to reduce fugitive dust such as the implementation of a dust control plan and compliance with other air quality permit emission controls and limits. These measures apply to activities associated with the construction, operation and closure of the components associated with the Proposed Action, including phase 2 construction, expanding the heap leach facility. Reclamation activities described in Section 2.3.12 would eliminate long term impacts to air quality.

Cumulative Impact

Proposed Action

Cumulative impacts to air resources within the CESA would result from the emissions associated with present actions and reasonably foreseeable future actions when combined with the emissions from the Proposed Action. However, the emissions created by these activities would either be temporary in nature or would be regulated to maintain levels consistent with ambient air quality standards. Therefore the cumulative air resource impacts would be minimal and the air quality would be expected to return to previous levels when the Project is complete.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to air resources within the CESA resulting from the emissions associated with present actions and reasonably foreseeable future actions when combined with the emissions from the Proposed Action with the Upper South Pit Haul Alternative would be the same as those analyzed for the Proposed Action. Temporary fugitive emissions from the construction and reclamation activities associated with the alternate haul road construction technique are not expected to exceed those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to air resources within the CESA resulting from the emissions associated with present actions and reasonably foreseeable future actions when combined with the emissions from the Proposed Action with the Lower South Pit Haul Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to air resources within the CESA resulting from the emissions associated with present actions and reasonably foreseeable future actions when combined with the emissions from the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action. The borrow pit would be constructed during reclamation and closure activities scheduled with the Proposed Action. Air quality associated with hauling and placement of cover material is analyzed as part of the Proposed Action.

No Action Alternative

Cumulative impacts to air resources within the CESA would result from the emissions associated with past, present and reasonably foreseeable future actions. The temporary impacts from the Proposed Action would not occur.

5.5.2 Wildlife (Including Migratory Birds and Special Status Species)

Past and Present Actions

Past and present actions within the CESA that may have impacted and continue to impact wildlife, including migratory birds and special status species include: recreation; transportation; mining and exploration activities; livestock grazing activities; and wildland fires. Impacts to wildlife within the CESA include the presence of the fenced Interstate 80 corridor. Fencing bordering the highway may inhibit east-west wildlife movement between the Humboldt Range and the Humboldt River, including the area near Rye Patch Reservoir. In addition to the Interstate 80 corridor, the Union Pacific Railroad bisects the CESA, generally parallel to and west of Interstate 80.

Wildlife occurring in the CESA includes antelope, which make use of the flats near and west of Interstate 80 and extending into the foothills of the Humboldt Range. Small numbers of mule deer utilize the Humboldt Range and adjacent slopes and fans. Most antelope use is expected to occur west of Interstate 80, while most mule deer use is expected east of the highway. Game birds including sage-grouse, chukar, California quail and mourning doves occur in the area. These species are often associated with water sources. A variety of small game and nongame species utilize habitats in the CESA. The greatest avian diversity usually occurs in association with riparian areas in canyon bottoms in the mountains. Raptors including prairie falcons have been reported nesting on cliffs and outcrops in the mountains, and nesting by other raptor species is expected. Waterfowl make use of Rye Patch Reservoir and Upper and Lower Pitt Taylor reservoirs.

Activities at the Florida Canyon Mine have disturbed approximately 1,037 acres of mixed salt desert scrub, semi-desert grassland, big sagebrush, and shrub steppe habitat. Exploration operations at the Standard Mine have disturbed approximately 100 acres of sagebrush scrub and juniper woodland. Mining activities at the Standard Mine have also resulted in disturbances to habitat.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions within the CESA that may contribute to impacts to wildlife include: continued mining and exploration activity, transportation, recreation, livestock grazing, natural phenomena such as wildfires, and land development activities. Activities associated with construction, operation, utilization, and maintenance of the three pending rights-of-way authorizations totaling 83.73 acres for a road, powerline, and a land sale, may also contribute to impacts on wildlife. Impacts would include the permanent and temporary removal of suitable habitat. Future land development and human population growth in the area would continue to encroach on wildlife habitat. Other impacts would include animal injury or mortality as a result of conflict with human activity, such as vehicular impacts.

Cumulative Impact

Proposed Action

Cumulative impacts would result from the reduced nesting habitat for such neotropical migrants as scrub jays, mountain bluebirds, western meadowlarks and Brewer's and lark sparrows. Similar reductions in available habitat for mule deer and other game and nongame wildlife have occurred. While large areas of undisturbed habitat surround both the Florida Canyon and Standard mines offering nesting birds and other wildlife alternate available habitat, displacement of wildlife from active mine areas may result in increased competition for limited resources. Based upon the minimal impact from the Proposed Action, cumulative impacts are expected to be minimal.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to wildlife, including migratory birds and special status species, resulting from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to wildlife, including migratory birds and special status species, resulting from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to wildlife, including migratory birds and special status species, resulting from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action.

No Action Alternative

Cumulative impacts to wildlife, including migratory birds and special status species, within the CESA would result from past, present and reasonably foreseeable future actions. No potential impacts from the Proposed Action would occur.

5.5.3 Invasive, Non-Native Species

Past and Present Actions

Past and present actions within the CESA that may have created impacts and continue to create impacts from noxious weeds and invasive, non-native species include: recreation; transportation; mining and exploration activities; livestock grazing activities; and wildland fires. The mining and exploration activities have created approximately 1,287 acres of surface disturbance on

public lands in the CESA. Reclamation has been performed on the majority of the exploration projects and on some mined lands. These projects are required to implement weed control programs with the BLM. Off-road travel associated with recreation in areas of noxious weeds would cause impacts through the spread of noxious weeds in the CESA. Construction, maintenance and operation of the transportation corridors (Interstate 80 and railroad) and rights-of way authorizations cause impacts from noxious weeds and invasive non-native species from the introduction of surface disturbance and spread of noxious weed seeds. These projects are required to perform reclamation and implement weed control programs through applicable state and federal agencies such as the BLM.

The Nevada noxious weed species Russian knapweed has been reported at the Florida Canyon Mine. The Nevada noxious weed species Tamarisk was found below a large spring at the Standard Mine. The Southwest Regional Gap Analysis Project (USGS undated) identifies vegetation in much of the upper Pitt-Taylor Reservoir and the upper reaches of Rye Patch Reservoir as “invasive Southwest riparian woodland and shrubland,” which generally indicates the presence of tamarisk. Cheatgrass, a non-native invasive annual grass is common along the Humboldt Range front and within the Interstate 80 corridor. Cheatgrass often colonizes areas that have been burned by wildland fire. Halogeton and Russian thistle also occur in areas of disturbance within the CESA.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions within the CESA that may contribute to impacts from noxious weeds and invasive non-native species include: continued off-road travel and surface disturbance associated with recreation; natural phenomena such as wildfires; and activities associated with construction, operation, utilization, and maintenance of the three pending rights-of-way authorizations totaling 83.73 acres for a road, powerline, and a land sale. Impacts would be from the spread of noxious weed seeds or the introduction of noxious weeds and invasive non-native species on disturbed sites in the CESA.

The Proposed Action would create short-term impacts from surface disturbance activities which cause the establishment and/or spread of noxious weeds and non-native, invasive species. Currently, the only noxious weed known to occur in the Project area is tamarisk. Non-native species are common in and near the Project area and may move onto disturbed sites. Impacts are expected to be minimal due to the environmental protection measures which require the completion of a weed risk assessment and weed control plan with annual implementation and reporting requirements.

Cumulative Impact

Proposed Action

Cumulative impacts from noxious weeds and invasive non-native species within the CESA would result from the activities associated with past, present, and reasonably foreseeable future actions when combined with the Proposed Action. Cumulative impacts related to noxious weeds and invasive, non-native species are expected to be minimal due to the negligible contribution from the Proposed Action and the requirement for weed control programs on many other activities that are managed by the BLM in the CESA.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts from noxious weeds and invasive non-native species resulting from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts from noxious weeds and invasive non-native species resulting from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts from noxious weeds and invasive non-native species resulting from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action.

No Action Alternative

Cumulative impacts from noxious weeds and invasive non-native species within the CESA would result from past, present and reasonably foreseeable future actions. No potential impacts from the Proposed Action would occur.

5.5.4 Wastes, Hazardous or Solid/Hazardous Materials

Past and Present Actions

Past and present actions within the CESA that may have caused impacts from solid or hazardous waste include recreation, mining activities, transportation, and rights-of-way activities. Mining and exploration, transportation and rights-of-way activities have and continue to be subject to applicable state and federal regulations which govern solid and hazardous waste disposal.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions within the CESA that may contribute to impacts from solid or hazardous wastes include: activities associated with construction, operation, utilization, and maintenance of the three pending rights-of-way authorizations totaling 83.73 acres for a road, powerline, and land sale; continued recreation activities; and transportation activities in the Interstate 80 and railroad corridors. Mining and exploration, transportation and rights-of-way activities would continue to be subject to applicable state and federal regulations which govern solid and hazardous waste disposal.

Impacts from the Proposed Action could occur from solid and hazardous waste generated during Project activities. However, environmental protection measures, including solid waste cleanup procedures, storage of materials in proper containment and spill clean up and notification procedures would be implemented. Short-term impacts to the environment would result from the accidental release of hazardous materials or solid and hazardous waste from on-site storage and use areas or during transportation to or from the site. The contribution to cumulative effects in the CESA from the Proposed Action would be minimal as these impacts would be temporary and are expected to be minimal due to the environmental protection measures which specify compliance with applicable local, state and federal regulations for transportation, storage and use of materials as well as response, reporting, and cleanup procedures for spills within containment areas and releases outside of containment areas.

Cumulative Impact

Proposed Action

Cumulative impacts from solid or hazardous waste within the CESA would result from any past, present and reasonably foreseeable future action which generates solid or hazardous waste and uses hazardous materials when combined with the Proposed Action. Due to the regulation of solid and hazardous waste disposal for activities in the CESA and the environmental protection measures that would be implemented for the Proposed Action, cumulative impacts to the CESA would be minimal.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts resulting from solid or hazardous waste within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts resulting from solid or hazardous waste within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts resulting from solid or hazardous waste within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action.

No Action Alternative

Cumulative impacts from solid or hazardous waste within the CESA would result from past, present and reasonably foreseeable future actions. No potential impacts from the Proposed Action would occur.

5.5.5 Water Quality

Past and Present Actions

Past and present actions within the CESA that could potentially affect ground and surface water quality include mining and exploration activities, range resources, recreation, and transportation and rights-of-way authorizations. Mining activity at the Florida Canyon Mine includes heap leach processing and waste rock disposal that could impact groundwater and surface water quality. Surface water quality at the facility could be impacted through the mobilization of contaminants associated with surface disturbance (sediment). The mine is subject to state and federal regulatory requirements for engineered containment, leak detection, and groundwater monitoring related to the process facilities and ongoing waste rock characterization. Transportation and storage of chemicals are subject to local, state and federal regulation. The Florida Canyon Mine has a stormwater permit which requires best management practices and inspection for erosion and a spill response and cleanup plan to protect surface waters. Recreation activities and associated travel on dirt roads or off-road could impact surface water quality through increased soil erosion and spills of oil and fuel from vehicles. Watercraft on Rye Patch reservoir could impact water quality with spills of fuel or oil. Transportation and rights-of-way activities are subject to state and federal regulation that requires protection of water quality through erosion protection and spill prevention, response, and cleanup measures.

Reasonably Foreseeable Future Actions

Past and present actions within the CESA that could impact ground and surface water quality include mining and exploration activities, range resources, recreation, and transportation and rights-of-way authorizations. These potential impacts are the same as those described for the past and present actions above.

The Proposed Action could impact surface water quality through the mobilization of contaminants through erosion on areas of disturbance (sediment) or contaminants (spills). These impacts are expected to be minimal due to the environmental protection measures and reclamation/closure activities that require: erosion control measures; spill prevention, response,

and cleanup; characterization and cleanup of contaminated soils; revegetation; and regular monitoring and inspections.

The Proposed Action and existing operations at the Standard Mine could impact ground water quality if the heap leach facility were to develop a leak in the engineered liner system or if the waste rock material were to leach contaminants. Based upon the regulatory requirements for the engineered design of the process components associated with the heap leach facility that includes leak detection and groundwater monitoring, and the geochemical characterization and ongoing sampling requirement for waste rock material, the impacts are anticipated to be minimal.

Cumulative Impact

Proposed Action

Cumulative impacts to surface and groundwater within the CESA would result from any past, present and reasonably foreseeable future actions when combined with the Proposed Action. Due to the minimum impact from solid and hazardous waste/materials from the activities, including the Proposed Action due to the regulatory requirements described above, cumulative impacts to the CESA are anticipated to be minimal.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to water quality within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to water quality within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to water quality within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action.

No Action Alternative

Cumulative impacts to water quality within the CESA would result from past, present and reasonably foreseeable future actions. No potential impacts from the Proposed Action would occur; only impacts resulting from past, present, and reasonably foreseeable future would occur.

5.5.6 Wetlands, Riparian Zones, Waters of the United States

Past and Present Actions

Past and present actions within the CESA have been subject to Section 404 of the Clean Water Act for the protection of waters of the United States through measures that identify, avoid and mitigate impacts and BLM protection measures for riparian zones. Stormwater permits are a component of compliance with the Clean Water Act that provide for protection of the water quality associated with waters of the United States. Mining, exploration, recreation, livestock grazing, transportation and rights-of-way activities are all subject to these requirements and thus impacts are minimized.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions include mining, exploration, grazing, recreation and transportation and rights-of-way activities which would continue to be subject to Section 404 of the Clean Water Act as described above.

Pending the Corps concurrence with JBR's most recent jurisdictional review (Appendix B), the Proposed Action will not directly impact waters of the United States or riparian zones. However, due to the steep slope of the area associated with the proposed Upper South Pit Haul Road, construction activities involving fill on these slopes could result in material falling into the drainage. SGMI would update their existing stormwater pollution prevention plan associated with the stormwater permit to include the proposed facilities and activities. There are no wetlands in the Project area. For these reasons, it is anticipated that the contribution of the Proposed Action to impacts to waters of the United States and riparian zones in the CESA would be minimal.

Cumulative Impact

Proposed Action

Cumulative impacts to wetlands, riparian zones and waters of the United States within the CESA would result from any past, present and reasonably foreseeable future action which operate in areas containing these resources when combined with the Proposed Action. The construction of the Upper South Pit Haul Road using cut and fill methods could impact the drainage below the facility due to steep slope of the hill. This material would not be recovered during reclamation and would represent a permanent impact to the drainage which is currently classified as a waters of the United States.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to wetlands, riparian zones and waters of the United States within the CESA would result from any past, present and reasonably foreseeable future action which operate in areas containing these resources when combined with the Proposed Action. The construction

method (all cut) of the Upper South Pit Haul Road would result in minimal impacts to the drainage below from material falling from the haul road. All other impacts would be the same as the Proposed Action, which is expected to be minimal.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to wetlands, riparian zones and waters of the United States within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to wetlands, riparian zones and waters of the United States within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action.

No Action Alternative

Cumulative impacts to wetlands, riparian zones and waters of the United States within the CESA would result from past, present and reasonably foreseeable future actions. No potential impacts from the Proposed Action would occur.

5.5.7 Geology and Minerals

Past and Present Actions

Past and present actions within the CESA that may have impacted and continue to impact geology and mineral resources consist of the mining and exploration activities. These activities have created approximately 1,491 acres of surface disturbance in the CESA.

Reasonably Foreseeable Future Actions

A reasonably foreseeable future action that may impact geology and minerals is the Proposed Action. The Proposed Action would disturb approximately 95 acres associated with the open pits and waste rock facilities. Approximately 36,370,000 tons of waste rock and ore would be mined and either processed on the heap leach facility or placed in waste rock facilities.

Cumulative Impact

Proposed Action

Cumulative impacts to geology and mineral resources within the CESA would result from the mining and exploration activities associated with past and present actions when combined with the removal of ore from the open pits and burial of any remaining material within the waste rock facilities with the Proposed Action.

Exploration activities have located resources associated with the Proposed Action and determined that the waste rock facilities would not affect any known recoverable mineral resources.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to geology and minerals within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to geology and minerals within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to geology and minerals within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Source Alternative would be the same as those analyzed for the Proposed Action.

No Action Alternative

Cumulative impacts to geology and minerals within the CESA would result from past, present and reasonably foreseeable future actions. No potential impacts from the Proposed Action would occur.

5.5.8 Noise and Vibration

Past and Present Actions

Past and present actions within the CESA that may have impacted and continue to cause impacts from noise and vibration consist primarily of recreation, mining activities, transportation, rights-of-way, and wildland fires. The Florida Canyon Mine activity causes some impacts from noise and vibration from blasting and equipment operation. This project was required to analyze these impacts in an Environmental Impact Statement (BLM 1997). Rights-of-way exist for railroads, transmission lines, pipelines, roads, materials sites and communication sites. Noise and vibration impacts are created through vehicle traffic, including trains and construction activities. The BLM and the Nevada Department of Transportation (NDOT) require that activities comply with regulations limiting noise and vibration impacts applicable to the critical receptors in the vicinity.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions that may cause impacts from noise or vibration include mining, exploration and rights-of-way authorizations. As described, these activities must comply

with applicable regulations limiting noise and vibration impacts to critical receptors in the Project vicinity.

The Proposed Action would cause negligible short-term impacts from noise and vibration at critical receptors as described in Chapters 3 and 4 of this document. Sound generation from the mine would approach background levels only in areas near the Project area. No long-term impacts from noise and vibration are anticipated to occur as a result of the Proposed Action.

Cumulative Impact

Proposed Action

Cumulative impacts from noise and vibration within the CESA would result from the past, present and reasonably foreseeable future actions when combined with impacts from the Proposed Action. Because the impacts from the Proposed Action are minimal and temporary and the other actions are required to comply with regulatory noise limits, cumulative impacts in the CESA are anticipated to be negligible.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts from noise and vibration within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts from noise and vibration within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts from noise and vibration within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action.

No Action Alternative

Cumulative impacts from noise and vibration within the CESA would result from past, present and reasonably foreseeable future actions. No potential impacts from the Proposed Action would occur.

5.5.9 Paleontology

Past and Present Actions

Noteworthy fossils have been found in association with past and present actions in the CESA. Any new discoveries on Public land would require enacting protection measures.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions that may impact paleontological resources include mining, exploration, recreation and transportation and rights-of-way activities. Regulatory approvals for these activities would require environmental protection measures.

Cumulative Impact

Proposed Action

Cumulative impacts to paleontological resources resulting from the past, present and reasonably foreseeable future actions when combined with the Proposed Action are likely to be minimal based upon the knowledge of the potential resource and environmental protection measures.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to paleontological resources within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to paleontological resources within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to paleontological resources within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action.

No Action Alternative

Cumulative impacts to paleontological resources within the CESA would result from past, present and reasonably foreseeable future actions. No potential impacts from the Proposed Action would occur.

5.5.10 Range Resources

Past and Present Actions

Potential impacts to range resources could occur from the past and present actions that include mining and exploration activities, recreation, and rights-of-way activities. The mining and exploration activities have created approximately 1,287 acres of surface disturbance on public lands in the CESA. Reclamation has been performed on the majority of the exploration projects, and on some mined lands. The mining projects exclude access during active operations and thus cause a temporary reduction of AUMs in the allotment. Projects are required to implement weed

control programs and perform reclamation in accordance with state and BLM requirements. Mining, exploration, rights-of way, transportation and recreation projects have mitigated for any impacts to range improvements, including fences and water sources. The transportation corridors represent a permanent loss of AUMs.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions include mining, exploration, recreation, transportation and rights-of-way activities. These actions would require mitigation as described above and would result in some temporary and permanent reductions to AUMs.

The Proposed Action would result in short-term impacts to livestock and grazing resources from the temporary loss of forage associated with 123.3 acres of public land associated with the Proposed Action due to surface disturbance and restricted access to active mining areas. It is assumed that 25 acres is needed to support one AUM in both the Humboldt House and Rye Patch allotments. Therefore the maximum potential impact would be a temporary loss of 5 AUMs.

The Proposed Action would result in the permanent loss of 45 acres, or 1.8 AUMs, associated with the South pit that would not be backfilled or reclaimed. This effects the Rye Patch allotment which consists of 40,019 acres of public land administered by the BLM. This loss represents approximately 0.1 percent of the allotment area and would have a minimal effect on livestock and grazing resources. The Proposed Action would not impact existing range improvements associated with either the Humboldt House or Rye Patch allotments.

Cumulative Impact

Proposed Action

Cumulative impacts to range resources within the CESA would result from any past, present and reasonably foreseeable future action which results in short- or long-term impacts due to the loss of habitat through restricted access and/or surface disturbance. Based upon the BLM management of the allotment areas that includes review for any project potentially affecting range resources and minimal contribution to impacts in the CESA from the Proposed Action, cumulative impacts are expected to be minimal.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to range resources within the CESA from past, present and reasonably future actions when combined with the Proposed Action with Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action. The slight decrease in proposed disturbance does not affect the number of AUMs that are temporarily withdrawn.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to range resources within the CESA from past, present and reasonably future actions when combined with the Proposed Action with Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action. The slight decrease in proposed disturbance does not affect the number of AUMs that are temporarily withdrawn.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to range resources within the CESA from past, present and reasonably future actions when combined with the Proposed Action with Borrow Pit Alternative would be the same as those analyzed for the Proposed Action. The additional acreage for the haul road associated with this alternative occurs on private land.

No Action Alternative

Cumulative impacts to range resources within the CESA would result from past, present and reasonably foreseeable future actions. The impacts from the Proposed Action would not occur.

5.5.11 Recreation

Past and Present Actions

Potential impacts to recreation in the CESA could occur from the past and present actions that include mining and exploration activities and rights-of-way activities. The mining and exploration activities have created approximately 1,287 acres of surface disturbance on public lands in the CESA. Reclamation has been performed on the majority of the exploration projects, and on some mined lands. The mining projects exclude access during active operations and thus cause a temporary loss of areas available for hiking or travel.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions which could potentially impact recreation include mining, exploration and rights-of way activities. Public access could be precluded for the duration of these projects.

The Proposed Action would cause short-term impacts to recreation as a result of restricted access to the 123.3 acres of disturbance on public land in active mining areas for the duration of mine operations and reclamation activities. These impacts would be minimal as the areas which would be restricted temporarily have no developed recreational facilities and would be accessible again following reclamation activities. The Plan of Operations Boundary in the southwest T30N, R33E, section 1 SW¼ (Figure 3) would not be fenced and therefore recreational access in that area, which includes the Buffalo Canyon road would not be restricted during active operations. Long-term impacts would occur to recreation as a result of the permanent loss of access to 45 acres associated with the South pit which would not be backfilled or reclaimed. Barriers would

be placed along the perimeter as necessary to restrict vehicle access. This loss of access would have a minimal impact on recreation in the area.

Cumulative Impact

Proposed Action

Cumulative impacts to recreation within the CESA would result from any past, present and reasonably foreseeable future action which results in short- or long-term impacts due to the loss of access or disturbance to a recreation area. Based upon the minimal impact to recreation from these combined actions, cumulative impacts to recreation are anticipated to be minimal.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to recreation within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action. The slight decrease in proposed disturbance does not affect the number of acres that would be temporarily inaccessible to the public.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to recreation within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action. The slight decrease in proposed disturbance does not affect the number of acres that would be temporarily inaccessible to the public.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to recreation within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action. The slight increase in proposed disturbance is located on private land.

No Action Alternative

Cumulative impacts to recreation within the CESA would result from past, present and reasonably foreseeable future actions. The impacts from the Proposed Action would not occur.

5.5.12 Social Values and Economics

The CESA for social values and economics consists of Pershing and Humboldt counties, the two counties that are likely to be affected most by the Proposed Action.

Past and Present Actions

Potential impacts to social values and economics in the CESA have and continue to occur from recreation and transportation which bring visitors to the area and employment from mining and exploration activities. These activities cause short- or long-term impacts due to the increased need for accommodations and services and income generated by the communities from local spending and tax revenues.

Reasonably Foreseeable Future Actions

The effects of the Proposed Action on population size, housing, and demand for services are likely to be minimal because there would be only minor changes in the level of employment. The major effect of the Proposed Action would be to extend current employment into the future until approximately 2015. The additional stimulus in the form of wages, local spending, and tax revenues would benefit the counties.

Cumulative Impact

Proposed Action

Cumulative impacts to social values and economics within the CESA would result from any past, present and reasonably foreseeable future action when combined with the Proposed Action which results in a change in population size and demand for housing and services or an increase/decrease in employment and taxes. The Proposed Action combined with these activities are expected to provide an increased benefit to the local communities and is not expected to present a burden to current levels of service or housing.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to social values and economics within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to social values and economics within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to social values and economics within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action.

No Action Alternative

Cumulative impacts to social values and economics within the CESA would be those resulting from past, present and reasonably foreseeable future actions. The positive economic impacts from the Proposed Action would not occur.

5.5.13 Soils

Past and Present Actions

Past and present actions within the CESA that may have impacted soils consist primarily of recreation, livestock grazing, mining activities, transportation, rights-of-way, and wildland fires from surface disturbance or other activities that cause increased erosion. The mining and exploration activities have created approximately 1,287 acres of public lands surface disturbance in the CESA. Reclamation has been performed on the majority of the exploration disturbance and on some active and inactive mined lands. A large area on the northern flanks of the Humboldt Range and south of Interstate 80, in the northeastern part of the CESA, has been affected by recent wildland fire which causes increased erosion until vegetation becomes established. Authorized BLM rights-of-way in the CESA total 14,000 acres, or approximately 16 percent of the CESA. Rights-of-way exist for railroads, transmission lines, pipelines, roads, materials sites and communication sites. Rights-of-way disturbance in the area include Interstate 80, the Union Pacific Railroad and a natural gas pipeline right-of-way. Recreation activities cause some surface disturbance associated with constructed roads and other facilities and from off-road travel on public lands within the CESA. Transportation and rights-of-way activities create short- and long-term disturbance from construction, operation and maintenance activities.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions within the CESA that may contribute to soils impacts include: continued off-road travel and surface disturbance associated with recreation; natural phenomena such as wildfires; and activities associated with construction, operation, utilization, and maintenance of the three pending rights-of-way authorizations totaling 83.73 acres for a road, powerline, and land sale. Reclamation requirements and re-seeding efforts required by the BLM and the State of Nevada would minimize these impacts.

Implementation of the Proposed Action would include the removal of soil and vegetation on up to approximately 123.3 acres of public land (approximately 0.001 percent of the total CESA area). SGMI would revegetate disturbed areas to reduce the potential for wind and water erosion. Sediment and erosion control measures would be inspected periodically and repairs performed as needed until closure activities are complete. Approximately 45 acres of this disturbance would not be reclaimed and would remain as open pit.

Cumulative Impact

Proposed Action

Cumulative impacts to soils on public lands within the CESA would result from the activities associated with past, present and reasonably foreseeable future actions when combined with the Proposed Action. Cumulative impacts to soils are expected to be minimal due to the negligible contribution from the Proposed Action and the requirement to stabilize erosion on facilities and re-seeding on many other activities that are managed by the BLM in the CESA.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to soils within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to soils within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to soils within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action.

No Action Alternative

Cumulative impacts to soils within the CESA would result from past, present and reasonably foreseeable future actions. The impacts from the Proposed Action would not occur.

5.5.14 Vegetation

Past and Present Actions

Past and present actions within the CESA that may have impacted and continue to impact vegetation consist primarily of recreation, residential, grazing, mining activities, transportation, rights-of-way, and wildland fires.

Mining and exploration disturbance on public lands in the CESA includes the Florida Canyon Mine and the Standard Mine. Activities at the Florida Canyon Mine have affected approximately 1,137 acres of mixed salt desert scrub, semi-desert grassland, big sagebrush, and shrub steppe habitat. Historic mining at the Standard Mine has resulted in disturbance to approximately 150 acres. This disturbance has occurred primarily in sagebrush scrub and juniper woodland, though much of the juniper habitat in the exploration area has been affected by wildland fire. Much of

the grazing on public lands is permitted through the BLM, which limits grazing periods. Limited grazing periods may help to reduce negative impacts to vegetation.

The mining and exploration activities have created approximately 1,287 acres of public lands surface disturbance in the CESA. Reclamation has been performed on the majority of the exploration disturbance and on some active and inactive mined lands. USGS Gap analysis data indicates that vegetation within the CESA includes juniper woodland in the higher elevations of the Humboldt Range, and big sagebrush, shrub steppe, and semi-desert grassland on the flanks of the range. Riparian vegetation occurs in several canyon bottoms. Mixed salt desert scrub and invasive annual grassland border much of Interstate 80, west of the Project area. Greasewood flats, playa and invasive southwest riparian woodland and shrubland (tamarisk) occur near Upper and Lower Pitt-Taylor reservoirs and the upper reaches of Rye Patch Reservoir. A large area on the northern flanks of the Humboldt Range and south of Interstate 80, in the northeastern part of the CESA, has been affected by recent wildland fire.

Recreation activities cause some surface disturbance associated with constructed roads and other facilities and from off-road travel on public lands within the CESA. Transportation and rights-of-way activities create short- and long-term disturbance from construction, operation and maintenance activities. Authorized BLM rights-of-way in the CESA total 14,000 acres, or approximately 16 percent of the CESA. Rights-of-way exist for railroads, transmission lines, pipelines, roads, materials sites and communication sites. Rights-of-way disturbance in the area include Interstate 80, the Union Pacific Railroad and a natural gas pipeline right-of-way. The majority of these rights-of-way are located in mixed salt desert scrub and invasive annual grassland.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions within the CESA that may contribute to vegetation impacts include: continued off-road travel and surface disturbance associated with recreation; natural phenomena such as wildfires; and activities associated with construction, operation, and maintenance of the three pending rights-of-way authorizations totaling 83.73 acres for a road and powerline. Reclamation requirements and re-seeding efforts required by the BLM and the State of Nevada would minimize these impacts.

Implementation of the Proposed Action would include the removal of vegetation on up to approximately 123.3 acres of public land (approximately 0.001 percent of the total CESA area). The majority of proposed impacts to vegetation would occur in big sagebrush and juniper woodland habitat. The northern portion of the South pit would be constructed in an area of burned juniper habitat. All but 45 acres of this disturbance would be reclaimed and vegetation established pursuant to BLM standards.

Cumulative Impact

Proposed Action

Cumulative impacts to vegetation on public lands within the CESA would result from the activities associated with past, present, and reasonably foreseeable future actions when combined with the Proposed Action. Cumulative impacts to vegetation are expected to be minimal due to the negligible contribution from the Proposed Action and the requirement to perform reclamation and re-seeding on many other activities that are managed by the BLM in the CESA.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to vegetation within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to vegetation within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to vegetation within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would result in an additional 2.6 acres of vegetation clearing.

No Action Alternative

Cumulative impacts to vegetation within the CESA would result from past, present and reasonably foreseeable future actions. The impacts from the Proposed Action would not occur.

5.5.15 Visual Resources

Past and Present Actions

Past and present actions within the CESA that may have impacted and continue to impact visual resources consist primarily of mining activities and rights-of-way areas.

The mining and exploration activities on public lands have created approximately 1,287 acres of surface disturbance in the CESA. Exploration roads can be visible at certain observation points depending on topography and location. Reclamation has been performed on the majority of the exploration projects and some mined lands which reduces the visual impact. The Florida Canyon Mine Environmental Impact Statement analyzed the visual impact of the proposed facilities and mitigation requirements were instituted in order to reduce the contrast with existing forms, lines, and textures of the characteristic landscape (BLM 1997). Mining activities associated with the existing Standard Mine, including roads, open pits, and exploration activity, can be visible at

certain observation points, depending on topography and location. Authorized BLM rights-of-way in the CESA total 14,000 acres, or approximately 16 percent of the CESA. Rights-of-way exist for railroads, transmission lines, pipelines, roads, materials sites and communication sites. Rights-of-way disturbance in the area include Interstate 80, the Union Pacific Railroad and a natural gas pipeline right-of-way. Rights-of-way activities create short- and long-term affects to visual resources from the surface disturbance and construction of fences, buildings or other facilities.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions that may impact visual resources include mining, exploration and rights-of-way authorizations. Three pending rights-of-way authorizations total 83.73 acres for a road, powerline, and land sale. The BLM requires that proposed activities consider and mitigate for any visual impacts.

The Proposed Action would cause minimal short-term impacts to visual resources. The reclamation activities would result in the blending of the facility features to match the surrounding topography and the revegetation of the surface disturbance. No long-term impacts to visual resources are anticipated to occur as a result of the Proposed Action.

Cumulative Impact

Proposed Action

Cumulative impacts to visual resources within the CESA would result from the past, present actions and reasonably foreseeable future actions when combined with impacts from the Proposed Action. Because the impacts from the Proposed Action are minimal and temporary and the other actions have been and continue to be required to mitigate any impacts that do not meet specific objectives, cumulative impacts in the CESA are anticipated to be minimal.

Proposed Action with the Upper South Pit Haul Road Alternative

Cumulative impacts to visual resources within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Upper South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action. The route for the road is slightly modified from the Proposed Action but the change is not visible from the KOPs.

Proposed Action with the Lower South Pit Haul Road Alternative

Cumulative impacts to visual resources within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Lower South Pit Haul Road Alternative would be the same as those analyzed for the Proposed Action.

Proposed Action with the Borrow Pit Alternative

Cumulative impacts to visual resources within the CESA from past, present and reasonably future actions when combined with the Proposed Action with the Borrow Pit Alternative would be the same as those analyzed for the Proposed Action. Disturbance was analyzed in this area for the Proposed Action.

No Action Alternative

Cumulative impacts to visual resources within the CESA would result from past, present and reasonably foreseeable future actions. Impacts from the Proposed Action would not occur.

CHAPTER 6 MITIGATION AND MONITORING

6.1 MITIGATION AND MONITORING

6.1.1 Mitigation

SGMI would implement the environmental protection measures outlined in Section 2.3.14. These measures are designed to avoid or reduce the impacts associated with the Proposed Action and have been used as the basis for impact analysis in this EA.

The potential impact to the drainage below the Upper South Pit Haul Road could be mitigated by utilizing the Upper South Pit Haul Road Alternative analyzed in this EA.

Construction of the Lower South Pit Haul Road Alternative could reduce surface disturbance by approximately 0.7 acres. However, because this Alternative could impact the historic Standard Mine site, it should only be utilized if the following cultural resources mitigation measures are implemented:

- 1) preparation and implementation of a data recovery plan approved by the BLM and the Nevada State Historic Preservation Office;
- 2) the re-recording of the Loci,
- 3) detailed inventory of associated artifact and/or features, and
- 4) monitoring by an accredited archaeologist during the construction phase. SGMI has hired Chambers Group, Inc. to develop and implement the mitigation measures. Upon completion of approved mitigation measures the eligibility status of the historic Standard Mine would not be adversely affected through the proposed alternative.

6.1.2 Environmental Monitoring

Based upon the EA analysis, no additional monitoring is proposed.

**CHAPTER 7
CONSULTATION AND COORDINATION**

7.1 PERSONS, GROUPS, AND AGENCIES CONSULTED

Kris Urquhart	Nevada Department of Wildlife
Eric Miskow	Nevada Natural Heritage Program
Robert Williams	United States Fish and Wildlife Service
Clark Rhodes	Lovelock Paiute Tribe
Linda Ayer	Winnemucca Indian Colony
Michael Young	Battle Mountain Band Council
Dave Kettles	Century 21 Sonoma Realty
Joy Elwood	Nevada Division of State Parks

CHAPTER 8 PREPARERS

8.1 LIST OF PREPARERS

Bureau of Land Management, Winnemucca District, Humboldt River Field Office

Fred Holzel	Project Lead/Minerals
Sam Potter	Cultural Resources/Native American Consultation
Joey Carmosino	Recreation/Visual/Wilderness
Mark Gingrich	Hazmat
Ron Pearson	Range
Julie McKinnon	Realty
Derek Messmer	Noxious Weeds
Jean Black	Hydrology
Mike Zielinski	Vegetation, T&E Species/Air Quality/Riparian/Wetlands
Celeste Mimnaugh	Wildlife/T&E Species
Lynn Ricci	Coordinator

JBR Environmental Consultants, Inc.

Catherine Clark	Division Manager
Debbie Lassiter	Project Manager
Dave Worley	Senior Biologist
Nancy Kang	Project Scientist
George Dix	Biologist
Richard Duncan	Biologist

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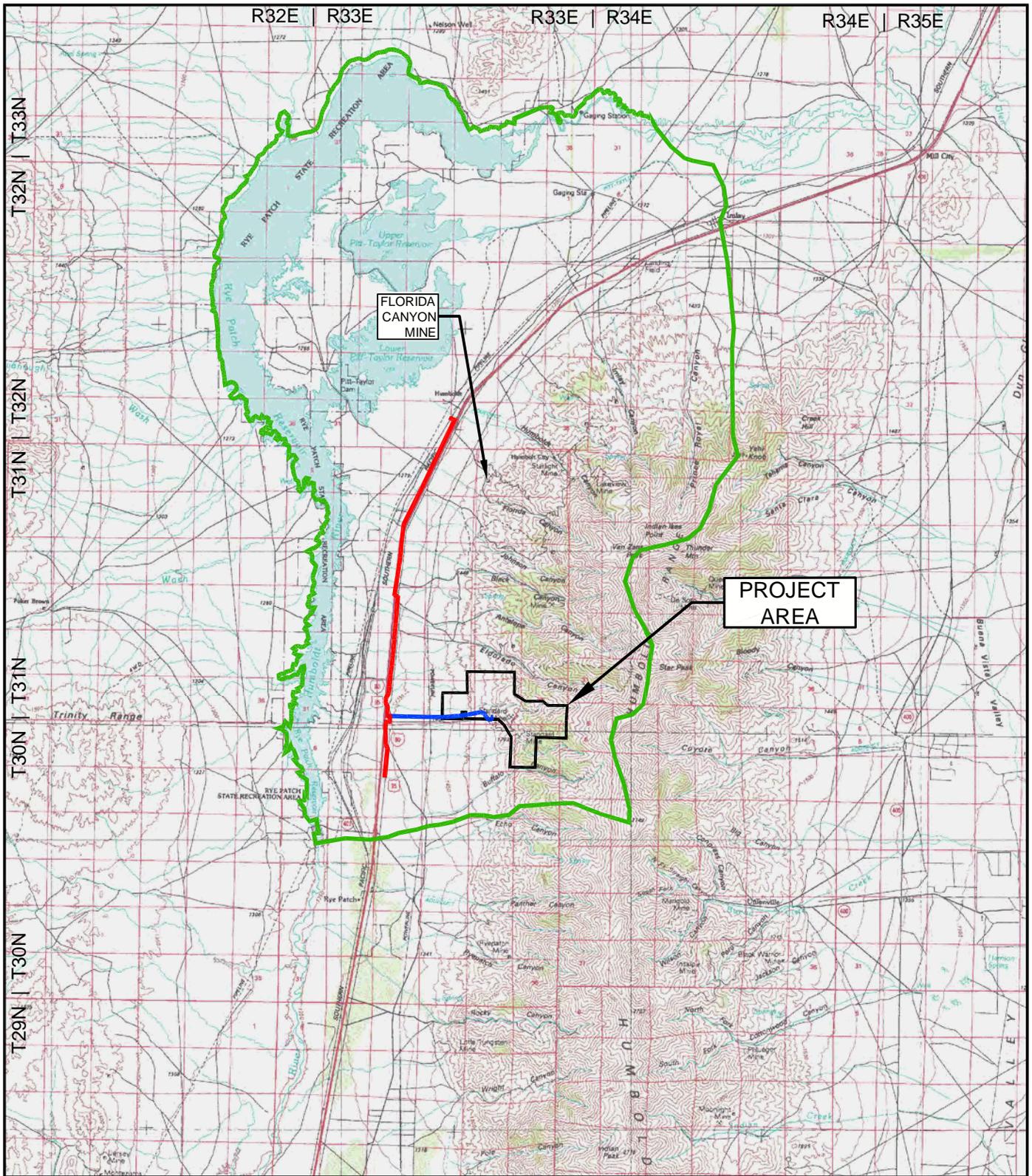
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[Appendices]



BASE IMAGE: 100k USGS DRG

- PROJECT BOUNDARY
- CUMULATIVE ASSESSMENT AREA
- STANDARD MINE ACCESS ROAD
- PERSHING COUNTY HIGHWAY FRONTAGE ROAD



16,000 8,000 0 16,000 FEET

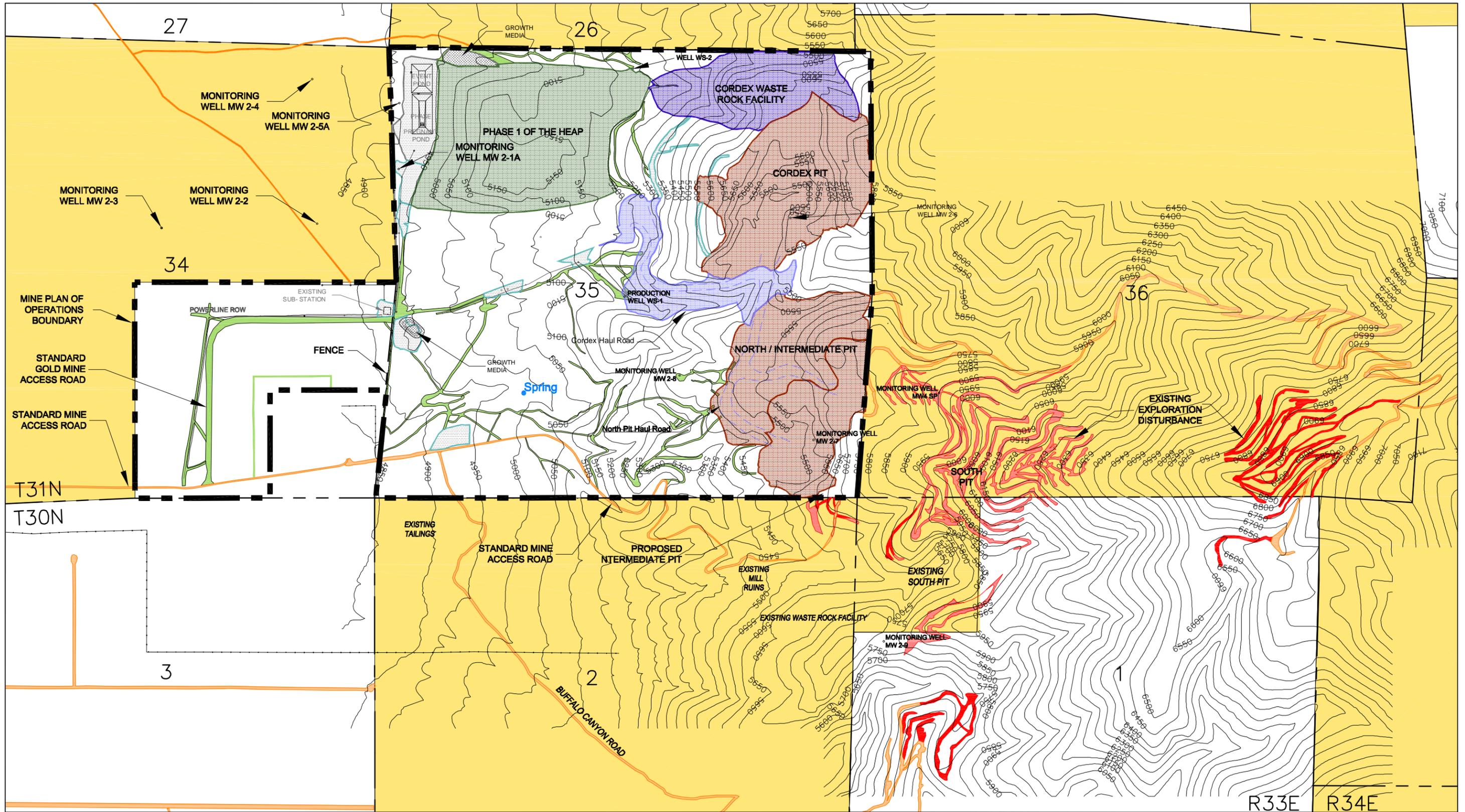
STANDARD GOLD MINING, INC.
STANDARD MINE PROJECT EXPANSION EA

FIGURE 1
GENERAL LOCATION



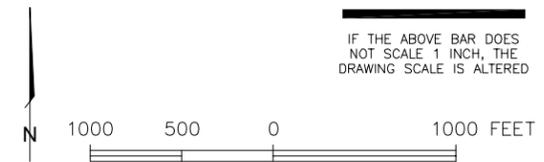
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BASE DIAGRAM: Standard Gold Mining Inc.

- | | | |
|----------------------------------|---------------------|-----------------------------------|
| MINE PLAN OF OPERATIONS BOUNDARY | HEAP | EXPLORATION ROADS |
| HAUL ROAD | WASTE ROCK FACILITY | EXISTING PUBLIC ROADS |
| MISCELLANEOUS DISTURBANCE | PIT | EXISTING AND PERMITTED MINE ROADS |
| PUBLIC LAND (BLM) | PRIVATE LAND | HISTORIC DISTURBANCE |

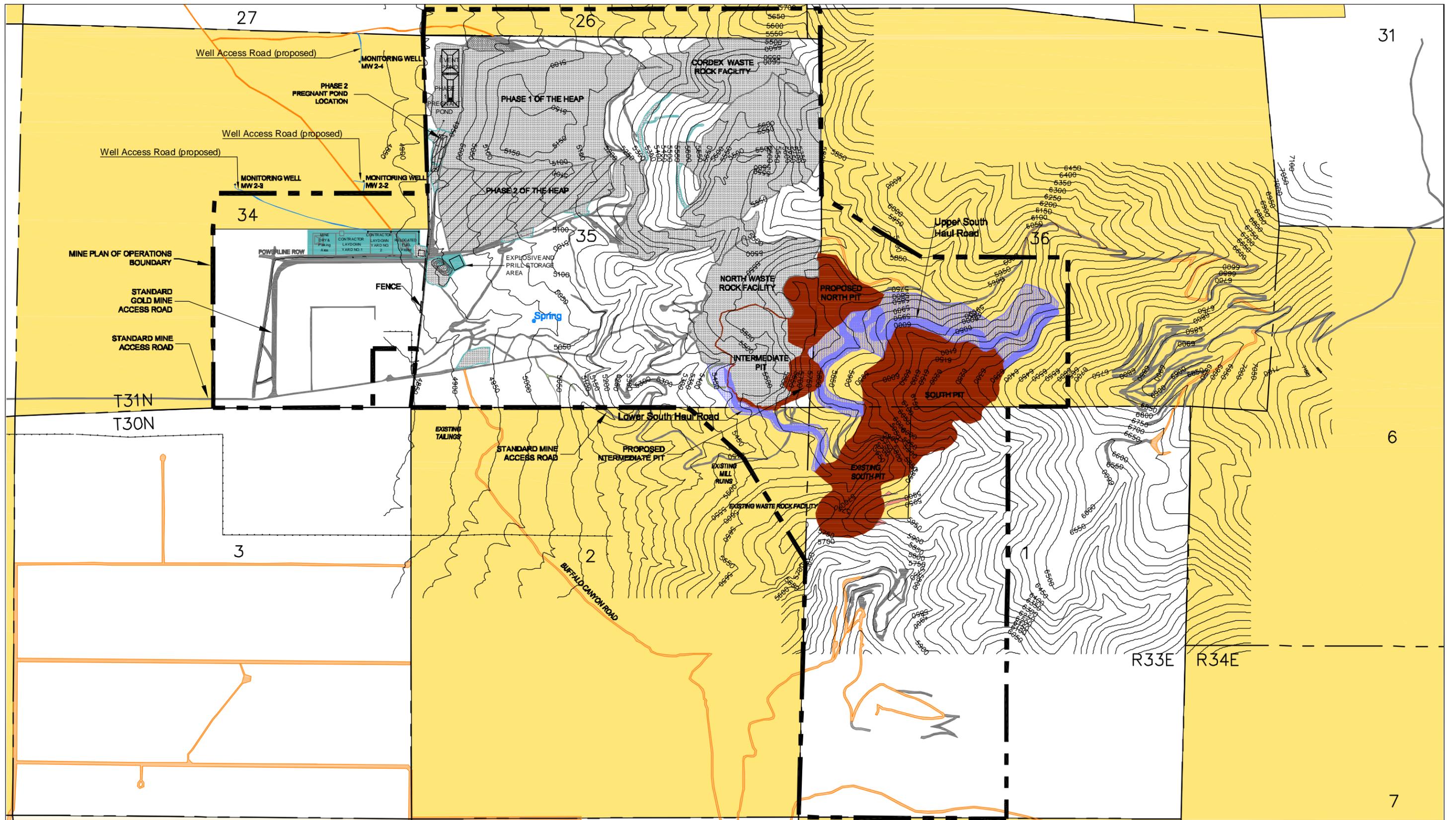


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FIGURE 2
EXISTING OPERATION

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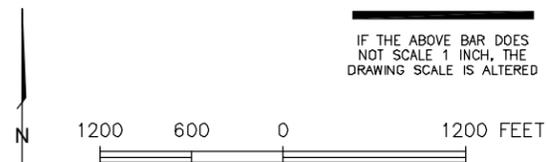
EXISTING AND AUTHORIZED FEATURES

- CURRENTLY AUTHORIZED DISTURBANCE
- PUBLIC LAND (BLM)
- EXISTING PUBLIC ROADS
- PRIVATE LAND

PROPOSED FEATURES

- MINE PLAN OF OPERATIONS BOUNDARY
- PHASE II OF THE HEAP LEACH FACILITY
- HAUL ROAD CONSTRUCTION DISTURBANCE
- HAUL ROAD

- PIT
- PROPOSED WELL ACCESS ROAD
- ANCILLARY FACILITIES



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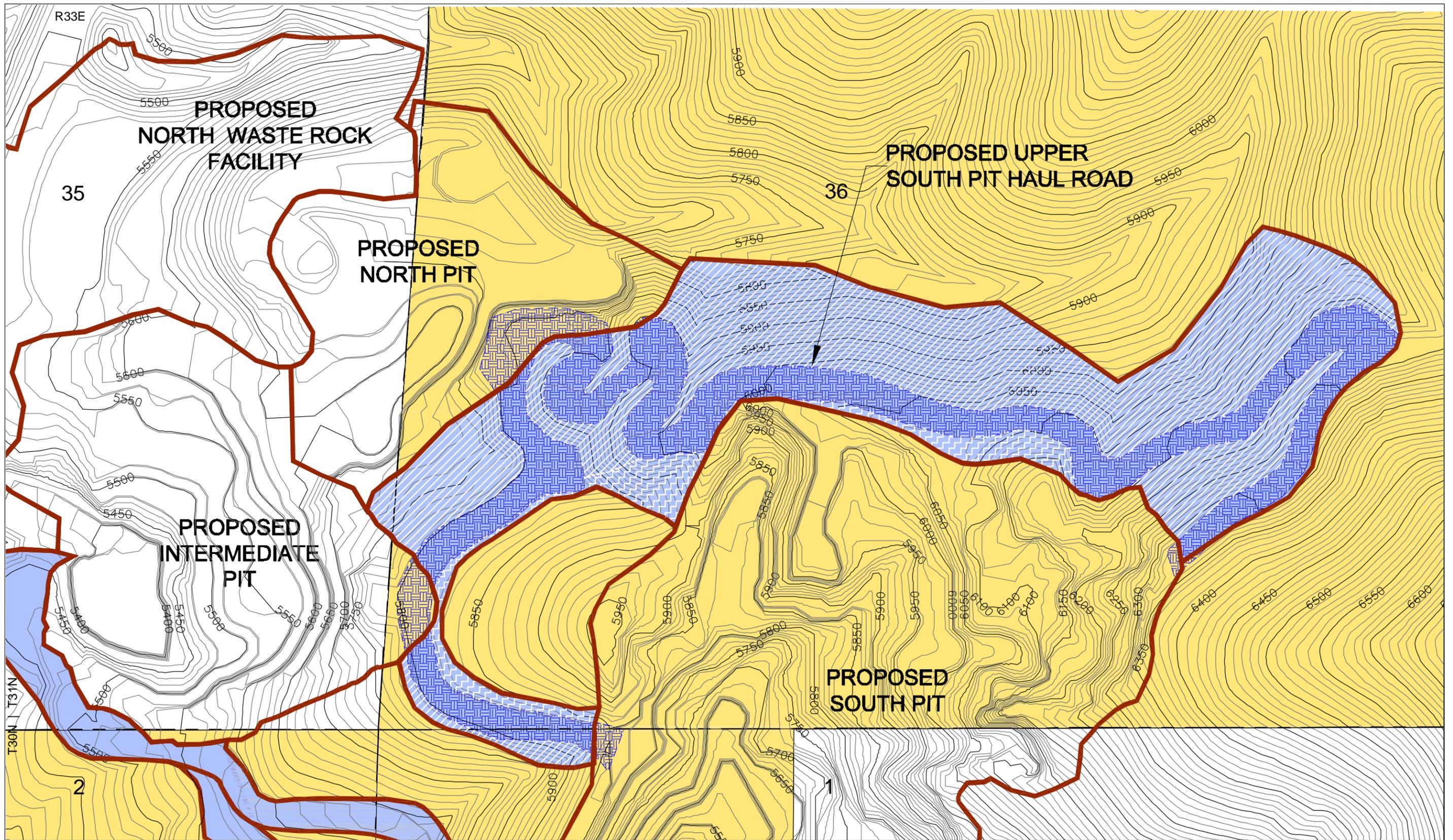
**FIGURE 3
PROPOSED ACTION**

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Figure 4 Standard Mine Expansion Reclamation Schedule

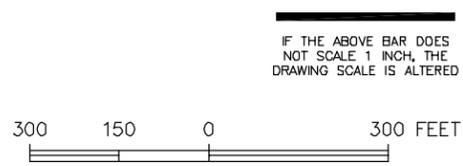
Task Name	2009				2010				2011				2012				2013				2014				2015				2016				2017				2018				2019				2020				2021				2022				2023				2024				2025				2026				2027				2028			
	Q1	2	3	4																																																																												
Mining Schedule																																																																																
Intermediate Pit (North Pit)																																																																																
North Pit																																																																																
South Pit																																																																																
Heap Leaching																																																																																
Process Fluid Stabilization																																																																																
Phase I																																																																																
Phase II - III and ET Cell Construction and Vegetation*																																																																																
Seasonal Inspection																																																																																
Earthworks																																																																																
Cordex Dump Reclamation																																																																																
North & Intermediate Pit Backfill																																																																																
Cordex Pit Backfill																																																																																
South Pit Backfill																																																																																
Heap Leach Sloping																																																																																
Heap Leach Cover and Revegetation																																																																																
Cordex Pit Final Earthworks																																																																																
Haul and Mine Roads																																																																																
Structural Reclamation																																																																																
Decontamination & Equipment Removal																																																																																
Process Building Demolition																																																																																
Secondary Building Demolition (office, truck shop, fuel storage & elec facilities)																																																																																
Concrete Foundation Demolition																																																																																
Pipeline Removal																																																																																
Powerline Removal																																																																																
Post-Closure Monitoring & Final Reclamation																																																																																
Groundwater																																																																																
Revegetation																																																																																
Well Abandonment																																																																																
Fence Removal																																																																																
Access Road																																																																																

*ET Cells are permanent features in the landscape; they will remain past reclamation, into the future.



BASE DIAGRAM: Standard Gold Mining Inc.

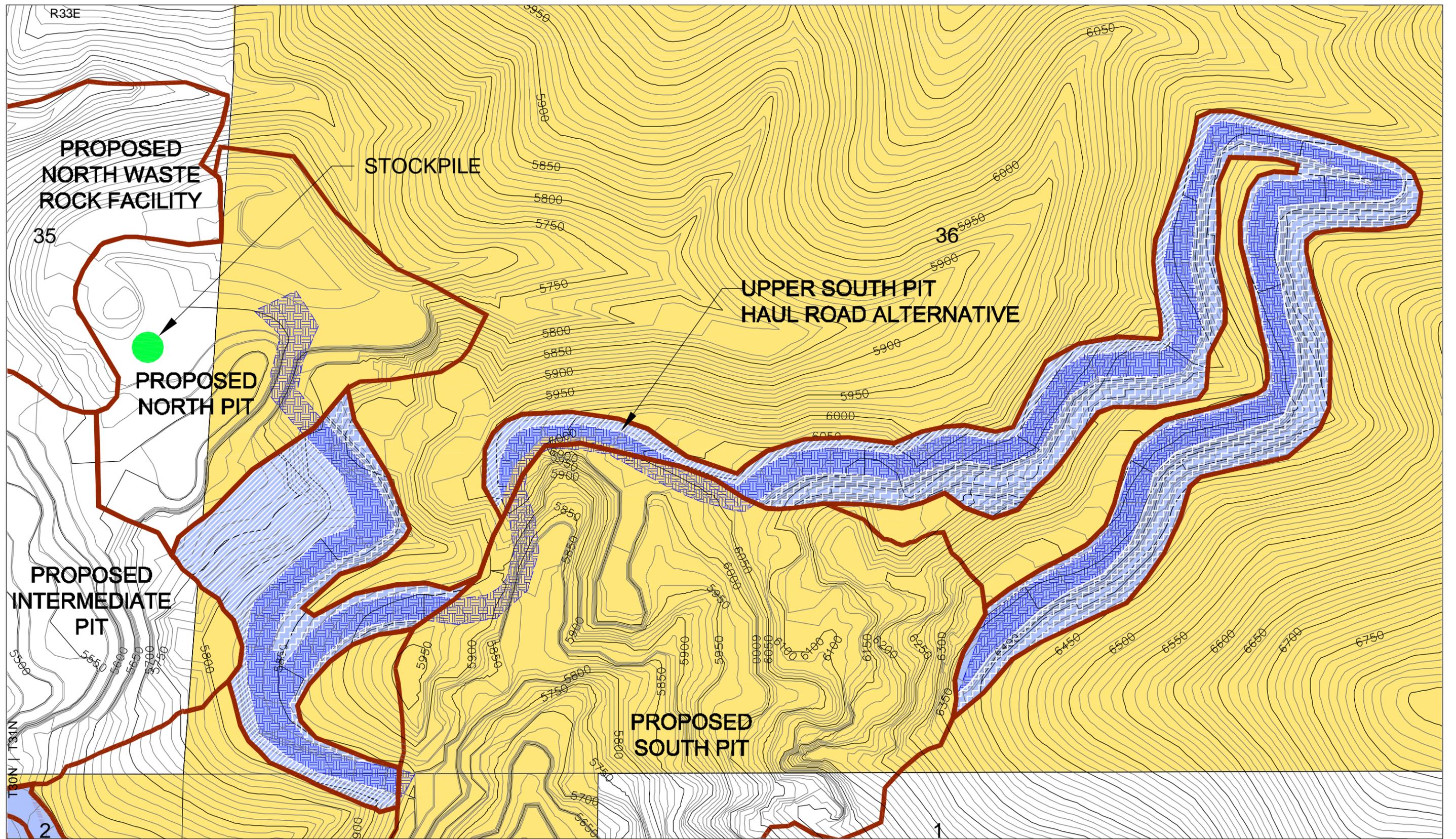
- | | |
|--------------------|--------------------|
| FACILITY BOUNDARY | PUBLIC LAND (BLM) |
| PROPOSED HAUL ROAD | PRIVATE LAND |
| UPPERCUT AREA | EXISTING HAUL ROAD |
| FILL MATERIAL | |



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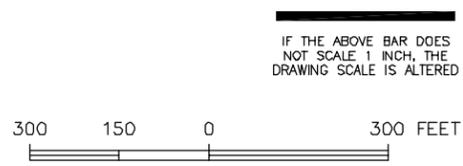
STANDARD GOLD MINING, INC.
STANDARD MINE PROJECT EXPANSION EA
FIGURE 5A
UPPER SOUTH PIT HAUL ROAD
PROPOSED ACTION

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BASE DIAGRAM: Standard Gold Mining Inc.

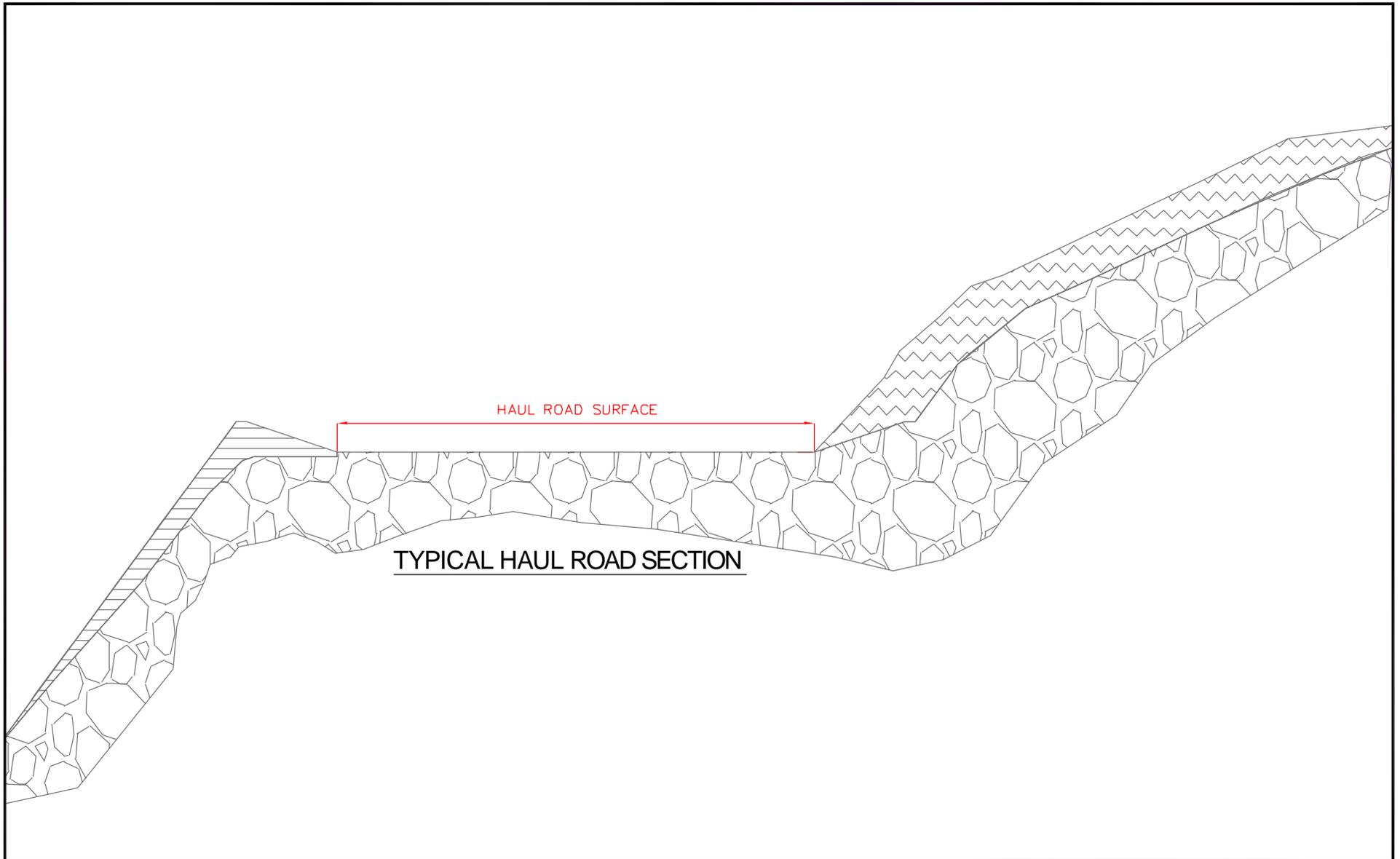
- | | | | |
|---|--------------------|---|--------------------|
|  | FACILITY BOUNDARY |  | PUBLIC LAND (BLM) |
|  | PROPOSED HAUL ROAD |  | PRIVATE LAND |
|  | UPPERCUT AREA |  | STOCKPILE |
|  | FILL MATERIAL |  | EXISTING HAUL ROAD |



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FIGURE 5B
 UPPER SOUTH PIT HAUL ROAD ALTERNATIVE

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TYPICAL HAUL ROAD SECTION

BASE DIAGRAM: Standard Gold Mining Inc.

NOT TO SCALE



UPPERCUT AREA



FILL MATERIAL

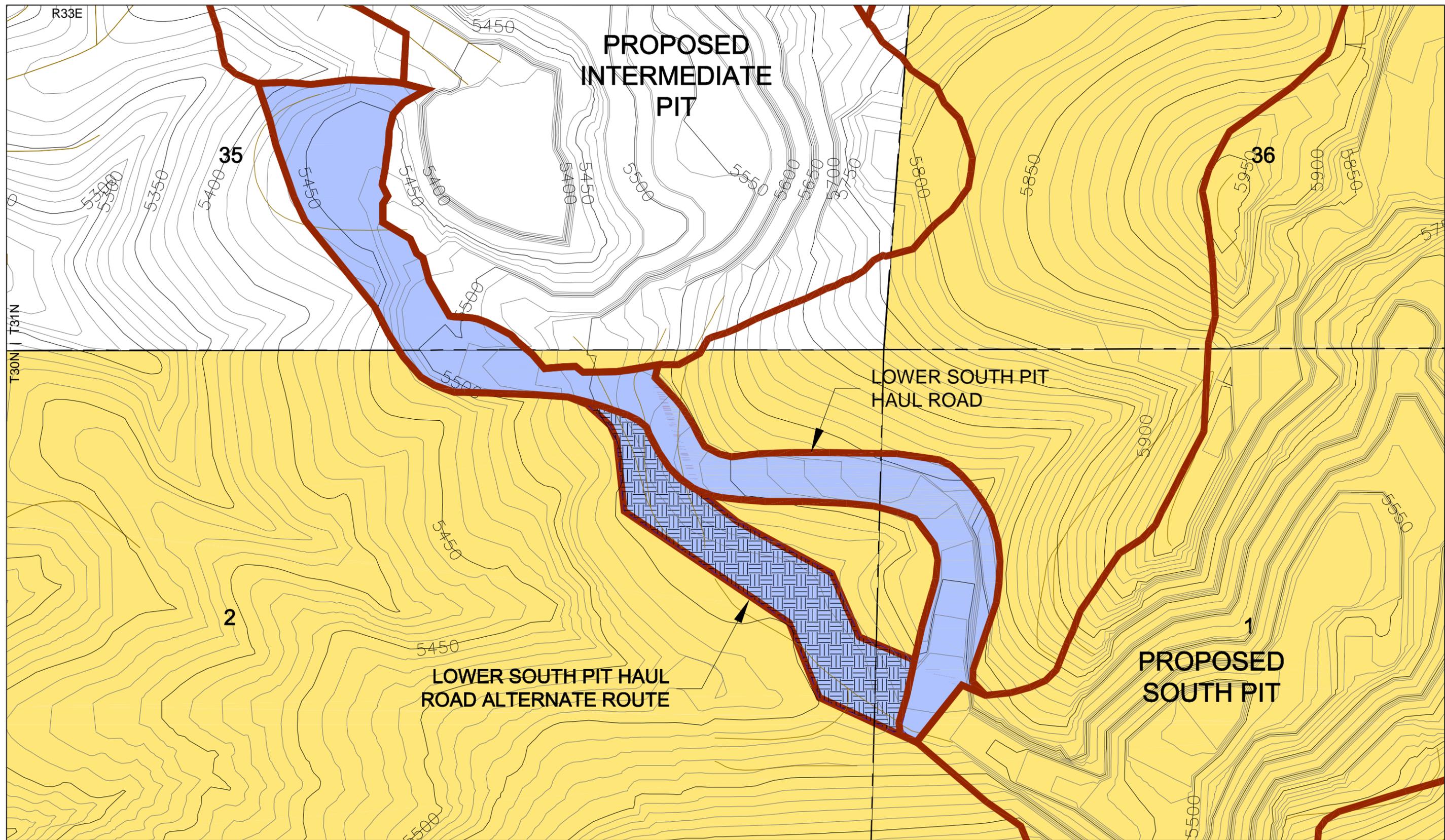


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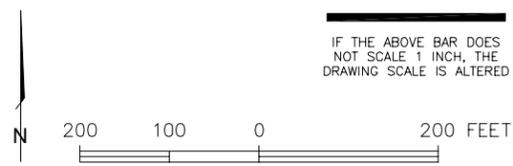
FIGURE 5C
 UPPER SOUTH PIT HAUL ROAD
 TYPICAL CROSS-SECTION

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BASE DIAGRAM: Standard Gold Mining Inc.

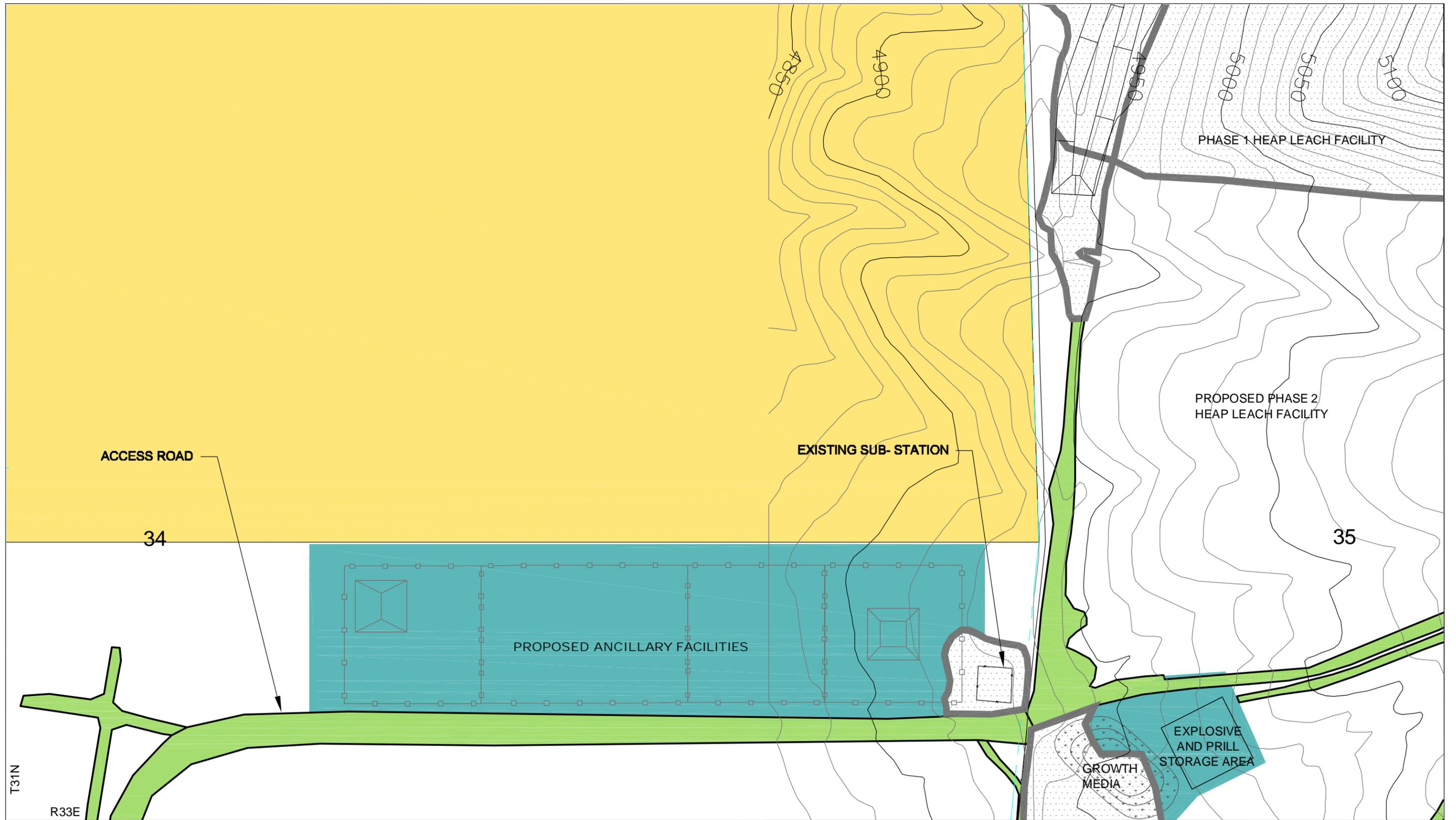
- FACILITY BOUNDARY
- PUBLIC LAND (BLM)
- PROPOSED HAUL ROAD
- PRIVATE LAND
- ALTERNATE HAUL ROAD



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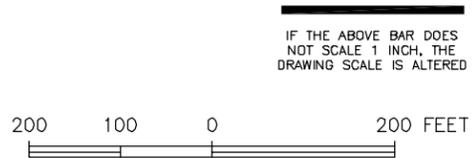
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FIGURE 6
LOWER SOUTH PIT HAUL ROAD
PROPOSED ACTION AND ALTERNATIVE

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BASE DIAGRAM: Standard Gold Mining Inc.

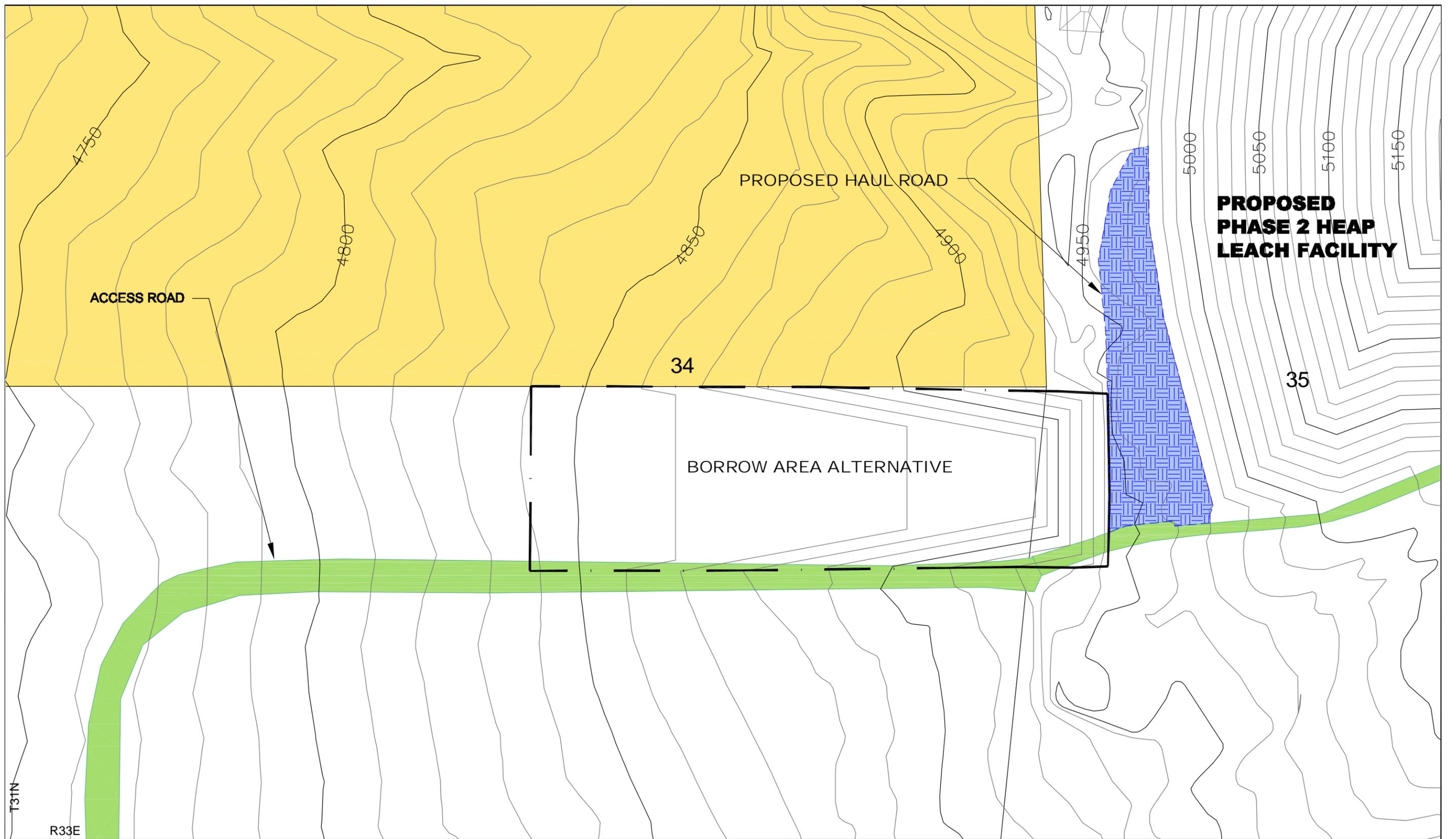
- PROPOSED ANCILLARY FACILITIES
- AUTHORIZED VEHICLE ROAD
- PUBLIC LAND (BLM)
- CURRENTLY AUTHORIZED DISTURBANCE
- PRIVATE LAND



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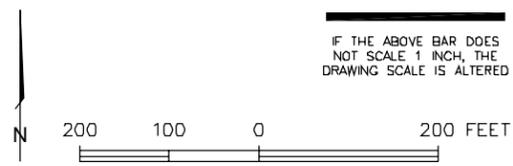
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FIGURE 7A
PROPOSED ANCILLARY FACILITIES WITH BORROW SOURCE PROPOSED ACTION

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data.



BASE DIAGRAM: Standard Gold Mining Inc.

- PROPOSED BORROW AREA PRIVATE LAND
- PROPOSED HAUL ROAD
- AUTHORIZED VEHICLE ROAD
- PUBLIC LAND (BLM)

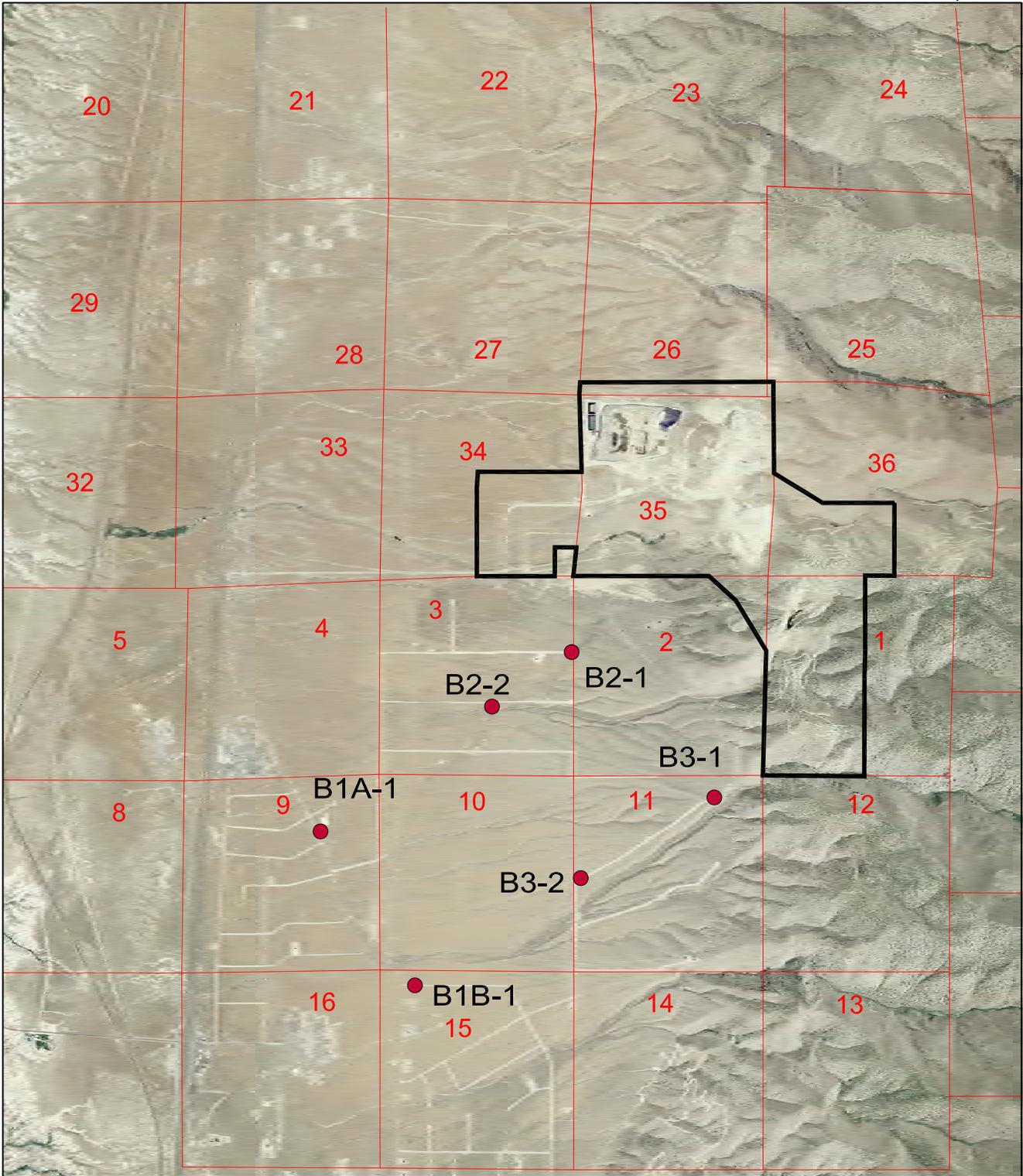


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FIGURE 7B
BORROW SOURCE AREA ALTERNATIVE

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BASE IMAGE: COMPILED NAIP IMAGERY

-  PROJECT BOUNDARY
-  RECORDING LOCATIONS
-  TOWNSHIP/RANGE/SECTION BOUNDARY

MAP DATE: NOVEMBER 12, 2009



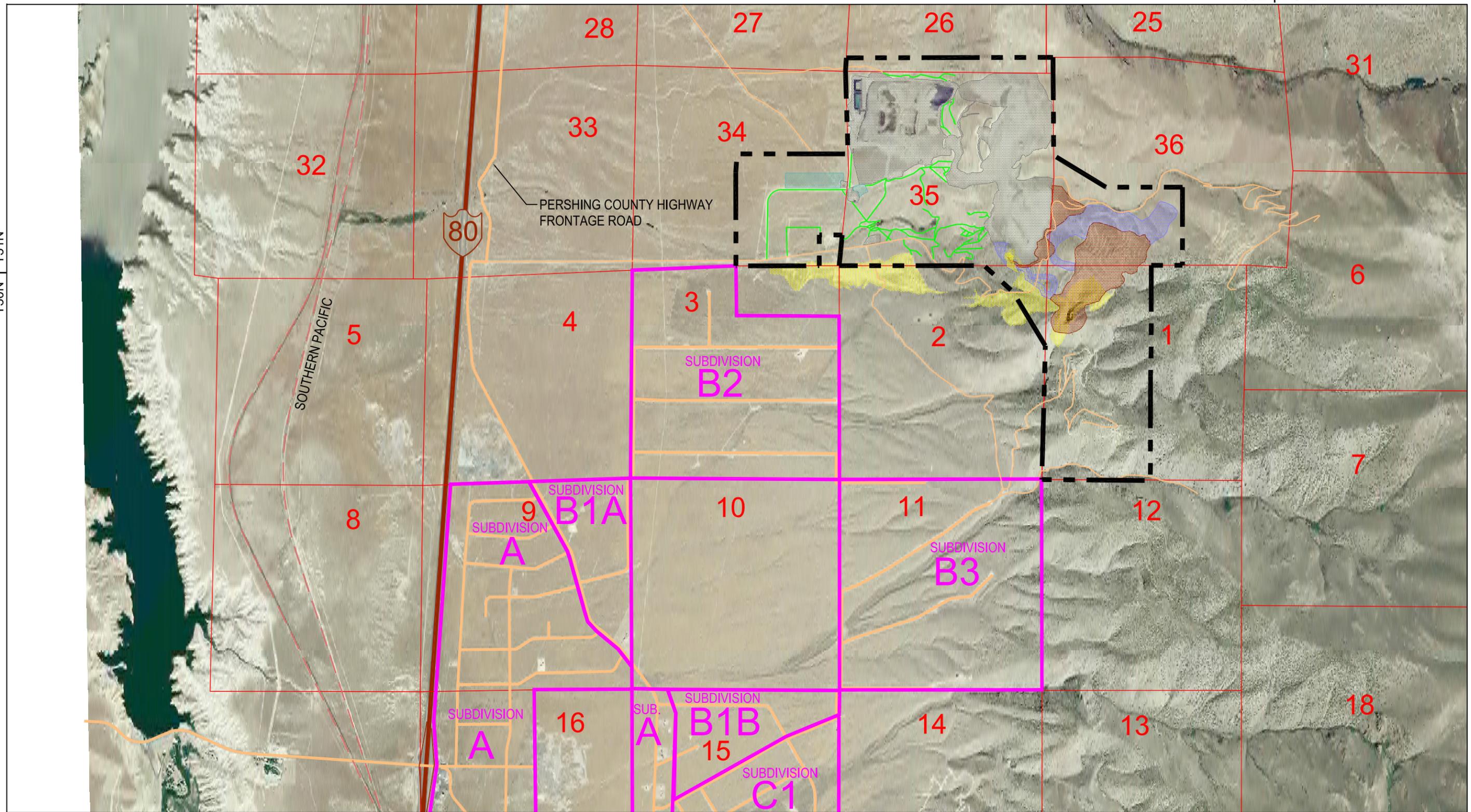
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FIGURE 8
SOUND MONITORING LOCATIONS



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BASE IMAGE: COMPILED NAIP IMAGERY

- MINE PLAN OF OPERATIONS BOUNDARY
- RESIDENTIAL SUBDIVISION BOUNDARY
- EXISTING AND PERMITTED MINE ROADS
- CURRENTLY AUTHORIZED DISTURBANCE
- HAUL ROAD
- PIT
- ANCILLARY FACILITIES
- INTERSTATE 80
- EXISTING PUBLIC ROADS
- SOUTHERN PACIFIC RAILROAD
- TOWNSHIP/RANGE/SECTION BOUNDARY
- HISTORIC DISTURBANCE

MAP DATE: NOVEMBER 12, 2009

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

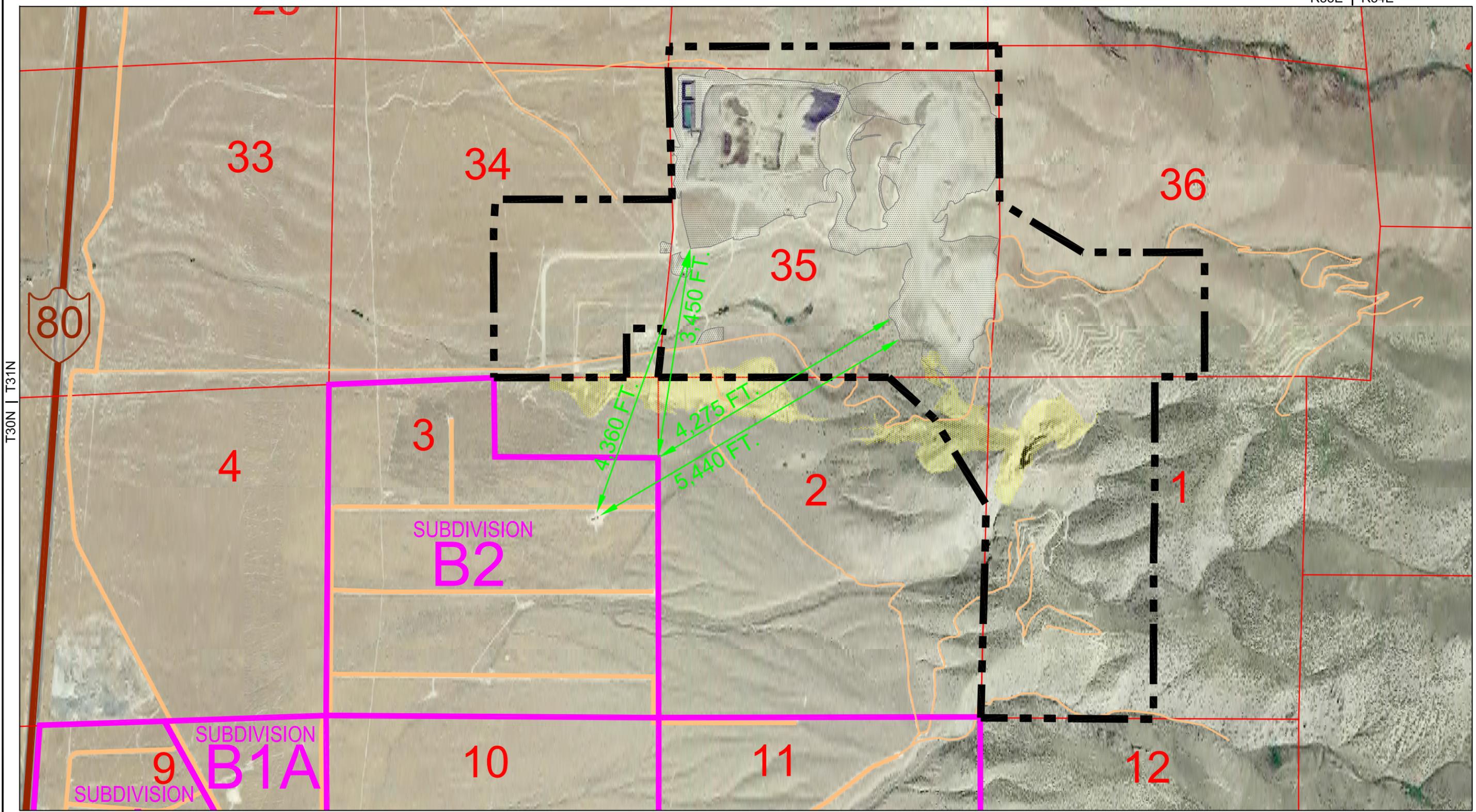
2,400 1,200 0 2,400 FEET

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FIGURE 9
NOISE SURVEY - FEATURE MAP

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data.



BASE IMAGE: COMPILED NAIP IMAGERY

- MINE PLAN OF OPERATIONS BOUNDARY
- RESIDENTIAL SUBDIVISION BOUNDARY
- CURRENTLY AUTHORIZED DISTURBANCE
- EXISTING AND PERMITTED MINE ROADS
- INTERSTATE 80
- EXISTING PUBLIC ROADS
- SOUTHERN PACIFIC RAILROAD
- TOWNSHIP/RANGE/SECTION BOUNDARY
- HISTORIC DISTURBANCE

MAP DATE: NOVEMBER 12, 2009

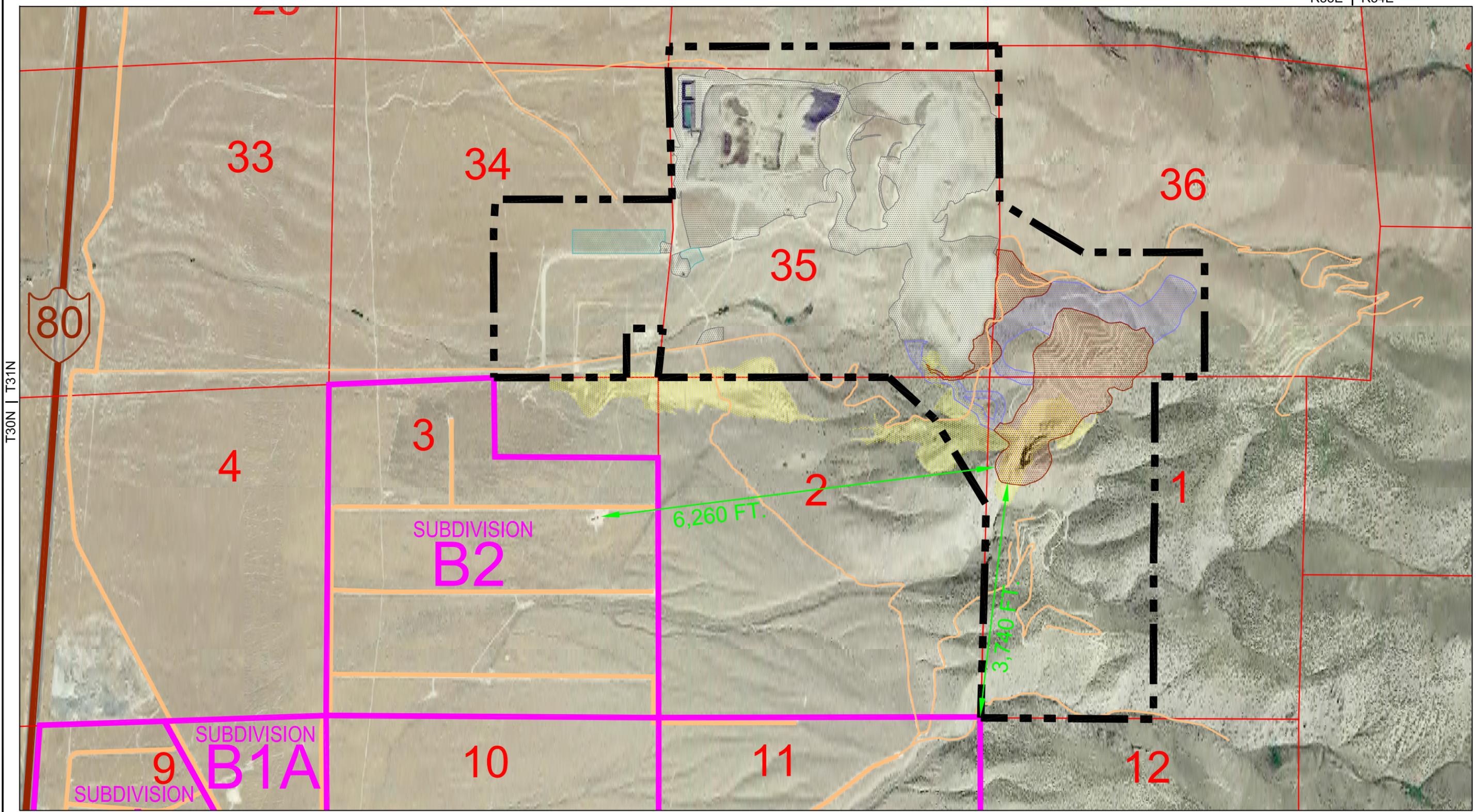
IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

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FIGURE 10
PROXIMITY OF RESIDENTIAL LAND TO
AUTHORIZED MINE NOISE SOURCES

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- BASE IMAGE: COMPILED NAIP IMAGERY
- MINE PLAN OF OPERATIONS BOUNDARY
 - RESIDENTIAL SUBDIVISION BOUNDARY
 - PIT
 - HAUL ROAD
 - ANCILLARY FACILITIES
 - CURRENTLY AUTHORIZED DISTURBANCE
 - INTERSTATE 80
 - EXISTING PUBLIC ROADS
 - SOUTHERN PACIFIC RAILROAD
 - TOWNSHIP/RANGE/SECTION BOUNDARY
 - HISTORIC DISTURBANCE

MAP DATE: NOVEMBER 12, 2009

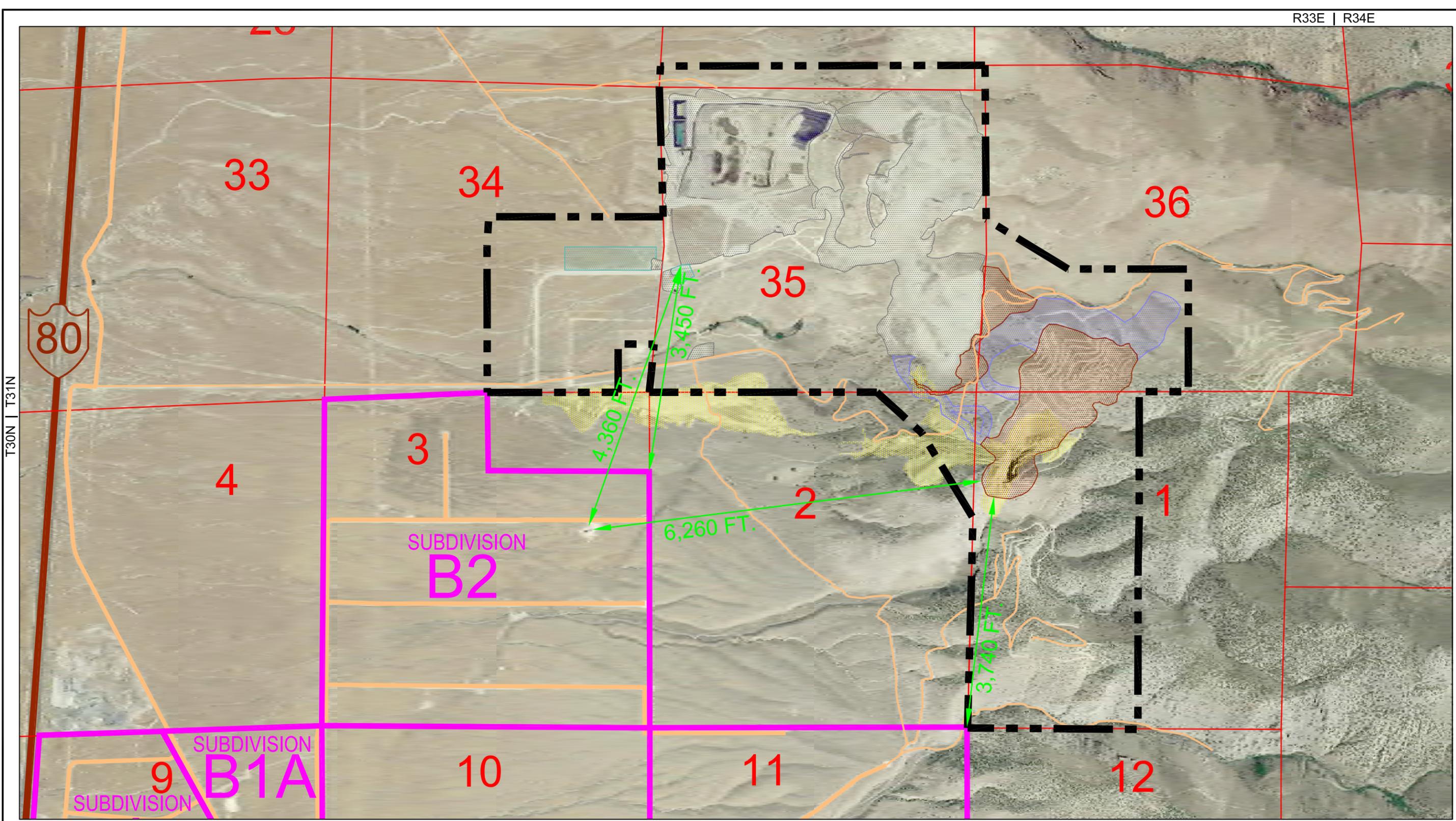
IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

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FIGURE 11
PROXIMITY OF RESIDENTIAL LAND TO
MINE NOISE SOURCES DURING CONSTRUCTION

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data.



BASE IMAGE: COMPILED NAIP IMAGERY

- MINE PLAN OF OPERATIONS BOUNDARY
- RESIDENTIAL SUBDIVISION BOUNDARY
- PIT
- CURRENTLY AUTHORIZED DISTURBANCE
- ANCILLARY FACILITIES
- HAUL ROAD
- INTERSTATE 80
- EXISTING PUBLIC ROADS
- SOUTHERN PACIFIC RAILROAD
- TOWNSHIP/RANGE/SECTION BOUNDARY
- HISTORIC DISTURBANCE

MAP DATE: NOVEMBER 12, 2009

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

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FIGURE 12
PROXIMITY OF RESIDENTIAL LAND TO
MINE NOISE SOURCES DURING OPERATION

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data.

APPENDIX A

Cultural Resource Survey Boundaries and Summary

**Standard Mine Project Expansion
Summary of Cultural Resource Surveys
January 2009**

Six Cultural Resource Inventories have been performed in the vicinity of the Standard Mine. These inventories are summarized below. A previously identified site is also included in this summary. Standard Mine Map 1 shows the boundaries of each inventory.

CR2-2775(P) was a Class III cultural resource inventory of the proposed Florida Canyon Mining, Inc.'s exploration at the Standard Mine Project Area and covered approximately 660 acres. Three sites were determined as eligible for listing on the NRHP.

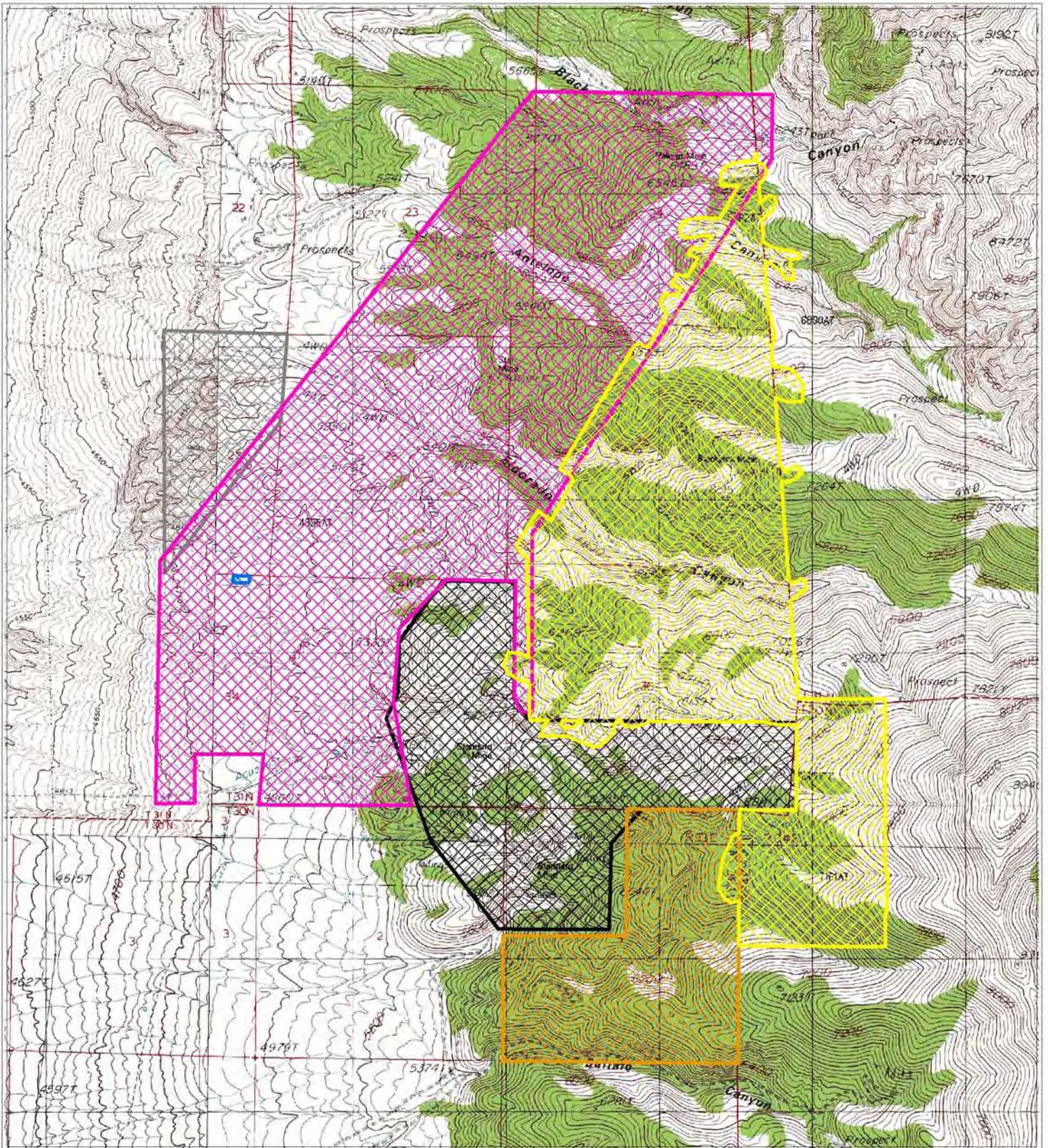
CR2-2800(N) was a Class III cultural resource inventory of the proposed UNR Rye Patch Reservoir Seismic Trenches and covered approximately 2 acres. No sites or isolated finds were identified during the survey.

CR2-2823(P) was a Class III cultural resource inventory of the proposed Florida Canyon Mine Project and covered approximately 2,223 acres. Twelve sites were recommended as eligible for listing on the NRHP.

CR2-2832(P) was a Class III cultural resource inventory of the proposed Standard Mine: Blackjack/Ruby Project Area Cultural Resource and covered approximately 1,248 acres. No cultural resources were determined as eligible for listing on the NRHP and by definition isolated finds are not eligible for listing on the NRHP.

CR2-2838(P) was a Class III cultural resource inventory of the proposed Florida Canyon Mine Project and covered approximately 296 acres. No cultural resources were determined as eligible for listing on the NRHP and by definition isolated finds are not eligible for listing on the NRHP.

CR2-2903(P) was a Class III cultural resource inventory of the proposed Standard Mine Section 1 Exploration Area and covered approximately 460 acres. No cultural resources were determined as eligible for listing on the NRHP and by definition isolated finds are not eligible for listing on the NRHP.

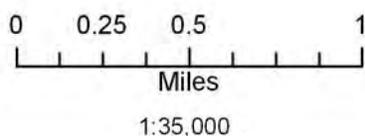


Standard Mine Inventories

Congress Canyon, Rye Patch Dam, Rye Patch Reservoir South, & Star Peak, NV
 USGS 7.5' Quadrangles (1987, 1987, 1971, & 1987)

Legend

- | | | | |
|--|-----------|---|-----------|
|  | CR2-2775P |  | CR2-2832P |
|  | CR2-2800N |  | CR2-2838P |
|  | CR2-2823P |  | CR2-2903P |



Winnemucca District Office
 Humboldt River Field Office
 5100 E. Winnemucca Blvd
 Winnemucca, NV 89445



08/07/2009

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

APPENDIX B

Waters of the United States Delineation

September 10, 2007

Kevin Roukey
U.S. Army Corps of Engineers
C. Clifton Young Federal Building
300 Booth Street, Room 2103
Reno, Nevada 89509

Re: Significant Nexus Determination for Standard Gold Mining, Corps #200225128
JBR Project Number 07.00178.01

Dear Mr. Roukey,

Standard Gold Mining, Inc. (SGMI), a subsidiary of Jipangu International, Inc., is currently proposing a facility expansion that may affect North Standard Canyon and South Fork North Standard Canyon drainages. SGMI requests that a new jurisdictional determination be made in light of the June 5, 2007, U.S. EPA and the Department of the Army joint legal guidance memorandum on interpreting U.S. Supreme Court's decision in *Rapanos v. United States* and *Carabell v. United States* regarding Clean Water Act jurisdiction of tributary streams. Based on this recent guidance SGMI believes the portion of North Standard Canyon that carries relatively permanent flows would be jurisdictional. The current Plan of Operations (Plan) boundary at the Standard Gold Mine is located within Sections 34 and 35 of Township 31 North, Range 33 East, east of Rye Patch Reservoir, 40 miles southwest of Winnemucca, Pershing County, Nevada (See Figure).

In 2003 the Corps verified that Black Canyon, Antelope Canyon, North Standard Canyon and South Fork North Standard Canyon drainages and their tributaries were waters of the United States (#200225128). The verification was based on a site visit made by Richard Gebhart, and a report for the Florida Canyon Mining, Inc. Standard Mine project Assessment of Jurisdictional Waters of the United States (Environmental and Resource Management, Inc., 2002) showing that the verified drainages had a surface connection to Rye Patch Reservoir on the Humboldt River.

The recent guidance memo states that the Corps will determine jurisdiction over tributaries and their adjacent wetlands, in cases where tributaries do not have relatively permanent flows. In order for an ephemeral channel to be jurisdictional, it must show significant nexus to a traditionally navigable waterbody. In other words, the flow characteristics and functions of the ephemeral tributary, and any adjacent wetlands, would need to significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters.

JBR Environmental Inc. (JBR) performed a jurisdictional review and significant nexus analysis for North Standard Canyon and South Fork North Standard Canyon. JBR concludes that the portion of North Standard Canyon that carries flows originating from a perennial spring source is jurisdictional. However, the northern first order tributaries of North Standard Canyon, which are ephemeral, and the drainages of

South Fork North Standard Canyon which are also ephemeral, would not be jurisdictional based on a “significant nexus” standard. Black Canyon and Antelope Canyon were left unevaluated because they are not within the current plan boundary.

A summary of tributary characteristics and photographs are presented in Attachments 1 and 2. Draft Jurisdictional Determination forms are also attached. Please note the updated applicant contact for this project:

Martin Price
Standard Gold Mining, Inc.
P.O. Box 330
Imlay, Nevada 89418

Mprice@jipanguintl.com
Phone 775.538.7300 ext. 120
Fax 775.538.7324

Should have any questions or need additional information regarding these tributaries, please do not hesitate to call me.

Sincerely,

JBR Environmental Consultants, Inc.

Nancy Kang
Senior Scientist

Attachments

cc: Martin Price, Standard Gold Mining, Inc.

Attachment 1

Tributary Characteristics

Project Location

Approximate Center Coordinates of Mine: 4484500N 394000E, zone 11
Nearest Traditional Navigable Water (TNW): Rye Patch Reservoir, Humboldt River
Hydrologic Unit Code (HUC): 16040108, Rye Patch Reservoir, Nevada

North Standard Canyon

- A Relatively Permanent Water (RPW) that flows directly into a TNW

North Standard Canyon is jurisdictional because flows are relatively permanent and drain directly into Rye Patch Reservoir, a traditional navigable water. JBR conducted a field review of the stream and spring source on April 30-May 1, 2007. JBR concluded that flows are relatively permanent based several factors: (1) the large volume of flow at the source; (2) the well established woody riparian vegetation at the spring and at various locations downstream to its confluence to Rye Patch Reservoir; and (3) findings from a previous field survey. The previous survey conducted in 2002 by ERM documented flows continuing off the project site in a year of extreme drought, demonstrating the reliability of the spring source. Annual precipitation in 2002, prior to the ERM survey, was 2.75 inches, and 4.12 inches in 2002. Both years were well below the annual average of 7.94 inches. Additionally, although not formerly documented, JBR personnel consistently observed flowing conditions within the drainage from Interstate 80 during “drive-bys” when passing through the area. At I-80, the drainage is 1.5 miles from Rye Patch Reservoir. Map symbols for springs are clearly shown on the U.S. Geological Survey (USGS) map also indicate that the spring source is relatively permanent.

Northern first order (1^o) tributaries of North Standard Canyon

- Non-RPW that flow directly into a TNW
- No significant nexus

The relevant reach starts at the headwaters to the confluence with North Standard Canyon, and is 2.6 miles from Rye Patch Reservoir. The relevant reach consists of 15,840 lineal feet of drainage, of which approximately 10,560 lineal feet is contained within the Plan area. The streambed averages 3.0 feet wide and 0.2 feet deep. The relevant reach has a catchment area of 834 acres. Flows appear in response to precipitation events and snowmelt runoff. At least one of the northern headwaters tributaries of North Standard Canyon is spring fed, however the spring flows are not sufficient to carry flows very far from the spring source. The size of the Humboldt River watershed at Rye Patch is 16,100 acres based on streamflow data from the U.S. Geological Survey (USGS) website. See significant nexus analysis below.

South Fork of North Standard Canyon

- Non-RPWs that flow directly into a TNW
- No significant nexus

The relevant reach starts at its headwaters and continues to the confluence with North Standard Canyon, and is 0.5 mile from Rye Patch Reservoir. The relevant reach consists of 39,600 lineal

feet of drainage, of which approximately 1,100 lineal feet are within the Plan area. On average, the streambed is 2.9 feet wide and 0.2 feet deep. No data is available regarding the duration and frequency of flow, but since there are no spring or seep sources, flows appear in response to precipitation events and snowmelt runoff. The relevant reach has a drainage (catchment) area of approximately 822 acres. The size of the Humboldt River watershed at Rye Patch is 16,100 acres based on USGS data.

Significant Nexus Analysis:

Both the northern 1° and 2° tributaries of North Standard Canyon and the South Fork of North Standard Canyon have a surface channel connection to Rye Patch Reservoir, and therefore, there is the potential for these drainages to carry pollutants and flood waters to a traditional navigable water. However, the potential is remote because the tributaries carry very little flow on an ephemeral basis, and drain a relatively small watershed area. The channels are very small, indicating a low volume, and short duration and frequency of flow. They also have a minimal role in maintaining the water quality of traditional navigable water because they do not support adjacent wetlands to trap and filter pollutants or store flood waters. In terms of ecological functions, the channels provide minimal biological support because they lack riparian, wetland, and aquatic habitat for fish and wildlife. Both the northern 1° and 2° tributaries of North Standard Canyon and the South Fork of North Standard do not have a significant nexus to a traditional navigable water (e.g., Rye Patch Reservoir) in terms of ecological functions or flow characteristics.

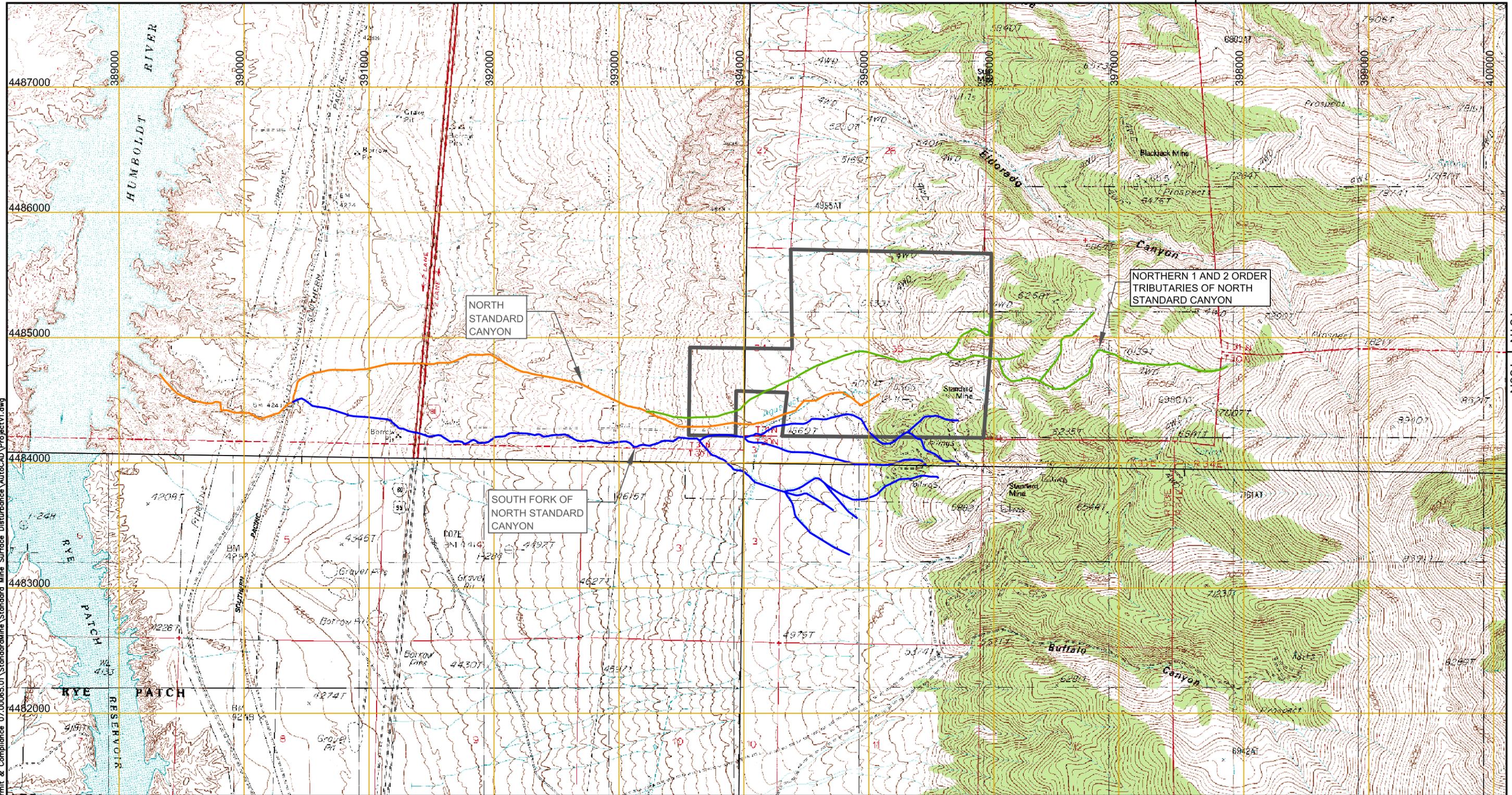
Attachment 2
Photographs



North Standard Canyon (RPW), with Rye Patch Reservoir in the background.



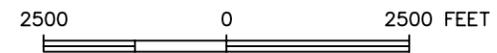
Northern first order tributary of North Standard Canyon (Non-RPW)



FILE NAME: 2007-Clients\Florida Canyon\Permit & Compliance 07.00065.01\StandardMine\Standard Mine Surface Disturbance\AutoCAD\Project\Y.dwg

BASE IMAGE: AERIAL IMAGE NAIP 2006

- PROJECT BOUNDARY
- JURISDICTIONAL CHANNEL - NORTH STANDARD CANYON
- NON JURISDICTIONAL CHANNEL - SOUTH FORK OF NORTH STANDARD CANYON
- NON JURISDICTIONAL - NORTHERN 1 AND 2 ORDER TRIBUTARIES OF NORTH STANDARD CANYON



STANDARD MINE

STANDARD MINE WATERS OF THE U.S.
JURISDICTIONAL DETERMINATION

DATE DRAWN 07/23/07

DESIGN BY	DL	DRAWN BY	AA	CH'D BY		SCALE	1: 30,000
-----------	----	----------	----	---------	--	-------	-----------

REVISION	

February 24, 2009

Kristine Hansen
U.S. Army Corps of Engineers
C. Clifton Young Federal Building
300 Booth Street, Room 2103
Reno, Nevada 89509

Re: Request for an Approved Jurisdictional Determination
Significant Nexus Determination for Standard Gold Mining, Corps #200225128
JBR Project Number B.A07031.00 (Former 07.00178.01)

Dear Ms. Hansen,

Standard Gold Mining, Inc. (SGMI), a subsidiary of Jipangu International, Inc., is currently proposing a facility expansion that may affect the northern first- and second-order tributaries of North Standard Canyon (Figure 1).

In 2003 the Corps verified that Black Canyon, Antelope Canyon, North Standard Canyon and South Fork North Standard Canyon drainages and their tributaries were waters of the United States (#200225128). The verification was based on a site visit made by Richard Gebhart, and a report for the Florida Canyon Mining, Inc. Standard Mine Project Assessment of Jurisdictional Waters of the United States (Environmental and Resource Management, Inc., 2002) showing that the verified drainages had a surface connection to Rye Patch Reservoir on the Humboldt River.

SGMI requests that a new approved jurisdictional determination be made in light of the June 5, 2007, and December 2, 2008, U.S. EPA and the Department of the Army joint legal guidance memoranda on interpreting the U.S. Supreme Court's decision in *Rapanos v. United States* and *Carabell v. United States* regarding Clean Water Act jurisdiction of tributary streams. Based on this recent guidance, SGMI believes the northern first- and second-order tributaries of North Standard Canyon are ephemeral and would not be jurisdictional. However, the portion of North Standard Canyon that carries relatively permanent flows would remain jurisdictional. The potential jurisdictional status of other drainages delineated by Environmental and Resource Management, Inc. was not reassessed, since no impacts to these drainages are proposed by SGMI.

The current Plan of Operations (Plan) boundary at the Standard Gold Mine is located within Sections 34 and 35 of Township 31 North, Range 33 East, east of Rye Patch Reservoir, 40 miles southwest of Winnemucca, Pershing County, Nevada (Figure 1). The Plan Boundary includes a reach of the North Standard Canyon Drainage, but no disturbance to the drainage is proposed.

The recent joint legal guidance memos state that the Corps will determine jurisdiction over tributaries and their adjacent wetlands in cases where tributaries do not have relatively permanent flows. In order for an ephemeral channel to be considered jurisdictional, the channel must show a significant nexus to a traditionally navigable waterbody. In other words, for an ephemeral tributary to be considered a jurisdictional channel, the flow characteristics and functions of the ephemeral tributary, and any adjacent

wetlands, would need to significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters.

JBR Environmental Consultants, Inc. (JBR) performed a jurisdictional review and significant nexus analysis for North Standard Canyon and its northern first- and second-order tributaries. JBR concluded that the portion of North Standard Canyon that carries flows originating from a perennial spring source within the Plan area would remain jurisdictional. However, the northern first- and second-order tributaries of North Standard Canyon, which are ephemeral (Figures 1 and 2), would not be jurisdictional based on a "significant nexus" standard. The South Fork of North Standard Canyon (Figures 1 and 2), Black Canyon and Antelope Canyon were left unevaluated because they are not within the current Plan Boundary or would not be affected by any activities proposed by SGMI.

A summary of tributary characteristics and photographs of the channels are presented in Attachments 1 and 2. Draft Jurisdictional Determination forms are also attached. Please note the updated applicant contact for this project:

Dana Sue Kimbal
Standard Gold Mining, Inc.
P.O. Box 330
Imlay, Nevada 89418

Dkimbal@jipanguintl.com
Phone 775.538.7300 ext. 120
Fax 775.538.7324

Should you have any questions or need additional information regarding these tributaries, please do not hesitate to call me.

Sincerely,

JBR Environmental Consultants, Inc.

David Worley
Senior Biologist

Attachments

cc: Dana Sue Kimbal, Standard Gold Mining, Inc.

Attachment 1

Tributary Characteristics

Project Location

Approximate Center Coordinates of Mine: 4484500N 394000E, zone 11
Nearest Traditional Navigable Water (TNW): Rye Patch Reservoir, Humboldt River
Hydrologic Unit Code (HUC): 16040108, Rye Patch Reservoir, Nevada

North Standard Canyon

- A Relatively Permanent Water (RPW) that flows directly into an apparent TNW

North Standard Canyon is jurisdictional because flows are relatively permanent and drain directly into Rye Patch Reservoir, a traditional navigable water. JBR conducted a field review of the stream and spring source on April 30-May 1, 2007. JBR concluded that flows are relatively permanent based several factors: (1) the large volume of flow at the source; (2) the well established woody riparian vegetation at the spring and at various locations downstream to the North Standard Canyon drainage's confluence with Rye Patch Reservoir; and (3) findings from a previous field survey. The previous survey, conducted in 2002 by ERM, documented flows continuing off the project site in a year of extreme drought, demonstrating the reliability of the spring source. Annual precipitation in 2001, prior to the ERM survey, was 2.75 inches, and 4.12 inches in 2002. Both years were well below the annual average of 7.94 inches. Additionally, although not formerly documented, JBR personnel consistently observed flowing conditions within the drainage from Interstate 80 during "drive-bys" when passing through the area. At I-80, the drainage is 1.5 miles from Rye Patch Reservoir. A map symbol for a spring depicted on the U.S. Geological Survey (USGS) 1983 Star Peak 7.5 minute map also indicates that the spring source is relatively permanent.

Northern first- and second-order (1° and 2°) tributaries of North Standard Canyon

- Non-RPW that flow directly into a TNW
- No significant nexus

The relevant reach starts at the headwaters to the confluence with North Standard Canyon, and is 2.6 miles from Rye Patch Reservoir. The relevant reach consists of 15,840 lineal feet of drainage, of which approximately 10,560 lineal feet is contained within the Plan area. The streambed averages 3.0 feet wide and 0.2 feet deep. The relevant reach has a catchment area of 834 acres. Flows appear in response to precipitation events and snowmelt runoff. At least one of the northern headwaters tributaries of North Standard Canyon is spring fed. However, the spring flows are not sufficient to carry flows very far from the spring source. A review of a 2006 aerial photograph (Google Earth, September 6, 2006) shows the northern tributaries braid and begin to lose channel definition as they reach the fan west of the range front (see Figure 2). The size of the Humboldt River watershed at Rye Patch Reservoir is 16,100 square miles based on streamflow data from the U.S. Geological Survey (USGS) website. See significant nexus analysis below.

Significant Nexus Analysis:

Both the northern first- and second-order tributaries of North Standard Canyon have a surface channel connection to Rye Patch Reservoir, and therefore, there is the potential for these drainages to carry pollutants and flood waters to an apparent traditional navigable water.

However, the potential is remote because the tributaries carry very little flow on an ephemeral basis, and drain a relatively small watershed area. The channels are very small, indicating a low volume and short duration and frequency of flow. They also have a minimal role in maintaining the water quality of traditional navigable waters because they do not support adjacent wetlands to trap and filter pollutants or to store flood waters. In terms of ecological functions, the channels provide minimal biological support because they lack riparian, wetland, and aquatic habitat for fish and wildlife. Accordingly, JBR concluded that the northern first- and second-order tributaries of North Standard Canyon do not have a significant nexus to an apparent traditional navigable water (e.g., Rye Patch Reservoir) in terms of ecological functions or flow characteristics.

Attachment 2
Photographs



**NORTH STANDARD CANYON (RPW), WITH RYE PATCH RESERVOIR IN THE
BACKGROUND.**



NORTHERN FIRST ORDER TRIBUTARY OF NORTH STANDARD CANYON (NON-RPW).

APPENDIX C

Visual Resources

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date NOV 7, 2008
District Winnemucca
Resource Area Humboldt FO
Activity (program) _____

SECTION A. PROJECT INFORMATION

1. Project Name <u>STANDARD MINE EXPANSION</u>	4. Location Township _____ Range _____ Section _____	5. Location Sketch
2. Key Observation Point <u>SEE MAPS</u> KOP-4	SEE ENCLOSED MAPS	
3. VRM Class <u>II</u>		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FORE Ground - FLAT MIDDLE Ground } Rugged BACK Ground } ANGULAR	Simple amorphous forms created by low sage and grasses in fore & middle ground and juniper trees in back ground	REGULAR square rectangle & cylindrical
LINE	Rounded & curving to irregular, jagged & complex	weak, simple & patchy	Both regular & irregular horizontal & vertical simple
COLOR	SUBTLE & CONTRASTING LIGHT TO DARK GREYS & REDS ON LIGHT TO DARK BROWS	light to dark tans & browns. DARK GREENS	white to light greys
TEXTURE	medium to coarse with contrasting Rock formations IN MIDDLE & BACK ground	smooth, medium & dotted	

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Indistinct from current landscape & situation on the ground	moderate changes due to temporary veg. loss	AS ABOVE
LINE	↓	Contrasting & Broken	↓
COLOR	↓	AS ABOVE	↓
TEXTURE	↓	patchy	↓

SECTION D. CONTRAST RATING SHORT TERM LONG TERM

ELEMENTS	DEGREE OF CONTRAST	FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)	3. Additional mitigating measures recommended <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (Explain on reverse side)	
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)						
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None			
Form																
Line																
Color																
Texture																

Evaluator's Names _____ Date _____

Joey Cremosino

SECTION D. (Continued)

Comments from item 2.

- 1) THE PROPOSED EXPANSION DOES NOT SIGNIFICANTLY INCREASE THE EXISTING FOOTPRINT OF THE CURRENT OPERATIONS. In addition, a fair portion of the new disturbance will be hidden by topography, and a majority of people passing through or living in the area will not discern or notice the new disturbance because of the existing character of the landscape
- 2) Waste rock from the new disturbance will be used to fill and Rehab existing pits

Additional Mitigating Measures (See item 3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Date 12-15-2008
District Wmca
Resource Area Humboldt FO
Activity (program)

VISUAL CONTRAST RATING WORKSHEET

SECTION A. PROJECT INFORMATION

1. Project Name <u>STANDARD MINE EXPANSION</u>	4. Location Township _____ Range _____ Section _____	5. Location Sketch <u>SEE ENCLOSED MAPS</u>
2. Key Observation Point <u>Standard Mine KOP</u>		
3. VRM Class <u>II</u>	<u>SEE</u>	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FORE & MIDDLE GROUND - RUGGED	AMORPHOUS FORMS IN MIDDLE & BACK GROUND (GRASSES SAGE) JUNIPER IN BACKGROUND	Regular, square, rectangular cylindrical
LINE	ROUNDED & CURVING MIDDLE GROUND TO JAGGED, COMPLEX & IRREGULAR IN THE BACKGROUND	WEAK OVER ALL PATCHY ACROSS ENTIRE SPECTRUM	Weak horizontal & vertical. simple structures as seen from this distance
COLOR	SUBTLE BUT CONTRASTING LIGHT TO DARK BROWNS, REDS GREYS & GREENS	LIGHT TO DARK GREENS TANS AND BROWNS	white to light greys
TEXTURE	FOREGROUND - FINE MIDDLE TO BACKGROUND - MEDIUM TO COARSE W/ CONTRASTING ROCK FORMATIONS	SMOOTH IN FOREGROUND DOTTED IN MIDDLE GROUND FOREGROUND AMORPHOUS	Indistinguishable

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	DOES NOT VARY TO A NOTICEABLE EXTENT WHEN COMPARED TO EXISTING	some changes due to temp veg loss - but largely indistinguishable	AS ABOVE
LINE	SITUATION ON THE GROUND AS ABOVE	AS ABOVE	
COLOR			
TEXTURE			

SECTION D. CONTRAST RATING SHORT TERM LONG TERM

1. DEGREE OF CONTRAST	FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	
ELEMENTS	Form		X			X						X	
	Line		X			X						X	
	Color		X			X						X	
	Texture		X			X						X	
Evaluator's Names												Date	
<u>J. Carnasano</u>												<u>12/15/08</u>	

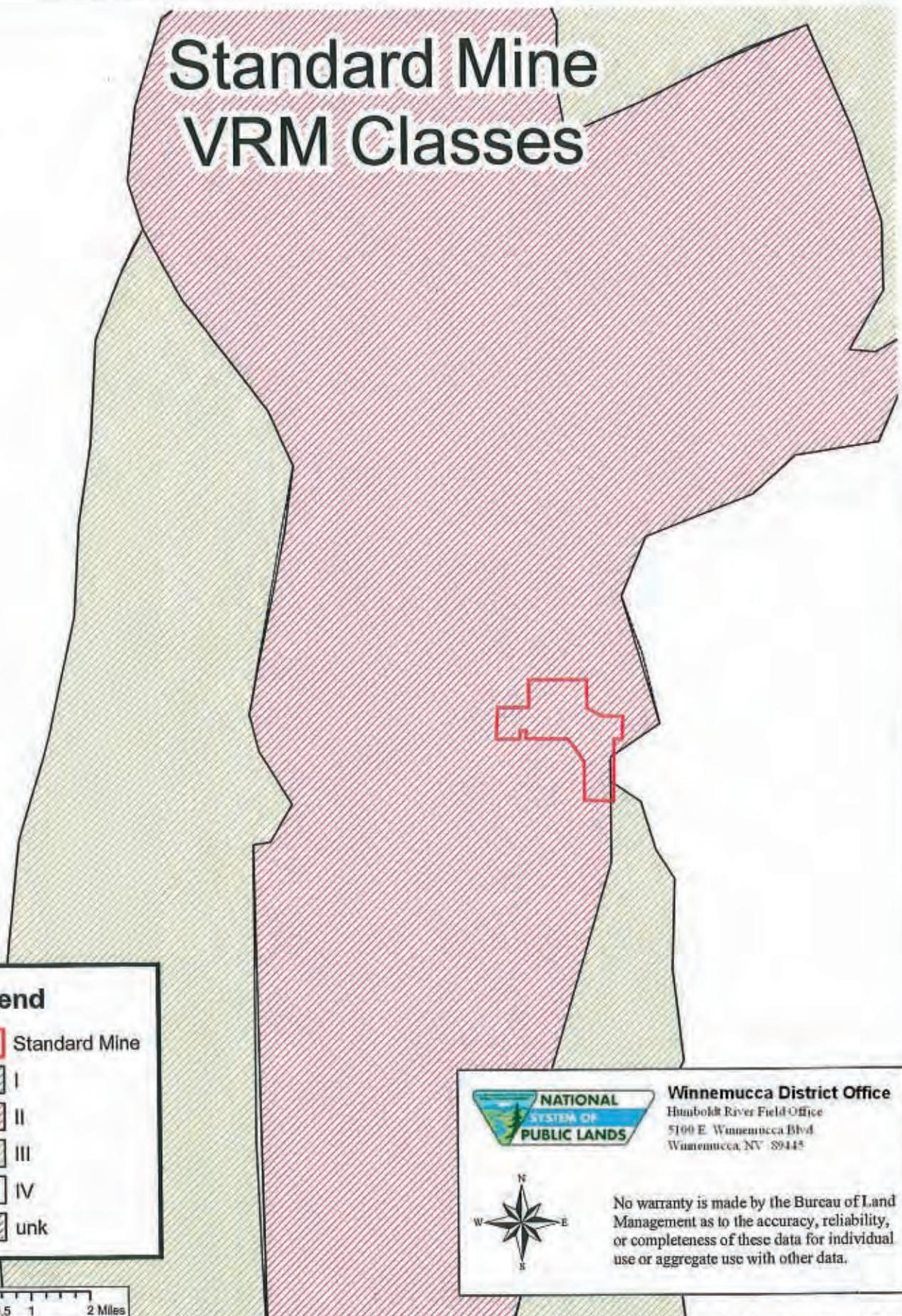
SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

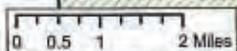
EXISTING MITIGATING PROPOSALS / MEASURES ARE
ADEQUATE

Standard Mine VRM Classes



Legend

-  Standard Mine
-  I
-  II
-  III
-  IV
-  unk



Winnemucca District Office
Humboldt River Field Office
5100 E. Winnemucca Blvd
Winnemucca, NV 89445



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

Map Date: November 7, 2008

Standard Mine Viewshed & Key Observation Points

STANDARD MINE KOP

KOP 4

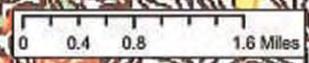
Legend

- KOP 12-15-08
- KOP
- Standard Mine

Standard_Comb

TOTAL

- 1
- 2
- 3
- 4



Winnemucca District Office
 Humboldt River Field Office
 5100 E. Winnemucca Blvd.
 Winnemucca, NV 89445



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Standard Mine VRM 121508

KOP4



11 N 0393057 4479472

4488 ft

12/12/2008 11:24:23 AM

Standard Mine KOP



11 N 0391450 4484153

4396 ft

10/29/2008 12:09:48 PM