

**U.S. Department of the Interior
Bureau of Land Management**

**Preliminary Environmental Assessment
DOI-BLM-NV-S030-2014-0015-EA**

May 2016

**Sterling Gold Mine
Plan Amendment to Expand Open Pit
and Process Operations**

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TABLE OF CONTENTS

ACRONYMS	VI
1 INTRODUCTION/PURPOSE AND NEED FOR ACTION	1
1.1 Identifying Information	1
1.1.2 LOCATION OF PROPOSED ACTION	1
1.1.3 NAME AND LOCATION OF PREPARING OFFICE	1
1.1.4 PROJECT CASE FILE NUMBER	1
1.1.5 APPLICANT	1
1.2 Overview	1
1.2.1 SITE HISTORY	1
1.2.2 MINING OPERATIONS	4
1.2.3 PROPOSED ACTION SUMMARY	5
1.3 Purpose and Need for Action	5
1.3.1 DECISIONS TO BE MADE	6
1.4 Scoping, Public Involvement, Issues	6
2 PROPOSED ACTION AND ALTERNATIVES	8
2.1 Description of the Proposed Action	8
2.1.1 PROPOSED ACTION	8
2.1.1.1 Open Pit (Sterling Pit).....	9
2.1.1.2 Heap Leach Pad.....	15
2.1.1.3 Process Facilities.....	16
2.1.1.4 Waste Rock Disposal Areas and Stockpile Areas.....	17
2.1.1.5 Ancillary Facilities.....	17
2.1.1.6 Work Force and Equipment.....	18
2.1.2 SITE RECLAMATION	18
2.1.2.1 General.....	18
2.1.2.2 Open Pit.....	19
2.1.2.3 Heap Leach Pad/Process Facilities.....	19
2.1.2.4 Waste Rock Disposal Areas.....	20
2.1.2.5 Water Well and Exploration Drill Holes.....	20
2.1.2.6 Roads and Other Ancillary Facilities.....	20
2.1.2.7 Underground Workings.....	20
2.1.3 DESIGN FEATURES	21
2.1.3.1 Air Emissions.....	21
2.1.3.2 Lighting.....	21
2.1.3.3 Cultural Resources.....	21
2.1.3.4 Native American Religious Concerns.....	22
2.1.3.5 Paleontological Resources.....	22
2.1.3.6 Erosion and Sediment Control.....	22
2.1.3.7 Petroleum Products/Hazardous Materials/Solid and Liquid Waste.....	23
2.1.3.8 Monitoring.....	23
2.1.3.9 Vegetation, Forestry, and Non-Native Invasive Species.....	23
2.1.3.10 Migratory Birds.....	24
2.1.3.11 Threatened and Endangered Species (Desert Tortoise).....	24
2.1.3.12 Wildlife.....	26
2.1.3.13 Protection of Survey Monuments.....	26
2.1.3.14 Public Safety, Access, and Signage.....	27

2.1.3.15 Prevention and Control of Fires.....	27
2.1.3.16 Measures to be Taken during Temporary, Interim, or Seasonal Closures	27
2.1.3.17 Drill Hole Plugging and Well Abandonment	28
2.1.3.18 Process Solutions.....	28
2.1.3.19 Leak Detection and Recovery.....	28
2.1.3.20 Rock Characterization	29
2.1.3.21 Post-Reclamation Monitoring and Maintenance	29
2.2 Action Alternatives	29
2.2.1 NO ACTION.....	30
2.2.2 ALTERNATIVE CONSIDERED BUT NOT ANALYZED IN DETAIL – ALTERNATIVE HEAP LEAP PAD PLACEMENT	30
2.3 Land Use Conformance Statement.....	30
2.4 Relationship to Laws, Regulations, and Other Plans	30
2.4.1 FEDERAL REQUIREMENTS	30
2.4.2 OTHER FEDERAL, STATE, AND LOCAL LAND USE PLANS AND POLICIES	31
3 AFFECTED ENVIRONMENT	33
3.1 Threatened, Endangered, or Candidate Species.....	38
3.1.1 REGULATORY FRAMEWORK.....	38
3.1.2 ASSESSMENT AREA	38
3.1.3 EXISTING ENVIRONMENT	38
3.2 Migratory Birds	39
3.2.1 REGULATORY FRAMEWORK.....	39
3.2.2 ASSESSMENT AREA	39
3.2.3 EXISTING ENVIRONMENT	41
3.3 Woodland/Forestry	42
3.3.1 REGULATORY FRAMEWORK	42
3.3.2 ASSESSMENT AREA	42
3.3.3 EXISTING ENVIRONMENT	42
3.4 Soils	42
3.4.1 REGULATORY FRAMEWORK.....	42
3.4.2 ASSESSMENT AREA	42
3.4.3 EXISTING ENVIRONMENT	42
3.5 Vegetation.....	47
3.5.1 REGULATORY FRAMEWORK.....	47
3.5.2 ASSESSMENT AREA	47
3.5.3 EXISTING ENVIRONMENT	47
3.6 Wildlife and BLM Sensitive Species.....	47
3.6.1 REGULATORY FRAMEWORK.....	47
3.6.2 ASSESSMENT AREA	49
3.6.3 EXISTING ENVIRONMENT	49
3.7 Social and-Economic Values	54
3.7.1 REGULATORY FRAMEWORK.....	54
3.7.2 ASSESSMENT AREA	54
3.7.3 EXISTING ENVIRONMENT	54
3.7.3.1 Population.....	54
3.7.3.2 Employment	55
4 DIRECT AND INDIRECT IMPACTS	56

4.1	Threatened, Endangered, or Candidate Species	56
4.1.1	PROPOSED ACTION	56
4.1.2	NO ACTION	57
4.2	Migratory Birds	57
4.2.1	PROPOSED ACTION	57
4.2.2	NO ACTION	57
4.3	Woodland/Forestry	57
4.3.1	PROPOSED ACTION	57
4.3.2	NO ACTION	57
4.4	Soils	58
4.4.1	PROPOSED ACTION	58
4.4.2	NO ACTION	58
4.5	Vegetation	58
4.5.1	PROPOSED ACTION	58
4.5.2	NO ACTION	58
4.6	Wildlife and BLM Sensitive Species	59
4.6.1	PROPOSED ACTION	59
4.6.2	NO ACTION	61
4.7	Social and Economic Values	61
4.7.1	PROPOSED ACTION	61
4.7.2	NO ACTION	62
4.8	Cumulative Impact Analysis	62
4.8.1	ASSUMPTIONS FOR CUMULATIVE EFFECTS ANALYSIS	62
4.8.2	DESCRIPTION OF CUMULATIVE EFFECTS STUDY AREA BOUNDARIES	62
4.8.3	PAST AND PRESENT ACTIONS	63
4.8.4	REASONABLY FORESEEABLE FUTURE ACTIONS.....	63
4.9	Cumulative Impacts to Affected Resources	63
4.9.1	THREATENED, ENDANGERED, OR CANDIDATE SPECIES	63
4.9.2	MIGRATORY BIRDS	63
4.9.3	WOODLAND/FORESTRY	64
4.9.4	SOILS	64
4.9.5	VEGETATION	64
4.9.6	WILDLIFE AND BLM SENSITIVE SPECIES	64
4.9.7	SOCIAL AND ECONOMIC VALUES	65
5	RECOMMENDED MITIGATION AND STIPULATIONS	66
5.1	Recommended Mitigation and Stipulations Under the Proposed Action	66
5.1.1	MOJAVE DESERT TORTOISE.....	66
5.1.2	MIGRATORY BIRDS	66
5.1.3	BLM SENSITIVE SPECIES.....	66
6	INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED	67
6.1	Native American Consultation.....	67
6.2	Agency Coordination and/or Consultation.....	67
6.3	Individuals and/or Organizations Consulted	67
7	LIST OF PREPARERS	68

7.1 BLM 68

7.2 Third Party Consultants..... 69

8 REFERENCES CITED 70

Notes: 1. This is the approved list prior to the completion of the 17 states EIS. 2. If used in areas other than California, refer to the California Veg. Management FEIS and ROD Risk Assessment, 1988. xv

List of Tables

Table 1-1: Existing Facilities and Disturbance Acreage at the Sterling Gold Mine.....	4
Table 2-1: Sterling Mine Expansion Proposed Action	9
Table 2-2: Existing Facilities to be Consumed by the Proposed Action	11
Table 2-3: Sterling Mine Process and Surge Pond Capacities.....	16
Table 2-4: Project Permits and Approvals.....	32
Table 3-1: Resources with Supplemental Authority which were Considered for Analyses of the Sterling Mine Expansion Project.....	33
Table 3-2: Other Resources Considered for Analysis of the Sterling Mine Expansion Project.....	37
Table 3-3: Bird Species Observed at the Sterling Mine Expansion Project Area	41
Table 3-4: Soils in the Vicinity of the Project Area	44
Table 3-5: BLM Sensitive Animal Species Present or with Potential to Occur within the Project Area.....	50
Table 3-6: Population Data for Beatty, Amargosa Valley, Pahrump, and Nye County, Nevada.....	54
Table 3-7: Unemployment Rates for Nye County and the State of Nevada	55

List of Figures

Figure 1-1: Sterling Gold Mine - General Vicinity Map.....	2
Figure 1-2: Sterling Gold Mine Existing Facilities	3
Figure 2-1: Sterling Gold Mine Proposed Action	12
Figure 2-2: Proposed Action - New Facilities.....	13
Figure 2-3: Sterling Gold Mine Proposed Action Relative to Existing Facilities.....	14
Figure 3-1: Desert Tortoise and Chuckwalla Observations.....	40
Figure 3-2: Soil Map Units at the Sterling Mine Project	46
Figure 3-3: Golden Eagle Nest Locations in the Vicinity of the Sterling Mine (2013 and 2014)	51
Figure 3-4: Bat Survey Locations at Sterling Mine	53

Appendices

- Appendix A – Standard Operating Procedures, Locatable Minerals**
- Appendix B – Noxious Weed Management Plan**
- Appendix C – USFW Biological Opinion-Append Sterling Mine Plan
Amendment**

ACRONYMS

Acronym	Definition
ACEC	Area of Critical Environmental Concern
APE	Area of Potential Effect
APO	Amended Plan of Operations
ATV	All-terrain Vehicle
BAPC	Bureau of Air Pollution Control
BLM	Bureau of Land Management
BMP	Best Management Practice
BMRR	Bureau of Mining Regulation and Reclamation
CEQ	Council on Environmental Quality
CESA	Cumulative Effects Study Area
CFR	Code of Federal Regulations
CRINA	Cultural Resources Inventory Needs Assessment
DOI	Department of the Interior
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land and Policy Management Act
GCL	Geosynthetic Clay Liner
GHG	Greenhouse Gas
gpm	gallons per minute
HDPE	High Density Polyethylene
HLDE	Heap Leach Draindown Estimator
HMA	Herd Management Area
IM	Informational Memorandum
JBR	JBR Environmental Consultants
LDPE	Low Density Polyethylene
LVFO	Las Vegas Field Office
MBTA	Migratory Bird Treaty Act
MFP	Management Framework Plan
mga	million gallons annually
MHLP	Main Heap Leach Pad
MOU	Memorandum of Understanding
MWMP	Meteoritic Water Mobility Procedure
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEIC	National Earthquake Information Center
NEPA	National Environmental Policy Act
NEV	Nevada

NNHP	Nevada Natural Heritage Program
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRS	Nevada Revised Statute
NV	Nevada
PFS	Process Fluid Stabilization
PoO	Plan of Operations
ppm	Parts per Million
PVC	Polyvinyl Chloride
RFFA	Reasonably Foreseeable Future Actions
SHPO	State Historic Preservation Officer
SWNVF	Southwestern Nevada Volcanic Field
SWPPP	Stormwater Pollution Prevention Plan
USC	U.S. Code
USFWS	U. S. Fish and Wildlife Service
USGS	U. S. Geological Survey
VRM	Visual Resource Management
WPC	Water Pollution Control
WRDA	Waste Rock Disposal Area

1 INTRODUCTION/PURPOSE AND NEED FOR ACTION

1.1 IDENTIFYING INFORMATION

1.1.1 TITLE, ENVIRONMENTAL ASSESSMENT (EA) NUMBER, TYPE OF PROJECT

Title: Sterling Gold Mine Plan Amendment to Expand Open Pit and Process Operations

EA Number: DOI-BLM-NV-S030-2014-0015-EA

The proposed Expansion of Open Pit and Process Operations (Expansion Project) involves the expansion of the existing surface operations to merge three existing open pits, concurrent construction of a new heap leach pad and upgrading of the existing process areas, potential to partially backfill existing pits to accommodate waste rock, construction of a new waste rock disposal area, construction of haul roads and access roads, and closure/reclamation of proposed and existing facilities.

1.1.2 LOCATION OF PROPOSED ACTION

The Proposed Action is located on the east side of Bare Mountains, approximately eight miles southeast of Beatty, Nevada, in Nye County (*Figure 1-1*).

The existing mine operations and the Proposed Expansion Project are located on public lands administered by the Bureau of Land Management (BLM) at Township 13 South, Range 47.5 East, portions of Sections 11-14, and Township 13 South, Range 48 E, Sections 18, 19, 20, and 21 (*Figure 1-2*). The existing water pipeline extends from Township 13 South, Range 48 East, SW $\frac{1}{4}$ Section 21, through Sections 20, 19, and 18, and Section 13 of Township 13 South, Range 47.5 East.

1.1.3 NAME AND LOCATION OF PREPARING OFFICE

Lead Office – Pahrump Field Office; Southern Nevada District

4701 N. Torrey Pines Dr., Las Vegas, NV 89130

1.1.4 PROJECT CASE FILE NUMBER

N-71676

1.1.5 APPLICANT

Sterling Gold Mining Corporation (Sterling), which is a wholly-owned subsidiary of Imperial Metals Corporation.

1.2 OVERVIEW

1.2.1 SITE HISTORY

Historically, gold-bearing ore was produced both by underground and open pit mining methods and processed by heap leaching technology from December 1980 until suspension of operations in April 2003. Exploration activities identified an underground ore deposit (referred to as the 144 Zone) and the Plan of Operations (PoO) was modified for the development and exploitation of this deposit, with approval of the PoO modification in November, 2011. Since that time, the underground mine (144 Zone) was developed, the heap leach facility was expanded, and a new gold recovery plant was installed.



Figure 1-1: Sterling Gold Mine - General Vicinity Map

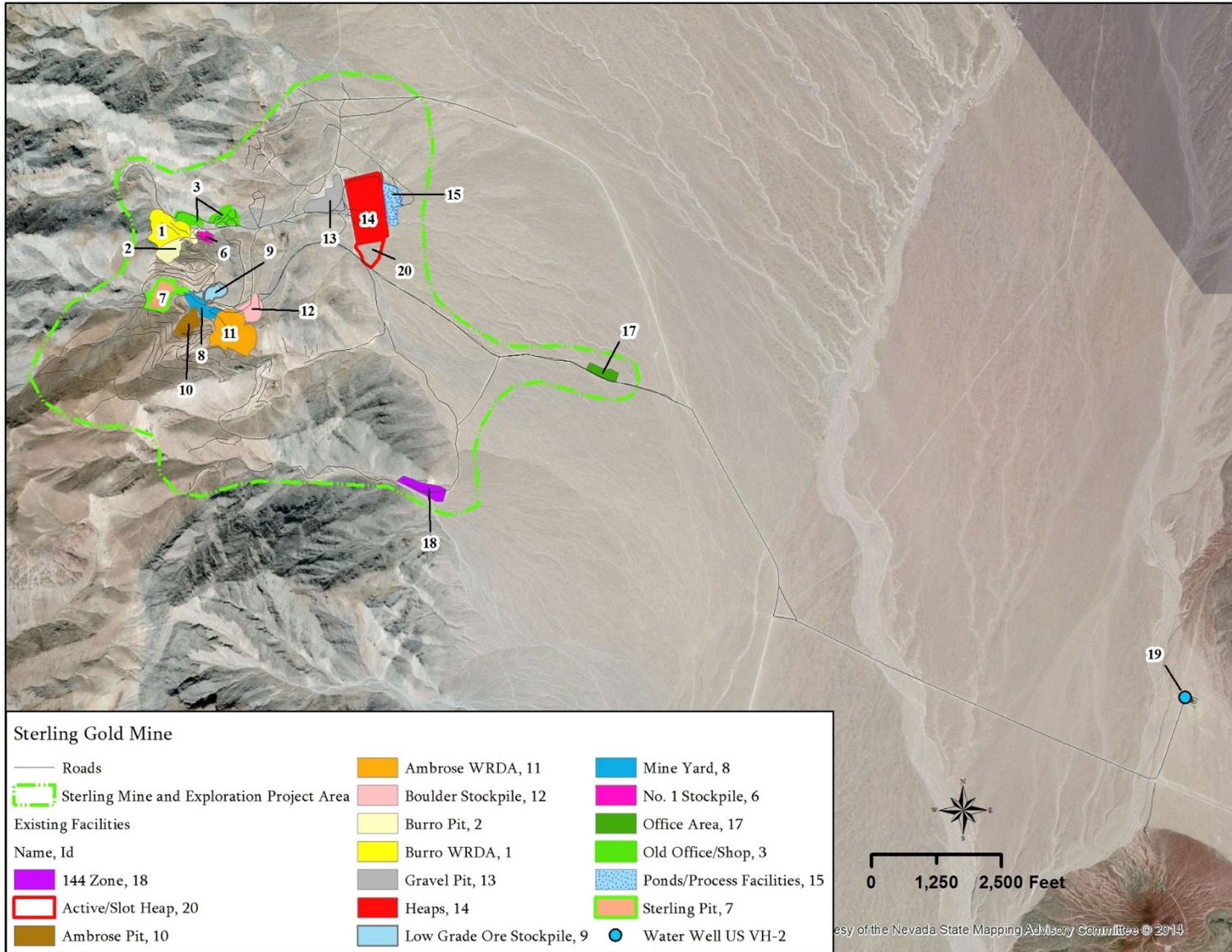


Figure 1-2: Sterling Gold Mine Existing Facilities

1.2.2 MINING OPERATIONS

The Sterling Gold Mine is operated under BLM PoO N-71676, Nevada Division of Environmental Protection (NDEP) Reclamation Permit 0065, and NDEP Water Pollution Control Permit number: NEV0089016.

The current existing disturbance for the mine is 162.8 acres (including exploration activities). All existing disturbance is on public lands administered by the BLM.

The existing disturbance areas for mine and exploration components are included in *Table 1-1*. Existing mining facilities are presented in *Figure 1-2*.

Table 1-1: Existing Facilities and Disturbance Acreage at the Sterling Gold Mine

Facility	Existing Individual Facility Disturbance (acres)	Total Facility Acreage (acres)
Open Pits		14.0
Sterling Pit	6.0	
Burro Pit	4.2	
Ambrose Pit	3.8	
Waste Rock Disposal Areas (WRDAs)		21.2
Ambrose WRDA	9.5	
Burrow WRDA	8.2	
144 Zone WRDA	3.5	
Ore Stockpiles		7.0
Boulder Stockpile	2.9	
Low Grade Stockpile	3.1	
#1 Stockpile	1.0	
Heap Leach Pad (Active and Inactive)		23.7
Active/Slot Heap Leach Pad	3.7	
Reclaimed Heap Leach Pad	20.0	
Process Area/Ponds		5.1
Mine and Access Roads		24.7
Gravel Pit		3.5
Administration Areas		8.5
Old Office Area/Shop	6.0	
Current Office Area/Shop	2.5	
Mine Yards		6.9
Water Well/Water Pond		4.4
Exploration Roads		43.8
Total		162.8

The Sterling Gold Mine operation consisted primarily of underground mining and three small surface open pit mines using underground and conventional mining methods to excavate ore and waste rock. Sterling has mined approximately 1.25 million tons of leach grade ore and 2.53 million tons of waste rock since the mine began operations in 1980. In addition to underground operations, three small open pits have been mined: Burro Pit (4.2 acres), Sterling Pit (6.0 acres), and Ambrose Pit (3.8 acres). The two waste rock disposal areas associated with the pits currently occupy 17.7 acres, the three ore stockpile areas disturbed 7 acres, the three heap leach pads occupy 23.7 acres, and the process area (i.e., process buildings, ponds, and diversion ditches) is 5.1 acres. The 144 Zone underground mining is the currently active mining operation, consisting of the portal area and waste rock disposal area (WRDA) of 3.5 acres. Other ancillary facilities account for an additional 48 acres, for a total existing mine-related disturbance of 119 acres. Exploration activities have created an additional 43.8 acres of road/pad disturbance, bringing the total existing disturbance to 162.8 acres (*Table 1-1*).

All pits were dry and no dewatering was necessary. Waste rock was deposited in three different waste rock disposal areas (WRDAs) adjacent to the Ambrose and Burro pits. The third WRDA was located at the 144 Zone in the SW $\frac{1}{4}$ of Section 13 (*Figure 1-2*), associated with the current underground mining. The heap leach pad and ore processing facilities include the reclaimed heap leach pad (original 20.0-acre heap leach facility), the operating heap leach facility (3.7 acres), and process ponds (double-lined) (5.1 acres). The reclaimed heap leach pad was reclaimed in 2004. Ore recovered from the 144 Zone underground mining operation is currently hauled to the operating heap leach facility.

1.2.3 PROPOSED ACTION SUMMARY

Sterling submitted an application to amend the Sterling Mine PoO (N-71676) and Reclamation Permit (No. 0065) to the Pahrump Field Office of the BLM and Nevada Division of Environmental Protection (NDEP), respectively. The proposed Amended Plan of Operations (APO #6) (Proposed Action) provides for the expansion of open pit mining; construction and operation of a new heap leach pad and process pond; construction of a waste rock disposal facility; construction of storm water diversion channels, ditches, and ponds; and closure/reclamation of these facilities. The components of the proposed APO are collectively referred to as the Sterling Mine Open Pit and Process Operations Expansion Project (Project or the Proposed Action in this document).

The Sterling Pit would be mined by conventional surface mining methods. Ore and waste rock would be drilled and blasted on 40-foot bench heights in waste and five- or ten-foot bench heights in ore. Waste rock and ore would be loaded by front-end loader or large backhoe into Cat 777 size trucks for haulage to either the waste rock disposal area or leach pad, respectively.

The gold ore would be placed on a double-lined, fenced, heap leach pad where the precious metals would be extracted using a dilute cyanide solution (250 parts per million [ppm]). The gold-bearing solution would be piped to lined and fenced ponds and pumped to carbon columns. The carbon would be transported off-site for processing and recovery.

1.3 PURPOSE AND NEED FOR ACTION

The purpose of the Federal Action is to respond to Sterling's APO #6, which is to provide Sterling with authorized use of the public land managed by the BLM to extract mineral materials.

The need for action is established by BLM's responsibility under the 2008 Energy and Mineral Policy, Section 302 of the Federal Land and Policy Management Act of 1976 (FLPMA), BLM Surface Management Regulations in 43 CFR§ 3809, to respond to an amendment to a mining

plan of operations and to take actions necessary to prevent unnecessary or undue degradation of public land administered by the BLM.

1.3.1 DECISIONS TO BE MADE

The decision the BLM would make based on this Environmental Assessment (EA) includes the following: whether or not to approve the proposed Amendment to APO #6 to authorize the expansion of open pit mining, construction and operation of a new heap leach pad and process pond, construction of a waste rock disposal facility, construction of storm water diversion channels, ditches, and ponds, and closure/reclamation of these facilities, with additional mitigation measures that are deemed necessary by the BLM; approval of the proposed APO #6 with the proposed action replaced or modified by an alternative action; or deny approval of the proposed APO #6 and not authorize the proposed activities if it is found the proposed activities do not comply with 43 CFR 3809 regulations.

1.4 SCOPING, PUBLIC INVOLVEMENT, ISSUES

The Proposed Action was internally scoped by BLM specialists in December 2012 and again in April 2014. BLM specialists preliminarily identified the following issues during the internal scoping:

- What impacts does the Proposed Action have on general wildlife, BLM sensitive species and federally listed, proposed, or Candidate under the Endangered Species Act?
- What measures will be taken to prevent wildlife access to process solutions?
- How would the Proposed Action affect invasive and non-native plant species?
- What would be the extent of impacts to soils?
- What impacts will the Proposed Action have on Water Resources, especially sediment loads in surface runoff?
- How will cacti be impacted and/or protected?

The BLM and Sterling Mine also discussed the Proposed Action with the Nevada Department of Wildlife (NDOW) biologist and no issues were identified at that time.

The BLM initiated consultation with the Las Vegas Paiute Tribe, the Moapa Band of Paiutes, the Chemehuevi Indian Tribe, the Timbisha Shoshone, and the Fort Independence Band of Paiutes about the undertaking. The tribes were given the opportunity to review the document for concerns. There were no responses sent by the tribes to the BLM regarding this proposed project. In addition, Sterling Mine did invite members of the Timbisha Shoshone Tribe to visit the site in August 2007 to discuss the exploration drilling program and no issues were identified at that time.

A draft EA and unsigned Finding of No Significant Impact (FONSI) was posted through BLM's NEPA Register webpage:

https://eplanning.blm.gov/epl-front-office/eplanning/nepa/nepa_register.do

for a 30 day public review and comment period from March 9, 2016 to April 10, 2016. Comments were received by the:

1. Nevada Division of Environmental Protection (NDEP) and Bureau of Water Pollution Control (BWPC) that the Proposed Action may be subject to BWPC permits for discharges to surface waters and groundwaters of the State and other federal, state, and local permits.
2. NDEP, Bureau of Safe Drinking Water regarding permit requirements for a public drinking water system based on size facility and/or number of employees;
3. Nevada Division of Water Resources that the Proposed Action is subject to State Engineer's Office permits and provisions of NRS Chapters 533 and 534.

4. Nevada Department of Wildlife (NDOW) on clarification of specific State requirements for the Proponents to:
 - Comply with Nevada Revised Statute (NRS) 503.597:
 - Obtain permits from NDOW for handling/moving desert tortoises off the site;
 - Comply with NDOW's Gila Monster Status, Identification and Reporting Protocol for Observations (copy of protocol attached to EA and stipulations package to the Proponents); and
 - Work with NDOW to survey for bat use at the adits in advance to any disturbance to these areas and follow any mitigation measures proposed to protect BLM sensitive bat species.
5. Nevada State Land Use Planning Agency on recommendations of lighting be consistent with Dark Sky lighting practices to minimize light pollution, including:
 - Fitting light fixtures with hoods/shields and faced downward;
 - Using lowest level of lumens possible; and
 - Strategically planning location of fixtures to pertinent site only, away from adjacent parcels or areas;
6. Nevada State Historic Preservation Office (SHPO) on correcting a citation in the unsigned FONSI.

All comments were reviewed and the text has been updated accordingly in the recommended mitigation and stipulations for the Proposed Action in the EA and in the unsigned FONSI. The comments were also provided to Sterling Mine for them to pursue further compliance and permits with the respective agencies.

2 PROPOSED ACTION AND ALTERNATIVES

2.1 DESCRIPTION OF THE PROPOSED ACTION

2.1.1 PROPOSED ACTION

The Project area is located in the Great Basin province which is a physiographic and tectonic region west of the Rocky Mountains. This area from southern Oregon to southern California and Arizona is characterized by profound crustal extension and high heat flow beginning in the mid-Tertiary (about 35 to 40 million years ago). The Basin and Range physiographic province, which is characterized by elongated, north-trending, fault-bound mountain ranges separated by alluvial valleys. The mountain ranges are composed mainly of metamorphosed Proterozoic and Paleozoic sedimentary rocks, originally deposited on the rifted paleo-continental margin (miogeocline) of ancestral North America. The intervening basins or flats are underlain at depth by thinner sections of the same rocks, but are filled with great thicknesses of younger volcanic deposits and erosional detritus related to Basin and Range magmatism and tectonics.

The Bare Mountain District lies within the Walker Lane tectonic belt, a northwest-trending mega-lineament in southwestern Nevada, which hosts several significant gold mining districts, especially epithermal gold-silver deposits. The Walker Lane is fundamentally a deep-seated, Miocene tectonic boundary between Basin and Range extension in the western Great Basin, and subduction-related tectonics and calc-alkaline magmatism of the Sierra Nevada. It is a complex zone characterized by extension and dextral strike slip, but involving other fault systems related to Miocene tectonics, including domains of east-northeast-striking sinistral strike-slip structures and low- and high-angle normal faults.

Most of the Bare Mountain range consists of strongly deformed, but generally north-dipping, Upper Proterozoic and Paleozoic rocks. Siliciclastic lithologies dominate the Upper Proterozoic to Lower Cambrian part of the stratigraphy in the south of the range. In the Middle Cambrian there is a transition to carbonate-rich lithologies, with dolostones and limestones dominating the stratigraphy northwards through to the Upper Devonian, above which is a Mississippian unit of immature siliciclastics. The youngest rocks in the Bare Mountains are Tertiary igneous rocks of the Southwestern Nevada Volcanic Field (SWNVF).

The Bare Mountain range lies within the SWNVF, a large region of mid- to late Miocene silicic ash-flow tuffs and lesser silicic to mafic lavas and intrusions. On Bare Mountain, SWNVF volcanic rocks are restricted to the northern flank, in the hanging-wall of the north-dipping Fluorspar Canyon detachment fault. Minor intrusions, however, occur throughout the range, comprising felsic to intermediate, porphyritic dikes related to the latter part of the 'main magmatic stage' of the SWNVF. These quartz latite dikes, generally trend north, and in many cases appear to be intruded along fault zones.

Minor faults in the mine deposit trend north to north-northeast, and have typically small displacements which do not affect the map pattern although they give rise to irregularities on the Sterling thrust surface apparent in drill sections. However, they are significant because they are intimately associated with mineralization, and were almost certainly conduits for hydrothermal fluids.

The east portion of the Project area is within Crater Flat, the surface of which is Quaternary alluvium.

No fault scarps, which would suggest recent seismic activity, have been identified in the immediate Project area. The seismic Zone map in the Uniform Building Code shows the Project area as zone 2B on a scale ranging from one (indicating less damage expected) to four (indicating

the most damage expected). The most recent seismic event in the area occurred on December 30, 2007, approximately nine miles south of Beatty, Nevada, with a magnitude of 2.7 on the Richter scale. The largest recorded seismic events within 25 miles of the Project area measured 4.1 on the Richter scale and occurred in 1976 and 1994. (USGS NEIC 2014) <http://earthquake.usgs.gov/regional/neic>.

Sterling proposes to expand mining operations at the Sterling Mine by mining areas within the vicinity of pre-existing mining operations to recover gold from ore which was previously uneconomic or undiscovered. Recent exploration has determined that previously unknown ore is located near the surface in the vicinity of the existing pits.

Sterling proposes to recover the resource by open-pit mining methods and heap leaching the ore. The Proposed Action would encompass approximately 209.1 acres (*Table 2-1*), of which 77 acres would occur on existing disturbance. *Table 2-2* lists the acreages of surface disturbance by mine component for the Proposed Action and the acreage of existing facilities that will be consumed by the Proposed Action. The Proposed Action is presented in *Figure 2-1* and *Figure 2-2*. The Proposed Action would result in a net increase of 132.1 acres in disturbance from the existing operation of 162.8 acres, for a total of 294.9 acres. All disturbance would occur on public lands administered by the BLM. The life of the Project is anticipated to include three years for active mining, an additional one year of continued heap leach operation and reclamation, and a fifth year to complete reclamation and closure.

Table 2-1: Sterling Mine Expansion Proposed Action

Proposed Facility	Acreage
Sterling Pit	31.3 ¹
Waste Rock Disposal Area (WRDA)	144.2 ¹
Heap Leach Pad/Diversion Ditches/Ramp	32.9
Surge Pond	0.7
Total¹	209.1¹

¹The Sterling Pit will be excavated to 61.4 acres, but portions of the pit would be used to store waste rock. Approximately 30.1 acres of Sterling Pit would be backfilled with waste rock, and therefore, this acreage is included in the WRDA. Consequently, the final Sterling Pit footprint would be approximately 31.3 acres and the actual acreage of the Proposed Action would be 209.1 acres.

2.1.1.1 Open Pit (Sterling Pit)

The new open pit, the Sterling Pit, would be approximately 61.4 acres, including pit safety berms. The lowest elevation of the final pit floor would be at elevation 3,920, or 600 feet below ground surface. Approximately 1,000,000 tons of ore and 18,000,000 tons of waste rock would be removed from the pit. Conventional surface mining methods would be used. Ore and waste rock would be drilled and blasted, using 40-foot bench heights in waste and five- or ten-foot bench heights in ore.

The Sterling Pit would encompass portions of five existing facilities and roads (*Table 2-2, Figure 2-3*) and would overlap¹ the proposed WRDA by 30.1 acres. This would result in net new disturbance of 5.5 acres and consumption of 25.8 acres of existing disturbance.

Waste rock from the existing WRDAs within the expanded pit footprint would be relocated to the newly designated WRDA. Depending on mining sequence and economic feasibility, waste rock

¹ The area of overlap would consist of partial pit backfill, depending on mining sequence. Therefore, up to 30.1 acres of pit area would become WRDA.

would be deposited in the new pit area. The berm around the pit would account for 1.5 acres of new disturbance, which is included in the Sterling Pit disturbance.

Table 2-2: Existing Facilities to be Consumed by the Proposed Action

Facility	Acres	Facility	Acres	Facility	Acres	Facility	Acres
<i>New Sterling Pit Acreage</i>	<i>61.4¹</i>	<i>New WRDA</i>	<i>144.2</i>	<i>Main Heap Leach Pad/Ramp</i>	<i>32.9</i>	<i>New Surge Pond</i>	<i>0.7</i>
<i>Overlap with New WRDA¹</i>	<i>-30.1¹</i>						
Existing Facility Consumed	Acres Consumed	Existing Facility Consumed	Acres Consumed	Existing Facility Consumed	Acres Consumed	Existing Facility Consumed	Acres Consumed
Ambrose Pit	-3.8	Old Office/Shop	-6.0	Gravel Pit	-3.5	Process Area	-0.3
Burro WRDA	-0.1	Burro WRDA	-6.6	Mine Roads	-1.4		
Mine Yard	-0.8	Burro Pit	-4.2				
Mine Roads	-2.4	No. 1 Stockpile	-1.0				
Exploration Roads	-18.7	Boulder Stockpile	-2.8				
		Ambrose WRDA	-3.9				
		Mine Yard	-1.8				
		Low Grade Stockpile	-0.3				
		Sterling Pit	-6.0				
		Mine Roads	-9.9				
		Exploration Roads	-3.5				
Subtotal Acres Consumed	-25.8		-46.0		-4.9		-0.3
Net New Disturbance	5.5		98.2		28.0		0.4
Net Proposed Action New Disturbance	132.1 acres						

¹The footprint of the Sterling Pit would be 61.4 acres, but 30.1 acres would be backfilled or partially backfilled with waste rock, which is accounted for in the New WRDA acreage. Therefore, the net acreage of the Proposed Action is 209.1, of which 132.1 acres would be new disturbance. See Figure 2-1 for the area of overlap between the Sterling Pit and the New WRDA.

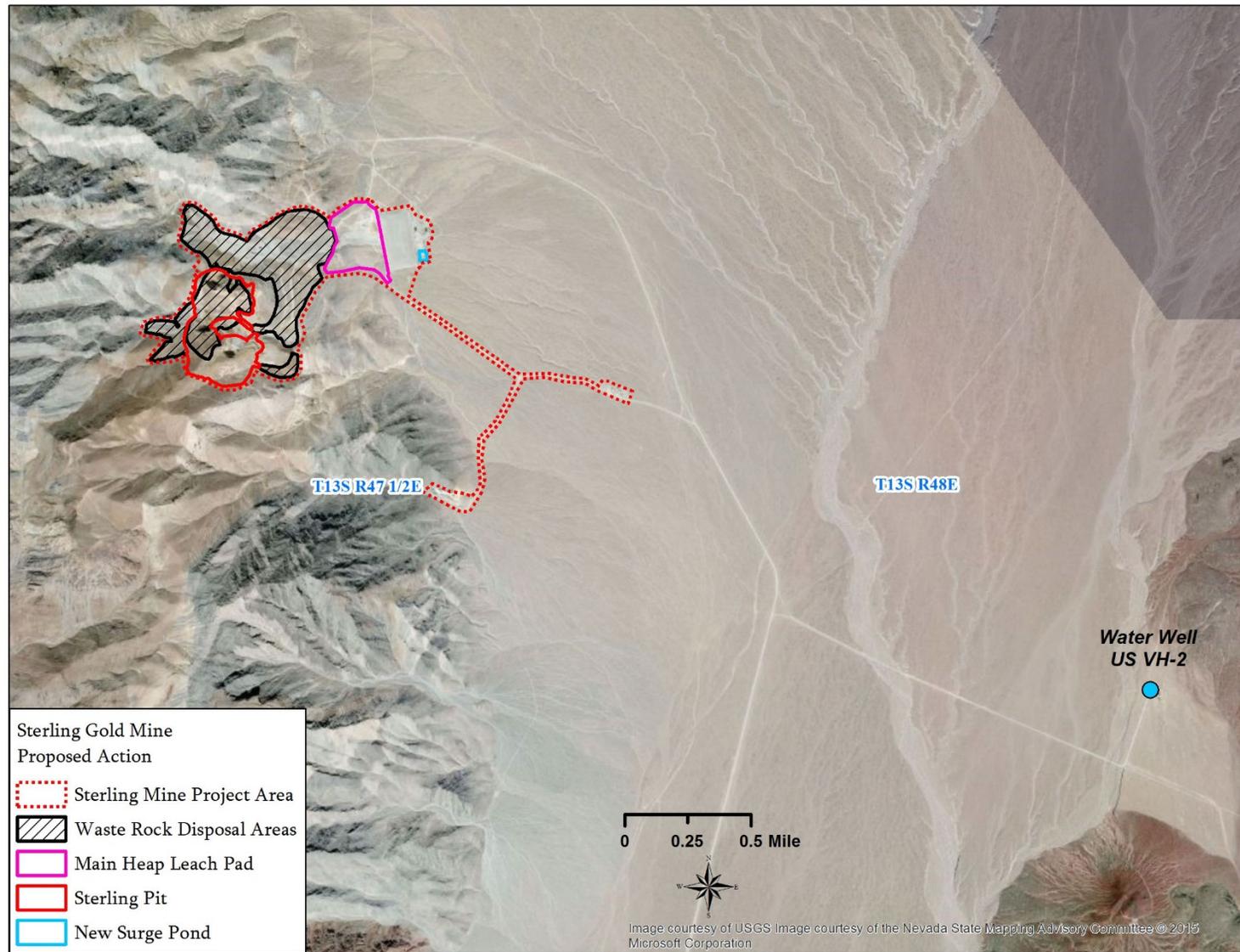


Figure 2-1: Sterling Gold Mine Proposed Action

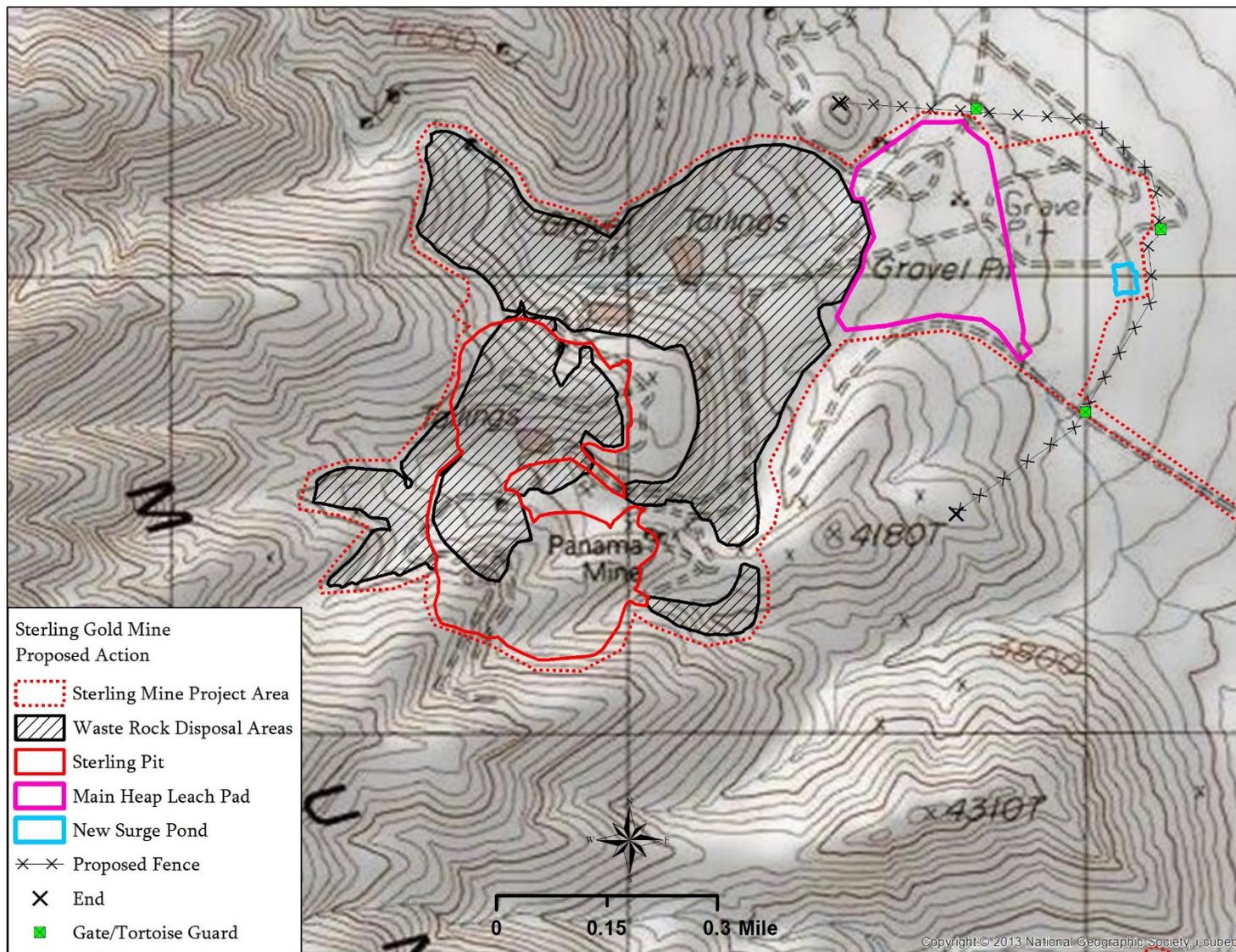


Figure 2-2: Proposed Action - New Facilities

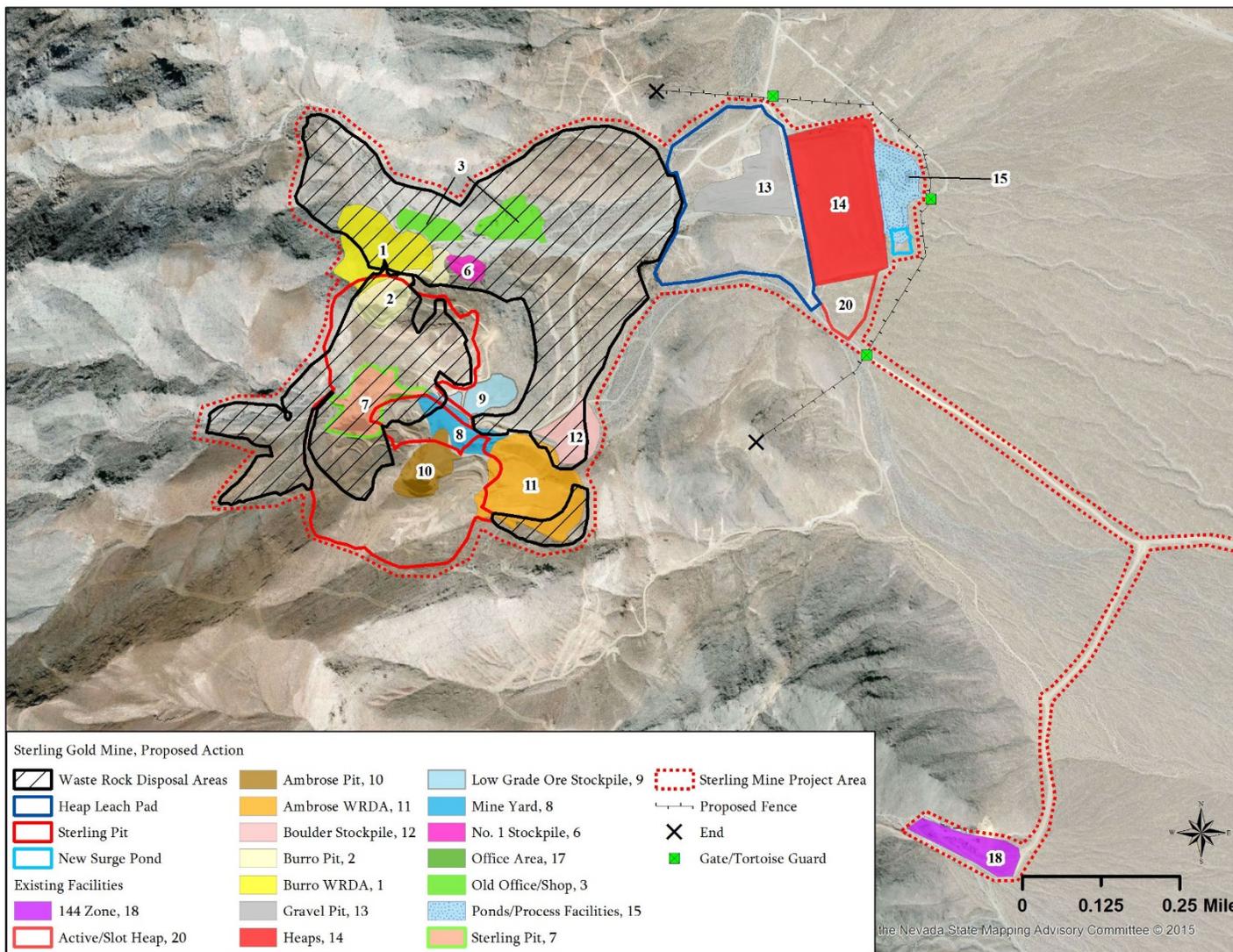


Figure 2-3: Sterling Gold Mine Proposed Action Relative to Existing Facilities

2.1.1.2 Heap Leach Pad

Development of the Sterling Pit would necessitate construction of a new Heap Leach Pad (Main Heap Leach Pad – MHLP). Ore would be hauled to the new MHLP, which would be constructed adjacent to the existing reclaimed heap facility (*Figure 2-3*). The proposed pad would be approximately 20.2 acres with an additional 12.7 acres for the haul ramp, diversion ditches, and final grade area, for a total acreage of 32.9. The proposed MHLP would be located on the existing gravel pit, some mine roads and surrounding terrain for a net new disturbance of 28.0 acres (*Table 2-2*). The diversion ditches would be constructed along the west side of the leach pad to maintain the natural drainage and prevent run-on. The State of Nevada Water Pollution Control Permit (NEV0089016) (WPC Permit) effective through March 18, 2018, authorizes processing of up to 170,000 tons of ore per year. Sterling would seek to amend this permit to allow approximately 500,000 tons per year as part of this expansion. The ore would be run-of-mine and would be hauled to the heap leach pad, placed in lifts with appropriate setbacks to ensure geotechnical stability, and would be leached using conventional heap leach cyanidation technology with precious metals recovery by carbon absorption, stripping, electro-winning, and refining (note: the refining would be conducted off-site).

The MHLP design includes a sub base of dry-screened sand (minus 3/8-inch) from the existing gravel pit. The sub base would be a minimum of six inches in depth and compacted. The sand sub base layer would be overlain with a low permeability geosynthetic clay liner (GCL). The GCL would be covered with a 60-mil textured low density polyethylene (LDPE) geomembrane. The GCL and LDPE geomembrane would act as a barrier between the heap materials and native soils (Tierra Group 2014).

The sub base, GCL, and LDPE, collectively referred to as the liner, would be covered with a 24-inch layer of dry-screened gravel (minus 3/4-inch, typical). Gravel would be obtained from the existing gravel pit. The gravel layer would act as a drain layer and as a cushion for the liner to prevent punctures from the haul trucks and the run-of-mine ore. Slotted pipes would be placed in the gravel to direct solution to collections points. Ore placement would be directly on the gravel drain layer. In addition, internal berms would be constructed in the MHLP to segregate the pad for operational purposes. Ore would be stacked in 10- to 20-foot high lifts with set-backs that approach a final overall slope of 3 horizontal to 1 vertical (3h:1v) to accommodate a maximum heap leach height of approximately 80 feet above existing grade and to ensure geotechnical stability. Once ore has been placed on the MHLP, a dilute cyanide solution (250 ppm, or 0.025 percent) would be applied to extract the precious metals from the ore (Tierra Group 2014).

The MHLP would be designed to provide gravity flow collection and conveyance of solution; no pumping of the gold-bearing solution would be necessary. The operation solution application would be 0.004 gallons per minute (gpm)/ft² and the total fluid inventory would be 10 million gallons.

A Diversion Ditch would be added along the west side of the MHLP to prevent run-on to the pad. Flow would be directed to the existing north drainage channel (Tierra Group 2014). The stormwater diversion was designed to withstand the 100-year, 24-hour storm event, as per NDEP regulations. In addition, the north and south drainages would be rip-rapped to maintain the drainage and to protect the pad grading toe. The drainage modifications were also designed to pass the 100-year, 24-hour storm event (Tierra Group 2014).

A slope stability analysis was performed for the proposed MHLP by Tierra Group International Ltd. (Tierra Group (2014)). The most critical section (i.e., the slope with the steepest base grade and greatest maximum height) was analyzed for geotechnical stability. This coincided with a

cross-section with an overall slope of 3h:1v with a maximum height of 82 feet above the liner and a base grade of 9.2 percent. The slope stability analysis indicated that the slopes would be stable as designed.

Water for the operation of the heap leach pad and process would be obtained from the existing water well (US VH-2) located approximately four miles southeast of the mine in Crater Flat. Sterling currently uses 35 gpm (=18.4 million gallons annually [mga]) and would increase water use by 25 gpm to 60 gpm (or 31.5 mga). Water usage would continue at a reduced rate after year three, when additional ore would cease to be added to the heap.

2.1.1.3 Process Facilities

The area adjacent to the process ponds is where the existing gold processing plant, generator trailer, storage trailer, and container are located. The existing carbon columns would be utilized, but Sterling proposes to upgrade the facility by converting the piping size from four-inch pipes to six-inch pipes, as well as increasing the pump horsepower to allow for process solutions flows reaching 500 gpm.

Sterling proposes to use the existing process ponds (Pregnant Solution Pond, Barren Pond, and Make-Up Pond), as well as construction of a new overflow (Surge) pond (*Figure 2-3*). The existing ponds and process area encompass a combined area of 5.1 acres. The new Surge Pond would increase the disturbance by 0.4 acres (about ½ of the pond would be on existing disturbance) and bring the total disturbed area for process ponds to 5.5 acres. The Surge Pond would be designed to meet the 25-year, 24-hour storm event plus four hours of heap draindown. Details of the process ponds and surge pond are provided in *Table 2-3*.

Table 2-3: Sterling Mine Process and Surge Pond Capacities

	Ponds				
	Barren	Fresh Water	Pregnant	Surge	Total
Capacity (gallons)	86,425	720,201	284,359	1,421,400	2,512,385
Operating Volume (gallons)	43,213	360,101	142,180	0	545,494
Remaining Capacity (gallons)	43,213	360,100	142,179	1,421,400	1,966,891
Required Capacity for Storm Events and Draindown					1,419,600

Data from Tierra Group, Heap Leach Flow Design

The existing process pond area is fenced and plastic bird balls are used to cover the pond surface to prevent wildlife, including Desert tortoise and birds, from accessing the process solutions. In addition, the new Surge Pond would also be covered as described above to prevent wildlife access. A liquid cyanide tank and pumping system is located near the Barren Pond and would continue to be used as part of the Proposed Action. The entire pond/processing facility and heap leach pad area (see *Figure 2-3*) would have desert tortoise fence installed and tied into existing topography to prevent desert tortoises and other wildlife from entering these areas. Tortoise guards and/or gates would be installed where necessary along the fence.

A dilute cyanide solution (250 ppm) would be applied to the ore on the MHLP to extract precious metals. As the solution percolates through the ore, the precious metals enter into solution, which is then referred to as the pregnant (i.e., gold-bearing) solution. The pregnant solution migrates through the heap to slotted drainage pipes which convey the solution to collection points along the berm where the solution enters 12-inch (typical) high density polyethylene (HDPE) pipes to a

set of three distribution boxes. The distribution boxes allow the operator to monitor flow and provide access for samples. The solution then flows from the distribution boxes through 12-inch diameter polyvinyl chloride (PVC) pipe to the Pregnant Solution Pond. All solution conveyance piping, except that which would be atop the lined leach pad, would be contained in a ditch lined with HDPE liner to prevent any leakage from escaping to the environment. As previously stated, the pregnant solution flow would be a gravity-flow process to the Pregnant Solution Pond without any pumping.

Once the pregnant solution reaches the Pregnant Solution Pond, the solution would then be pumped through a series of carbon columns, where the precious metals adsorb to the carbon. Loaded carbon would be shipped off site for processing. The barren solution (i.e., solution from which the precious metals have been removed) from the carbon columns would be gravity fed to the Barren Pond, where water from the Make-Up (Freshwater) Pond would be added as necessary. The Barren Pond solution would be pumped to the MHLP. Cyanide would be added to the barren solution piping going to the heap to maintain a 250 ppm concentration of cyanide solution.

Water for processing would be obtained from the existing water well US VH-2 and pumped via four-inch HDPE pipe from the well to the Make-Up (Freshwater) Pond.

2.1.1.4 Waste Rock Disposal Areas and Stockpile Areas

The proposed WRDA would be 144.2 acres in size, located between the MHLP and the Sterling Pit (*Figure 2-2*). The proposed WRDA would encompass a portion of the Burro WRDA, Burro Pit, No. 1 Stockpile, Old Office and Shop, existing Sterling Pit, and portions of the Boulder Stockpile, Low Grade Stockpile, Ambrose WRDA, and Mine Yard, and roads (*Figure 2-3*). Waste rock that is currently located in the Burro and Ambrose WRDAs would be relocated to the new WRDA, along with waste rock from the expanded Sterling Pit. The WRDA would consume 46.1 acres of existing disturbance (*Table 2-2*). In addition, approximately 30.1 acres of the proposed Sterling Pit could be backfilled as part of the WRDA, resulting in a net of 98.2 acres of new disturbance.

The 144 Zone WRDA would not be affected by the Proposed Action.

2.1.1.5 Ancillary Facilities

Existing ancillary facilities, such as roads, buildings, yards, and diversion ditches, would continue to serve as part of the Proposed Action.

To facilitate the pit expansion, new WRDA, and the new MHLP, total surface disturbance for mine roads would decline by 13.7 acres and exploration roads would decline by 22.2 acres. Some new mine/haul roads would be constructed during the expansion, but these would be in the footprint of the pit, WRDA and MHLP and eventually be consumed by these facilities. For example, the Haul Road would connect the pit to the MHLP, but would also be constructed as part of the WRDA and MHLP; therefore this disturbance is included in the WRDA and MHLP disturbance areas.

The existing office buildings would be used and remain at their current location (east side of Section 13). The former office area and small gravel pit, approximately 6.0 acres of disturbance, has been regraded, and only the shop with a concrete foundation remains. The shop would be demolished and the concrete foundation would be broken and buried in the new WRDA. A new mine yard would be located temporarily in the footprint of the new WRDA; therefore, no additional disturbance would be created for this facility. The mine yard would be closed when the WRDA expands to consume this area near the end of the open pit mining.

The existing water well (US VH-2) area consists of 4.4 acres of surface disturbance, including the water well with submersible pump, a portable generator set, and a fenced water pond. There will be no change to this facility.

2.1.1.6 Work Force and Equipment

The current work force consists of 32 employees on site. If the open-pit mining is contracted out, then the work force would include 15 people employed by Sterling and approximately 30 contract employees. If the mining is conducted by Sterling, then the work force would increase to 45 – 50 employees. It is anticipated that the work force would be from Pahrump, Beatty, and Amargosa Valley.

The mine is anticipated to operate 12 hours per day, but a 24-hour, seven days per week operation has been considered and the decision to operate more than 12 hours per day will depend on the contractor and economic conditions.

The operation equipment will consist of a fleet of Cat 777 trucks, a hydraulic excavator, a Cat 992 loader, graders for road maintenance, and up to two Cat D-9 bulldozers.

2.1.2 SITE RECLAMATION

2.1.2.1 General

All equipment, machinery, trailers, containers, and building would be sold to used-mining equipment dealers who would remove everything from the site. Final location and disposition of these items could be to another mining property or to a foreign location. The shop and recovery plant concrete slabs would be broken up and buried in an approved landfill.

Non-salvageable, non-hazardous materials would be buried in the open pit. Non-salvageable reagents and petroleum products would be disposed of in an approved manner at approved land fill sites. Equipment and materials that have been in contact with cyanide or other toxic chemicals would be decontaminated prior to removal or disposal.

Hazardous and toxic waste materials would be removed from site and disposed of in accordance with applicable State and Federal solid waste disposal requirements.

Reclamation would consist of earthwork and revegetation of all surface disturbance, except for the open pit, to stabilize the reclaimed areas and to achieve post-mining land use consistent with the BLM – Stateline Resource Area Plan for the area immediately surrounding the Project area of operations. The land uses include wildlife habitat, open space, and minerals exploration. The reclaimed areas would support a self-perpetuating plant community similar in appearance and function as the surrounding undisturbed areas.

Earthwork would consist of backfilling road cuts and regrading operational areas to approximate the land form prior to disturbance. Natural drainages would be reestablished to minimize erosion. Backfilled and reshaped areas would be left rough-graded to ensure adequate seedbed conditions. Because there is no naturally occurring topsoil in the area, topsoil would not be applied to the recontoured surfaces. However, fine textured waste rock may be applied as growth medium as available.

Revegetation would be conducted by hand broadcasting or small vehicle (truck or all-terrain vehicle [ATV]) broadcasting a BLM-approved, adapted seed species onto the rough regraded surfaces. Amendments may be added to the seed mixtures in areas where plant nutrients are limited. The seed mixture(s) would be based on reclamation goals and site-specific conditions (i.e., habitat goals/requirements, precipitation, aspect, and growth media). Mixtures would be developed with the following rationale: use of species adapted to site conditions, diversity of

species and life forms (i.e., grasses, forbs, and shrubs), and species which enhance natural succession. Due to the low annual precipitation in the area, emphasis would be placed on plant species which hold the soil and compete minimally with native species that may naturally establish on the site.

To achieve maximum plant establishment, reclaimed areas would be seeded during the spring, soon after seedbed preparation (i.e., final grading) while the growth medium is still comparatively friable and loose. Steeper and/or rocky surfaces, such as backfilled exploration roads, would be seeded with hand-held broadcast seeders, and mechanical seeders mounted on a pickup truck or ATV would be used on relatively flat areas. Seeding would be followed by dragging a spring-toothed harrow to lightly cover the seed.

Portions of the revegetated drill roads and WRDAs would serve as test plots for evaluating revegetation success as compared to adjacent undisturbed areas. The low precipitation levels at the site make it unlikely that a revegetation success rate greater than 20 percent of shrub cover of adjacent areas would be achieved in three or less years.

The total surface disturbance to be reclaimed is estimated to be 293.0 acres. If additional exploration roads are developed during the Project, these roads would be reclaimed concurrently. If the sequence of mining permits, consideration would be given to disposing of waste rock within the existing pits or portions of the new pit.

2.1.2.2 Open Pit

Where access is currently available to the pit perimeter, berms with regularly spaced boulders would be established along the pit perimeter. Signage to warn of pit hazards would be placed at intervals around the perimeter of the pit. The pit access roads would be reclaimed by regrading, placement of boulders, and revegetation to prevent vehicular access to the pits by the general public.

2.1.2.3 Heap Leach Pad/Process Facilities

Closure of the spent ore on the MHLP would be accomplished by allowing solution to drain to the double-lined event/surge pond where evaporation would be expedited using a dual-pac evaporator (mister). The Heap Leach Draindown Estimator (HLDE) model was used to determine the draindown curve and to determine that no rinsing would be required. The procedure for closure of the MHLP follows the Process Fluid Stabilization (PFS) procedure concurrently with evaporation. The estimate for PFS is approximately seven months and the evaporation would require approximately 2.5 months.

Fluid outflow from the heap is expected to stop once the heap has drained to its residual moisture content. Aspiration of the remaining fluids would continue due to the semi-arid climate. Occasional temporary resumption of fluid flow could occur under extreme precipitation events, such as a 25-year, 24-hour event. One or more of the ponds, as necessary to achieve engineering design, would be used in the construction of an evapo-transpiration cell to accept and treat long-term draindown from the leach pad from such events.

Upon completion of heap draindown and evaporation, spent ore would be graded to a final 3h:1v slope, and a cover would be placed on the heap surface to provide evapo-transpiration of meteoric waters. The previous heap leach pad on site was successfully closed and reclaimed in this manner. The nature of the ore that will be extracted from the new open pit does not differ materially from the ore that was placed on the closed leach pad.

After heap draindown and evaporation, the pond liners would be folded into the excavated pond, encasing the precipitates from contact with meteoric water or ground water. The fencing would

be dismantled and buried in the ponds or removed from the site. The ponds would then be backfilled and regraded to approximate the surrounding terrain.

The proposed MHLP would be constructed to a height of 80 feet and with lifts and bench widths to approximate an overall slope of 3h:1v. The top of the MHLP would be ripped and rough-graded. The side-slopes would be regraded to approximately 3h:1v. The berm around the perimeter of the heap would be removed (and possibly be used as growth media if it contains sufficient fine material) and the excess heap liner would be buried during the regrading of the heap slopes. The fencing around the MHLP would be dismantled and removed from site. The regraded pad would be covered with 24-inches of material to provide for evapotranspiration of meteoric waters and as a growth medium.

2.1.2.4 Waste Rock Disposal Areas

The top surfaces of WRDAs would be ripped and rough-graded. The WRDA slopes would be reduced from angle of repose to an overall slope of 3h:1v and left rough-graded. This final slope grade approximates the slope of the adjacent natural terrain. Dozers would be used to re-shape the WRDAs and when available, fine-textured waste rock would be spread over the slopes to facilitate revegetation.

2.1.2.5 Water Well and Exploration Drill Holes

The water well would be reclaimed upon completion of the heap and pond reclamation. The water well would be plugged in accordance with NRS 534.425 through 534.428, as applicable. The well would be plugged with bentonite from 2,000 feet to 50 feet from the collar. The upper 50 feet would be filled with concrete. If the water rights are sold, the well would remain functioning.

Exploration drill holes would be plugged in accordance with Nevada Revised Statute (NRS) 534.425 through 534.428, as applicable. The holes would be plugged by filling with surface material and cementing the collar of the hole. No drill holes have intersected the water table and none are expected to intersect the water table.

2.1.2.6 Roads and Other Ancillary Facilities

The access and haul roads would be ripped to the caliche layer or 24 inches, whichever is less, and left rough-graded as seedbed preparation.

The main access road from the mine gate to the pit access roads and all pit access roads would be reclaimed by regrading, placement of boulders, and revegetation to prevent access to the pits by the general public. The steep terrain from the north, west, and south precludes vehicular traffic access to the pit area. Access to the pits from the east by vehicular traffic would be prevented by the reclamation of the roads and by the rocky terrain.

The two 24-inch culverts in the property access road located near the property boundary would be removed from the drainage channel. The channel would be regraded to near original surface contour to establish original drainage patterns. Any culverts used to control storm water runoff for the underground access road and the heap access road would be removed and the road/channel would be regraded to the approximate original contour.

2.1.2.7 Underground Workings

No new underground mining is included in the Proposed Action. The existing/current underground mining and the closure/reclamation of those facilities were addressed in the previous plan amendment and authorized through that amendment process.

2.1.3 DESIGN FEATURES

Sterling has committed to the following design features to prevent unnecessary and undue environmental degradation during construction, operation, and reclamation activities associated with the Proposed Action. The design features are derived from the general requirements established in 43 CFR 3809, as well as other air quality, water, and environmental protection regulations.

The design features are intended minimization measures to eliminate or reduce the level of potential impact from the Proposed Action. Resources for which the design features would minimize potential impacts to a degree that no further analysis is needed will be reflected as such in the Resource Table in Chapter 3 with a rationale. For resources for which design features do not eliminate or reduce the potential impacts substantially, the analysis of impacts would be carried throughout the EA.

2.1.3.1 Air Emissions

Sterling currently has a Class II permit and any appropriate modifications to the air quality permit would be obtained from NDEP Bureau of Air Pollution Control (BAPC) for land disturbance and use of generators. As per BAPC regulations, the Project air quality operating permit must be authorized by BAPC prior to commissioning.

Committed air quality practices would include dust control for mine operations as described by the BAPC required *Fugitive Dust Control Plan* which would be included under the Surface Area Disturbance (SAD) permit. Sterling would apply for the SAD permit closer to the Project start date, if the PoO is approved. In general, the *Fugitive Dust Control Plan* would provide for speed limits, water application on haul roads and other disturbed areas, seeding growth media stockpiles, and other dust control measures as accepted and reasonable industry practice. Disturbed areas would be seeded with an interim seed mix to minimize fugitive dust emissions where appropriate.

With implementation of these design features, the potential impacts to air quality would be controlled and this resource is not discussed further in the EA.

2.1.3.2 Lighting

Sterling would reduce light pollution and impacts to visual resources to the extent practicable by screening light sources, directing light towards intended targets, placing lights at the lowest practical height, down shielding to keep light within the confines of the site, and motion sensors used when practicable. Diesel-generator powered light plants would measure approximately 30 feet tall when in use. Lighting would only be used during active mining or exploration operations in accordance with MSHA regulations. Light plant masts would be lowered (to a horizontal position, if possible) daily when not in use. They may also be stored in a lowered position at the office/first-aid, parking, and ready line areas or removed from the site when not in use.

2.1.3.3 Cultural Resources

Sterling or any person working on their behalf, would immediately report any cultural resource discovered during the course of activities on federal land to the authorized officer by telephone, with written confirmation. All operations in the immediate area of such discovery would be suspended and Sterling would protect it until an evaluation of the discovery can be made by the authorized officer. This evaluation would determine the significance of the discovery and the mitigation measures necessary to allow activities to proceed. Sterling would be responsible for the cost of evaluation and mitigation. Operations may resume only upon written authorization to proceed from the authorized officer.

2.1.3.4 Native American Religious Concerns

Sterling would contact the BLM if traditional cultural objects, tribal resources, or sacred materials are identified within or in close proximity to the Project Area. The BLM would conduct consultation with the affected tribe(s) to determine if avoidance is possible or if other mitigation measures are required as appropriate. The BLM would advise Sterling as to when they could proceed with work in the area.

2.1.3.5 Paleontological Resources

Sterling would cease activities in the immediate vicinity of any paleontological resources discovered at the Project Area, and notification would be made immediately to the BLM authorized officer. 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. In accordance with 43 CFR §3809.420(8)(ii), "the authorized officer shall evaluate the discoveries brought to his/her attention, take action to protect or remove the resource, and allow operations to proceed within ten working days after notification to the authorized officer of such discovery."

2.1.3.6 Erosion and Sediment Control

Sterling would construct stormwater structures to prevent run-on water from entering disturbed areas or areas otherwise in use for mining activities as practicable. Berms and/or stormwater diversion channels would be constructed around the pits. The heap leach pad design includes diversion ditches at the MHLP (Tierra Group 2014). Other temporary stormwater control structures and best management practices (BMPs) would be constructed and installed as needed to prevent degradation to surface water resources from runoff water until perennial vegetation can be re-established.

BMPs would be used to limit erosion and reduce sediment in precipitation runoff from proposed Project facilities and disturbed areas during construction, operations, and initial stages of reclamation. BMPs used during construction and operation to minimize erosion and control sediment runoff may include:

- Surface stabilization measures – dust control, mulching, riprap, gravel on access roads, temporary and permanent revegetation/reclamation, and placing growth media;
- Runoff control and conveyance measures – hardened channels, runoff diversions; and
- Sediment traps and barriers – check dams, grade stabilization structures, sediment detention basins, sediment/silt and straw bale barriers, and sediment traps.

Stormwater diversion channels would be constructed around the open pits to divert up-gradient run-on water from entering. Although the proposed open pits are located above the water table, perched water zones could be intersected which may create temporary shallow ponds at the pit bottoms. Precipitation could also collect in the pits. In the event that incidental water does occur in the pit, it would collect within a constructed low zone and be left to evaporate naturally.

Revegetation of disturbed areas would reduce the potential of wind and water erosion. Following construction activities, areas such as cut-and-fill embankments and growth media stockpiles would be seeded as soon as practicable and safe. Concurrent reclamation would be maximized to the extent practicable to accelerate revegetation of disturbed areas. Sediment and erosion control measures would be inspected periodically, and repairs performed as needed.

Monitoring of stormwater structures and sediment control BMPs would occur periodically throughout the life of the mine and after precipitation events.

With implementation of these design features, the potential impacts to water quality would be controlled and this resource is not discussed further in the EA.

2.1.3.7 Petroleum Products/Hazardous Materials/Solid and Liquid Waste

Sterling would transport and use petroleum and equipment maintenance products in accordance with federal, state, and local regulations. Hazardous materials as defined by the Comprehensive Environmental Response, Compensation, and Liability Act regulations (40 CFR 302.4) include petroleum motor fuels and lubricants, antifreeze, and solvents which would be used on the site. Sterling and contract mining employees would be trained in the proper transportation, use, and disposal. Sterling would manage and dispose of wastes generated on-site in accordance with state and federal regulations.

Sterling would be responsible for the disposal of all waste materials including used hydrocarbons. Used solvents, hydrocarbons, and antifreeze would be accumulated, labeled, and disposed of in compliance with applicable state and federal regulations.

A Spill Prevention, Control and Countermeasures (SPCC) Plan describing the methods for spill prevention, cleanup, and abatement of petroleum hydrocarbon or other equipment maintenance material spill, would be updated for the Proposed Action. This plan would be made readily available on-site before operations begin. Reportable spills would be immediately reported to both the BLM and the NDEP. All contaminated soil would be secured and disposed of according to state and federal regulations.

Hazardous materials found on site as a result of gold extraction processes include sodium cyanide, sodium hydroxide, hydrochloric acid, lime, flocculent, and anti-scalant. These hazardous materials are currently being used at the mine site daily. These reagents are transported, transferred from trucks to containers and containment areas, used, and disposed of according to federal and state regulations.

Common office wastes would be collected in an on-site covered trash dumpster, hauled off-site, and disposed of in an existing permitted landfill or transfer station.

With implementation of these design features, the potential impacts from petroleum products, hazardous waste materials, and solid and liquid waste would be controlled and this resource is not discussed further in the EA.

2.1.3.8 Monitoring

During operations, annual qualitative monitoring of multiple key indicators of site stability of concurrently reclaimed areas would be conducted. These key stability indicators may include revegetation and presence of noxious/invasive weeds, surface erosion, sedimentation, slope stability, and wildlife parameters.

2.1.3.9 Vegetation, Forestry, and Non-Native Invasive Species

Vegetation

All disturbed areas are required to be reclaimed as per Pahrump Field Office Minerals regulations (please contact Pahrump Field Office Geologist for more information). Areas of surface disturbance associated with the Proposed Action would be reclaimed pursuant to a reclamation plan approved by the BLM and the NDEP. Activities would include recontouring disturbed areas and seeding with a BLM-approved seed mix.

Forestry

All cactus and yucca within permanent and temporary impact areas must be salvaged. Salvage into nurseries should continue until BLM can re-evaluate and perform an inventory to ensure overcrowding does not take place. Unless otherwise directed by the BLM botanist, all replanted cactus and yucca must be watered and otherwise maintained for a period of one year. To ensure successful salvage and transplant, all cactus and yucca must be salvaged using a contractor with at least three years' experience salvaging and maintaining plant materials in the Mojave or Sonoran Deserts.

Non-Native Invasive Species

Noxious weed monitoring and control would be implemented during construction and continue through operations. Sterling has a *Noxious Weed Management Plan* that directs the monitoring and treatment of noxious weeds. In addition, equipment would be washed by contractors prior to entering the site for the first time in order to remove noxious weed seeds carried from the last location. A no net increase in invasive/noxious weeds would be achieved through monitoring as required by the BLM-approved weed management plan.

With implementation of these design features, the potential impacts to vegetation and non-native invasive species would be controlled and this resource is not discussed further in the EA. The implementation of the design feature for Forestry minimizes the impact to cacti, but does not eliminate the impact. This resource is analyzed in the EA.

2.1.3.10 Migratory Birds

Migratory bird nests are protected under the Migratory Bird Treaty Act of 1918 and considered active if they contain eggs or young or if evidence of reproductive behavior (i.e. mated pairs, courtship displays, territorial defense, carrying nesting materials, transporting food, etc.). To ensure compliance with the Migratory Bird Treaty Act, habitat-altering project or portions of projects should be scheduled outside of the bird breeding season, which generally occurs between February 15 and August 31. If a project has to occur during the breeding season, then a qualified biologist must survey the area for nests immediately prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests are found, and appropriately-sized buffer areas must be established and maintained until the young birds fledge. The buffer area must connect to suitable, undisturbed habitat. As the stated dates of the breeding season are a general guideline, if active nests are observed outside of this time period, they are to be avoided as described above.

Light plants would be stored with the masts in a lowered position when not in use to reduce potential predatory bird perching sites.

To prevent bird and other wildlife accessing any new or existing process ponds or other open water, flotation devices used to cover bodies of water would be installed, monitored, and maintained as necessary. Hollow open-pipe mining claim markers, such as polyvinyl chloride (PVC) pipes are to be removed as per NRS 517.030. All hollow claim markers on site will be removed immediately and the number of claim markers removed and number of birds, reptiles, or other wildlife mortality observed during removal will be reported immediately to the BLM Wildlife Biologist.

2.1.3.11 Threatened and Endangered Species (Desert Tortoise)

Impacts to desert tortoise would be minimized by adhering to the terms and conditions of Programmatic Biological Opinion File No. 84320-2010-F-0365-R003. Tortoise exclusion fence would be constructed around the 32.9-acre MHL and process area (including ponds). In addition

to the specific measures listed below for desert tortoise, see Section 2.1.3.12 for other wildlife environmental protection measures that would also benefit desert tortoise.

- *Field Contact Representative*—BLM shall ensure a Field Contact Representative (FCR) (also called a Compliance Inspection Contractor) is generally designated for each contiguous stretch of construction activity for linear projects or isolated work areas for non-linear projects.
- *Authorized desert tortoise biologist*—An authorized desert tortoise biologist will be assigned to each piece/group of large equipment engaged in activities that may result in take of desert tortoise (e.g., clearing, blasting, grading, lowering in pipe, hydrostatic testing, backfilling, recontouring, and reclamation activities) and other work areas that pose a risk to tortoises.
- *Desert tortoise monitor*—Desert tortoise monitors assist an authorized desert tortoise biologist during surveys and serve as apprentices to acquire experience.
- *Desert tortoise education program*—A desert tortoise education program shall be presented to all personnel on site during construction activities by an agency or authorized desert tortoise biologist.
- *Vehicle travel*— Project personnel shall exercise vigilance when commuting to the project area to minimize risk for inadvertent injury or mortality of all wildlife species encountered on paved and unpaved roads leading to and from the project site.
- *Desert tortoise clearance*—Prior to surface-disturbing activities, authorized desert tortoise biologists potentially assisted by desert tortoise monitors, shall conduct a clearance survey to locate and remove all desert tortoises from harm's way including areas to be disturbed using techniques that provide full coverage of all areas (Service 2009).
- *Permanent tortoise-proof fencing*—Tortoise-proof fencing shall be installed around the boundary of permanent aboveground facilities that require regular monitoring and maintenance and other areas as directed by the BLM or Service. Fence specifications will be consistent with those approved by the Service (Service 2009). Tortoise guards shall be placed at all road access points where desert tortoise-proof fencing is interrupted, to exclude desert tortoises from the facility. Gates shall provide minimal ground clearance and deter ingress by desert tortoises.
- *Dust control*—Water applied to for dust control shall not be allowed to pool outside desert-tortoise fenced areas, as this can attract desert tortoise.
- *Litter Control*—A litter control program shall be implemented to reduce the attractiveness of the area to opportunistic predators such as desert kit foxes, coyotes, and common ravens.
- *Evaporation ponds and open water sources*—BLM will ensure that the ponds are not available to ravens and other predators. Tortoise-proof fencing should be installed to prevent tortoises from entering the ponds.
- *Minimizing new disturbance*—Cross-country travel outside designated areas shall be prohibited. All equipment, vehicles, and construction materials shall be restricted to the designated areas and new disturbance will be restricted to the minimum necessary to complete the task.
- *Weed prevention*—Vehicles and equipment shall be cleaned with a high pressure

washer prior to arrival in desert tortoise habitat and prior to departure from areas of known invasive weed and nonnative grass infestations to prevent or at least minimize the introduction or spread these species.

- *Chemical spills*—Hazardous and toxic materials such as fuels, solvents, lubricants, and acids used during construction will be controlled to prevent accidental spills. Any leak or accidental release of hazardous and toxic materials will be stopped immediately and cleaned up at the time of occurrence. Contaminated soils will be removed and disposed at an approved landfill site.
- *Residual impacts from disturbance*—BLM shall collect remuneration fees to offset residual impacts to desert tortoises from project-related disturbance to desert tortoise habitat. Remuneration fees will be used for management actions expected to promote recovery of the desert tortoise over time, including management and recovery of desert tortoise in Nevada. The current rate is \$843 per ac of disturbance, as indexed for inflation, effective March 1, 2015. The next adjustment will become effective March 1, 2016.

2.1.3.12 Wildlife

The mining plan has been developed with a minimal disturbance footprint. Sterling would train operators to observe the Project Area for the presence of larger wildlife such as bighorn sheep as well as avian and other terrestrial wildlife. Sterling would continue to operate in accordance with established Sterling wildlife protection policies that prohibit feeding or harassment of wildlife.

Trash and other waste products would be properly managed, and Sterling would control garbage that could attract wildlife. Appropriate speeds (25 miles per hour or less) would be maintained along access and service roads. These environmental protection measures are intended to reduce the immediate and long-term impacts that mining could potentially have on wildlife.

All NDOW protocols will be followed for any NDOW protected species found during pre-construction surveys and any necessary permits would be obtained. Any Gila monster (State sensitive) encounters during project construction must be reported immediately to the NDOW at (702) 486-5127.

Prior to any construction work near bat roosting habitat, an experienced biologist will survey the area for the potential for bat habitat and hibernacula. Active roosts/ hibernacula shall not be disturbed until bats have left the sites.

Light plants would be stored with the masts lowered when not in use to eliminate potential avian predator perching sites.

Sterling currently maintains two water sources for bighorn sheep and other wildlife in the area. Sterling would continue to maintain two water sources for wildlife. These would be relocated as necessary to sites distant from the Sterling Pit and the WRDAs.

2.1.3.13 Protection of Survey Monuments

To the extent practicable, Sterling would protect all Cadastral Survey monuments, witness corners, and reference monuments, against unnecessary or undue destruction or damage. If, in the course of operations, any monuments, corners, or accessories are destroyed, Sterling would immediately report the matter to the BLM Authorized Officer. Prior to destruction or damage during surface disturbing activities, Sterling would contact the BLM to develop a plan for necessary restoration or re-establishment activity of the affected monument in accordance with Nevada Instruction Memorandum (IM) No. NV-2007-003 and Nevada law. Sterling would bear

the cost for the restoration or re-establishment activities including the fees for a Nevada professional land surveyor.

2.1.3.14 Public Safety, Access, and Signage

Public safety would be maintained throughout the duration of the Project. Active mining areas would have earthen berms constructed five feet high approximately 30 feet from the pit edge. Security gates would remain in place around the mine site. The main access road from U.S. 95 to the main gate is not recognized by the BLM as a County Road, although Nye County maintains the road.

Appropriate signage would be installed at the main gate location notifying the public of an active mining operation and access restrictions.

2.1.3.15 Prevention and Control of Fires

Sterling recognizes that the BLM maintains jurisdictional authority to suppress vegetation fires occurring on the BLM-administered land within the Project Area. Fires occurring within the active mine site would be coordinated with Sterling for appropriate suppression response, though the BLM would respond to all reported fires occurring on the BLM-administered land within the Project Area.

Sterling would take prudent measures to prevent and suppress fires occurring from their activities, and they would also report all fires as described below:

- Vehicles would carry, at a minimum, a shovel and five gallons of water (preferably in a backpack pump), in addition to a conventional fire extinguisher;
- Adequate firefighting equipment (a shovel, a pulaski, standard fire extinguisher(s), and an ample water supply) would be kept readily available at each active drill site;
- Vehicle catalytic converters would be inspected often and cleaned of all flammable debris;
- All cutting/welding torch use, electric-arc welding, and grinding operations would be conducted in an area free, or mostly free, from vegetation. An ample water supply and shovel would be on hand to extinguish any fires created from sparks. At least one person in addition to the cutter/welder/grinder would be at the work site to promptly detect fires created by sparks;
- Any fire restrictions or closures issued by the BLM Southern District Office would be publicized in the local media, and notice would be posted at various sites throughout the district. The BLM does not individually contact operators. This Plan of Operations serves as an authorization that may exempt Sterling's operations from certain restrictions in those orders. Personnel would be responsible for being aware of and complying with the requirements of those orders; and
- Any wildland fire observed would be reported immediately to the Las Vegas Interagency Communication Center at (702) 515-5300 or 911.

2.1.3.16 Measures to be Taken during Temporary, Interim, or Seasonal Closures

Sterling does not anticipate planned extended inactive periods. The rate of mining may vary depending on market conditions and contract agreements with Sterling. The handling, management, and hauling of the ore from the site could occur at any time during a 24-hour day, 365 days per year. Site inspections for BMP maintenance and monitoring would occur regularly.

Sterling has prepared a Temporary Closure Plan in compliance with 43 CFR 3809.401(b)(2)(vi) and submitted in the Operating Plan as Appendix E of the WPC Permit.

Should a temporary, interim, or seasonal closure occur, the following measures would be implemented to maintain site safety and stability. These measures are discussed in greater detail in the Interim and Seasonal Closure Plan:

- Security: The Project Area would have appropriate signage at the main gate and at the access road near the exit from U.S. 95, as well as at the office/first-aid trailer, parking, ready line area, and open pit areas;
- Supplies: Most supplies or equipment maintenance products would not remain on-site. Miscellaneous equipment, if remaining on-site, would be stored in the fenced and locked office/first-aid trailer, parking, and ready line area;
- Contractor Equipment: Contractor equipment would be removed;
- Roads: The main access road would receive maintenance, as necessary;
- Mine Open Pits: Berms around the pits would remain in place, and public access would be restricted;
- Noxious Weed Control: Sterling would continue to monitor and control noxious weeds and non-native invasive species;
- Erosion Control Measures: Storm water and erosion control structures would be regularly inspected and maintained;
- Buildings and Equipment: The office/first-aid trailer and Sterling equipment or support facilities left on-site would be protected from public access, would be kept within the parking and ready-line area, and maintained as necessary; and
- Monitoring and Maintenance: Sterling personnel would staff the site as necessary and perform monitoring, security, and necessary maintenance.

No temporary, interim, or seasonal closures of the facility are planned. However, it is possible that, due to mechanical or technical difficulties, unfavorable economic conditions, litigation, or other unforeseen events, mining and/or hauling of ore may have to be temporarily closed. Under this scenario, the BLM and NDEP would be notified within 30 days of the temporary closure.

2.1.3.17 Drill Hole Plugging and Well Abandonment

Mineral exploration and development drill holes subject to Nevada Division of Water Resources (NDWR) regulations would be abandoned in accordance with applicable rules and regulations (NAC Chapter 534). Boreholes would be sealed to prevent cross contamination between aquifers, and the required shallow seal would be placed to prevent contamination by surface access.

Monitoring and production wells would be abandoned and reclaimed as required by NAC 534. Well abandonment methods would differ based on well hydrologic conditions (e.g. dry, standing water or artesian) and completion methods (e.g. type of casing - polyvinyl chloride or steel, perforated interval, unperforated, etc.).

2.1.3.18 Process Solutions

The barren and pregnant leach solutions would be sampled semi-annually and analyzed for NDEP Profile II parameters. These samples would be collected in the process area and data reported semi-annually.

2.1.3.19 Leak Detection and Recovery

Leak detection is included in the Water Pollution Control (WPC) Permit and Sterling would comply with the permit requirements. All leak detection sites would be checked weekly. If an accumulation of liquid appears, action would be taken to determine the source and make repairs. Data would be reported on a quarterly basis to the NDEP.

2.1.3.20 Rock Characterization

Waste rock and ore samples would be collected as required in accordance with the WPC Permit during active mining operations. The number of samples collected would depend on the number of working faces exposed during a quarter. A minimum of one of each (one waste and one ore) to a maximum of 16 of each would be collected and analyzed on a quarterly basis. Samples would be analyzed using the meteoric water mobility procedure (MWMP) according to the NDEP's Bureau of Mining, Regulation, and Reclamation (BMRR) standards. In addition, the samples would be analyzed for acid-base accounting (static tests) by the modified Sobek method. Static test data would be reported to the NDEP and BLM quarterly. If static test results exceed the NDEP and BLM criteria, then kinetic testing (humidity cells tests) would be performed. Kinetic test results would also be provided to the NDEP and BLM.

2.1.3.21 Post-Reclamation Monitoring and Maintenance

Post-reclamation monitoring and maintenance would include qualitative monitoring of key stability indicators which may include vegetation, surface erosion, sedimentation, and slope stability parameters. Appropriate maintenance activities would be implemented as needed. Maintenance activities may include one or more of the following:

- Sediment removal from storm water drainage channels and diversion as necessary to maintain their design capacity;
- Maintaining the function of temporary erosion control BMPs such as silt fences and straw bales. These BMPs would be removed when no longer essential for erosion control;
- Diverting surface water away from reclaimed areas where erosion jeopardizes attainment of reclamation standards;
- Stabilization of rills, gullies, other erosion features or slope failures through placement or riprap, mulch, diversions, and sediment control structures;
- Noxious weed monitoring and control; and
- Reseeding or re-application of reclamation treatments in areas where determined through monitoring and agency consultation that reclamation has not yet met reclamation standards.

Quantitative reclamation monitoring to measure compliance with the re-vegetation success criteria would begin during the first growing season after final reclamation has been completed and would continue for a minimum of three years or until the reclamation success criteria are achieved. Qualitative monitoring of key indicators of site stability would continue, and the reclamation performance management guidelines would apply during this time. The bond release criteria would be applied to the data collected in the third year following reclamation. Re-vegetation success would be determined based on the BLM and NDEP Nevada guidelines for successful re-vegetation (NDEP 1998).

2.2 ACTION ALTERNATIVES

The National Environmental Policy Act (NEPA) requires that a reasonable range of alternatives to the Proposed Action be considered that could feasibly meet the objectives of the Proposed Action as defined in the purpose and need for the Project (40 CFR 1502.14(a)). However, only those feasible alternatives necessary to permit a reasoned choice need be considered. Reasonable alternatives are those alternatives that are issue driven and which are practical or feasible based on technical and economic considerations (46 Federal Register 18026 [March 23, 1981], as amended; 51 Federal Register 15618 [April 25, 1986]).

Alternatives to the Proposed Action must be developed and analyzed whenever there are unresolved conflicts involving alternative uses of available resources (BLM NEPA Handbook H-1790-1, page IV-3 [BLM 2008]).

No Alternative Action has been identified. There has been no issue-driven alternative or unresolved conflict involving alternative uses of available resources identified.

2.2.1 NO ACTION

Under the No Action alternative the previously approved actions would continue until depletion of the underground ore², followed by closure and reclamation of the Sterling Mine. The effects of the No Action on the environment are detailed in the following chapters. Under the existing approved plan, underground mining of the 144 Zone would continue until economic resources are exhausted. The existing heap leach pad and processing would continue until economic recovery of precious metals is no longer feasible. Upon cessation of ore processing and metal recovery, all existing facilities would be removed and/or reclaimed and revegetated as per BLM and NDEP requirements.

2.2.2 ALTERNATIVE CONSIDERED BUT NOT ANALYZED IN DETAIL – ALTERNATIVE HEAP LEACH PAD PLACEMENT

The initial APO facility layout placed the Heap Leach Pad to the east of the proposed pad location on gentle terrain in Section 12 with a haul road in the northwest ¼ of Section 13. This alternative heap leach placement was considered, but would have created all new surface disturbance with greater potential impact to desert tortoise and desert tortoise habitat. Consequently, the Heap Leach Pad placement was reconsidered and the existing gravel pit area and use of existing process ponds were proposed. Because this proposed Heap Leach Pad placement has less potential environmental impacts than the initial placement consideration, the initial alternative was dropped from detailed analysis.

2.3 LAND USE CONFORMANCE STATEMENT

The Proposed Action described in this EA is in conformance with the Las Vegas Resource Management Plan, approved by the Record of Decision dated October 5, 1998 (BLM 1998), the State of Nevada regulations for reclamation of land subject to mining operations under Nevada Revised Statutes (NRS445A and 519A), and are consistent with federal, state, and local laws, regulations, and plans. Objectives of the Minerals Management Program are as follows:

- MN-1 (page 27): Provide for the orderly exploration and development of valuable minerals on federally owned mineral estate, whether or not the surface estate is in federal ownership, where lands remain open to entry; and
- MN-2 (page 27): Use appropriate environmental safeguards to allow for the preservation and enhancement of fragile or unique resources.

The Standard Operating Procedures for locatable minerals are included in Appendix A.

2.4 RELATIONSHIP TO LAWS, REGULATIONS, AND OTHER PLANS

2.4.1 FEDERAL REQUIREMENTS

Sterling is required to comply with BLM Surface Management Regulations 43 CFR 3809, the Mining and Mineral Policy Act of 1970 (as amended), and the FLPMA, in order to use public

² The underground ore was completely mined out by May 2015 and a “skeleton” crew remains on site to conduct maintenance, processing, required monitoring, and other administrative functions.

lands managed by the BLM Southern Nevada District, Pahrump Field Office. BLM reviews the Proposed Action to ensure the following:

- Adequate provisions are included in the Proposed Action to prevent unnecessary or undue degradation of public land and to protect non-mineral resources (See 43 U.S.C. §1732b and 43 CFR 3809.1));
- Measures are included in the Proposed Action to provide for reclamation of disturbed areas (See 43 CFR 3809.420); and
- Compliance with applicable state and federal laws is achieved (See 43CFR 3809.420 a and b).

2.4.2 OTHER FEDERAL, STATE, AND LOCAL LAND USE PLANS AND POLICIES

This EA has been prepared in accordance with the following statutes and implementing regulations, policies, and procedures, and is consistent with other federal agency, state, and local plans to the maximum extent consistent with federal law and FLPMA provisions:

- The NEPA of 1969, as amended (Public Law 91-190, 42 United States Code §4321) (*et seq.*);
- 40 CFR §1500 (*et seq.*). Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act;
- Resource Conservation and Recovery Act (Subtitle C, Small Quantity Generator);
- The Council on Environmental Quality's *Considering Cumulative Effects under NEPA* (1997);
- 43 CFR Part 46, Implementation of the National Environmental Policy Act (NEPA of 1969); Final Rule, effective November 14, 2008;
- BLM NEPA Handbook (H-1790-1), as updated (BLM 2008);
- Clean Water Act (33 United States Code §1251 *et seq.* (1972));
- Disposal of Solid Waste (NRS 444.440 – 444.465; NAC 444.570 – 444.7499);
- Facilities for Management of Hazardous Waste (NRS 459.400 – 459.600; NAC 444.965 – 444.976);
- Water Quality Standards (NRS 444A.420; NRS 445A.118 – 445A.2235);
- Water Pollution Control (NRS 445A – All; NAC 445A – All);
- Mining Facilities (NRS 445A.300 – 445A.730; NAC 445A.350 – 445A.447);
- Air Pollution Control (NRS 445B.100 – 445B.640; NAC 445B.001 – 445B.395);
- Mining Regulation and Reclamation (NRS 519A.010 – 510A.240 and 519A.260 – 519A.280; NAC 519A.010 – 519A.415);
- Endangered Species Act (ESA); 16 United States Code §1531 *et seq.*; and
- Migratory Bird Treaty Act (16 Unites States Code 703-712 *et seq.*).

A list of current permits for the Sterling Mine is provided in *Table 2-4*.

The State of Nevada, Division of Environmental Protection's Strategic Plan 2015-2017 identifies the goal with respect to mining as to "Ensure Nevada's mining industry complies with State regulatory programs for the protection of surface and groundwater resources, general pollution control, and reclamation of disturbed lands." The statutory authority is found in NRS 445A.300 – 445A.730 and NRS 519A.010 – 519A.280. The Bureau of Mining Regulation and Reclamation (BMRR) is responsible for regulating fluid management, closure, and reclamation at mining operations. It is the mission of the BMRR to ensure that Nevada's waters are not degraded my mining operations and that the lands disturbed by mining operations are reclaimed to safe and stable conditions to ensure a productive post-mining land use.

The Proposed Action is consistent with the state goal.

Table 2-4: Project Permits and Approvals

Permit/Approval	Expiration Date	Granting Agency
Federal Permits		
Plan of Operations N-71676		U.S. Bureau of Land Management
Explosives User Permit 9-NV-023-33 6 L-00282	11/1/2016	U.S. Bureau of Alcohol, Tobacco, and Firearms
Nevada State Permits		
Class II Air Quality Operating Permit AP1041-3484	6/16/2019	NV Division of Environmental Protection/ Bureau of Air Quality
Reclamation Permit No. 0065		NV Division of Environmental Protection/ Bureau of Mining Regulation & Reclamation
Water Pollution Control Permit NEV0089016	3/18/2018	NV Division of Environmental Protection/ Bureau of Mining Regulation & Reclamation
Use of Public Water Permit 48346	Annual	NV Department of Conservation and Natural Resources
General Stormwater Discharge Permit NVR300000	Annual	NV Division of Environmental Protection/ Bureau of Water Pollution Control
Permit to Appropriate Waters #76390		NV Division of Water Resources
Industrial Artificial Pond Permit (heap leach) S2075	10/31/2015	NV Department of Wildlife
Sewage Disposal Permit S0130	2015	NV Division of Environmental Protection
Hazardous Materials 2761-7024	2015	Fire Marshall
County Permits		
Special Use Permit		Not Applicable

3 AFFECTED ENVIRONMENT

This section includes descriptions of the affected physical, biological, and human resources in the Project area taken from data gathered during field investigations, Management Framework Plans (MFPs), BLM and other agency files, contact with BLM and other federal, state, and local agency resource personnel, and review of the literature.

The Affected Environment for the Proposed Action and the No Action Alternative are the same. Therefore, the following discussion is applicable to both.

BLM’s NEPA Handbook (H-1790-1) and applicable statutes, regulations, executive orders, or state guidelines dictate that certain resources which are present and have potential to be impacted by the Proposed Action and Alternatives must be considered in the NEPA analysis. *Table 3-1* lists the resources for which supplemental authority requires that they be considered for this EA and the rationale for including or excluding the resource from the analysis. Those resources, determined by the BLM specialists to be either not present or not affected by the Proposed Action or Alternatives, are not addressed further in this Environmental Assessment. For those resources where design features were developed as part of the Proposed Action, impacts may have been eliminated or reduced to a level that analysis in the EA is not need, as determined by the specialists.

Table 3-1: Resources with Supplemental Authority which were Considered for Analyses of the Sterling Mine Expansion Project

Supplemental Authority	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Air Quality		✓		The proposed project is not within an area of non-attainment or areas where total suspended particulates or other criteria pollutants exceed Nevada air quality standards. There would be temporary increased particulate matter during the Project construction. Dust control permits may be required by NDEP; ensure permits are obtained and stipulations are in compliance for the duration of the Project. There should be no impacts to Air Quality as long as stipulations are followed and the design features are implemented. This resource is not carried forward for detailed analysis.
Cultural/Historical		✓		The Cultural Resources Inventory Needs Assessment (CRINA) and Area of Potential Effect (APE), including a visual 3-mile buffer were reviewed by the State Historic Preservation Officer (SHPO). A Class III inventory of the undisturbed areas within the Project Area was conducted to comply with Section 106 of the National Historic Preservation Act. A negative report has been submitted to SHPO with the annual submission of negative reports. This resource is not carried forward for detailed analysis.

Supplemental Authority	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Area of Critical Environmental Concern (ACEC)	✓			The Proposed Action is not within an ACEC.
Greenhouse Gas Emissions		✓		Currently there are no emission limits for suspected Greenhouse Gas (GHG) emissions, and no technically defensible method for predicting potential climate changes from GHG emissions. However, there are, and will continue to be, several efforts to address GHG emissions from federal activities, including BLM authorized uses.
Environmental Justice	✓			The Proposed Action is unlikely to disproportionately affect any minority or low-income groups.
Farmlands Prime or Unique	✓			There are no prime or unique farmland designations in the District.
Lands/Access		✓		The proposed action is not located within a utility corridor. However, there is an existing modular office used by the mining operation that is located in a Section 368 corridor (WEC 18-224), within T13S, R47.5E, sec. 13, E2. The modular office existed prior to the designation of the corridor. Section 368 corridors were designated pursuant to the Energy Policy Act of 2005, and the January 2009 Approved Resource Management Plan Amendments/Record of Decision (ROD) for Designation of Energy Corridors on BLM Administered Lands in the 11 Western States (commonly referred as the West-wide Energy PEIS). WEC 18-224 is a 3,500 ft. wide corridor designated for linear electric transmission and distribution projects. Site type facilities must be compatible with the future use of the corridor. There may be a need in the future to relocate the modular office from the corridor.
Noxious Weeds/Invasive Non-native Species		✓		Potential exists for impacts associated with establishment of non-native invasive species. There should be no impacts from Noxious Weeds/Invasive Non-native Species as long as the noxious weed control plan is implemented and the design features are implemented. This resource is not carried forward for detailed analysis.
Native American Religious Concerns	✓			Few known Tribal issues exist on the east side of Bare Mountain.

Supplemental Authority	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Floodplains	✓			There are no Federal Emergency Management Agency (FEMA) designated floodplains in the Project area.
Fuels/Fire Management		✓		Fire restrictions are generally enacted May through October. Compliance with fire restrictions is mandatory while fire restrictions are in effect. Specific non-compliant activities may be permitted in writing on a case by case basis by a line officer after review and approval by the Fire Management Officer (43 CFR 9212). In the event of an unplanned ignition that causes a wildfire the proponent will be held responsible for all costs of suppression and damaged resources pending a fire Origin and Cause Investigation. An Origin and Cause Investigation will be done on any human caused fire by BLM Law Enforcement or their designated representative. Conditions that support wildland fire spread can occur any time of the year in Southern Nevada. In general and when fire restrictions are not in effect, use standard fire prevention measures and best management practices to prevent fires. Minimize wildfire risk to assets or infrastructure where needed by maintaining a wildfire defensive space.
Threatened and Endangered Species - Plants.	✓			According to the plant surveys completed May 28 through 31, 2014 by JBR Environmental Consultants, Inc., no threatened or endangered plant species are present where the Proposed Action would occur. Therefore, no impacts are anticipated.
Threatened and Endangered Species - Wildlife.			✓	Desert Tortoise and/or its habitat are present. Carried forward for analysis (see Sections 3.1 and 4.1).
Migratory Birds			✓	Migratory birds are present in the Project Area. Carried forward for analysis (see Sections 3.2 and 4.2).
Paleontology	✓			Geologic formations in the area are not fossil-bearing.
Visual Resources		✓		The proposed action is located on lands in Visual Resource Inventory (VRI) Class IV in a landscape that is modified by an existing mine. The proposed action would not result in modifications to the characteristic landscape and there would be no alteration of the visual value of the landscape. The proposed action would not contribute to changes in the VRI class. The proposed action is also located in Visual Resource Management (VRM) Class IV. The objective of VRM Class IV is to provide for

Supplemental Authority	Not Present	Present/Not Affected	Present/May be Affected	Rationale
				management activities that require major modifications of the existing character of the landscape. Management activities may dominate the view and be the major focus of viewer attention. The proposed action would be in conformance with VRM Class IV objectives.
Waste – Hazardous/Solid		✓		The design features are sufficient to eliminate the potential impact, and the required SPCC Plan provides direction to prevent, control, and counteract any accidental spills or releases. Solid waste will be removed from the site. This resource is not carried forward for detailed analysis.
Water Quality		✓		Compliance with the Water Pollution Control Permit requirements and implementation of design features would reduce or eliminate potential for impacts to surface runoff from sediment loads. This resource is not carried forward for detailed analysis.
Wetlands/Riparian Zones	✓			No permanent or perennial surface waters or wetlands exist in or near the Project area.
Wild & Scenic Rivers	✓			Resource is not present.
Wilderness/Wilderness Study Areas/Land with Wilderness Characteristics	✓			There are no wilderness areas, wilderness study areas, or lands with wilderness character in the vicinity of the Project.
Wild Horses and Burros	✓			The Proposed Action is not located in an active herd management area (HMA); however the Bullfrog HMA is nearby to the northeast. There should be no impacts to wild burros as long as stipulations are followed.
Woodland/Forestry			✓	There is an effect for woodland/forestry as the proposed action would directly impact approximately 132.1 acres of cactus habitat. Cacti are present and regulated under the Nevada BLM forestry program. All cacti and yucca within permanent and temporary impact areas would be salvaged and replanted during reclamation as stated in the design features of the Proposed Action (see Section 2.1.3.9). Reclamation is required as a minimization measure; however, an impact is still present. This resource is carried forward for analysis (see Sections 3.3 and 4.3).
Rangeland Health Standards		✓		The Proposed Action is outside of an active grazing allotment, but rangeland health is still important. Four fundamentals of rangeland health are listed in Title 43 CFR § 4180.1. These include watersheds, ecological processes, water quality, and habitats. Potential impacts to these

Supplemental Authority	Not Present	Present/Not Affected	Present/May be Affected	Rationale
				values are analyzed as part of the vegetation, wildlife, and federally listed species sections and are not analyzed in this section.

In addition to the resources with supplementary authority, there are other biological, physical, and human resources that BLM considers in the NEPA process. The resources that have been identified by internal scoping as being present in the Project area are included in *Table 3-2*.

Table 3-2: Other Resources Considered for Analysis of the Sterling Mine Expansion Project

Other Resources	Not Present or Affected	Present/Not Affected	Present/May be Affected	Rationale
Geology/Mineral Resources/Energy Production		✓		Geologic and Mineral Resources are present and impacts would be limited to site specific excavation of the waste and ore as related to the mining activity. However, this would not impact the regional geology; and therefore, this resource is not carried forward for detailed analysis.
Hydrologic Conditions	✓			No dredging or filling of existing waterways or channels will occur. Disturbances associated with the Proposed Action will be reclaimed. No impacts to local hydrologic conditions exist.
Soils			✓	Native soils would be impacted and potential for changes in surface erosion exists. Carried forward for analysis (see Sections 3.4 and 4.4).
Vegetation (Excluding Federally Listed Species)			✓	Baseline surveys conducted May 28 through 31, 2014 by JBR Environmental Consultants, Inc. found no BLM sensitive plant species within the Project area; therefore, no impacts are anticipated. There is an effect for vegetation as the Proposed Action would directly impact approximately 132.1 acres of mid-elevation vegetation. The vegetation resource is included in the detailed analysis.
Wildlife Resources (Excluding Federally Listed Species)			✓	Wildlife, including BLM Sensitive Species may be impacted. Impacts assessed in EA. Carried forward for analysis (see Sections 3.6 and 4.6).
Livestock Grazing	✓			The Proposed Action is not located in any authorized grazing allotments.
Land Use and Access	✓			There are no BLM-permitted facilities in or near the area.
Recreation		✓		Recreation in near the Project Area is negligible casual recreation activity not affected to a degree that detailed analysis is required.

Other Resources	Not Present or Affected	Present/Not Affected	Present/May be Affected	Rationale
Social and Economic Values			✓	The Proposed Action may provide economic benefit to the proponent, related businesses, and to the public; therefore this resource is analyzed in Sections 3.7 and 4.7.

The resources listed in *Tables 3-1* and *3-2* that are present with potential to be affected by the Proposed Action and Alternatives are analyzed below.

3.1 THREATENED, ENDANGERED, OR CANDIDATE SPECIES

3.1.1 REGULATORY FRAMEWORK

Threatened, Endangered, or Candidate Species are those animals are protected under the Endangered Species Act of 1973 (ESA). The ESA (16 USC 1531 et seq.), as amended, provides for the conservation of federally listed plant and animal species and their habitats. The ESA directs federal agencies to conserve listed wildlife species and imposes an affirmative duty on these agencies to ensure that their actions are not likely to jeopardize the continued existence of a listed species or adversely modify its critical habitat.

BLM Manual 6840 provides management policy for federally listed species. The BLM Manual 6840.06 states, “Actions authorized by the BLM shall further the conservation and/or recovery of federally listed species ...”.

3.1.2 ASSESSMENT AREA

The assessment area for Threatened, Endangered, or Candidate species includes the area of the Proposed Action.

3.1.3 EXISTING ENVIRONMENT

The Nevada Natural Heritage Program (NNHP) did not have any record of any at-risk taxa within the Project area (JBR 2013, Appendix B). The USFWS identified two wildlife species listed under the Endangered Species Act with potential to occur in the Project area: Mojave Desert tortoise (*Gopherus agassizii*) and Greater sage-grouse (*Centrocercus urophasianus*).

The Mojave Desert tortoise is listed under the ESA as threatened. Habitat for this species was identified as potentially occurring at the Project area (JBR 2013, Table 3). However, the proposed Project is not within Mojave Desert tortoise designated critical habitat. The Mojave Desert tortoise occurs primarily on flats and bajadas with soils ranging from sand to sandy-gravel. They are also found on rocky terrain and gentle slopes. Tortoises occur in saltbush scrub, creosote scrub, and blackbrush scrub habitat types. Within these vegetation types, desert tortoises can potentially survive and reproduce provided their basic habitat requirements are met. These requirements include a sufficient amount and quality of forage species, shelter sites for protection from predators and environmental extremes, suitable substrates for burrowing, nesting, and overwintering, various plants for shelter, and adequate area for movement, dispersal, and gene flow.

A survey for desert tortoise was conducted in 2013 of an area that included the initial heap leach pad location (see Section 2.2.2. for details); therefore, some of the tortoise sign observed was not within the proposed mine expansion footprint. However, all data is included for impact analysis.

Four active burrows, eight burrows in good condition, and two burrows that were deteriorated, for a total of 14 burrows identified within or near the Project area (*Figure 3-1*) during the field survey (JBR 2013). In addition, tortoise scat (two locations), carcasses and shell fragments (seven locations) were also observed, all within close proximity to the burrows identified on *Figure 3-1*. No live tortoises were observed during the field surveys.

Greater sage-grouse habitat does not exist in or near the Project area and Greater sage-grouse are not known to be present within the Southern Nevada District Planning Area.

The USFWS also identified two plant species listed under the Endangered Species Act as with potential to occur in the Project area: threatened Ash Meadows blazingstar (*Mentzelia leucophylla*) and threatened Ash Meadows gumplant (*Grindelia fraxinipratensis*) (USFWS 2013). Neither species was observed within the Project area during the field survey (JBR 2013); these species are only known to be present within the Ash Meadows National Wildlife Refuge and the surrounding Ash Meadows ACEC.

3.2 MIGRATORY BIRDS

3.2.1 REGULATORY FRAMEWORK

The Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 USC § 703 et seq.), implements international treaties that provide for migratory bird protection. The act authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act also provides that it shall be unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory birds, or any part, nest or egg of any such bird”; however, the act does not regulate their habitat. The list of species protected by the Migratory Bird Treaty Act was revised in March 2010 and includes 1,007 species that are native to the United States.

Executive Order (EO) 13186 directs federal agencies taking actions that are likely to have a measureable effect on migratory bird populations to develop and implement a MOU with the U.S. Fish and Wildlife Service (USFWS) that promotes the conservation of migratory bird populations.

The USFWS and BLM signed, on January 17, 2010, a MOU pursuant to EO 13186 to strengthen migratory bird conservation by identifying and implementing strategies that promote conservation and avoid or minimize adverse impacts on migratory birds through enhanced collaboration between the USFWS and BLM, in coordination with state, tribal, and local governments. This memorandum identifies specific activities where cooperation between agencies would contribute to the conservation of migratory birds.

In addition to being migratory species, several raptor species are also BLM Sensitive Species and these are discussed in Section 3.1.

3.2.2 ASSESSMENT AREA

The assessment area for migratory birds, other than raptors, included the area that would be affected by the Proposed Action. The assessment area for raptors extended ten miles from the Project area.

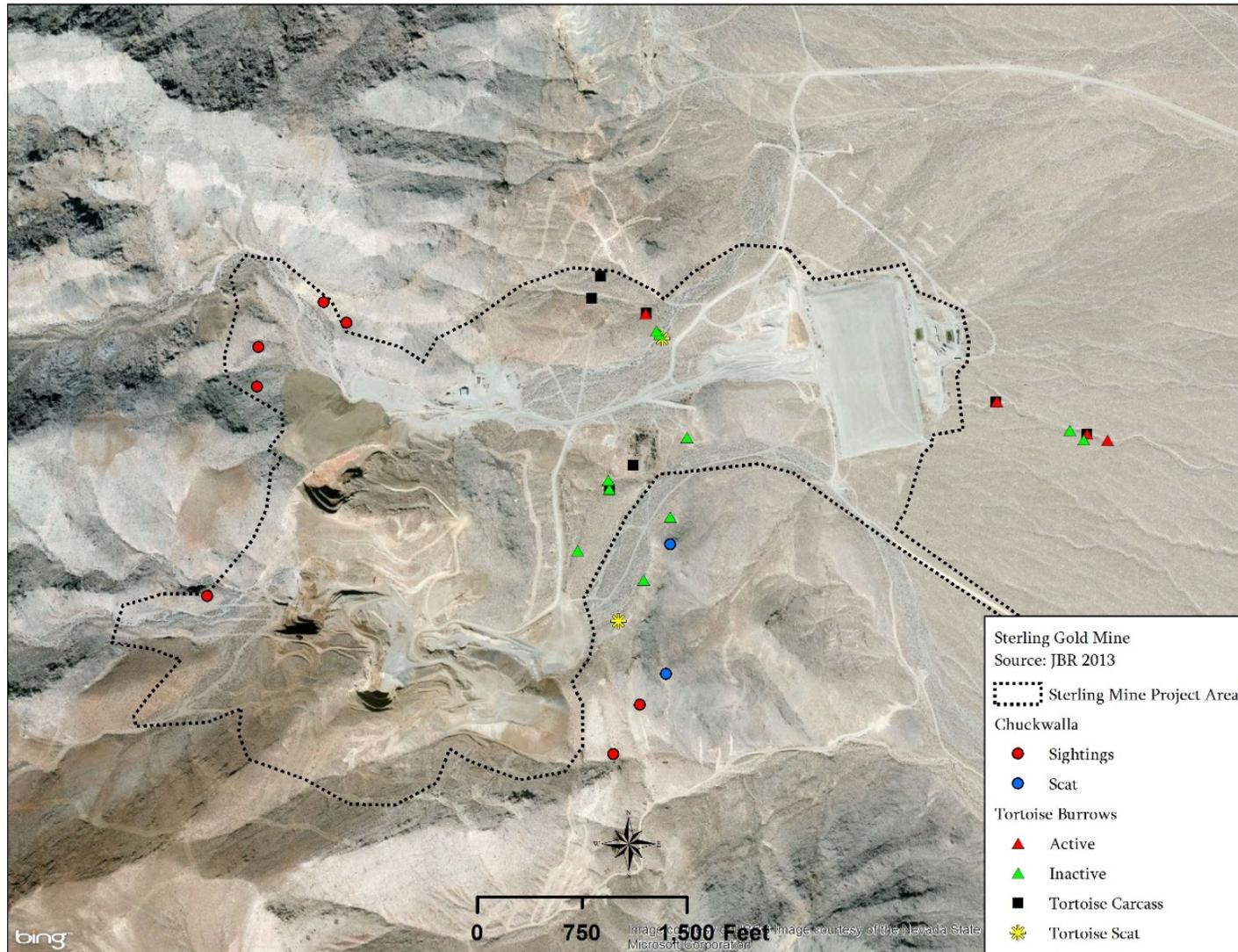


Figure 3-1: Desert Tortoise and Chuckwalla Observations

3.2.3 EXISTING ENVIRONMENT

A variety of bird species is expected to inhabit or use the Project area on a year-long or seasonal basis. Migratory birds are not as abundant in the hot desert habitats as in other cold desert or high elevation habitats, but 11 species of migratory birds are known to occur in the Project area (Table 3-3), in addition to the three BLM sensitive species (Section 3.6). Field surveys were conducted during the avian nesting period (May 28-31, July 16-18) and after the nesting season was concluded (August 30-31, September 1-12, and October 11-17) in 2013. Typically, the breeding season is when these species are most sensitive to disturbance, which generally occurs from February 15th through August 31st.

Table 3-3: Bird Species Observed at the Sterling Mine Expansion Project Area

Species	Comments
Turkey Vulture <i>Cathartes aura</i>	Observed during field surveys.
Red-tailed Hawk <i>Buteo jamaicensis</i>	Observed during field surveys.
Prairie Falcon <i>Falco mexicanus</i>	Observed during field surveys.
Common Raven <i>Corvus corax</i>	Observed during field surveys.
Say's Phoebe <i>Sayornis saya</i>	Observed during field surveys.
Rock Wren <i>Salpinctes obsoletus</i>	Observed during field surveys.
Black-throated Sparrow <i>Amphispiza bilineata</i>	Observed during field surveys.
Horned Lark <i>Eremophila alpestris</i>	Observed during field surveys.
Chukar <i>Alectoris chukar</i>	Observed during field surveys.
Hummingbird <i>Trochilidae</i> sp.	Observed during field surveys.
Blue-gray Gnatcatcher <i>Poliopitila caerulea</i>	Observed during field surveys.

Source: JBR 2013

3.3 WOODLAND/FORESTRY

3.3.1 REGULATORY FRAMEWORK

The FLPMA, Public Rangelands Improvement Act of 1978 (PRIA), 43 CFR 4180, Las Vegas Resource Management Plan, and the NDEP Bureau of Mining Regulation and Reclamation (BMRR) revegetation standards provide the direction, goals, and objectives for vegetation management and reclamation success on BLM-administered public lands in the Project area. Cacti and yucca are regulated under the Nevada BLM Forestry program.

3.3.2 ASSESSMENT AREA

The assessment area for Forestry and BLM Sensitive Plant Species is the Project area.

3.3.3 EXISTING ENVIRONMENT

BLM administers the sale of forest products and other vegetative resources under 43 CFR 5400. Cactus and yucca plants are considered government property and are regulated under the Nevada BLM forestry program. According to the plant surveys completed May 28 through 31 2014 by JBR Environmental Consultants Inc., five species of cactus are present within the proposed action area. The cactus present within the project area include beavertail pricklypear cactus (*Opuntia basilaris* var. *basilaris*), cottontop cactus (*Opuntia basilaris* var. *basilaris*), Engelmann's hedgehog cactus (*Echinocereus engelmannii*), common fishhook cactus (*Mammillaria tetrancistra*), and Wiggins' cholla (*Mammillaria tetrancistra*).

3.4 SOILS

3.4.1 REGULATORY FRAMEWORK

BLM regulations for surface management of public land mined under the General Mining Law of 1872 are provided in 43 CFR 3809.1-3(d), which requires mining-related activities to minimize impacts to soil resources. Guidance for reclamation is provided in BLM Handbook H-3042-1 (BLM 1992).

Soils are also protected under State of Nevada regulations. NAC 445A.350 – NAC 445A.447 (Mining Facilities) and NAC 519A.010 – NAC 519A.415 (Regulation of Mining Operations) were developed to implement the requirements of NRS 445A.300 – NRS 445A.730 (Water Pollution Control) and NRS 519A.010 – NRS 519A.290 (Reclamation of Land Subject to Mining Operations). These statutes are directed in part to ensure that the lands disturbed by mining operations are reclaimed to safe and stable conditions, including soil conservation through erosion control.

A Stormwater Pollution Prevention Plan (SWPPP) is required for Project development. The SWPPP is implemented by the NDEP through the Nevada storm water National Pollution Discharge Elimination System (NPDES) permit program with appropriate erosion control features designed to meet BMPs and Natural Resource Conservation Service (NRCS) performance standards (NRCS 1992).

3.4.2 ASSESSMENT AREA

The assessment area for soils is the Project area.

3.4.3 EXISTING ENVIRONMENT

Soil survey data for the Project area are described in the soil survey for the southwest part of Nye County, Nevada (National Resource Conservation Service [NRCS]). The Map Unit Symbol

represents a soil association which consists of one or more individual soils that have specific characteristics that allow them to be distinguished from other association soils. Soils within the Project are described in *Table 3-4*. Only five soil associations occur within the Project area and only two of these soil associations are in the area of the Proposed Action (*Figure 3-2*).

Site-specific soils within the Project area formed in alluvium, colluvium, or residuum and derived from mixed rocks, limestone, or dolomite, except for the Sanwell soil which is derived from coarse lacustrine sediments. Slopes and hilltops have extensive bedrock exposures. Drainages contain coarse-grained alluvium consisting of a poorly sorted, gravelly, skeletal, dark grayish brown silt loam with angular to sub-angular gravel, cobbles, and boulders. Soil horizons are weakly developed. A moderately well-developed desert pavement covers stable surfaces. None of the soils identified by the NRCS meets the criteria to be considered prime or unique farmlands. The quality of these existing soils for reclamation purposes is considered poor, due primarily to the coarse nature (i.e., sandy, gravelly, or cobbly soils), low available water capacity, and shallow depth of some soils. The rating of these soils as poor for reclamation does not mean they cannot be used for reclamation; however, the amount of vegetative cover achieved during reclamation may be limited due to the soil characteristics mentioned above.

Of the five map units that are included in the Project boundary, only two occur in the area of proposed disturbance: St. Thomas-Tecopa-Rock outcrop complex, 15 to 75 percent slopes (Map Unit 2081), and the Greyeagle-Sanwell-Yermo association (Map Unit 2263). In addition, the existing disturbance is mapped as Map Unit 2920 – Mine, Dumps, and Pits.

Table 3-4: Soils in the Vicinity of the Project Area

NRCS Map Unit ¹	Soil Series & Surface Texture	Classification	Reaction	Permeability	Available Water Capacity (Inches)	Hydrologic Group	Water Erosion Hazard	Wind Erosion Hazard	Landscape Position/% Slope	Depth To Bedrock	Topsoil Suitability
2054	Yermo, Hot very gravelly sandy loam	Typic Torriorthents loamy-skeletal, mixed, calcareous thermic	Nonsaline to very slightly saline, Moderately alkaline	Moderate	4.2	A	Slight	Slight	Fan remnants 2%-4%	>60"	Poor
	Yermo very gravelly sandy loam	Typic Torriorthents loamy-skeletal, mixed, calcareous thermic	Nonsaline to very slightly saline, Moderately alkaline	Moderate	4.2	A	Slight	Slight	Inset fans, Alluvial fans 2%-4%	>60"	Poor
	Arizo, very gravelly, sandy loam	Typic Torriorthents sandy-skeletal, mixed thermic	Nonsaline, Moderately alkaline	Very rapid	3.1	A	Slight	Moderate	Inset fans 2%-4%	>60"	Poor
2081	Rock Outcrop										
	St. Thomas very cobbly loam	Lithic Torriorthents loamy, skeletal, carbonatic thermic	Nonsaline, Moderately alkaline	Moderately rapid	0.7	D	Moderate	Slight	Hills 30%-75%	4" to 20"	Poor
	Tecopa extremely gravelly sandy loam	Lithic Torriorthents loamy-skeletal, mixed, calcareous thermic	Moderately alkaline	Moderate	0.3	D	Moderate	Slight	Hills 15%-75%	2" to 10"	Poor
2152	Arizo very gravelly sandy loam, moist 0 to 2 percent slopes	Typic Torriorthents loamy-skeletal, mixed, calcareous thermic	Nonsaline, Moderately alkaline	Very rapid	3.1	A	Moderate	Slight	Inset fans 0% - 2%	>60"	Poor
2214	Yermo, very	Typic Torriorthents	Nonsaline	Very rapid	4.2	A	Slight	Slight	Inset fans,	>60"	Poor

NRCS Map Unit ¹	Soil Series & Surface Texture	Classification	Reaction	Permeability	Available Water Capacity (Inches)	Hydrologic Group	Water Erosion Hazard	Wind Erosion Hazard	Landscape Position/% Slope	Depth To Bedrock	Topsoil Suitability
	gravelly sandy loam	loamy-skeletal, mixed, calcareous thermic	to very slightly saline, Moderately alkaline						Alluvial fans 2%-4%		
	Arizo, very gravelly, sandy loam	Typic Torriorthents sandy-skeletal, mixed thermic	Nonsaline, Moderately alkaline	Very rapid	3.1	A	Slight	Moderate	Inset fans, drainageways 2%-4%	>60"	Poor
2260	Greyeagle very gravelly sandy loam, 2 to 8 percent slopes	Typic Durargids loamy-skeletal, mixed thermic	Moderately alkaline	Moderately rapid	0.6	D	Moderate	Moderate	Fan remnants 2% - 8%	>60"	Poor
2263	Greyeagle very gravelly sandy loam	Typic Durargids loamy-skeletal, mixed thermic	Moderately alkaline	Moderately rapid	0.6	D	Moderate	Moderate	Fan remnants 4%-15%	8-14"	Poor
	Yermo, very gravelly sandy loam	Typic Torriorthents loamy-skeletal, mixed, calcareous, thermic	Nonsaline to very slightly saline, Moderately alkaline	Very rapid	4.2	A	Slight	Slight	Inset fans, Alluvial fans 2%-4%	>60"	Poor
	Sanwell gravelly fine sandy loam	Typic Duric Torriorthents, loamy-skeletal, mixed superactive calcareous, thermic	Very slightly saline to slightly saline, Moderately alkaline	Moderate	4.9	B	Moderate	Moderate	Alluvial flats 2% - 8%	>60"	Poor
2920	Mine, dumps, pits										

¹**Bold font** indicates a Map Unit that is found in the Proposed Action area.

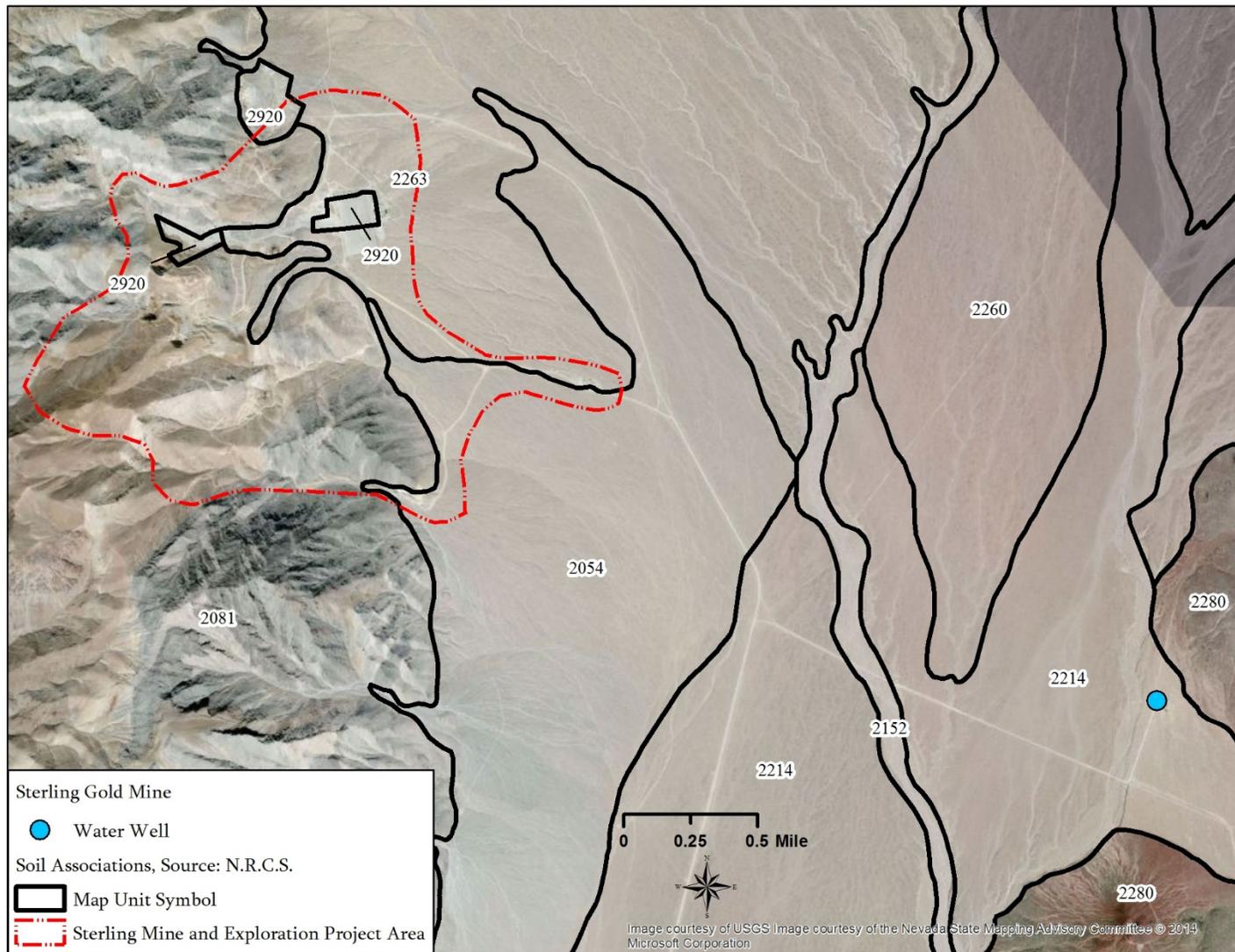


Figure 3-2: Soil Map Units at the Sterling Mine Project

3.5 VEGETATION

3.5.1 REGULATORY FRAMEWORK

The FLPMA, Public Rangelands Improvement Act of 1978 (PRIA), 43 CFR 4180, Las Vegas Resource Management Plan, and the NDEP Bureau of Mining Regulation and Reclamation (BMRR) revegetation standards provide the direction, goals, and objectives for vegetation management and reclamation success on BLM-administered public lands in the Project Area. Cacti and yucca are regulated under the Nevada BLM forestry program (see Section 3.3).

3.5.2 ASSESSMENT AREA

The assessment area for the vegetation is the Project Area.

3.5.3 EXISTING ENVIRONMENT

The Project area is located within the northeastern portion of the Mojavian Floristic region. This region is characterized by moderate to high mountain ranges and intervening valleys which generally follow a north-south parallel pattern (Cronquist et al. 1972). The Mojave Desert is characterized by hot, dry summers and cool, dry winters (Thorne et al. 1981). Precipitation within the desert typically occurs from either winter rains or summer thundershowers. In general, the vegetation of the Mojave Desert is dominated by low, widely-spaced shrubs, which develop in response to limited rainfall.

The Project area includes an elevation range of approximately 2,900 feet to 4,800 feet. Topography varies from gently sloping alluvial fan to steep rocky hills. Plant communities vary along elevation gradients due to differences in the amount of rainfall and varying soil types (MacMahon 1985). The communities vary from a predominately creosote bush community at the lower elevations to a mixed desert scrub community at higher elevations. Cacti are common in both plant communities.

Temporary impacts to vegetation can take decades to centuries to recover depending on the impact. Scott Abella (2010) estimates that without active restoration, it takes the Mojave Desert 76 years for re-establishment of perennial plant cover and 215 years for re-establishment of perennial and annual species cover. If disturbance is too frequent, recovery may be delayed or prevented entirely as soils become eroded or severely compacted. Slow recovery from disturbance means most impacts to this vegetation community will accumulate over time. The BLM restoration program is designed to facilitate natural recovery and reduce cumulative impacts to this vegetation type.

3.6 WILDLIFE AND BLM SENSITIVE SPECIES

3.6.1 REGULATORY FRAMEWORK

Section 102.8 of the FLPMA states that the policy of the United States is to manage public land in a manner that protects the quality of multiple resources and provides food and habitat for fish, wildlife, and domestic animals. The Public Rangelands Improvement Act of 1978 directs BLM to improve rangeland conditions with due consideration given the needs of wildlife and their habitats. Wildlife must also have a reasonable amount of protection from adverse impacts associated with human disturbance and most human activities.

BLM Manual 6840 provides management policy for BLM-designated sensitive species. Species classified as BLM-designated sensitive must be native species found on BLM-administered land

for which BLM has the capability to significantly affect the conservation status of the species through management, and either:

- There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range; or
- The species depends on ecological refugia or specialized or unique habitats on BLM-administered land, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk. BLM protects and manages habitat for the enhancement and protection of the species future existence.

The BLM Manual 6840.06 states, "Actions authorized by the BLM shall further the conservation and/or recovery of federally listed species and conservation of Bureau sensitive species. Bureau sensitive species would be managed consistent with species and habitat management objective[s] in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the Endangered Species Act of 1971, as amended under the ESA."

Wildlife and fish resources and their habitat on public land are managed cooperatively by the BLM and NDOW under a memorandum of understanding (MOU) as established in 1971. The MOU describes BLM's commitment to manage wildlife and fisheries resource habitat, and NDOW's role in managing population. BLM meets its obligation by managing public land to protect and enhance food, shelter, and breeding areas for wild animals. NDOW assures healthy wildlife numbers through a variety of management tools including wildlife and fisheries stocking programs, hunting and fishing regulations, land purchases for wildlife management, cooperative enhancement projects, and other activities.

The NDOW administers state wildlife management and protection programs as set forth in NRS Chapter 501, Wildlife Administration and Enforcement, and NAC Chapter 503, Hunting, Fishing and Trapping; Miscellaneous Protective Measures. NRS 501.110 defines the various categories of wildlife in Nevada, including protected categories. NAC 503.010, 503.080, 503.110, and 503.140 list the wildlife species currently placed in the state's various legal categories, including protected species, game species, and pest species.

The Bald and Golden Eagle Protection Act (16 USC 668-688d) prohibits the take or possession of bald and golden eagles with limited exceptions. Take, as defined in the act, includes "to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb". Disturb means to agitate or bother a bald or golden eagle to a degree that causes or is likely to cause, based on the best scientific information available, injury to an eagle or a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior. An important eagle use area is defined as an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding and the landscape features surrounding a nest, foraging area, or roost site.

Raptor species are also protected by state and federal laws. In addition, bald eagle, western burrowing owl, California spotted owl, ferruginous hawk, flammulated owl, golden eagle, northern goshawk, peregrine falcon, prairie falcon, and short-eared owl are NDOW species of special concern and are target species for conservation as outlined by the Nevada Wildlife Action Plan (NDOW 2013).

3.6.2 ASSESSMENT AREA

The assessment area for wildlife resources varies for groups of species. For wildlife other than migratory birds and raptors (See Section 3.8), the assessment area is the Project area.

3.6.3 EXISTING ENVIRONMENT

The proposed project area supports and is adjacent to lands that support wildlife characteristic of the Mojave Desert. Biological diversity varies according to topography, plant community, and proximity to water, soil type, and season. For a comprehensive discussion of potential wildlife species that may be present, refer to the most recent Resource Management Plan for the BLM Southern Nevada District. The creosote bush scrub, desert scrub, blackbrush, and wash vegetation types provide habitat for a limited number of wildlife species which are uniquely adapted to the high temperatures, low precipitation, and specialized vegetation of the region.

NDOW identified the Project area as occupied mule deer (*Odocoileus hemionus*) habitat. No mule deer or mule deer sign were observed during the field surveys (JBR 2013) and this species has not been observed by employees at the mine.

Antelope ground squirrel (*Ammospermophilus leucurus*) and desert cottontail (*Sylvilagus audubonii*) also occurred in the Project area.

Reptiles are a common component of the desert fauna. During the wildlife surveys, the Western whiptail lizard (*Cnemidophorus tigris*), collared lizard (*Crotaphytus collaris*), and desert spiny lizard (*Sceloporus magister*) were observed.

In contrast, only limited opportunities exist in desert environments for habitation by amphibian species. Talus slopes, crevices, and moist soil conditions provide retreats for amphibians. Seeps and springs provide adequate and necessary breeding environments. The lack of permanent water resources in the Project area makes it unlikely that amphibians are present. No amphibians were found in the Project area during the wildlife surveys (JBR 2013).

The Nevada Natural Heritage Program (NNHP) did not have any record of any at-risk wildlife taxa within the Project area (JBR 2013, Appendix B). The BLM identified 24 sensitive wildlife species that may occur near the Project area.

Habitat evaluation of the Sensitive Wildlife Species (JBR 2013) resulted in 19 Nevada BLM Sensitive Species for which potential habitat occurred in the Project area (*Table 3-5*).

Surveys for golden eagle nests were conducted during the nesting season in 2013 and 2014 (JBR 2013, Stantec 2014). No occupied nests were identified in 2013 in a 10-mile radius of the Project Area³. Seventeen unoccupied golden eagle nest sites were observed in 2013. Sixteen of the 17 nests were relocated again in 2014 (*Figure 3-3*) and one was occupied. This occupied nest site was approximately three miles from the Sterling Mine and on the west side of the Bare Mountains. This nest was not visible from the mine site. In addition, one additional nest site was located in 2014, but this was also unoccupied.

Five of the 18 golden eagle nests sites located in 2013 and 2014 were greater than five miles from the mine site, five were between 2.0 and 5.9 miles from the mine site, and five were between 1.0 and 1.9 miles from the mine site (*Figure 3-3*). Only three nests were less than a mile from the mine site, and none were occupied in 2013 or 2014.

Potential habitat for Western burrowing owl was identified and inspected during the field survey. Two western burrowing owls burrows were identified, and a third site (non-burrow) was also

³ A portion of the 10-mile radius survey area was excluded from the survey as this area was within the Nellis Air Force Base restricted flight area.

located (i.e., owl pellets were present). The two burrows were not occupied nest sites and were located outside of the Project boundary. The third site was located near the wash at the north end of the Proposed Heap Leach Pad.

Table 3-5: BLM Sensitive Animal Species Present or with Potential to Occur within the Project Area

Common Name	Scientific Name
Golden eagle	<i>Aquila chrysaetos</i>
Western burrowing owl	<i>Athene cunicularia hypugaea</i>
LeConte's thrasher	<i>Toxostoma lecontei</i>
Bendire's thrasher	<i>Toxostoma bendirei</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Greater western mastiff-bat	<i>Eumops perotis californicus</i>
Allen's big-eared bat	<i>Idionycteris phyllotis</i>
California leaf-nosed bat	<i>Macrotus californicus</i>
California myotis	<i>Myotis californicus</i>
Yuma myotis	<i>Myotis yumanensis</i>
Desert bighorn sheep	<i>Ovis canadensis nelsoni</i>
Banded gila monster	<i>Heloderma suspectum cinctum</i>
Chuckwalla	<i>Sauromalus ater</i>
Nevada shovel-nosed snake	<i>Chionactis occipitalis talpina</i>
Mohave shovel-nosed snake	<i>Chionactis occipitalis occipitalis</i>
Desert glossy snake	<i>Arizona elegans eburnata</i>
Mojave Desert sidewinder	<i>Crotalus cerastes cerastes</i>
Northern Mojave blue	<i>Euphilotes mojave virginensis</i>
MacNeill sooty wing skipper	<i>Hesperopsis graciela</i>

Source: JBR 2013

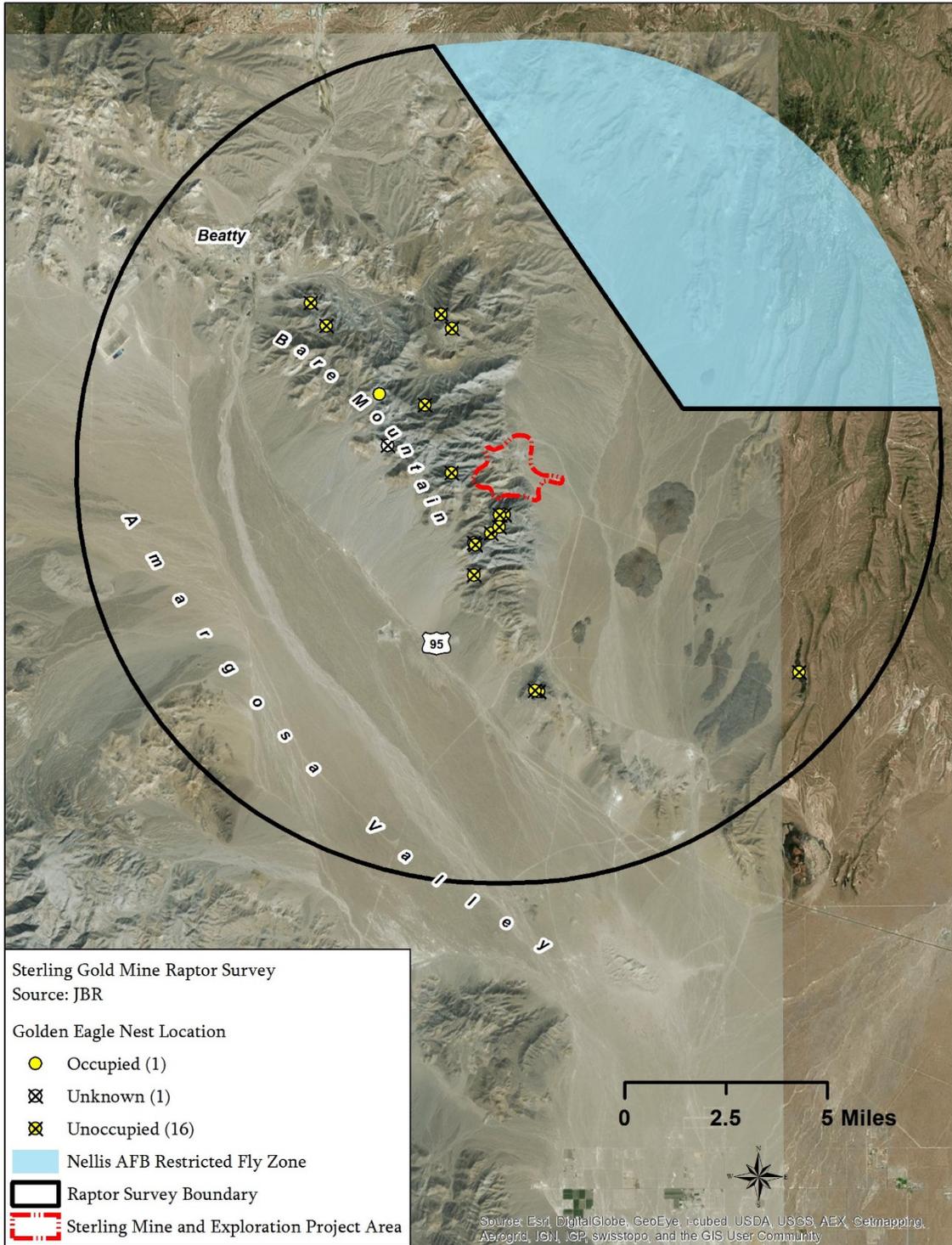


Figure 3-3: Golden Eagle Nest Locations in the Vicinity of the Sterling Mine (2013 and 2014)

Habitat for LeConte's Thrasher was identified as potentially occurring at the Project area (JBR 2013, Table 3), but this species was not observed (JBR 2013, Appendix C).

Habitat for Bendire's Thrasher was identified as potentially occurring at the Project area (JBR 2013, Table 3), but this species was not observed (JBR 2013, Appendix C).

Habitat for Loggerhead Shrike was identified as potentially occurring at the Project area (JBR 2013, Table 3). A shrike was observed, but the species was not determined (JBR 2013, Appendix C).

Habitat for Greater Western Mastiff Bat was identified as potentially occurring at the Project area (JBR 2013, Table 3), but this species was not detected (JBR 2013, Appendix C).

Habitat for Allen's Big-eared Bat was identified as potentially occurring at the Project area (JBR 2013, Table 3), but this species was not detected (JBR 2013, Appendix C).

Habitat for California Leaf-nosed Bat was identified as potentially occurring at the Project area (JBR 2013, Table 3), but this species was not detected (JBR 2013, Appendix C).

Habitat for California Myotis was identified as potentially occurring at the Project area (JBR 2013, Table 3). This species was observed at six different adits and the water tank (*Figure 3-4*) (JBR 2013, Appendix C).

Habitat for Yuma Myotis was identified as potentially occurring at the Project area (JBR 2013, Table 3). This species was observed at seven different adits and the water tank (*Figure 3-4*) (JBR 2013, Appendix C).

NDOW identified the Project area as occupied desert bighorn sheep (*Ovis canadensis ssp. nelsoni*) habitat. Desert bighorn sheep occur in the Project area. Sterling maintains two water sources for the desert bighorn sheep and they are commonly observed on site.

Habitat for Banded Gila Monster was identified as potentially occurring at the Project area (JBR 2013, Table 3), but this species was not observed (JBR 2013, Appendix C).

Habitat for Chuckwalla was identified as potentially occurring at the Project area (JBR 2013, Table 3). Chuckwallas are relatively common throughout their Nevada range. This species was observed at seven different rocky or rock outcrop locations (*Figure 3-1*) and sign was observed at two more locations (JBR 2013).

Habitat for Nevada Shovel-nosed Snake was identified as potentially occurring at the Project area (JBR 2013, Table 3), but this species was not observed (JBR 2013, Appendix C). This species is a nocturnal burrowing snake that is not generally observed during the daytime.

Habitat for Mojave Shovel-nosed Snake was identified as potentially occurring at the Project area (JBR 2013, Table 3), but this species was not observed (JBR 2013, Appendix C). This species is a nocturnal burrowing snake that is not generally observed during the daytime.

Habitat for Desert Glossy Snake was identified as potentially occurring at the Project area (JBR 2013, Table 3), but this species was not observed (JBR 2013, Appendix C). This species is a nocturnal burrowing snake that is not generally observed during the daytime.

Habitat for Mojave Desert Sidewinder was identified as potentially occurring at the Project area (JBR 2013, Table 3), but this species was not observed (JBR 2013, Appendix C). This species is a nocturnal burrowing snake that is not generally observed during the daytime.

Habitat for Northern Mojave Blue was identified as potentially occurring at the Project area (JBR 2013, Table 3), but no discussion of this species was included in the report (JBR 2013).

Habitat for MacNeill Sooty Wing Skipper was identified as potentially occurring at the Project area (JBR 2013, Table 3), but no discussion of this species was included in the report (JBR 2013).

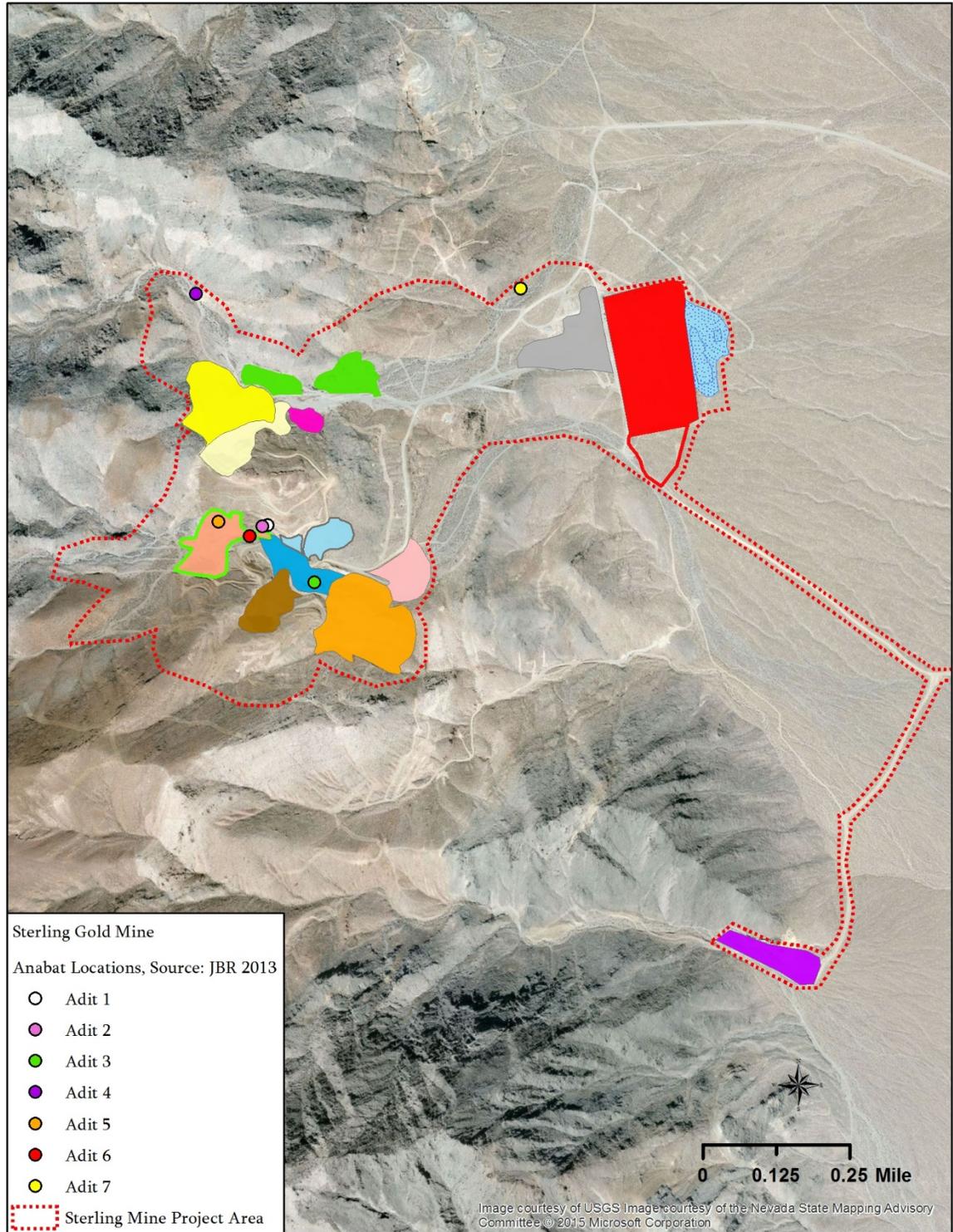


Figure 3-4: Bat Survey Locations at Sterling Mine

There are 20 BLM sensitive bat species that are known to occur within the general area. Day roosts include caves, trees, mines, buildings, and bridges. The Western red bat (*Lasiurus blossevillii*) was present in the Project area (JBR 2013, Appendix C), but JBR concluded that potential habitat for this species was not present (JBR 2013, Table 3). The following species were not evaluated with respect to potential habitat within the Project area, but were detected at the site at one or more locations (JBR 2013, Appendix C): Pallid bat (*Antrozous pallidus*), Townsend’s big-eared bat (*Corynorhinus townsendii*), big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), Western small-footed myotis (*Myotis ciliolabrum*), long-eared myotis (*Myotis evotis*), little brown bat (*Myotis lucifugus*), fringed myotis (*Myotis thysanodes*), Long-legged myotis (*Myotis volans*), Western pipistrelle (*Parastrellus hesperus*), and Brazilian free-tailed bat (*Tadarida brasiliensis*). Fourteen bat species were recorded from eight different sites over three different time periods (mid-July, early September, and mid-October).

3.7 SOCIAL AND-ECONOMIC VALUES

3.7.1 REGULATORY FRAMEWORK

Appendix D of the BLM Land Use Planning Handbook H-1601-1 provides guidance on integrating social science information into the planning process. According to regulations in the FLPMA and NEPA guidelines, the BLM must incorporate social and economic information into the planning and decision-making process.

3.7.2 ASSESSMENT AREA

The assessment area for Social and Economic Values is southwestern Nye County, which includes the communities of Beatty, Amargosa Valley, and Pahrump.

3.7.3 EXISTING ENVIRONMENT

The nearest population center to the Project is the town of Beatty, located approximately eight miles north of the site. The small community of Amargosa Valley is located approximately 18 air miles southeast of the Project Area, and Pahrump is located approximately 64 air miles southeast of Project Area. The following sections describe the pertinent socio-economic environment of the area.

3.7.3.1 Population

Table 3-6 presents annual population estimates for Beatty, Amargosa Valley, and Pahrump for the years 2000 and 2010. Nye County population estimates are also included for the same years.

Table 3-6: Population Data for Beatty, Amargosa Valley, Pahrump, and Nye County, Nevada

Location	2000	2010
Beatty CDP ¹	1,154	1,010
Amargosa Valley	915	1,383
Pahrump CDP ¹	24,631	36,441
Nye County	32,485	43,946

¹CDP = Census Designated Place and may not reflect the actual boundaries of Nevada’s Unincorporated Towns.

3.7.3.2 Employment

Employment in Nye County, Nevada, is heavily dependent upon the mining industry, but also centers around gaming, recreation, and the trade businesses (State of Nevada 1994). Table 3-7 presents annual average unemployment rates for Nye County and the State of Nevada for 2010 through 2015 (www.nevadaworkforce.com).

Table 3-7: Unemployment Rates for Nye County and the State of Nevada

Location	2010	2011	2012	2013	2014	2015
Nye County	17.0%	17.0%	15.0%	12.0%	10.0%	9.0%
Nevada	13.5%	13.0%	11.1%	9.4%	7.7%	7.0%

Southern Nevada was heavily impacted by the 2008 Recession, but the employment figures in Table 3-7 indicate a steady recovery through 2015.

4 DIRECT AND INDIRECT IMPACTS

This section of the EA describes the direct and indirect environmental consequences which would result from implementation of the Proposed Action and the No Action Alternative.

4.1 THREATENED, ENDANGERED, OR CANDIDATE SPECIES

4.1.1 PROPOSED ACTION

The Mojave Desert tortoise is the only USFWS listed species with the potential to occur within the Project area. The Proposed Action must comply with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) for consultation with the USFWS on effects to federally listed species. The Proposed Action has a “may affect, likely to adversely affect” determination for the federally threatened desert tortoise and “no effect” for its designated critical habitat, as the Project is outside of this range. The Proposed Action will have no effect on any other federally protected species or designated critical habitat due to the absence of the species and/or habitat.

Potential direct and indirect impacts to desert tortoise would result from the removal of 132.1 acres of habitat. During construction, operation, and maintenance activities, unnoticed or tortoises not avoided would be injured or killed (by crushing). Those that are detected would be harassed (by being moved out of harm’s way). The Proposed Action may also lead to increased human presence leading to death or harm to individual tortoises or collection of tortoises. The potential for increased non-native invasive species to the area could also be an impact to this species.

Depending on the success of the reclamation efforts in establishing similar habitat post-mining, the indirect impacts to tortoises are likely to diminish as the newly established habitat is colonized by tortoises from adjacent populations.

Development of the Project would result in the eventual removal of up to 132.1 acres of possible tortoise habitat; however, the only observations of tortoise burrows and sign were in the area of the east half of the WRDA and MHLP, or on about 80 acres of the proposed disturbance. These two facilities are proposed for fairly gentle terrain. The proposed pre-construction clearance and relocation of tortoises to nearby areas outside disturbance boundaries would reduce direct injury and or mortality of individuals to the greatest extent practicable. However, not all tortoises would be found during clearance surveys and there is potential for direct impact to juvenile tortoises during construction of the Project or during normal site activities.

Currently, tortoise fence exists to exclude tortoise access to the Process area. Gates and/or guards would be installed following a Decision Record. Tortoise fencing around the MHLP and process area during construction and operation activities would ensure relocated and nearby tortoises do not enter the area where process solutions would be present following clearance and construction initiation. The fencing would reduce or eliminate potential for tortoises to be crushed by vehicles due to increased traffic to and through the MHLP and process area. This fencing would also preclude access of tortoises to any process solutions. Any incidental trash not contained in fenced or covered trash container could potentially increase the raven population in the area, and consequently predation on tortoises.

Indirect impacts may also occur from mining activities, construction noise, and increased vehicle vibration and noise. There is a potential for tortoises in the Project area to be temporarily displaced due to this increase in disturbance. Once mining activities are completed and reclamation has restored vegetation to the disturbed areas, tortoises would eventually return to the area. Project conservation measures would help reduce overall impacts to the local desert tortoise population, but all impacts would not be eliminated. Section 7 consultation for this Project is

covered under the current Programmatic Biological Opinion (84320-2010-F-0365.R003) contingent on compliance with the terms and conditions which have been attached to this EA for desert tortoise (Appendix C). Terms and conditions and minimization measures in the above referenced Biological Opinion contain measures to avoid and minimize potential impacts, including take, to desert tortoise.

4.1.2 NO ACTION

No additional land disturbance would occur under the No Action Alternative and facilities would be reclaimed when the current ore bodies are exhausted. No additional impacts to special status species beyond those already permitted are anticipated to occur.

4.2 MIGRATORY BIRDS

4.2.1 PROPOSED ACTION

Potential direct impacts to migratory birds would result from the removal of 132.1 acres of vegetation (habitat). However, the habitats that would be impacted are abundant in the area adjacent to the Project, and the loss of these areas as a consequence of the Proposed Action would have minimal effect on species which nest in the area (see *Table 3-3*). Depending on the time of year for construction, operation, or maintenance, there is potential to disturb nesting birds within or immediately adjacent to the Proposed Action. The environmental protection measure (See 2.1.3.10 Migratory Birds) that surface disturbance not occur during the bird breeding season, or that nest surveys be conducted during the nesting season (with appropriate avoidance if nests are found), would further minimize impacts to migratory birds. A reduction in the prey base for raptors would result from the loss of prey habitat and the displacement or reduction in prey populations.

The expanded pit area is likely to be inhabited by rock wrens as the mining nears completion and after mining ceases. The reclaimed areas would also provide habitat for migratory birds as the vegetation is reestablished on these sites. As the reclaimed vegetation is colonized by small mammals and reptiles, the prey base for raptors would be reestablished.

4.2.2 NO ACTION

Under the No Action Alternative, no additional direct or indirect impacts would occur to migratory birds in the Project area.

4.3 WOODLAND/FORESTRY

4.3.1 PROPOSED ACTION

The project would directly impact cactus and yucca regulated under the BLM forestry program. Cactus and yucca are widespread in the Southern Nevada district office; however, they are a limited and finite resource. Implementation of the design feature to minimize impacts to cacti would result in some mortality of cacti. The salvage and replanting of the salvaged cacti during Project reclamation would allow cacti to repopulate the reclaimed areas over time.

4.3.2 NO ACTION

Under the No Action Alternative, no additional direct or indirect impacts would occur to cactus and yucca.

4.4 SOILS

4.4.1 PROPOSED ACTION

The Proposed Action includes removal of up to 132.1 acres of vegetative cover and soil material through earth-moving activities such as grading and excavation. Vegetation removal and ground disturbance would leave soils exposed to wind and water, two key components of erosion. However, the disturbed areas would either be excavated (i.e., the pit) or covered with waste rock (i.e., the WRDA), or covered with liner and ore (i.e., MHLP).

Approximately 104.1 acres of the St. Thomas-Tecopa-Rock outcrop complex, 15 to 75 percent slopes (Map Unit 2081) would be disturbed; 5.6 acres by pit development, 88.1 acres by the WRDA, and 10.4 acres by the MHLP. The shallow, gravelly soils of this Map Unit would not be salvaged. The material would be used for construction of berms around the pit and the WRDA to prevent surface run-on to these facilities. Only 28.0 acres of the Greyeagle-Sanwell-Yermo association (Map Unit 2263) would be disturbed; 17.6 acres by the MHLP, 10.0 acres by the WRDA, and 0.4 acres by the Surge Pond. As with the St. Thomas-Tecopa-Rock outcrop complex, the shallow, gravelly soils of the Map unit 2263 would be used for berm construction.

Impacts to soils related to erosion would occur under the Proposed Action. Erosion would be reduced through the use of BMPs identified in the Environmental Protection Measures (Sections 2.1.3.1 and 2.1.3.6). These impacts would last until reclamation and re-vegetation are complete. The accidental release of petroleum products and equipment maintenance products onto the ground surface could affect soil resources. If a spill did occur the impact would be limited due to the implementation of spill control measures from approved plans.

4.4.2 NO ACTION

Under the No Action Alternative, permitted activities would continue to occur. Impacts to soil as a result of the No Action Alternative would be less than the Proposed Action because less acreage has been disturbed.

4.5 VEGETATION

4.5.1 PROPOSED ACTION

The proposed action would directly affect approximately 132.1 acres of mid elevation vegetation. Of the impacted acreage, 5.5 acres are expected to be permanent (i.e., new pit acreage) and 126.6 acres are expected to be temporary (i.e., reclaimed). Although area will be reclaimed, the healing process in the Mojave Desert is extremely slow even with reclamation. Research indicates re-establishment of perennial and annual species cover can take over 200 years. Creosote bursage scrub vegetation is widespread in the Southern Nevada district office; however, it is a limited and finite resource.

4.5.2 NO ACTION

Under the No Action Alternative, permitted activities would continue to occur. Impacts to vegetation as a result of the No Action Alternative would be less than the Proposed Action because less acreage has been disturbed.

4.6 WILDLIFE AND BLM SENSITIVE SPECIES

4.6.1 PROPOSED ACTION

Potential direct and indirect impacts to wildlife would result from the removal of 132.1 acres of habitat. The primary direct impacts of the proposed action on wildlife would be killing or maiming of ground dwelling animals, displacement of individuals, the permanent loss and fragmentation of habitat, and increased potential for harassment of wildlife. Indirect impacts could include increased noise, introduction and spread of weeds, and increased erosion potential. Wildlife species in the general area are common and widely distributed throughout the area and the loss of some individuals and/or their habitat should have a negligible impact on populations of the species throughout the region.

Depending on the success of the reclamation efforts in establishing similar habitat post-mining, the indirect impacts to wildlife are likely to diminish as the newly established habitat is colonized by wildlife from adjacent populations.

The general area supports a large diversity of bats, many of which are on the BLM sensitive species list (see below). The proposed action will not have any direct impacts on bats; however, installation of lighting may indirectly affect their behavior and use of the project area for foraging and some of the adits would be eliminated by the Propose Action. To reduce impacts to bats lighting should be kept to the absolute minimum and should be down lighting only. Potential impacts from the operation of the mine may occur to as yet undetermined maternity sites or hibernacula. A mitigation measure has been identified in the Mitigation Section, 5.1.3, to reduce potential indirect impacts to bats through the elimination of such sites.

The smaller mammals are likely to realize greater impacts as some of these species may not be able to avoid the heavy equipment during the initial vegetation removal and soil salvaging. Those that seek cover underground are likely to suffer direct mortality.

Impacts to reptiles would be similar to those stated above for small mammals; displacement with potential mortality, and direct mortality from the heavy equipment during initial mine development.

However, the boulders that would accumulate at the bottom of each lift of the WRDA provide suitable habitat for many of the reptiles found in the Project area. Therefore, there would be some habitat created by the Project and this habitat may be lost again when the site is reclaimed and the boulders are covered during slope contouring. Once the facilities are reclaimed, the surfaces will be rocky and similar to the pre-disturbance habitats, and the pit areas will also provide habitat for reptiles.

Of the 19 BLM Sensitive Species identified by JBR (JBR 2013) as having potential to occur in the Project area, only 6 were observed during the field surveys. These species are discussed below. Because the other 13 species were not detected within the Project area, impacts are either not likely to occur, or the general impacts as stated above in this Section would apply, with negligible impact on populations of the species throughout the region.

Impacts to BLM sensitive species are not anticipated to lead to further decline of the species range-wide. Any impacts to sensitive species would be avoided and/or minimized through the special stipulations provided below (see Section 5.1.3).

The removal of 132.1 acres of habitat in this area is not likely to reduce prey populations to the extent that golden eagles would be detrimentally impacted. No active golden eagle nest sites were located within 10 miles of the Project during the 2013 raptor survey (JBR 2013). In 2014, an active golden eagle nest was located approximately three miles from the Project area and on the other side of the Bare Mountains (*Figure 3-3*). Therefore, the impact to golden eagles from the

Proposed Action would be minimal and would result in some loss of foraging habitat in the Project area.

Burrowing owls were located on the Project area, but no active nest sites were located. As with the golden eagle, the removal of 132.1 acres of habitat within the larger context of similar habitats is not likely to have population level impact on this species. The burrows found with burrowing owl sign were not nest sites, but possibly sites used to avoid the heat during the midday to evening period. With the implementation of the Proposed Action, there would still be a vast amount of acreage of suitable habitat for burrowing owls in the area.

BLM Sensitive Species detected on site included several bat species. California myotis was found externally at six of the seven adits that are likely to be impacted by the Proposed Action (JBR 2013) and the Yuma myotis was found externally at all seven adits. However, the underground workings were not assessed, either internally or externally, with respect to characteristics that would indicate potential to be used as either hibernacula or maternity roosts. Consequently, the extent of direct and indirect impacts to bat species cannot be definitively determined. There are other historic workings in the Bare Mountains that likely provide day roosting and night roosting habitat. However, it is not known if habitat suitable as a hibernaculum or maternity roost exists.

In addition, the Western red bat (*Lasiurus blossevillii*) was present in the Project area (JBR 2013, Appendix C), but JBR concluded that potential habitat for this species was not present (JBR 2013, Table 3). The following species were not evaluated with respect to potential habitat within the Project area, but were detected at the site at one or more locations (JBR 2013, Appendix C): Pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), Western small-footed myotis (*Myotis ciliolabrum*), long-eared myotis (*Myotis evotis*), little brown bat (*Myotis lucifugus*), fringed myotis (*Myotis thysanodes*), Long-legged myotis (*Myotis volans*), Western pipistrelle (*Parastrellus hesperus*), and Brazilian free-tailed bat (*Tadarida brasiliensis*). Fourteen bat species were recorded from eight different sites over three different time periods (mid-July, early September, and mid-October).

The proposed action will not have any direct impacts on BLM sensitive bats; however, installation of lighting may indirectly affect their behavior and use of the Project area for foraging. See Section 5.1 for mitigation/stipulations to reduce impacts to bats. Potential impacts from the operation of the mine may occur to as yet undetermined maternity sites or hibernacula. A mitigation measure has been identified in Section 5.1.3 to reduce potential indirect impacts to sensitive species of bats through the elimination of such sites.

The desert bighorn sheep have relatively large home ranges and the Project area represents a relatively small part of these ranges. The loss of 132.1 acres of habitat is not likely to affect local and regional populations. Due to the change from recent underground mining to proposed open-pit mining, and the additional surface activity that would occur, the expectation is that there may be some initial movement of the bighorn sheep away from the areas of increased activity, but once the mining becomes more "routine," the bighorn sheep are likely to be found foraging in the mine area and would continue to use the two water sources that would be provided by Sterling.

Desert bighorn sheep are currently observed on a daily basis at the mine site and use the two water sources that Sterling maintains. With the implementation of the Proposed Action, the surface activity level at the mine would increase, and it is anticipated that some level of indirect impact resulting from bighorn sheep movement from the immediate area of the mine. However, Sterling is committed to maintaining the two water sites (one will be moved to accommodate the mine plan) during the period of active mining and reclamation. Therefore, the bighorn sheep are still likely to continue to water in the Project area. As the activity becomes more routine and

confined to the pit, WRDA, and MHLF, it is likely that use of the undisturbed areas adjacent to the facilities may once again occur.

Following the cessation of mining and the reestablishment of vegetation on the reclaimed facilities, bighorn sheep would likely return to use the entire Project area. Sterling would consider working with BLM and NDOW to install two large game guzzlers during the reclamation phase. These would consist of a geotextile fabric to serve as a catchment area and the fiberglass tank to store the water and serve as the drinker, connected by PVC pipe. The catchment area would be covered with rock and gravel to protect the liner and allow the meteoric water to drain to the storage tank/drinker. One or both sites could be constructed on the WRDA during reclamation or one site could be located on the MHLF following closure and reclamation. NDOW and/or BLM would assume maintenance of these facilities when Sterling leaves the site.

Consequently, the indirect impacts would be temporary and some long-term benefits could be realized from the Proposed Action.

Chuckwalla was observed within the Project area during the 2013 field surveys. The observations were all in the foothill regions. There is potential for direct and indirect impacts through mine construction and removal of habitat for this species during construction of the WRDA. This would be a temporary impact until reclamation is completed and the WRDA is revegetated.

Banded Gila monster was not observed in the Project area during the baseline surveys; however, habitat for this species exists in the Project area. Therefore, potential impacts to banded Gila monster from the Proposed Action would include direct impacts and indirect impacts as discussed above for general wildlife. See Section 5.1 for mitigation/stipulations to reduce impacts to banded Gila monster.

The Mojave shovel-nosed snake, desert glossy snake, Nevada shovel-nosed snake, and desert sidewinder were not observed in the Project area during the baseline surveys, but these are nocturnal species and may have been easily missed. Potential impacts to these species from the Proposed Action would be similar to those direct and indirect impacts discussed above for general wildlife.

4.6.2 NO ACTION

The No Action alternative would not have any additional impacts to wildlife and BLM sensitive species. The mining operation would close and reclamation and closure activities would occur as per the existing permits.

4.7 SOCIAL AND ECONOMIC VALUES

4.7.1 PROPOSED ACTION

The Proposed Action would result in the continuation of existing jobs at the Sterling Mine, ending the layoffs that occurred when the existing underground ore deposit was mined out. Most of the workers would return to their jobs; with a mine staff of approximately 32 employees. If the mining of the expansion is conducted by Sterling, then the mine staff would increase to 45 to 50 employees. The option of contracting the mining would result in a mine staff of approximately 15 Sterling employees and approximately 30 contract workers. Therefore, either option would result in a net increase of 13 to 18 new jobs.

Additional economic benefits would accrue to the communities of Beatty, Amargosa Valley, and Pahrump during the construction phase of the mine expansion (e.g., fences, heap leach pad, etc.), as Sterling uses local contractors and vendors for most of their out-sourced work and supplies, respectively. These benefits would be noticed especially in the small communities of Beatty and Amargosa Valley.

The geographic scope for socioeconomic values, especially for a rural area in southern Nye County, extends into Beatty and in areas where other business/industry are found, including the Beatty Airport, US Ecology, Cind-r-Lite, utility right-of-ways, and potential development of renewable energy in the BLM Amargosa Solar Energy Zone (SEZ). While most of these businesses may not draw from the same pool of employee types as Sterling Mine, they would contribute to the economics of the region.

It's important to note, that if the proposed action would not be adopted, the delayed negative impacts from the shutdown of Sterling Mine would be felt earlier by the community and region, and may already be felt now with the temporary shutdown the firm is currently having.

4.7.2 NO ACTION

The No Action alternative would result in the cessation of mining at Sterling Mine and the eventual loss of 32 mine-related jobs. A reduced staff would remain on site through the reclamation and closure activities. Most of the employees that were laid off when the underground ore reserves were mined out would not resume their jobs under the No Action alternative.

4.8 CUMULATIVE IMPACT ANALYSIS

This section describes the cumulative effects that could result from potential impacts of the Proposed Action and the No Action Alternative, when combined with past, present, and reasonably foreseeable future actions (RFFA) in the vicinity of the Sterling Mine. In the following subsection, Project Area refers to land associated with the Proposed Action as provided in *Figure 2-2*.

The Council on Environmental Quality (CEQ) defines cumulative impact as:

“...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably 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 significant actions taking place over a period of time (1508.7).”

4.8.1 ASSUMPTIONS FOR CUMULATIVE EFFECTS ANALYSIS

Based on the analysis presented in Chapter 4 – Direct and Indirect Impacts, no direct or indirect impacts on the environment have been identified for Forestry. Consequently, no cumulative effects have been identified for this resource.

The cumulative effects analysis included in this section is based on the Proposed Action which would result in mining over an approximately three-year year period followed by two to three years of additional processing (one year) and reclamation/closure activity (See Chapter 2.1). Conservatively, cumulative or additive impacts (through reclamation) are described for reasonably foreseeable future actions for five years (i.e., through year 2020). Based on the analysis presented in Chapter 4 – Direct and Indirect Impacts, those resources for which some level of impact has been identified are subject to Cumulative Effects and are identified below.

4.8.2 DESCRIPTION OF CUMULATIVE EFFECTS STUDY AREA BOUNDARIES

The cumulative effects study area (CESA) is the area displayed in *Figure 3-3*, the Crater Flat Hydrographic Sub basin. All resources analyzed in this EA are encompassed by this sub basin. This sub basin is 116,480 acres in size.

4.8.3 PAST AND PRESENT ACTIONS

General past and present actions and natural phenomena in the CESA include exploration and mining, and dispersed recreation. The majority of the mining and exploration activity occurred in or adjacent to the Bare Mountains. Historic mining consisted of prospects, adits, and shafts with associated waste rock dumps. No accurate assessment of acreage for the historic mining has been conducted, but these were individually small disturbances (0.1-acre to 0.2-acre in size) and confined to the foothills and mountains where bedrock formations were either exposed or only covered with a shallow layer of soil. The current Sterling Mine operation accounts for approximately 160 acres of disturbance. If we assume that the historic mining contributes double the acreage of the Sterling Mine, then the past disturbance due to historic and present mining is approximately 500 acres. This represents 0.4 percent of the CESA area and this disturbance is disbursed and represented primarily as small mining features.

There are no other “disturbances” within the sub basin except for a few roads.

4.8.4 REASONABLY FORESEEABLE FUTURE ACTIONS

Other activities that would likely occur or continue to occur in the CESA include exploration, mining, and dispersed recreation. Due to the existence of identified ore in the region (Sterling Mine, Daisy Mine, and Reward Project), exploration activities are likely to continue. The level of exploration activity would be dependent on the availability of funding for exploration projects and the price of precious metals. Sterling Mine is likely to continue exploration on their existing claims. For the purposes of this analysis, 150 acres of disturbance is assumed to be likely during the next five years. Because no additional economical ore reserves have been located to date, it is unlikely that any new mine would be developed within the next five years.

Disbursed recreation is likely to continue at a low level in this area with minimal disturbance associated with this activity.

Consequently, the estimated 500 acres of past and present disturbance combined with an estimate 150 acres of RFFA disturbance totals to 650 acres, or 0.5 percent of the sub basin area.

4.9 CUMULATIVE IMPACTS TO AFFECTED RESOURCES

4.9.1 THREATENED, ENDANGERED, OR CANDIDATE SPECIES

Past and present actions have removed or degraded shrub habitats which have reduced habitat quality and quantity for native fauna in the area, including desert tortoise. The Proposed Action would remove 132 acres of native vegetation/ habitat, which would be a small incremental loss within the CESA. The population of desert tortoise would be protected due to the environmental protection measures that are included in the Proposed Action and the stipulations of the Biological Opinion. Habitat for desert tortoise would be fragmented, which could reduce the capacity of the habitat to support current levels of desert tortoise. However, the relatively small incremental disturbance that would result from past, present, and RFFAs activities would affect less than 1 percent of the CESA, which would not likely affect the viability of populations of desert tortoise in this CESA.

No additional cumulative impacts would result from the No Action Alternative.

4.9.2 MIGRATORY BIRDS

Past and present actions have removed or degraded shrub habitats which have reduced habitat quality and quantity for native fauna in the area, including migratory birds. RFFAs would have the same potential as past and present activities to affect migratory birds; however, the relatively

small incremental disturbance that would result from future activities would affect less than 1 percent of the CESA, which would not likely affect the viability of populations of migratory birds in this CESA.

The Proposed Action would remove 132 acres of native vegetation/ habitat, which would be a small incremental loss within the CESA. Population segments of migratory birds within the Project Area would be displaced. Habitat for all of these species would be fragmented, which could reduce the capacity of the habitat to support associated bird species. Many species of migratory birds find optimum nesting and brood-rearing conditions in unfragmented suitable habitat.

No additional cumulative impacts would result from the No Action Alternative.

4.9.3 WOODLAND/FORESTRY

When combined with other reasonably foreseeable actions in the Southern Nevada district office, and impacts from fire, competition with non-native invasive species, including annual grasses, BLM reactivity and minerals actions, and casual recreation, the proposed action would result in an incremental addition to current declines in the quality and quantity of cacti over an extended period of time in the district.

4.9.4 SOILS

The present and past actions have resulted in disturbance of approximately 161 acres of soil as a result of the Sterling Mine and an unknown acreage of soil disturbance from historical mining. The disturbance has increased erosion and sedimentation. RFFAs would have a similar impact, but because the development of a new mine within five years is unlikely, impacts to soils from future exploration would be less than the current level of soil disturbance.

The Proposed Action would impact approximately 0.1 percent of the surface area within the CESA. When combined with the past, present, and RFFAs, the combined disturbance is anticipated to be less than 1 percent of the CESA. The potential impacts from the Proposed Action and RFFAs would be minimized due to the implementation of environmental protections measures and reclamation.

No additional cumulative impacts would result from the No Action Alternative.

4.9.5 VEGETATION

When combined with other reasonably foreseeable actions in the Southern Nevada district office, and impacts from fire, competition with non-native invasive species, including annual grasses, BLM reactivity and minerals actions, and casual recreation, the proposed action would result in an incremental addition to current declines in the quality and quantity of creosote bursage scrub in the district.

4.9.6 WILDLIFE AND BLM SENSITIVE SPECIES

Past and present actions have removed or degraded shrub habitats which have reduced habitat quality and quantity for native fauna in the area, including BLM Sensitive Species in the area. RFFAs would have the same potential as past and present activities to affect wildlife and Sensitive Species.

The Proposed Action would remove 132 acres of native vegetation/ habitat, which would be a small incremental loss within the CESA. Wildlife and Sensitive Species within the Project Area would be displaced or suffer direct impacts. Habitat for all of these species would be fragmented, which could reduce the capacity of the habitat to support associated wildlife species. However,

the relatively small incremental disturbance that would result from past, present, and RFFAs activities would affect less than 1 percent of the CESA, which would not likely affect the viability of populations of wildlife or Sensitive Species in this CESA.

No additional cumulative impacts would result from the No Action Alternative.

4.9.7 SOCIAL AND ECONOMIC VALUES

The 2008 Recession had major impacts on the socio-economics of southern Nevada, especially the rural communities. The Proposed Action would sustain and increase employment opportunities at the Sterling Mine and have additional beneficial impacts on the local communities through additional jobs and supply purchases during the mine expansion construction phase. These jobs and supply purchases would continue to sustain the economic recovery of the local region.

The cumulative impact of the No Action Alternative would be a loss of jobs, loss of local contractor work, and loss of supply purchases as the Sterling Mine would shift to a closure phase.

Cumulative impacts consist of past, present, and future actions that could have a cumulative effect when combined with the Proposed Action. Past actions are those that are presently existing, present actions are considered to be those occurring at the time of this evaluation, and future actions are those that are in planning stages with a reasonable expectation of occurring in the near future.

The geographic area for the cumulative effects analysis is the area within an approximate fifteen (15) mile radius of the Proposed Action for most resources. The geographic area was chosen to capture the majority of cumulative uses in the nearby area. Existing and pending uses within the geographic area include highway development, mining, and utilities associated with telephone, power and data transmission.

Past and current actions surrounding the proposed project area include recreation such as truck/buggy/motorcycle events, mining, transportation and utility development. There would be several existing land users and ROW's issued by BLM to third-party users near the region of the Proposed Action including:

- State of Nevada, for U.S. Highway 95 (pursuant to Title 23 U.S.C.)
- U.S. Ecology Nevada.
- USGS, for monitoring wells and a monitoring facility at U.S. Ecology Nevada.
- Valley Electric Association, for electric transmission and distribution lines.
- Nevada Bell/AT&T, for wire and fiber optic communication lines.
- Nevada Hospital Association, for fiber optic communication lines.
- BLM Amargosa Solar Energy Zone (SEZ) – and foreseeable future renewable energy actions within the zone.
- Historic Railroads.
- Airport in southern Beatty – and foreseeable future expansion.
- Other mining activities that are current (i.e. Cind-R-Block Co.), historic (Carrara Mine), and any mining activities that may occur in the future

The cumulative impacts of additional developments, existing actions, and past actions all could have impacts on resources. Many actions have already occurred and it is possible these actions could result in future development as a result of upgrades or maintenance on lands near the proposed project area. New activities could include mining, development of the SEZ, or any other developments approved in the area.

The land adjacent to the Proposed Action is managed by the BLM and there is no private land in the immediate vicinity. The closest private land is located in Beatty, approximately 10 miles to the north of the Proposed Action.

The Amargosa Valley SEZ is located to the south and southeast of the Proposed Action and its developable area is 8,479 acres. This area has the potential of being fully developed, as solar facilities, in the future. Currently there is the 84465 Pacific Solar project on 6,320 acres. As a result of development, cumulative impacts to some resources, from solar development projects, could increase.

5 RECOMMENDED MITIGATION AND STIPULATIONS

Mitigation measures for the supplemental authority elements and the additional resources considered for analysis that have been proposed for the Proposed Action are addressed below.

5.1 RECOMMENDED MITIGATION AND STIPULATIONS UNDER THE PROPOSED ACTION

5.1.1 MOJAVE DESERT TORTOISE

The Proposed Action includes a variety of design features to reduce impacts to desert tortoise. Through consultation with the USFWS, no additional stipulations have been added as a result of the consultation process (Appendix C).

In addition to federal requirements, permits from the NDOW will be required for handling/moving desert tortoises off the site.

5.1.2 MIGRATORY BIRDS

The proponent must comply with the MBTA and avoid potential impacts to protected birds within the project area. The project will be required to adhere to the following mitigation measures:

- 1) Habitat-altering projects or portions of projects should be scheduled outside of the bird breeding season which generally occurs between February 15th and August 31st. If a project has to occur during the breeding season, then a qualified biologist must survey the area for nests immediately prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests are found, an appropriately-sized buffer area must be established and maintained until the young birds fledge. The buffer area must connect to suitable, undisturbed habitat. As the above dates are a general guideline, if active nest are observed outside this range they are to be avoided as described above.

5.1.3 BLM SENSITIVE SPECIES

The following stipulations/mitigation have been identified to reduce potential impacts to bats:

- 1) Prior to removing potential bat habitat, the habitat needs to be assessed for use by bats. Prior to any construction work near roosting habitat, an experienced biologist will survey the area for the potential for bat habitat and hibernacula. Active roosts/ hibernacula shall not be disturbed until bats have left the sites.
- 2) To reduce impacts to bats and minimize light pollution, lighting should follow Dark Sky lighting practices by keeping lighting to the absolute minimum with the lowest level of lumens possible, strategically planning location of fixtures to pertinent site only, and fitting light fixtures with hoods/shields and faced downward.

- 3) In addition, Sterling Mine should work with NDOW to survey for bat use at the adits in advance to any disturbance to these areas and follow any mitigation measures proposed to protect BLM sensitive bat species.

The following stipulations/mitigation has been identified to reduce potential impacts to chuckwalla and banded Gila monster:

- 1) Any Gila monster or chuckwalla encountered during Project construction must be reported immediately to the Nevada Department of Wildlife at (702) 486-5127 and remain unharmed. The NDOW Gila Monster Status, Identification And Reporting Protocol For Observations has been provided to the proponent. A copy of this protocol for public information accompanies this environmental assessment.

6 INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

6.1 NATIVE AMERICAN CONSULTATION

The BLM initiated consultation with the Las Vegas Paiute Tribe, the Moapa Band of Paiutes, the Chemehuevi Indian Tribe, the Timbisha Shoshone, and the Fort Independence Band of Paiutes about the undertaking. The tribes were given the opportunity to review the document for concerns. There were no responses sent by the tribes to the BLM regarding this proposed project.

6.2 AGENCY COORDINATION AND/OR CONSULTATION

The Nevada Natural Heritage Program (NNHP) Program was contacted regarding known locations of Special Status Species of plants and wildlife as part of the biological baseline survey. The Nevada Department of Wildlife (NDOW) was contacted to determine which species of wildlife had potential to occur in the region. The U.S. Fish and Wildlife Service (USFWS) was consulted with respect to the Mojave Desert Tortoise, a species listed as Threatened under the Endangered Species Act.

The State Historic Preservation Office (SHPO) was consulted through the submission of the cultural inventory report and their review of the report.

The following agencies provided comments during the public review of the draft EA:

7. Nevada Division of Environmental Protection (NDEP)
8. Bureau of Water Pollution Control (BWPC)
9. NDEP, Bureau of Safe Drinking Water
10. Nevada Division of Water Resources
11. Nevada Department of Wildlife (NDOW)
12. Nevada State Land Use Planning Agency
13. Nevada State Historic Preservation Office (SHPO)

6.3 INDIVIDUALS AND/OR ORGANIZATIONS CONSULTED

No additional individuals or organizations were consulted or provided comments for the preparation of this EA.

7 LIST OF PREPARERS

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7.2 THIRD PARTY CONSULTANTS

<i>Name</i>	<i>Title and Affiliation</i>	<i>Area of Responsibility</i>
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APPENDIX A – Standard Operating Procedures, Locatable Minerals

RMP APPENDIX A
Locatable Minerals

BLM provides for mineral entry, exploration, location, and operations pursuant to the mining laws in a manner that 1) will not unduly hinder the mineral activities, and 2) assures that these activities are conducted in a manner which will prevent undue or unnecessary degradation of the public land.

Notification to the Authorized Officer is required on all operations in project areas in which surface disturbance will be five acres or less.

A Plan of Operations and a Reclamation Plan are required in situations in which there will be more than five acres of cumulative unreclaimed surface disturbance in a project area. These two plans are also required for any mining activity on special category lands, such as Areas of Critical Environmental Concern and areas closed to off-highway vehicles. Appropriate off-site mitigation may be negotiated during a plan of operations review for locatable mineral actions when an irretrievable loss of important habitat is unavoidable, or a significant long-term adverse impact will occur. The preferred alternatives to off-site mitigation are avoidance of critical and crucial habitat and reclamation of disturbed habitat to approximate pre-disturbance productivity.

The Authorized Officer may require modifications of Plans of Operations to meet the requirements of the regulations and to prevent undue or unnecessary degradation of public land.

Plans of Operations cannot be approved until Section 106 of the National Historic Preservation Act, and Section 7 of the Endangered Species Act, and the National Environmental Policy Act have been complied with.

Reclamation of disturbed areas to meet BLM standards is required for all levels of activity: Casual Use, Notice, or Plan of Operations.

Additional regulatory requirements will be enforced in Wilderness Study Areas through regulations (43 CFR 3802) and through the Interim Management Policy for Wilderness Study Areas.

All operations shall comply with Federal and State laws, including those relating to air quality, water quality, solid wastes, fisheries, wildlife and plant habitat, and archaeological and paleontological resources.

The BLM will conduct validity examinations, reviewing the validity of mining claims to determine if a discovery has been made, under the following conditions:

- 1) Where a mineral patent application has been filed and a field examination is required to verify the validity of the claim(s).
- 2) Where there is a conflict with a disposal application, and it is deemed in the public interest to conduct a validity examination; or where the statute authorizing the disposal requires the removal of mining claims that are not valid. If the validity examination made in the latter case were to show that the mining claim was valid, the disposal action could not be completed.
- 3) Where the land is needed for a Federal program.

4) When a mining claim is occupied under the guise of the mining law and flagrant or questionable misuse of the land is observed, the BLM will undertake a review of the occupancy based on current regulations. If it is found, in fact, that such use is not necessary for, and reasonably incident to, mineral development, BLM will act to terminate the use and seek compensation for damages.

Withdrawals from mineral entry will be undertaken in cases in which there are significant resource values that cannot be adequately protected under the regulations concerning surface management. Such withdrawn acreage would include areas designated by Congress as wilderness, sensitive species or threatened species habitat, riparian areas, areas possessing important historical and cultural resources, and areas set aside for recreational development.

Bonding will be required for all plans of operations and financial guarantees will be required for operations conducted under a notice to ensure that satisfactory reclamation takes place. All operations using cyanide will follow the requirements in BLM's Nevada Cyanide Management Plan.

The BLM will coordinate each mine plan and mine closure in conjunction and consultation with the Bureau of Reclamation and Regulation of the Nevada Division of Environmental Protection. This coordination ensures that the State of Nevada reclamation laws are implemented on Federal and private lands, and that all necessary State permits will be issued and followed.

APPENDIX B – Noxious Weed Management Plan

The Sterling Gold Mine Noxious Weed Plan
Prepared by: Chuck Stevens, General Manager.
(Date: 2/13/2015)



Russian knapweed

Table of Contents

A. Introduction.....	iv
1. Plan	
Purpose.....	iv
2. Goals and Objectives.....	iv
3. Project Description.....	v
B. Noxious Weed Inventory.....	v
C. Noxious Weed Management.....	vi
1. Identification of Problem Areas.....	4
2. Preventive Measures.....	vi
3. Treatment Methods.....	vii
4. Bureau of Land Management Lands.....	vii
D. Monitoring.....	viii
E. Herbicides.....	5
1. Herbicide Application and Handling.....	5
2. Herbicide Spills and Cleanup.....	ix
3. Worker Safety and Spill Reporting.....	ix
List of Appendices	
A.1. Designated noxious weeds of the State of Nevada and the Las Vegas Field Office.	
A.2. Herbicides Approved for Use on Bureau of Land Management Land	
A.3. Sterling Gold mine weed risk assessment.	

A. Introduction

Southern Nevada rangelands are being impacted by the presence of invasive, non-native vegetation (weeds). The Las Vegas Field Office (LVFO) of the Bureau of Land Management (BLM) has prepared the LVFO Weed plan that provides guidance for an active integrated weed management program using best management practices (BMP). The BMPs originated from a cooperative effort between BLM and other Federal agencies which produced the document, Partners Against Weeds. The Las Vegas Field Office Noxious Weed Plan will narrow that focus as it dovetails into the Partners Against Weeds action plan. Weeds are seen as a major threat to ecosystem health in southern Nevada. The presence of weeds in any landscape increases the inter-specific competition for resources. In most situations weeds out-compete native plants and displace them.

The management of weeds is further guided by the Las Vegas Resource Management Plan which identifies two objectives for resource management involving weeds. 1) **RP-1-f.**, which states; *“Use integrated weed management techniques to control and eradicate tamarisk, such as burning, chemical, biological or mechanical treatments, where potential for treatment is good. Rehabilitate the area with native species to help reduce the potential for tamarisk re-establishment and improve ecosystem health.”* 2) **VG1**, which states; *“Maintain or improve the condition of the vegetation on public lands to a Desired Plant Community or to a Potential Natural Community.”* The LVFO Noxious Weed Plan was approved on December 18, 2006.

Noxious weed control practices for the Sterling Gold mine as described in this plan have been developed utilizing the Las Vegas Weed Plan Dec. 2006, and direct consultation with the LVFO Noxious Weed Coordinator. Information from the 2006 LVFO weed surveys were used to complete the Sterling Gold mine project weed risk assessment. The Nevada Revised Statutes: Chapter 555—Control of Insects, Pests and Noxious Weeds mandates noxious weed management on lands within the state of Nevada. We acknowledge that our actions provide opportunities for the invasion and establishment of noxious weeds within the Sterling Gold mine footprint. This plan as submitted meets the requirements of the LVFO regarding preparation of a weed management plan for the Sterling Gold mine.

1. Plan Purpose

The purpose of this plan is to prescribe methods to prevent and control the spread of noxious weeds during the construction and daily operation of the Sterling Gold mine. The scope of this plan will include the main facilities and any associated satellite facilities, locations, roadways and staging areas, those areas as described as the project footprint.

2. Goals and Objectives

The goal of weed control is to implement early detection, containment, and control leading to eradication of noxious weeds during project construction and operation. Noxious weeds are opportunistic plant species that become established within in disturbed areas, thereby preventing native plant species from establishing communities. Monitoring and maintenance during the construction and operational phases will include identification of any local infestation areas on and adjacent to the Sterling Gold mine that may pose potential infestation. An evaluation of the efficiency of the prescribed control measures will also be implemented during the operational phase.

3. Project Description

The Sterling Gold mine is located approximately 8 miles east of Beatty, Nevada, in Nye County. The mine is an underground and/or surface mining operation. Ore is processed by standard Heap Leach technology, and gold extracted by carbon column adsorption/desorption.

B. Noxious Weed Inventory

Preconstruction field surveys were conducted by the LVFO Noxious Weed Coordinator during weed surveys of 2006 and meetings were held with the LVFO Noxious Weed Coordinator to identify existing noxious weed infestations within the project footprint and at the proposed facilities for the Sterling Gold mine.

Noxious weeds are defined as weeds "...arbitrarily defined by law as being especially undesirable, troublesome, and difficult to control. Definition will vary according to legal interpretation (USU Cooperative Extension 1992)." The noxious weed list for the state of Nevada, cited in the LVFO Noxious Weed Plan is our target species. This plan dovetails into the LVFO Noxious Weed Plan. Information such as species identified within or adjacent to the project area, locations of infestations, and extent of infestations was collected by the LVFO during weed surveys from 2006.

The Nevada Control of Insects, Pests and Noxious Weeds Act (Nevada Revised Statutes: Chapter 555) grants the Director of the Nevada Department of Agriculture the authority to investigate and control noxious plants. Forty-five species officially have been designated as noxious for the State of Nevada. The state list of noxious weeds is presented in Table 2-6, which also includes noxious weeds listed by federal and local agencies.

The Sterling Gold mine, the state of Nevada and the Bureau of Land Management (BLM) recognize that there are species, such as Cheatgrass (*Bromus tectorum*) and other grass species (*Schismus* spp.), that because of their widespread distribution are not considered feasible for general control. In addition, the Sterling Gold mine's objective is to prevent the spread of Nevada listed noxious weeds, and treat the areas within the project footprint. The preventive measures identified in Section C.2 will be implemented along the *PROJECT FOOT PRINT* and at all of the satellite facilities and roadways to minimize the spread of noxious weeds during site operations.

C. Noxious Weed Management

Implementation of preventive measures to control the spread of noxious weeds is the most cost-effective management approach. By addressing the management of noxious weeds on our project footprint our operations will be in compliance with the LVFO noxious weed plan.

1. Identification of Problem Areas

Prior to construction, the LVFO will provide ongoing information and training regarding noxious weed management; identification; and the impacts on agriculture, livestock, and wildlife our employees. The importance of preventing the spread of noxious weeds in areas not infested, and controlling the proliferation of weeds already present, will be explained. During construction and operation, should noxious weeds be found, then these areas will be identified and flagged in the field by Sterling Gold mine staff. The flagging will alert project personnel about the weeds control access into these areas until noxious weed management control measures have been implemented.

2. Preventive Measures

The following preventive measures will be implemented to prevent the spread of noxious weeds.

A. At the onset of project planning in the NEPA analysis phase, the LVFO noxious weed coordinator completed the Risk Assessment Form for Noxious/Invasive Weeds. This provides information about the types of weed surveys to be conducted, the methods of weed treatments and weed prevention schedules for the management of noxious weeds on the project footprint. This will identify the level of noxious weed management necessary. **If** pesticides are proposed then follow the pesticide stipulation below.

B. Sterling Gold mine shall coordinate project activities with the BLM Weed Coordinator (702-515-5000) regarding any proposed herbicide treatment. Sterling Gold mine shall prepare, submit, obtain and maintain a pesticide use proposal (PUP) for the proposed action.

C. Before ground-disturbing activities begin, Sterling Gold mine shall review the weed risk assessment and prepared this weed management plan that will inventory our project footprint for weed infestations and if needed develop a weed treatment plan for noxious weeds on the Sterling Gold mine project foot print. Should the weed(s) spread beyond the project foot print then these weeds will be treated as a part of the project. This will include access routes.

D. Sterling Gold mine shall limit the size of any vegetation and/or ground disturbance to the absolute minimum necessary to perform the activity safely and as designed. Sterling Gold mine will avoid creating soil conditions that promote weed germination and establishment, but yet allow for our daily operations.

E. Sterling Gold mine shall begin project operations in weed free areas whenever feasible before operating in weed-infested areas.

F. Sterling Gold mine shall locate equipment storage, machine and vehicle parking or any other area needed for the temporary placement of people, machinery and supplies in areas that are relatively weed-free. Sterling Gold mine shall avoid or minimize all types of travel through weed-infested areas or restrict major activities to periods of time when the spread of seed or plant parts are least likely.

G. Sterling Gold mine will select and confine to locations that will be used for off-site equipment that will be brought on site (that is, *if equipment is infested with weed seeds, plant parts or mud and dirt*). Project related equipment and machinery (**this especially includes the nooks and crannies of undercarriages**) will be cleaned using compressed air or water to remove mud, dirt and plant parts before moving into and from relatively weed-free areas. Seeds and plant parts will be collected, bagged and deposited in dumpsters destined for local landfills, when practical. All onsite equipment will be operating in weed free areas at this time.

H. Sterling Gold mine shall inspect, remove, and dispose of weed seed and plant parts found on their clothing and personal equipment, bag the product and dispose of in a dumpster for deposit in local landfills.

I. Sterling Gold mine shall evaluate options, including area closures, to regulate the flow of traffic on sites where native vegetation needs to be established. To-date no sites within our project footprint are populated with noxious weeds.

3. Treatment Methods

The Sterling Gold mine will implement noxious weed control measures that will be in accordance with existing regulations and jurisdictional land management agency or landowner agreements. During the life of our project, only herbicides and adjuvants that are approved by BLM will be applied, if needed, to potential weed infestations on BLM lands to reduce the spread or proliferation of weeds. Should noxious weeds be found on our project footprint, consultation with the LVFO Noxious Weed Coordinator will be arranged and an approved and appropriate treatment prescriptions will be prepared and implemented. All pesticide use permits will be obtained prior to herbicide release.

4. Bureau of Land Management Lands

The Final Environmental Impact Statement on Vegetation Treatment on BLM Lands in Thirteen Western States (Note that there is a new EIS that expands the number of states and will soon be final) lists 19 herbicides acceptable for use on BLM lands (USDI 1991). The approved herbicides are listed in the LVFO Noxious Plan. Guidelines for the use of chemical control of vegetation on BLM lands are presented in the Chemical Pest Control Manual. These guidelines require submittal of a Pesticide Use Proposal (PUP) and

Pesticide Application Records (PARs) for the use of herbicides on BLM lands. The forms required for submittal of PUPs and PARs are included in Appendix A.

The Sterling Gold mine project will be required to submit a pesticide application record for the use of each herbicide on BLM lands within 24 hours of application. The occurrence of noxious weeds within the Sterling Gold mine will be reported to the BLM district office where the weeds occur. The appropriate weed control procedures, including target species, timing of control, and method of control, will be determined in consultation with BLM personnel.

C. Monitoring

Monitoring of noxious weeds will be conducted on a yearly basis by Sterling Gold mine. Training will be provided on an annual basis by the BLM and Sterling Gold mine would attend to improve our weed identification skills. The Sterling Gold mine will control the weeds on a case-by-case basis and include a summary of actions taken that will be reported to the LVFO noxious weed coordinator. The Sterling Gold mine operations personnel are/will be trained in the identification of predominant noxious weed populations and will report spreads of noxious weeds during the normal course of maintenance. Due to the size of the area and scale of the Sterling Gold mine the areas will be monitored on an ongoing basis.

D. Herbicides

1. Herbicide Application and Handling

Herbicide application will be based on information gathered from the Weed Districts, and BLM. Before application, The Sterling Gold mine or its Contractor will obtain any required permits from the local authorities (the Weed Districts and BLM). Permits may contain additional terms and conditions that go beyond the scope of this management plan. A licensed Contractor will perform the application in accordance with applicable laws and regulations and permit stipulations.

All herbicide applications **must** follow United States Environmental Protection Agency label instructions. Application of herbicides will be suspended when any of the following conditions exists:

Wind velocity exceeds 6 miles per hour (mph) during application of liquids or 15 mph during application of granular herbicides; Snow or ice covers the foliage of noxious weeds; or Precipitation is occurring or is imminent.

Vehicle-mounted sprayers (e.g., handgun, boom, and injector) will be used mainly in open areas that are readily accessible by vehicle. Hand application methods (e.g., backpack spraying) that target individual plants will be used to treat small or scattered weed populations in rough terrain. Calibration checks of equipment will be conducted at

the beginning of spraying and periodically to ensure that proper application rates are achieved.

Herbicides will be transported to the project site daily with the following provisions: Only the quantity needed for that day's work will be transported; Concentrate will be transported in approved containers only and in a manner that will prevent tipping or spilling, and in a location that is isolated from the vehicle's driving compartment, food, clothing, and safety equipment; Mixing will be done off site, over a drip catching device and at a distance greater than 200 feet from open or flowing water, wetlands, or other sensitive resources. No herbicides will be applied at these areas unless authorized by appropriate regulatory agencies; and all herbicide equipment and containers will be inspected for leaks daily. Disposal of spent containers will be in accordance with the herbicide label.

2. Herbicide Spills and Cleanup

All reasonable precautions will be taken to avoid herbicide spills. In the event of a spill, cleanup will be immediate. Contractors will keep spill kits in their vehicles and in herbicide storage areas to allow for quick and effective response to spills. Items to be included in the spill kit are: Protective clothing and gloves (PPE), absorptive clay, "kitty litter," or other commercial adsorbent, plastic bags and bucket, shovel, fiber brush and screw-in handle, dust pan, caution tape, highway flares (use on established roads only), and detergent. Also in accordance with the herbicide label.

Response to a herbicide spill will vary with the size and location of the spill, but general procedures include: BLM notification, traffic control; dressing the clean-up team in protective clothing; stopping the leaks; containing the spilled material; cleaning up and removing the spilled herbicide and contaminated adsorbent material and soil; and transporting the spilled pesticide and contaminated material to an authorized disposal site.

3. Worker Safety and Spill Reporting

All herbicide Contractors will be state certified to apply pesticides and obtain and have readily available copies of the appropriate material safety data sheets for the herbicides used. All herbicide spills will be reported in accordance with applicable laws and requirements.

End of the Sterling Gold mine weed management plan.

Appendix 1. State of Nevada Noxious Weed List.

Noxious weeds are designated by the Nevada Department of Agriculture and recognized and managed on Public lands by the BLM. Listed plants are categorized into one of three levels depending upon infestation characteristics. The listed weeds are in accordance with Nevada Administrative Code (effective 10-31-05) 555.010.

Category A weeds generally are not found or are limited in distribution throughout the State. Such weeds are subject to:

- 1) Active exclusion from the State and active eradication wherever found.
- 2) Active eradication from the premises of a dealer of nursery stock.

Category A Weeds:

- | | |
|----------------------------|---|
| (1) African rue | (<i>Peganum harmala</i>) |
| (2) Austrian fieldcress | (<i>Rorippa austriaca</i>) |
| (3) Austrian peaweed | (<i>Sphaerophysa salsula</i>) |
| (4) Black henbane | (<i>Hyoscyamus niger</i>) |
| (5) Camelthorn | (<i>Alhagi pseudalhagi</i>) |
| (6) Common Crupina | (<i>Crupina vulgaris</i>) |
| (7) Dalmatian toadflax | (<i>Linaria dalmatica</i>) |
| (8) Dyer's woad | (<i>Isatis tinctoria</i>) |
| (9) Eurasian water-milfoil | (<i>Myriophyllum spicatum</i>) |
| (10) Giant Salvinia | (<i>Salvinia molesta</i>) |
| (11) Giant reed | (<i>Arundo donax</i>) |
| (12) Goats rue | (<i>Galega officinalis</i>) |
| (13) Green fountain grass | (<i>Pennisetum setaceum</i>) |
| (14) Houndstongue | (<i>Cynoglossum officinale</i>) |
| (15) Hydrilla | (<i>Hydrilla verticillata</i>) |
| (16) Iberian starthistle | (<i>Centaurea iberica</i>) |
| (17) Klamath weed | (<i>Hypericum perforatum</i>) |
| (18) Malta starthistle | (<i>Centaurea melitensis</i>) |
| (19) Mayweed chamomile | (<i>Anthemis cotula</i>) |
| (20) Mediterranean sage | (<i>Salvia aethiopis</i>) |
| (21) Purple loosestrife | (<i>Lythrum salicaria</i> , <i>Lythrum virgatum</i> and their cultivars) |
| (22) Purple starthistle | (<i>Centaurea calcitrapa</i>) |
| (23) Rush skeletonweed | (<i>Chondrilla juncea</i>) |
| (24) Sow thistle | (<i>Sonchus arvensis</i>) |
| (25) Spotted knapweed | (<i>Centaurea maculosa</i>) |
| (26) Squarrose knapweed | (<i>Centaurea virgata</i>) |
| (27) Sulfur cinquefoil | (<i>Potentilla recta</i>) |
| (28) Syrian bean caper | (<i>Zygophyllum fabago</i>) |
| (29) Yellow starthistle | (<i>Centaurea solstitialis</i>) |
| (30) Yellow toadflax | (<i>Linaria vulgaris</i>) |

Category B weeds generally established in scattered populations in some counties of the state. Such weeds are subject to:

- 1) Active exclusion where possible.
- 2) Active eradication from the premises of a dealer of nursery stock.

Category B Weeds:

- | | |
|---------------------------|-------------------------------------|
| (1) Carolina horse nettle | <i>(Solanum carolinense)</i> |
| (2) Diffuse knapweed | <i>(Centaurea diffusa)</i> |
| (3) Leafy spurge | <i>(Euphorbia esula)</i> |
| (4) Medusahead | <i>(Taeniatherum caput-medusae)</i> |
| (5) Musk thistle | <i>(Carduus nutans)</i> |
| (6) Russian knapweed | <i>(Acroptilon repens)</i> |
| (7) Sahara mustard | <i>(Brassica tournefortii)</i> |
| (8) Scotch thistle | <i>(Onopordum acanthium)</i> |
| (9) White horse nettle | <i>(Solanum elaeagnifolium)</i> |

Category C weeds generally established and widespread in many counties of the state. Such weeds are subject to active eradication from the premises of a dealer of nursery stock.

Category C Weeds:

- | | |
|---------------------------|------------------------------|
| (1) Canada thistle | <i>(Cirsium arvense)</i> |
| (2) Hoary cress | <i>(Cardaria draba)</i> |
| (3) Johnson grass | <i>(Sorghum halepense)</i> |
| (4) Perennial pepperweed | <i>(Lepidium latifolium)</i> |
| (5) Poison Hemlock | <i>(Conium maculatum)</i> |
| (6) Puncture vine | <i>(Tribulus terrestris)</i> |
| (7) Salt cedar (tamarisk) | <i>(Tamarix spp.)</i> |
| (8) Water Hemlock | <i>(Cicuta maculata)</i> |

Appendix 2. Pesticides and adjuvants approved for use on Public Lands

Herbicides Approved for Use on BLM Lands ¹		Updated: December 2005			
Active Ingredient	States with approval based upon current EIS/ROD & Court Injunctions	Trade Name	Manufacturer	EPA Registration No.	CA Registration No. *
Atrazine	AZ, CA, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Atrazine 4F	Albaugh/Agri-Star	42750-45	N
		AAtrex Nine-O	Syngenta	100-585	Y
		AAtrex 4L	Syngenta	110-497	Y
		Atrazine 4 L	Setre (Helena)	5905-470	N
		Atrazine 90DF	Setre (Helena)	35915-3-38167	N
Bromacil	AZ, CA, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Hyvar X	DuPont	352-287	Y
		Hyvar XL	DuPont	352-346	N
Bromacil + Diuron	AZ, CA, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Kroval I DF	DuPont	352-505	Y
		DiBro 2+2	Nufarm Americas Inc.	228-227	N
		DiBro 4+4	Nufarm Americas Inc.	228-235	N
		DiBro 4+2	Nufarm Americas Inc.	228-386	N
		Weed Blast 4G	SSI Maxim	34913-19	N
Chlorsulfuron	AZ, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Telar DF	DuPont	352-522	Y
Clopyralid	AZ, CO, ID, MT, ND, NM,	Reclaim	Dow AgroSciences	62719-83	N
		Stinger	Dow AgroSciences	62719-73	Y
		Transline	Dow AgroSciences	62719-259	Y
Clopyralid + 2,4-D	AZ, CO, ID, MT, ND, NM,	Curtail	Dow AgroSciences	62719-48	N
2,4-D	AZ, CA, CO, ID, MT, ND, NM, NV, OK, East-OR, West-OR, SD, UT, WA, WY	Agrisolution 2,4-D LV6	Agrilience, L.L.C.	1381-101	N
		Agrisolution 2,4-D Amine 4	Agrilience, L.L.C.	1381-103	N
		Agrisolution 2,4-D LV4	Agrilience, L.L.C.	1381-102	N
		2,4-D Amine 4	Albaugh, Inc./Agri Star	42750-19	Y
		2,4-D LV 4	Albaugh, Inc./Agri Star	42750-15	Y
		Solve 2,4-D	Albaugh, Inc./Agri Star	42750-22	Y
		2,4-D LV 6	Albaugh, Inc./Agri Star	42750-20	N
		Five Star	Albaugh, Inc./Agri Star	42750-49	N
		D-638	Albaugh, Inc./Agri Star	42750-36	N
		Aqua-Kleen	Cerexagri, Inc.	228-378-4581	Y
		2,4-D LV6	Helena Chem. Co	4275-20-5905	N
		2,4-D Amine	Helena Chem. Co	5905-72	N
		Opti-Amine	Helena Chem. Co.	5905-501	N
		Aqua-Kleen	NuFarm Americas Inc.	71368-1	Y
		Esteron 99C	NuFarm Americas Inc.	62719-9-71368	N
		Weedar 64	NuFarm Americas Inc.	71368-1	Y
		Weedone LV-4	NuFarm Americas Inc.	228-139-71368	N
		Weedone Solventless LV-4	NuFarm Americas Inc	71368-14	Y
		Weedone LV-6	NuFarm Americas Inc.	71368-11	Y
		Hi-Dep	PBI Gordon Corp.	2217-703	N
		Formula 40	Nufarm Americas Inc.	228-357	N
		2,4-D LV 6 Ester	Nufarm Americas Inc	228-95	N
		Platoon	Nufarm Americas Inc.	228-145	N
		WEEDstroy AM-40	Nufarm Americas Inc.	228-145	N
		2,4-D Amine	Setre (Helena)	5905-72	N
		Barrage LV Ester	Setre (Helena)	5905-504	N
		2,4-D LV4	Setre (Helena)	5905-90	N
		2,4-D LV6	Setre (Helena)	5905-93	N
		Clean Crop Amine 4	UAP-Platte Chem. Co.	34704-5 CA	Y
		Clean Crop Low Vol 6 Ester	UAP-Platte Chem. Co.	34704-125	N
		Salvo LV Ester	UAP-Platte Chem. Co.	34704-609	N
		2,4-D 4# Amine Weed	UAP-Platte Chem. Co	34704-120	N

Active Ingredient	States with approval based upon current EIS/ROD & Court Injunctions	Trade Name	Manufacturer	EPA Registration No.	CA Registration No. *
		Killer			
		Clean Crop LV-4 ES	UAP-Platte Chem. Co.	34704-124	N
		Savage DF	UAP-Platte Chem. Co.	34704-606	Y
		Cornbelt 4 lb. Amine	Van Diest Supply Co.	11773-2	N
		Cornbelt 4# LoVol Ester	Van Diest Supply Co.	11773-3	N
		Cornbelt 6# LoVol Ester	Van Diest Supply Co.	11773-4	N
		Amine 4	Wilbur-Ellis Co.	2935-512	N
		Lo Vol-4	Wilbur-Ellis Co.	228-139-2935	N
		Lo Vol-6 Ester	Wilbur-Ellis Co.	228-95-2935	N
Dicamba	AZ, CA, CO, ID, MT, ND, NM, NV, OK, East-OR, West-OR, SD, UT, WA, WY	Dicamba DMA	Albaugh, Inc./Agri Star	42750-40	N
		Clarity	BASF Ag. Products	7969-137	Y
		Vanquish	Syngenta	100-884	Y
		Diablo	Nufarm Americas Inc.	228-379	N
		Outlaw	Albaugh, Inc./Agri Star	42750-68	N
Dicamba +2,4-D	AZ, CA, CO, ID, MT, ND, NM, NV, OK, East-OR, West-OR, SD, UT, WA, WY	Range Star	Albaugh, Inc./Agri Star	42750-55	N
		Weedmaster	BASF Ag. Products	7969-133	Y
		KambaMaster	Nufarm Americas Inc.	71368-34	N
		Veteran 720	Nufarm Americas Inc	228-295	Y
Diuron	AZ, CA, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Diuron 80DF	Agriliance, L.L.C.	9779-318	N
		Karmex DF	Griffin Company	1812-362	Y
		Direx 80DF	Griffin Company	1812-362	Y
		Direx 4L	Griffin Company	1812-257	Y
		Direx 4L-CA	Griffin Company	1812-257	Y
		Diuron 80WDG	UAP-Platte Chem. Co	34704-648	N
		Diuron-DF	Wilbur-Ellis	00352-00-508-02935	N
Fosamine ²	CA	Krenite	DuPont	352-395	Y
Glyphosate	AZ, CA, CO, ID, MT, ND, NM, NV, OK, East-OR, West-OR, SD, UT, WA, WY	Aqua Star	Albaugh, Inc./Agri Star	42750-59	Y
		Forest Star	Albaugh, Inc./Agri Star	42570-61	Y
		Gly Star Original	Albaugh, Inc./Agri Star	42750-60	Y
		Gly Star Plus	Albaugh, Inc./Agri Star	42750-61	Y
		Gly Star Pro	Albaugh, Inc./Agri Star	42750-61	Y
		Glyfos	Cheminova	4787-31	Y
		Glyfos PRO	Cheminova	67760-57	Y
		Glyfos Aquatic	Cheminova	4787-34	Y
		ClearOut 41	Chem. Prod. Tech., LLC	70829-2	N
		ClearOut 41 Plus	Chem. Prod. Tech., LLC	70829-3	N
		Accord SP	Dow AgroSciences	62719-322	Y
		Glypro	Dow AgroSciences	62719-324	Y
		Glypro Plus	Dow AgroSciences	62719-322	Y
		Rodeo	Dow AgroSciences	62719-324	Y
		DuPont Glyphosate	DuPont	352-607	Y
		DuPont Glyphosate VMF	DuPont	352-609	Y
		Aquamaster	Monsanto	524-343	Y
		Roundup Original	Monsanto	524-445	Y
		Roundup Original II	Monsanto	524-454	Y
		Roundup Original II CA	Monsanto	524-475	Y
		Honcho	Monsanto	524-445	Y
		Honcho Plus	Monsanto	524-454	Y
		Roundup Pro	Monsanto	524-475	Y
		Roundup RT	Monsanto	524-454	N
		GlyphoMate 41	PBI Gordon Corp.	2217-847	Y
		Aqua Neat	Nufarm Americas Inc.	228-365	
		Foresters	Nufarm Americas Inc.	228-381	Y
		Razor	Nufarm Americas Inc.	228-366	Y
		Razor Pro	Nufarm Americas Inc	228-366	Y
		Rattler	Setre (Helena)	524-445-5905	Y
		Mirage	UAP-Platte Chem. Co.	524-445-34704	Y
		Mirage Plus	UAP-Platte Chem. Co.	524-454-34704	Y

Active Ingredient	States with approval based upon current EIS/ROD & Court Injunctions	Trade Name	Manufacturer	EPA Registration No.	CA Registration No. *
Glyphosate + 2,4-D	AZ, CA, CO, ID, MT, ND, NM, NV, OK, East-OR, West-OR, SD, UT, WA, WY	Landmaster BW Campaign	Albaugh, Inc./Agri Star Monsanto	42570-62 524-351	N N
		Landmaster BW	Monsanto	524-351	N
Glyphosate + Dicamba	AZ, CA, CO, ID, MT, ND, NM, NV, OK, East-OR, West-OR, SD, UT, WA, WY	Fallowmaster	Monsanto	524-507	N
Hexazinone	AZ, CA, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Velpar ULW	DuPont	352-450	N
		Velpar L	DuPont	352-392	Y
		Velpar DF	DuPont	352-581	Y
		Pronone MG	Pro-Serve	33560-21	Y
		Pronone 10G	Pro-Serve	33560-21	Y
		Pronone 25G	Pro-Serve	33560-45	Y
		Pronone Power Pellet	Pro-Serve	33560-41	Y
Imazapyr	AZ, CO, ID, MT, ND, NM,	Arsenal	BASF	241-346	N
		Arsenal Applicators Conc.	BASF	241-299	Y
		Arsenal Railroad Herbicide	BASF	241-273	N
		Arsenal Technical	BASF	241-286	Y
		Chopper	BASF	241-296	Y
		Habitat	BASF	241-426	N
		SSI Maxim Arsenal 0.5G	SSI Maxim Co., Inc.	34913-23	N
		Stalker	BASF	241-398	Y
Imazapyr + Diuron	AZ, CO, ID, MT, ND, NM,	Sahara DG	BASF	241-372	N
		SSI Maxim TopSite 2.5G	SSI Maxim Co., Inc.	34913-22	N
		TopSite	BASF	241-344	N
Imazapic		Plateau	BASF	241-365	N

Mefluidide	AZ, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Embark 2-S	PBI Gordon Corp.	2217-759	Y
Metsulfuron methyl	AZ, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Cimarron	DuPont	352-616	N
		Escort	DuPont	352-439	N
		Escort XP	DuPont	352-439	N
		Metsulfuron Methyl DF	Vegetation Man., L.L.C.	74477-2	N
		Patriot	Nufarm Americas Inc.	228-391	N
Picloram	AZ, CA, CO, ID, MT, ND, NM, NV, OK, East-OR, West-OR, SD, UT, WA, WY	PureStand	Nufarm Americas Inc.	71368-38	N
		Grazon PC	Dow AgroSciences	62719-181	N
		Tordon K	Dow AgroSciences	62719-17	N
		Tordon 22K	Dow AgroSciences	62719-6	N
Picloram +	AZ, CA, CO, ID, MT, ND, NM, NV, OK, East-OR, West-OR, SD, UT, WA, WY	Grazon P+D	Dow AgroSciences	62719-182	N
		Pathway	Dow AgroSciences	62719-31	N
		Tordon 101M	Dow AgroSciences	62719-5	N
		Tordon 101 R Forestry	Dow AgroSciences	62719-31	N
		Tordon RTU	Dow AgroSciences	62719-31	N
Simazine	AZ, CA, CO, ID, MT, ND,	Princep Cali 90	Syngenta	100-603	Y
		Princep 4L	Syngenta	100-526	Y
Sulfometuron methyl	AZ, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Oust	DuPont	352-401	Y
		Oust XP	DuPont	352-601	Y
		SFM 75	Vegetation Man., L.L.C.	72167-11-74477	Y
		Spyder	Nufarm Americas Inc.	228-408	N
Tebuthiuron	AZ, CA, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Spike 20P	Dow AgroSciences	62719-121	Y
		Spike 80W	Dow AgroSciences	62719-107	Y
		Spike 1G	Dow AgroSciences	1471-104	N
		Spike 40P	Dow AgroSciences	62719-122	Y
		Spike 80DF	Dow AgroSciences	62719-107	Y
		SpraKil S-5 Granules	SSI Maxim Co., Inc.	34913-10	Y
Tebuthiuron+	AZ, CA, CO, ID, MT, ND, NM, NV, OK, SD, UT,	SpraKil SK-13 Granular	SSI Maxim Co., Inc.	34913-15	Y
		SpraKil SK-26 Granular	SSI Maxim Co., Inc	34913-16	Y

Active Ingredient	States with approval based upon EIS/ROD & Court Injunctions	Trade Name	Manufacturer	EPA Registration No.	CA Registration No. *
Diuron	WA, WY				
Triclopyr	AZ, CA, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Garlon 3A	Dow AgroSciences	62719-37	Y
		Garlon 4	Dow AgroSciences	62719-40	Y
		Remedy	Dow AgroSciences	62719-70	Y
		Pathfinder II	Dow AgroSciences	62719-176	Y
		Tahoe 3A	Nufarm Americas Inc.	228-384	N
		Tahoe 4E	Nufarm Americas Inc	228-385	N
Triclopyr 2,4-D	+ AZ, CA, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Crossbow	Dow AgroSciences	62719-260	Y
Triclopyr Clopyralid	+ AZ, CO, ID, MT, ND, NM, NV, OK, SD, UT, WA, WY	Redeem	Dow AgroSciences	62719-337	Y
<p>*Just because an herbicide has a Federal registration, it may or may not be registered for use in California. This column identifies those formulations for which there is a California registration. For BLM purposes, it is taken one step further, a particular formulated herbicide may have a California and Federal registration and still not be available for use on BLM administered lands because the active ingredient is not approved according to the California Vegetation Management Environmental Impact Statement Record of Decision and may require tiering to the appropriate EIS.</p>					

LLNOTES: 1. THIS IS THE APPROVED LIST PRIOR TO THE COMPLETION OF THE 17 STATES EIS. 2. IF USED IN AREAS OTHER THAN CALIFORNIA, REFER TO THE CALIFORNIA VEG. MANAGEMENT FEIS AND ROD RISK ASSESSMENT, 1988.

Adjuvants Approved for Use on BLM Lands

Updated: December 2005

ADJUVANT CLASS	ADJUVANT TYPE	TRADE NAME	MANUFACTURER	COMMENTS	
Surfactant	Non-ionic	Spec 90/10	Helena		
		Optima	Helena	CA Reg. No. 5905-50075-AA	
		Induce	Setre (Helena)	CA Reg. No. 5905-50066-AA	
		Activator 90	Loveland	CA Reg. No. 34704-50034-AA	
		LI-700	Loveland	CA Reg. No. 36208-50022, WA Reg. No. AW36208-70004	
		Spreader 90	Loveland	WA Reg. No. 34704-05002-AA	
		UAP Surfactant 80/20	Loveland		
		X-77	Loveland	CA Reg. No. 36208-50023	
		Cornbelt Premier 90	Van Diest Supply Co.		
		Spray Activator 85	Van Diest Supply Co.		
		R-11	Wilbur-Ellis	CA Reg. No. 2935-50142	
		R-900	Wilbur-Ellis		
		Super Spread 90	Wilbur-Ellis	WA Reg. No. AW-2935-70016	
		Super Spread 7000	Wilbur-Ellis	CA Reg. No. 2935-50170 WA Reg. No. AW-2935-0002	
		Spreader/Sticker	Cohere	Helena	CA Reg. No. 5905-50083-AA
	R-56		Wilbur-Ellis	CA Reg. No. 2935-50144	
	Bond		Loveland	CA Reg. No. 36208-50005	
	Tactic		Loveland	CA Reg. No. 34704-50041-AA	
	Lastick		Setre (Helena)		
	Silicone-based	Aero Dyne-Amic	Helena	CA Reg. No. 5905-50080-AA	
		Dyne-Amic	Helena	CA Reg. No. 5095-50071-AA	
		Kinetic	Setre (Helena)	CA Reg. No. 5905-50087-AA	
		Phase	Loveland	CA Reg. No. 34704-50037-AA	
		Silwet L-77	Loveland	CA Reg. No. 36208-50025	
		Sylgard 309	Wilbur-Ellis	CA Reg. No. 2935-50161	
		Syl-Tac	Wilbur-Ellis	CA Reg. No. 2935-50167	
	Oil-based	Crop Oil Concentrate	Crop Oil Concentrate	Helena	CA Reg. No. 5905-50085-AA
			Crop Oil Concentrate	Loveland	
			Herbimax	Loveland	CA Reg. No. 34704-50032-AA, WA Reg. No. 34704-04006
			R.O.C. Rigo Oil Conc.	Wilbur-Ellis	CA Reg. No. 2935-50098
		Methylated Seed Oil	Methylated Spray Oil Conc.	Helena	
			MSO Concentrate	Loveland	CA Reg. No. 34704-50029-AA WA Reg. No. 34704-04009
			Hasten	Wilbur-Ellis	CA Reg. No. 2935-50160 WA Reg. No. 2935-02004
Super Spread MSO			Wilbur-Ellis		
Vegetable Oil		Amigo	Loveland	CA Reg. No. 34704-50028-AA WA Reg. No. 34704-04002	
		Competitor	Wilbur-Ellis	CA Reg. No. 2935-50173 WA Reg. No. AW-2935-04001	
Fertilizer-based	Nitrogen-based	Quest	Setre (Helena)	CA Reg. No. 5905-50076-AA	
		Dispatch	Loveland		
		Dispatch 111	Loveland		
		Dispatch 2N	Loveland		
		Dispatch AMS	Loveland		
		Bronc	Wilbur-Ellis		
		Bronc Max	Wilbur-Ellis		
		Bronc Max EDT	Wilbur-Ellis		
		Bronc Plus Dry EDT	Wilbur-Ellis	WA Reg. No.2935-03002	
Cayuse Plus	Wilbur-Ellis	CA Reg. No. 2935-50171			
Special	Buffering Agent	Buffers P.S.	Helena	CA Reg. No. 5905-50062-ZA	

ADJUVANT CLASS	ADJUVANT TYPE	TRADE NAME	MANUFACTURER	COMMENTS
Purpose or Utility		Tri-Fol	Wilbur-Ellis	CA Reg. No. 2935-50152
	Colorants	Signal	Precision	
		Hi-Light	Becker-Underwood	
		Hi-Light WSP	Becker-Underwood	
	Compatibility/ Suspension Agent	E Z MIX	Loveland	CA Reg. No. 36208-50006
		Support	Loveland	WA Reg. No. 34704-04011
		Blendex VHC	Setre (Helena)	
	Deposition Aid	ProMate Impel	Helena	
		Pointblank	Helena	CA Reg. No. 52467-50008-AA-5905
		Intac Plus	Loveland	
		Liberate	Loveland	CA Reg. No. 34704-50030-AA WA Reg. No. 34704-04008
		Weather Gard	Loveland	CA Reg. No. 34704-50042-AA
		Bivert	Wilbur-Ellis	CA Reg. No. 2935-50163
		EDT Concentrate	Wilbur-Ellis	
		Sta Put	Setre (Helena)	CA Reg. No. 5905-50068-AA
	Defoaming Agent	No Foam	Wilbur-Ellis	CA Reg. No. 2935-50136
		Buster Foam	Setre (Helena)	CA Reg. No. 5905-50072-AA
		Cornbelt Defoamer	Van Diest Supply Co.	
	Diluent/Deposition Agent	Improved JLB Oil Plus	Brewer International	
	Foam Marker	Align	Helena	
		R-160	Wilbur-Ellis	
	Invert Emulsion Agent	Redi-vert II	Wilbur-Ellis	CA Reg. No. 2935-50168
	Tank Cleaner	Wipe Out	Helena	
		Kutter	Wilbur-Ellis	
		Neutral-Clean	Wilbur-Ellis	
		Cornbelt Tank-Aid	Van Diest Supply Co.	
	Water Conditioning	Blendmaster	Loveland	
		Choice	Loveland	CA Reg. No. 34704-50027-AA WA Reg. No. 34704-04004
		Choice Xtra	Loveland	
		Choice Weather Master	Loveland	CA Reg. No. 34704-50038-AA

Appendix 3. NOXIOUS WEEDS RISK ASSESSMENT

1. **Project Name:** Sterling Mine **NEPA LV No. 2014-0015**
2. **Date Risk Assessment was completed:** October September 9, 2014
3. **Describe steps taken to complete Risk Assessment:** Reviewed the baseline report which summarized the vegetation and noxious weeds present on the Project site. Also conducted an on-site tour of the areas to be disturbed. The Nevada State Noxious Weed List was reviewed to be sure all species were addressed.
4. **Project Description:** Sterling Gold Mine Company proposes to expand the existing operations at the Sterling Mine that will disturb an additional 132 acres over a three year period. The project will consist of open pit expansion, a new heap leach pad and a surge pond, a waste rock disposal area and associated stormwater diversion ditches and berms.
5. **Project Location:** The Sterling Mine Expansion Project is located on the east side of Bare Mountains, approximately eight miles southeast of Beatty, Nevada, in Nye County. The existing mine operations and the Proposed Expansion Project are located on public lands administered by the Bureau of Land Management (BLM) at Township 13 South, Range 47.5 East, portions of Sections 11-14, and Township 13 South, Range 48 E, Sections 18, 19, 20, and 21. The existing water pipeline extends from Township 13 South, Range 48 East, SW ¼ Section 21, through Sections 20, 19, and 18, and Section 13 of Township 13 South, Range 47.5 East.
6. **Factor 1** assesses the likelihood of noxious/invasive weed species spreading to the project area. For this project, the factor rates as **LOW, (3)** at the present time. This rating was based on the following findings: No noxious weeds were present in the Project area; however, the nonnative, invasive species halogeton (*Halogeton glomeratus*) is currently found extensively on the reclaimed heap leach pad. Sterling Gold Mine is taking action to eradicate the halogeton and to promote native vegetation on the reclaimed heap leach pad
7. **Factor 2** assesses the consequences of noxious/invasive weed establishment in the project area. For this project, the factor rates as **MODERATE, (5)**: Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely, but limited. Any areas associated with surface disturbance are likely locations for halogeton to establish.
8. **Factor 1 * Factor 2 = Risk Rating: MODERATE, (15)**: Develop preventive management measures for the proposed Project to reduce the risk of introduction or spread of noxious weeds to the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious weeds and follow-up treatment for previously treated infestations.
9. Based on this risk rating, preventative management measures **are** needed for this Project. Preventative management measures developed for this Project are as follows:
 1. At the onset of Project planning in the NEPA analysis phase, the Project proponent, project lead or the LVFO noxious weed coordinator shall complete the Risk Assessment Form for Noxious/Invasive Weeds. This will provide information about the types of weed surveys to be conducted, the methods of weed treatments and weed prevention schedules for the management of noxious weeds on the Project footprint. This will identify the level of noxious weed management necessary. If pesticides are proposed then follow the pesticide stipulation below.

2. The Project proponent shall coordinate Project activities with the BLM Weed Coordinator (702-515-5000) regarding any proposed herbicide treatment. The Project proponent shall prepare, submit, obtain and maintain a pesticide use proposal (PUP) for the proposed action.
3. Before ground-disturbing activities begin, the Project proponent shall review the weed risk assessment and prepare a weed management plan that will inventory and prioritize weed infestations for treatment within the Project foot print. Should the weed spread beyond the project foot print then these weeds will be treated as a part of the Project. This will include access routes.
4. The Project proponent shall limit the size of any vegetation and/or ground disturbance to the absolute minimum necessary to perform the activity safely and as designed. The Project proponent will avoid creating soil conditions that promote weed germination and establishment.
5. The Project proponent shall begin Project operations in weed free areas whenever feasible before operating in weed-infested areas.
6. The Project proponent shall locate equipment storage, machine and vehicle parking or any other area needed for the temporary placement of people, machinery and supplies in areas that are relatively weed-free. The Project proponent shall avoid or minimize all types of travel through weed-infested areas or restrict major activities to periods of time when the spread of seed or plant parts are least likely.
7. BLM or the Project proponent shall determine equipment-cleaning sites (if equipment is infested with weed seeds, plant parts or mud and dirt). Project related equipment and machinery (this especially includes the nooks and crannies of undercarriages) will be cleaned using compressed air or water to remove mud, dirt and plant parts before moving into and from relatively weed-free areas. Seeds and plant parts will be collected, bagged and deposited in dumpsters destined for local landfills, when practical.
8. Project workers shall inspect, remove, and dispose of weed seed and plant parts found on their clothing and personal equipment, bag the product and dispose of in a dumpster for deposit in local landfills. Disposal methods may vary depending on the Project. If you have questions consult with the LVFO Noxious Weed Coordinator.
9. The Project proponent shall evaluate options, including area closures, to regulate the flow of traffic on sites where native vegetation needs to be established.

10. Based on this risk rating, Project modifications **are not** needed for this Project.

Weed Risk Assessment completed by: Gary N. Back, Ecologist, Great Basin Ecology, Inc.

Reviewed by/Date Reviewed: _____ Date: _____
(Noxious Weed Coordinator)

APPENDIX C – USFW Biological Opinion-Append Sterling Mine Plan Amendment

Case Number: N-71676
NEPA Project #: DOI-BLM-NV-S030-2014-0015-EA
Sec. 7 Log #: NV-052-16-010

TERMS AND CONDITIONS for ROWs: BO File No. 84320-2010-F-0365. R003

In order to be exempt from the prohibitions of section 9 of the Act, the Bureau must comply with the following terms and conditions and minimization measures, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

RPM 1: Applies towards lands and realty, ROWs, and mining actions and other activities that involve vehicle and equipment use, excavations, or blasting. *BLM, and other jurisdictional Federal agencies as appropriate, shall implement or ensure implementation of measures to minimize injury or mortality of desert tortoises due to project construction, operation and maintenance; and most actions involving habitat disturbance.*

Terms and Conditions:

1.a. *Field Contact Representative*—BLM shall ensure a Field Contact Representative (FCR) (also called a Compliance Inspection Contractor) is generally designated for each contiguous stretch of construction activity for linear projects or isolated work areas for non-linear projects. The FCR will serve as an agent of BLM and the Service to ensure that all instances of non-compliance or incidental take are reported. BLM has discretion over approval of potential FCRs; however, those who also may be acting as authorized desert tortoise biologists, and must also be approved by the Service (see Term and Condition 1.c). All FCRs will report directly to BLM and the Service.

The FCR, authorized desert tortoise biologist, and monitors (see Term and Condition 1.c.) shall have a copy of all stipulations when work is being conducted on the site and will be responsible for overseeing compliance with terms and conditions of the ROW grant, including those for listed species. BLM shall ensure the FCR and authorized desert tortoise biologists have authority to halt any activity that is in violation of the stipulations. The FCR shall be on site year-round during all project activities.

Within 3 days of employment or assignment, the project proponent and BLM shall provide the Service with the names of the FCR.

1.b. *Authorized desert tortoise biologist*—*Required to be onsite to relocated any tortoises that enter the work area during clearance survey and during tortoise fence installation.*

All authorized desert tortoise biologists (and monitors) are agents of BLM and the Service and shall report directed to BLM and the proponent concurrently regarding all compliance issues and take of desert tortoises; this includes all draft and final reports of non-compliance or take. The initial draft report shall be provided to BLM and Service within 24 hours of the observation of take or non-compliance.

An authorized desert tortoise biologist will be assigned to each piece/group of large equipment engaged in activities that may result in take of desert tortoise (e.g., clearing, blasting, grading, lowering in pipe, hydrostatic testing, backfilling, recontouring, and reclamation activities) and other work areas that pose a risk to tortoises. BLM may use their discretion to require a monitor instead of an authorized desert tortoise biologist to monitor equipment that is low risk to tortoises.

1. c. Authorized desert tortoise biologists, monitors, and the FCR (see Term and Condition 1.a.) shall be responsible for ensuring compliance with all conservation measures for the project. This responsibility includes: (1) enforcing the litter-control program; (2) ensuring that desert tortoise habitat disturbance is restricted to authorized areas; (3) ensuring that all equipment and materials are stored within the boundaries of the construction zone or within the boundaries of previously-disturbed areas or designated areas; (4) ensuring that all vehicles associated with construction activities remain within the proposed construction zones;

(5) ensuring that no tortoises are underneath project vehicles and equipment prior to use or movement; (6) ensuring that all monitors (including the authorized desert tortoise biologist) have a copy of the required measures in their possession, have read them, and they are readily available to the monitor when on the project site.

An authorized desert tortoise biologist will serve as a mentor to train desert tortoise monitors and will approve monitors if required. An authorized desert tortoise biologist is responsible for errors committed by desert tortoise monitors.

An authorized desert tortoise biologist shall record each observation of desert tortoise handled in the tortoise monitoring reports. Information will include the following: location (GPS), date and time of observation, whether the desert tortoise was handled, general health and whether it voided its bladder, location desert tortoise was moved from and location moved to, unique physical characteristics of each tortoise, and effectiveness and compliance with the desert tortoise protection measures. This information will be provided directly to BLM and the Service.

An authorized desert tortoise biologist should possess a bachelor's degree in biology, ecology, wildlife biology, herpetology, or closely related field. The biologist must have demonstrated prior field experience using accepted resource agency techniques. As a guideline, Service approval of an authorized biologist requires that the applicant have at least 60 days project experience as a desert tortoise monitor. In addition, the biologist shall have the ability to recognize and accurately record survey results and must be familiar with the terms and conditions of the biological opinion that resulted from project-level consultation between BLM and the Service. All tortoise biologists shall be familiar with the field manual (Service 2009).

Potential authorized desert tortoise biologists must submit their statement of qualifications to the Service's Nevada Fish and Wildlife Office in Las Vegas for approval, allowing a minimum of 30 days for Service response. The statement form is available on the internet at: http://www.fws.gov/nevada/desert_tortoise/auth_dt_form.htm.

Prior to final approval to begin work on the project, the authorized desert tortoise biologists will have read the required measures (terms and conditions and other stipulations) and have a copy of the measures available at all times while on the project site. BLM shall provide the appropriate agency contact for the project to the Service and the Service will include the

forms with approval letters. Biologists and monitors should be visibly identifiable on the project site, which may include use of a uniquely designated hardhat or safety vest color.

1. d. *Desert tortoise monitor*—A monitor is required to be onsite to assist with desert tortoise clearance surveys and during all fence repairs requiring heavy equipment.

Desert tortoise monitors assist an authorized desert tortoise biologist during surveys and serve as apprentices to acquire experience. Desert tortoise monitors ensure proper implementation of protective measures, and record and report desert tortoises and sign observations in accordance with Term and Condition 1.c. They will report incidents of noncompliance to the authorized desert tortoise biologist or FCR. No monitors shall be on the project site unless supervised by an authorized desert tortoise biologist or approved by the BLM.

If a desert tortoise is immediately in harm's way (e.g., certain to immediately be crushed by equipment), desert tortoise monitors may move the desert tortoise then place it in a designated safe area until an authorized desert tortoise biologist assumes care of the animal.

Desert tortoise monitors may not conduct field or clearance surveys or other specialized duties of an authorized desert tortoise biologist unless directly supervised by an authorized desert tortoise biologist or approved to do so by the Service; "directly supervised" means an authorized desert tortoise biologist has direct sight and voice contact with the desert tortoise monitor (i.e., within approximately 200 ft of each other).

Within 3 days of employment or assignment, the project proponent and BLM shall provide the Service with the names of desert tortoise monitors who would assist an authorized desert tortoise biologist.

1.e. *Desert tortoise education program*—A desert tortoise education program shall be presented to all personnel on site during construction activities by an agency or authorized desert tortoise biologist. The Service, BLM, and appropriate state agencies shall approve the program. At a minimum, the program shall cover desert-specific Leave-No-Trace guidelines, the distribution of desert tortoises, general behavior and ecology of this species, sensitivity to human activities, threats including introduction of exotic plants and animals, legal protection (the definition of "take" will also be explained), penalties for violation of State and Federal laws, reporting requirements, and project measures in this biological opinion. All field workers shall be instructed that activities must be confined to locations within the approved areas and their obligation to walk around and check underneath and vehicles and equipment before moving them (or be cleared by an authorized desert tortoise biologist). Workers and project associates will be encouraged to carpool to and from the project sites. In addition, the program shall include fire prevention measures to be implemented by employees during project activities. The program shall instruct participants to report all observations of desert tortoise and their sign during construction activities to the FCR and authorized desert tortoise biologist.

1.f. *Vehicle travel*— Project personnel shall exercise vigilance when commuting to the project area to minimize risk for inadvertent injury or mortality of all wildlife species encountered on paved and unpaved roads leading to and from the project site. Speed limits will be clearly marked, and all workers will be made aware of these limits. On-site, personnel shall carpool to the greatest extent possible.

During the desert tortoise less-active season (generally November through February), vehicle speed on project-related access roads and in the work area will not exceed 25 mph. All vehicles and construction equipment will be tightly grouped.

During the more-active season (generally March through October), and if temperatures are above 60 but below 95 °F for more than 7 consecutive days, vehicle speed on project-related access roads and in the work area will not exceed 15 mph. All vehicles and construction equipment will operate in groups of no more than three vehicles. An authorized desert tortoise biologist and desert tortoise monitor will escort or clear ahead of vehicles and equipment for ROW travel. The escort will be on foot and clear the area of tortoises in front of each traveling construction equipment group (see *Desert tortoise clearance*). The escort will use a recreational vehicle with ground visibility (e.g., UTV); however, at least one authorized desert tortoise biologist and one desert tortoise monitor must ride together and survey both sides of the vehicle. The speed/pace will be determined by an authorized desert tortoise biologist and shall be slow enough to ensure adequate inspection.

New access and spur road locations will be sited to avoid potentially active tortoise burrows to the maximum extent practicable.

1.g. *Unauthorized access*—BLM shall ensure that unauthorized personnel, including the public and off-duty project personnel, do not travel on project-related temporary access roads, to the greatest extent practicable.

During the more-active season (generally March through October), and if temperatures are above 60 but below 95 °F for more than 7 consecutive days, project- and non-project-related activities on all access roads that intersect the ROW will be monitored and logged. During construction, the ROW will be fenced at public roads that intersect the ROW. Signs will say that access on the ROW is strictly prohibited except by authorized personnel and that violators will be prosecuted.

1.h. *Desert tortoise clearance*—Required for this project.

Prior to surface-disturbing activities, authorized desert tortoise biologists potentially assisted by desert tortoise monitors, shall conduct a clearance survey to locate and remove all desert tortoises from harm's way including areas to be disturbed using techniques that provide full coverage of all areas (Service 2009). During the more-active season, clearance surveys will be conducted either the day prior to, or the day of, any surface-disturbing activity. During the less-active season, clearance surveys will be conducted within 7 days prior to any surface-disturbing activity. No surface-disturbing activities shall begin until two consecutive surveys yield no individuals.

An authorized biologist shall excavate all burrows that have characteristics of potentially containing desert tortoises in the area to be disturbed with the goal of locating and removing all desert tortoises and desert tortoise eggs. During clearance surveys, all handling of desert tortoises and their eggs and excavation of burrows shall be conducted solely by an authorized desert tortoise biologist in accordance with the most current Service-approved guidance (currently Service 2009). If any tortoise active nests are encountered, the Service must be contacted immediately, prior to removal of any tortoises or eggs from those burrows, to determine the most appropriate course of action. Unoccupied burrows shall be collapsed or blocked to prevent desert tortoise entry. Outside construction work areas, all potential desert tortoise burrows and pallets within 50 ft of the edge of the construction work area shall be flagged. If the burrow is occupied by a desert tortoise during the less-active season, the

tortoise shall be temporarily penned (see Term and Condition 1.k.). No stakes or flagging shall be placed on the berm or in the opening of a desert tortoise burrow. Desert tortoise burrows shall not be marked in a manner that facilitates poaching. Avoidance flagging shall be designed to be easily distinguished from access route or other flagging, and shall be designed in consultation with experienced construction personnel and authorized biologists. All flagging shall be removed following construction activities.

An authorized desert tortoise biologist will inspect areas to be backfilled immediately prior to backfilling.

1.i. *Desert tortoise in harm's way*—Any project-related activity that may endanger a desert tortoise shall cease if a desert tortoise is found on the project site. Project activities may resume after an authorized desert tortoise biologist or desert tortoise monitor (see restrictions in Term and Condition 1.d.) removes the desert tortoise from danger or after the desert tortoise has moved to a safe area on its own.

During the more-active season and if temperatures are above 60 but below 95 °F for more than 7 consecutive days, at least 1 monitor shall be assigned to observe spoil piles prior to excavation and covering.

1.j. *Handling of desert tortoises*—Desert tortoises shall only be moved by an authorized desert tortoise biologist or desert tortoise monitor (see restrictions in Term and Condition 1.d.) solely for the purpose of moving the tortoises out of harm's way. During construction, operation, and maintenance, an authorized desert tortoise biologist shall pen, capture, handle, and relocate desert tortoises from harm's way as appropriate and in accordance with the most current Service-approved guidance. No tortoise shall be handled by more than one person. Each tortoise handled will be given a unique number, photographed, and the biologist will record all relevant data on the Desert Tortoise Handling and Take Report (Appendix E) to be provided to BLM in accordance with the project reporting requirements.

Desert tortoises that occur aboveground and need to be moved from harm's way shall be placed in the shade of a shrub, 150 to 1,640 ft from the point of encounter. In situations where desert tortoises must be moved more than 1,640 ft (500 m), translocation procedures may be required. Translocation would likely result in a level of effect to the desert tortoise that would require the appended procedures.

If desert tortoises need to be moved at a time of day when ambient temperatures could harm them (less than 40 ° F or greater than 95° F), they shall be held overnight in a clean cardboard box. These desert tortoises shall be kept in the care of an authorized biologist under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes shall be discarded after one use and never hold more than one tortoise. If any tortoise active nests are encountered, the Service must be contacted immediately, prior to removal of any tortoises or eggs from those burrows, to determine the most appropriate course of action.

Desert tortoises located in the project area sheltering in a burrow during the less-active season may be temporarily penned in accordance with Term and Condition 1.k. at the discretion of an authorized desert tortoise biologist. Desert tortoises should not be penned in areas of moderate to heavy public use, rather they should be moved from harm's way in accordance with the most current Service-approved guidance (currently Service 2009).

Desert tortoises shall be handled in accordance with the Desert Tortoise Field Manual (Service 2009). Equipment or materials that contact desert tortoises (including shirts and pants) shall

be sterilized, disposed of, or changed before contacting another tortoise to prevent the spread of disease. All tortoises shall be handled using disposable surgical gloves and the gloves shall be disposed of after handling each tortoise. An authorized desert tortoise biologist shall document each tortoise handling by completing the Desert Tortoise Handling and Take Report (Appendix E).

1.k. *Penning—Not required for this project.*

Penning shall be accomplished by installing a circular fence, approximately 20 ft in diameter to enclose and surround the tortoise burrow. The pen should be constructed with 1-inch horizontal by 2-in vertical, galvanized welded wire. Steel T-posts or rebar should be placed every 5 to 6 ft to support the pen material. Pen material will extend 18 to 24 in aboveground. The bottom of the enclosure will be buried 6 to 12 in or bent towards the burrow, have soil mounded along the base, and other measures implemented to ensure zero ground clearance. Care shall be taken to minimize visibility of the pen by the public. An authorized desert tortoise biologist or desert tortoise monitor shall check the pen at a frequency to ensure that the desert tortoise is secure and not stressed. No desert tortoise shall be penned for more than 48 hours without written approval by the Service. Because this is a new technique, all instances of penning or issues associated with penning shall be reported to the Service within 3 days (see Appendix E).

1.l. *Temporary tortoise-proof fencing—Not required for this project.*

All construction areas, including open pipeline trenches, hydrostatic testing locations, and tie-in work shall be fenced with temporary tortoise-proof fencing (e.g., silt fencing) or inspected by an authorized desert tortoise biologist periodically throughout and at the end of the day and immediately the next morning. BLM and the Service will determine the appropriate length of open trench that will be allowed on the project.

Fencing will be designed in a manner that reduces the potential for desert tortoises and hatchlings to access the construction areas. Thus, the lower 6 to 12 in of fencing will be folded outward (i.e., away from the construction area and towards the direction a tortoise would approach the work area), and covered with sufficient amount of soil, rocks, and staking to maintain zero ground clearance and secure the bottom section of material. An authorized desert tortoise biologist will check the integrity of the fencing every 2 hours and ensure that there are no breaches in the fencing and no desert tortoises pacing the fence. After the fencing is erected and secure, the inside will be cleared by an authorized desert tortoise biologist. The fencing must remain closed during any construction activities.

1.m. *Permanent tortoise-proof fencing—Required for around the leach pad and pond areas.*

Tortoise-proof fencing shall be installed around the boundary of permanent aboveground facilities that require regular monitoring and maintenance and other areas as directed by the BLM or Service. Fence specifications will be consistent with those approved by the Service (Service 2009). Tortoise guards shall be placed at all road access points where desert tortoise-proof fencing is interrupted, to exclude desert tortoises from the facility. Gates shall provide minimal ground clearance and deter ingress by desert tortoises. Permanent tortoise-proof fencing along the project area shall be appropriately constructed, monitored, and maintained. Fencing shall be inspected in accordance with Table 15 and reports prepared in accordance with Term and Condition 7.c. unless modified by the Service. Monitoring and maintenance shall include regular removal of trash and sediment accumulation and

restoration of zero ground clearance between the ground and the bottom of the fence, including re-covering the bent portion of the fence if not buried.

Table 15. Desert tortoise fence inspection requirements

Condition	Minimum Requirements
First week following fence installation; tortoises active	Inspect fence perimeter, tortoise guards, and gates twice per day, timed to occur when tortoises may be pacing the fenceline.
First week following fence installation; tortoises inactive	Inspect fence perimeter, tortoise guards, and gates once per day.
Beginning the second week following fence construction, tortoises active	Inspect fence perimeter, tortoise guards, and gates once per day.
Beginning the second week following fence construction, tortoises inactive	Inspect fence perimeter, tortoise guards, and gates once per month.
Following major storm event, tortoises active	Inspect fence perimeter, tortoise guards, and gates within 48 hours.
Following major storm event, tortoises inactive	Inspect fence perimeter, tortoise guards, and gates within 72 hours.
Breach in fence observed, tortoise guard or gate requires maintenance, tortoises active	Repair within 48 hours of breach occurrence.
Breach in fence observed, tortoise guard or gate requires maintenance, tortoises inactive	Repair within 1 week of breach occurrence.

1.n. *Wildlife escape ramps*—Earthen plugs, with wildlife escape ramps on either side of the plug, will be provided in open trench segments at no greater than every 0.25 mi. These distances will be reduced if the FCR and authorized desert tortoise biologist determine that the plug/escape ramp spacing is insufficient to facilitate animal escape from the trench. Any tortoise that is found in a trench or excavation shall be promptly removed by an authorized desert tortoise biologist in accordance with the most current Service-approved guidance. If the authorized desert tortoise biologist is not allowed to enter the trench for safety reasons, the alternative method of removal must have prior approval by the Service.

1.o. *Dust control*—Water applied to for dust control shall not be allowed to pool outside desert-tortoise fenced areas, as this can attract desert tortoises. Similarly, leaks on water trucks and water tanks will be repaired to prevent pooling water. An authorized desert tortoise biologist/monitor will be assigned to patrol each area being watered immediately after the water is applied and at approximate 60-minute intervals until the ground is no longer wet enough to attract tortoises if conditions favor tortoise activity.

1.p. *Blasting*—If blasting is required in desert tortoise habitat, detonation shall only occur after the area has been surveyed and cleared by an authorized desert tortoise biologist. A 200-ft radius area around the blasting site shall be surveyed and all desert tortoises aboveground within this 200-ft radius of the blasting site shall be moved 500 ft from the blasting site, placed in unoccupied burrow, and temporarily penned (see Term and Condition 1.k.) to prevent tortoises that have been temporarily relocated from returning to the site. Tortoises in burrows would be left in their burrows. All burrows, regardless of occupied status, will be stuffed with newspapers, flagged, and location recorded using a GPS unit. Immediately after blasting, newspaper and flagging will be removed. If a burrow or coversite has collapsed which could be occupied, it shall be excavated to ensure that no tortoises have been buried and are in danger of suffocation.

1.q. *Power transmission projects*—*Not applicable to this project.*

Transmission line support structures and other facility structures shall be designed to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices) in accordance with the most current Avian Power Line Interaction Committee guidelines (see terms and conditions 2.b and 2.c.).

1.r. *Timing of construction*—The BLM shall ensure that when possible, the project proponent schedules and conducts construction, operation, and maintenance activities within desert tortoise habitat during the less-active season (generally October 31 to March 1) and during periods of reduced desert tortoise activity (typically when ambient temperatures are less than 60 or greater than 95 °F).

All vehicles and equipment that are not in areas enclosed by desert tortoise exclusion fencing will stop activities in desert tortoise habitat during rainfall events in the more-active season (generally March 1 to October 31), and if temperatures are above 60 but below 95 °F for more than 7 consecutive days. The Field Contact Representative (FCR) or designee will determine, in coordination with the BLM and Service, when it is appropriate for project activities to continue.

RPM 2: **Predator Control**— Applies to all actions. *BLM, and other jurisdictional Federal agencies as appropriate, shall ensure their agency personnel, the project proponent, and their contractors implement the following measures to minimize injury to desert tortoises as a result of predators drawn to the project area from construction, operation, and minor maintenance activities:*

Terms and Conditions:

2.a. *Litter control, applies to all projects*—A litter control program shall be implemented to reduce the attractiveness of the area to opportunistic predators such as desert kit foxes, coyotes, and common ravens. Trash and food items will be disposed of properly in predator-proof containers with predator-proof lids. Trash containers will be emptied and construction waste will be removed daily from the project area and disposed of in an approved landfill. Vehicles hauling trash to the landfill or transfer facility must be secured to prevent litter from blowing out along the road.

2.b. *Deterrence*—The project proponent will implement measures to discourage the presence of predators on site (coyotes, ravens, etc.), including elimination of available water sources, designing structures to discourage potential nest sites, and use of hazing to discourage raven presence.

2.c. *Monitoring and predator control*—Not required for this action.

2.d. *Evaporation ponds and open water sources*—BLM will ensure that the ponds are not available to ravens and other predators. Tortoise-proof fencing should be installed to prevent tortoises from entering the ponds.

RPM 3: Impacts to Desert Tortoise Habitat—Applies towards all actions that involve habitat impacts. *BLM, and other jurisdictional Federal agencies as appropriate, shall ensure their agency personnel, the project proponent, and their contractors implement the following measures to minimize loss and long-term degradation and fragmentation of desert tortoise habitat, such as soil compaction, erosion, crushed vegetation, and introduction of weeds or contaminants from construction, operation, and minor maintenance activities:*

Terms and Conditions:

3.a. *Habitat protection plans*—As required by BLM Resource Specialist, BLM shall ensure that the applicants develop and implement an approved fire prevention and response plan, erosion control plan, and a weed management plan approved by BLM prior to surface disturbance.

3.b. *Restoration plan*—BLM shall ensure that the applicant develop and implement a restoration/reclamation plan if pit is no longer in use. The plan will describe objectives and methods to be used, species of native plants and/or seed mixture to be used, time of planting, success standards, actions to take if restoration efforts fail to achieve the success standards, and follow-up monitoring. The plan will be prepared and approved prior to the surface disturbance phase of the project. Reclamation will be addressed on a case-by-case basis.

3.c. *Minimizing new disturbance*—Cross-country travel outside designated areas shall be prohibited. All equipment, vehicles, and construction materials shall be restricted to the designated areas and new disturbance will be restricted to the minimum necessary to complete the task (e.g., such as construction of one-lane access roads with passing turnouts every mile rather than a wider two-lane road).

All work area boundaries shall be conspicuously staked, flagged, or otherwise marked to minimize surface disturbance activities.

3.d. *Weed prevention*—Vehicles and equipment shall be cleaned with a high pressure washer prior to arrival in desert tortoise habitat and prior to departure from areas of known invasive weed and nonnative grass infestations to prevent or at least minimize the introduction or spread these species.

3.e. *Chemical spills*—Hazardous and toxic materials such as fuels, solvents, lubricants, and acids used during construction will be controlled to prevent accidental spills. Any leak or accidental release of hazardous and toxic materials will be stopped immediately and cleaned up at the time of occurrence. Contaminated soils will be removed and disposed at an approved landfill site.

3.f. *Residual impacts from disturbance*—Required for this project. As proposed, this project will disturb 132.1 acres of desert tortoise habitat; therefore, remuneration fees of \$111,360.30 are required as described below.

BLM shall collect remuneration fees to offset residual impacts to desert tortoises from project-related disturbance to desert tortoise habitat.

Remuneration fees will be used for management actions expected to promote recovery of the desert tortoise over time, including management and recovery of desert tortoise in Nevada. Actions may involve habitat acquisition, population or habitat enhancement, increasing knowledge of the species' biological requirements, reducing loss of individual animals, documenting the species status and trend, and preserving distinct population attributes. Fees will be used to fund the highest priority recovery actions for desert tortoises in Nevada

The current rate is \$843 per ac of disturbance, as indexed for inflation, effective March 1, 2015. The next adjustment will become effective March 1, 2016. The fee rate will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) on January 31st of each year, becoming effective March 1st. Fees assessed or collected for projects covered under this biological opinion will be adjusted based on the current CPI-U for the year they are collected. Information on the CPI-U can be found on the internet at: <http://stats.bls.gov/news.release/cpi.nr0.htm>.

RMP 7: Compliance and Reporting—Applies towards all actions. *BLM, and other jurisdictional Federal agencies as appropriate, shall ensure their agency personnel, the project proponent, and their contractors implement the following measures to comply with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in this biological opinion:*

Terms and Conditions:

7.a. *Desert tortoise deaths*—The deaths and injuries of desert tortoises shall be investigated as thoroughly as possible to determine the cause. The Service (702/515-5230), BLM wildlife staff (702/515-5000) and appropriate state wildlife agency must be verbally informed immediately and within 5 business days in writing (electronic mail is sufficient). The Authorized Desert Tortoise Biologist shall complete the Desert Tortoise Handling and Take Report (Appendix E).

7.b. *Non-compliance*—Any incident occurring during project activities that was considered by the FCR, authorized desert tortoise biologist, or biological monitor to be in non-compliance with this biological opinion shall be immediately documented by an authorized desert tortoise biologist. Documentation shall include photos, GPS coordinates, and details on the circumstances of the event. The incident will be included in the annual report and post-project report.

7.c. *Fence inspection—required for this project.*

Quarterly reports (January-March, April-June, July-September, and October –December) for monitoring and repair of tortoise-proof fencing as specified in Table 15, shall be submitted to the Service's Nevada Fish and Wildlife Office in Las Vegas. Reports are due within the first 30 days following each quarter (e.g., the report for quarter January-March is due April 30).

7.d. *Project reporting requirements*— Project proponents will provide BLM with compliance reports. Quarter (non-appended actions), annual, and comprehensive final project reports will be submitted to BLM and the Service's Nevada Fish and Wildlife Office in Las Vegas. Annual reports are required for all appended actions (except those completed and provided in a prior annual report). Annual reports will cover the calendar year and are due April 1st of the following year (e.g., the annual report for calendar year 2015 is due April 1, 2016). Quarterly reports for non-appended actions are due 15 calendar days following the quarter. Final project reports are due within 60 days following completion of the project or each phase of the project.

The Programmatic Biological Opinion Report to the Fish and Wildlife Service (Appendix G) will be used for quarterly, annual, and final project reports, and shall include all Desert Tortoise Handling and Take Reports (Appendix E). If available, GIS shape files will be included.

7.e. *Operation and maintenance*—A written assessment report shall be submitted annually to the Service outlining the operation and maintenance activities that occurred over the past year.

Report to include: It will include frequency of implementation of minimization measures, biological observations, general success of each of the minimization measures. All deaths, injuries, and illnesses of endangered or threatened species within the project area, whether associated with project activities or not, will be summarized in the annual report. The report is due April 1 of each year.

7.f. *Restoration monitoring*—Vegetation restoration success shall be monitored by project proponent and reported to BLM and the Service. Monitoring will include both qualitative and quantitative data collection and analysis. Monitoring frequency and parameters for restoration success will be described in the required restoration/reclamation plan.

8: Minimization Measures

8.a. The project applicant shall notify BLM wildlife staff at 702-515-5000 at least 10 days before initiation of the project. Notification shall occur before any activities begin that will damage or remove vegetation, such as off-road vehicle travel for surveys, soil testing, and clearing vegetation off the project site. The purpose of the notification is to ensure that the proper education program is given and to review expectations for compliance with the terms and conditions of the biological opinion.

8.b. Overnight parking and storage of equipment and materials, including stockpiling, shall be in previously disturbed areas or areas cleared by a tortoise biologist. If not possible, areas for overnight parking and storage of equipment shall be designated by the tortoise biologist in coordination with BLM and project proponent, which will minimize habitat disturbance.

8.e. Tortoise -proof fencing – Projects will require desert tortoise exclusion fencing in Areas A and B unless BLM and the Service determine that the project should not be fenced (e.g., powerlines, pipelines, and some roads). The fence may be permanent or temporary, as determined on a case-by-case basis. Fenced projects will require an initial tortoise clearance of the fenceline prior to fence construction, and a tortoise clearance (removal) within the fenced area following fence construction as described in the Desert Tortoise Field Manual (Service 2009).

An authorized desert tortoise biologist shall be onsite during construction of the tortoise-proof fence to ensure that no tortoises are harmed unless determined unnecessary by BLM and the Service. Any desert tortoises or eggs found in the fenceline will be relocated offsite by an authorized desert tortoise biologist in accordance with approved protocol (Service 2009). Tortoise burrows that occur immediately outside the fence alignment that can be avoided by fence construction activities shall be clearly marked to prevent damage to the burrow.

Following fence construction and prior to start of project activities within the fenced area, all desert tortoises shall be removed from the site. An authorized desert tortoise biologist shall oversee the survey for and removal of tortoises using techniques providing 100-percent coverage of all areas. All desert tortoise burrows and other species burrows,

which may be used by tortoises, will be examined to determine occupancy of each burrow by desert tortoises. Tortoise burrows shall be cleared of tortoises and eggs, and collapsed. Any desert tortoise or eggs in the fenced area will be removed under the supervision of an authorized desert tortoise biologist in accordance with Service protocol (Service 2009).

On phased development projects, the operator will have the option of initially fencing less than the total project acreage. The fenced area will be enlarged as the disturbance expands.

Inspection of exclusion fencing: The project proponent or operator shall be responsible for inspecting the fencing in accordance with Service requirements (Term and Condition 1.m.). Maintenance and repairs shall be performed promptly including removal of trash, sediment accumulation, tumbleweeds and other debris against the fence and restoration of zero ground clearance between the ground and the bottom of the fence, including recovering the bent or buried portion of the fence if not buried. A log shall be maintained to document dates of inspections, condition and issues observed, and date issues were resolved. The log shall be provided to BLM with project reports.

Removal of exclusion fencing: Temporary fencing shall be removed at the end of the construction activity. Permanent fencing may be removed upon termination and reclamation of the project, or when it is determined by BLM and the Service that a fence is no longer necessary.

Exclusion fencing along highways: Fencing should be installed to allow tortoises to use adequately sized culverts to cross under the road. During project design, the proponent and BLM will identify: 1) culverts that may serve as movement corridors underneath the road; 2) modifications that will be needed for culvert use by desert tortoises; and 3) locations suitable for installation of culverts at a future date, should it be determined necessary, and provide to the Service in writing.

8.f. Within desert tortoise habitat, any construction pipe, culvert, or similar structure with a diameter greater than 3 inches stored less than 8 inches above the ground will be inspected for tortoises before the material is moved, buried, or capped.

8.g. Trenches: All trenches and holes will be covered, fenced or backfilled to ensure desert tortoises do not become trapped unless alternate measures are in place as agreed by BLM and the Service. If trenches or holes are to remain open during construction, they will be checked for tortoises at least four times a day, at the start of day, at mid-morning, early afternoon, and at the end of the work day. The trenches or holes will also be checked immediately before backfilling regardless of the season. Tortoises found in the trench will be reported and moved out of harm's way in accordance with handling protocols (Service 2009).

Appendix E. Desert Tortoise Handling and Take Report

If a desert tortoise is killed or injured, immediately contact the U.S. Fish and Wildlife Service and BLM, by phone at the numbers below and complete Section 1 of the form.

Completed forms should be submitted to the BLM and Fish and Wildlife Service:

Bureau of Land Management
4701 North Torrey Pines Drive
Las Vegas, Nevada 89130
702-515-5000

U.S. Fish and Wildlife Service
4701 North Torrey Pines Drive
Las Vegas, Nevada 89130
702-515-5230

Project Name: Sterling Mine Plan Amendment to Expand Open Pit and Process Operations NEPA No.: DOI-BLM-NV-S030-2014-0015-EA Case File No./SRP No.: N-71676 BLM Section 7 log no.: NV-052-16-010	Report Date:
Fish and Wildlife Service Append File No.- 84320-2010-F-0365. R003 (84320-2016-F-0104)	
Authorized Desert Tortoise Biologist: _____ Employed by:	
Section 1: Complete all information below if a desert tortoise is injured or killed in addition to initial contact described above.	
If tortoise was injured <input type="checkbox"/> or killed <input type="checkbox"/> (check appropriate box):	
Date and time found: _____	
Found by: _____	
GPS location (NAD 83): easting: _____ northing: _____	
No. of photos taken: _____	
Disposition: _____ _____ _____	
Attach report with photos that describe in detail, the circumstances and potential cause of injury or mortality. For injuries include name of veterinarian and detailed assessment of injuries.	

Section 2: Complete all information below for each desert tortoise handled.

All instances of desert tortoise handling must be reported in this section and be included in the quarterly, annual, and final project reports.

Desert tortoise number: _____

Date and time found: _____ **Sex of tortoise:** _____

Air temperature when found: _____ **Air temperature when released:** _____

Tortoise activity when found: _____

Handled by: _____ **Approx. carapace length** _____

GPS location (NAD 83) found: easting: _____ **northing:** _____

GPS location released: easting: _____ **northing:** _____

Approximate distance moved: _____

Did tortoise void bladder; if so state approximate volume and actions taken:

Post handling or movement monitoring and observations:

Section 3: Complete for each tortoise burrow penned.

All instances of desert tortoise penning must be reported in this section and be included in the quarterly, annual, and final project reports.

Date and time of pen construction:

Began: _____ **Completed:** _____

Date and time pen removed: _____

Pen constructed by: _____

Why was tortoise penned? _____

How frequently was pen monitored? _____

Observations of desert tortoise behavior including time and date of observation:

Include photos of pen and burrow with report.

Appendix F. Section 7 Fee Payment Form

Biological Opinion File
Number: 84320-2010-F-0365.R003

Biological Opinion
Issued By: Nevada Fish and Wildlife Office, Las Vegas, Nevada

Species: *Mojave Desert Tortoise (Gopherus agassizii)*

Project Name Sterling Mine Plan Amendment to Expand Open Pit and Process Operations

NEPA No. DOI-BLM-NV-S030-2014-0015-EA

Case File/Serial #: N-71676

BLM Sec 7 log: NV-052-16-010

Project Proponent: _____

Phone Number: _____

Payment Calculations:	Clark County		Nye County		County	
	Critical habitat	Non-critical habitat	Critical habitat	Non-critical habitat	Critical habitat	Non-critical habitat
# acres anticipated to be disturbed on federal land				132.1		
Fee rate (per acre)				\$843.00		
Total cost/habitat type (per county)	\$ -	\$	\$ -	\$111,360.30	\$ -	\$ -
Total cost per county	\$		\$111,360.30		\$ -	

Total payment required (all counties): \$111,360.30

Amount paid: _____ **Date:** _____ **Check/Money Order #:** _____

Authorizing agencies: Bureau of Land Management, Las Vegas, Nevada

Make check payable to: Bureau of Land Management

Deliver check to:

Physical Address

Bureau of Land Management

Attn: Information Access Ctr

1340 Financial Blvd.

Reno, NV 89502

Credit Card Payments: Contact BLM State Office Public room at 775-861-6500

For BLM Public Room

Process check to:

Contributed Funds-All Other

WBS: LVTFFX000800

7122 FLPMA

All other Res. Dev. Project and Management

Remarks: LLNV934000 L71220000.JP0000
LVTFFX000800 Desert Tortoise Conservation Program

Please provide a copy of this completed payment form and the payment receipt to NV-930, Attn: T&E Program Lead

****T&E Program Lead will provide a copy to the appropriate District Office(s)**

**Appendix G. Programmatic Biological Opinion (File No. 84320-2010-F-0365)
Report to the Fish and Wildlife Service**

The information below should be completed by BLM or the Authorized Desert Tortoise Biologist for the project/action. Reports for all appended actions are required annually (due March 1 of each year for prior calendar year activities) and upon completion of the project/action.

Project Name: Sterling Mine Plan Amendment to Expand Open Pit and Process Operations

NEPA no.: DOI-BLM-NV-S030-2014-0015-EA

Case File no./SRP no.: N-71676

BLM Section 7 log no.: NV-052-16-010

Annual Report Project Report Completion

1. _____ Date:

2. Fish and Wildlife Service File No (for 84320-
appended
actions):

3. Species and critical habitat affected:

Desert tortoise Desert tortoise critical habitat

Other (identify):

4. Project/action status:

Not begun In Completed _____

progress* date _____

If in progress, state approximate percent complete: _____

5. Desert tortoise habitat disturbed:

Non-critical habitat		Critical habitat	
Proposed disturbance (ac)	Actual disturbance (ac)	Proposed disturbance (ac)	Actual disturbance (ac)
132.1			

6. Habitat of other species disturbed (identify species, non-critical, and critical habitat affected below):

7. Summary of individual desert tortoises taken (appended action):

Desert Tortoise:

	Adults		Juveniles
Exempted			
Actual			

Describe other individuals taken:

8. Name of authorized desert tortoise biologists and monitors on the project and the dates they were on the project.

9. Describe all non-compliance issues and events.

10. Desert tortoise burrow observed during activity/event:

Total number desert tortoises observed: _____

Total number desert tortoises burrows observed: _____

Attach a summary report detailing each desert tortoise and/or desert tortoise burrows observed during activity/event including tortoise activity when found, how the animal was avoided, what happened to the tortoise, the date and time encountered and GPS location (NAD 83 easting: _____ northing: _____)

11. Contact Information

Name _____

Company _____

Address _____

Phone _____

Signature _____

Date _____

Send completed form to:

Bureau of Land Management

Attn: Wildlife Staff

4701 North Torrey Pines Drive

Las Vegas, Nevada 89130

702-515-5000

U.S. Fish and Wildlife Service

4701 North Torrey Pines Drive



NEVADA DEPARTMENT OF WILDLIFE

Southern Region

4747 W. Vegas Drive, Las Vegas, Nevada 89108
Phone: 702-486-5127, Fax: 702-486-5133



14 December 2012

GILA MONSTER STATUS, IDENTIFICATION AND REPORTING PROTOCOL FOR OBSERVATIONS

Gila Monster Status

- Per Nevada Administrative Code 503.080, the Gila monster (*Heloderma suspectum*) is classified as a Protected reptile.
- Per Nevada Administrative Codes 503.090, and 503.093, no person shall capture, kill, or possess any part thereof of Protected wildlife without the prior written permission by the Nevada Department of Wildlife (NDOW).

The USDI Bureau of Land Management has recognized this lizard as a sensitive species since 1978. Most recently, the Gila monster was designated as an *Evaluation* species under Clark County's Multiple Species Habitat Conservation Plan (MSHCP). The evaluation designation was warranted because inadequate information exists to determine if mitigation facilitated by the MSHCP would demonstrably cover conservation actions necessary to insure the species' persistence without protective intervention as provided under the federal Endangered Species Act.

The banded Gila monster (*H.s. cinctum*) is the subspecies that occurs in Clark, Lincoln, and Nye counties of Nevada. Adult Gila monsters reach up to 360 mm (14 inches) total length, whereas hatchlings average 165 mm (6.5 in) total length. Found mainly below 5,000 feet elevation, its geographic range approximates that of the desert tortoise (*Gopherus agassizii*) and is coincident to the Colorado River drainage. Gila monster habitat requirements center on desert wash, spring and riparian habitats that inter-digitate primarily with complex rocky landscapes of upland desert scrub. They will use and are occasionally encountered out in gentler terrain of alluvial fans (bajadas). Hence, Gila monster habitat bridges and overlaps that of both the desert tortoise and chuckwalla (*Sauromalus ater*). Gila monsters are secretive and generally difficult to locate, spending >95% of their lives underground.

The Gila monster is the only venomous lizard endemic to the United States. Its behavioral disposition is somewhat docile. Although monsters commonly avoid confrontation, they will readily defend themselves if threatened. Most bites are considered illegitimate and consequential to harassment or careless handling. These lizards are not dangerous unless molested or handled and should not be killed.

Scant information exists on detailed distribution and relative abundance in Nevada. The Nevada Department of Wildlife (NDOW) has ongoing management investigations addressing the Gila monster's status and distribution, hence additional distribution, habitat, and biological

information is of utmost interest. In assistance to gathering additional information about Gila monsters in Nevada, NDOW will be notified whenever a Gila monster is encountered or observed, and under what circumstances (see Reporting Protocol below).

Identification



The Gila monster is recognizable by its striking black and orange-pink coloration and bumpy, or beaded, skin. In keeping with its namesake, the banded Gila monster retains a black chain-link, banded appearance into adulthood. Other lizard species are often mistaken for the Gila monster. Of these, the non-venomous western banded gecko (*Coleonyx variegatus*) and non-venomous chuckwalla the Gila monster. All three species share the same habitats.

The western banded gecko averages 130 mm [4 in] total length and is often mistakenly identified as a baby or juvenile Gila monster, but is much smaller than hatchling monsters (165 mm [6.5 in]). Western banded geckos have a finely granular skin and pattern that can be suggestive of the Gila monster to the untrained eye. However, western banded gecko heads are somewhat pointed at the snout and the relatively large eyes have vertical pupils. Snouts of Gila monsters are bluntly rounded and the small eyes have rounded pupils. Hatchling Gila monsters are a vivid orange and black, banded pattern.



Both juvenile and adult chuckwallas are commonly confused with the Gila monster. In general, chuckwallas have a longer tail, smoother scales, and a narrower head. Juvenile chuckwallas commonly have an orange and black, banded tail. Although banding of the tail fades as chuckwallas mature, their large adult size, up to 420 mm (17 in), rivals that of the Gila monster. Adult chuckwallas have a body shape somewhat suggestive of the Gila monster, but they lack the coarsely beaded skin and black and orange body pattern of the Gila monster.

Reporting Protocol for Gila Monster Observations

Field workers and personnel in southern Nevada should at least know how to: (1) identify Gila monsters and be able to distinguish it from other lizards (i.e., chuckwallas, western banded geckos; see "Identification" section above); (2) report any observations of Gila monsters to the Nevada Department of Wildlife (NDOW); (3) be alerted to the consequences of a Gila monster bite resulting from carelessness or unnecessary harassment; and (4) be aware of protective measures provided under state law.

- 1) Live Gila monsters found in harms way on the construction site will be captured and then

detained in a cool ($\leq 85^{\circ}\text{F}$), shaded environment by the project biologist or equivalent personnel until a NDOW biologist can arrive to collect data prior to releasing. Although Gila monsters are venomous and can deliver a serious bite, their relatively slow gait allows for capture by coaxing or carefully lifting the monster into an open bucket or box. (*P qvg < k'ku'pqv'yj g'kpvppv'qh' PFQY "vq"t gs wgu'wpt gc uqpc drg"cevkap"vq"r ek kxc vg"ecr wt gu=cff kskqpcr'eqqt f kpc vkqp"y kj "PFQY " y kn'erc t kq' rqi kakec r' r qkpwu="wug"eqo o qp"ugpug"cu'y gm'cu'c"rqi "j cpf rggf "kpwat wo gpv"JKgO"lj qxgn" upcng"j qqm_ "y j gp"j cpf rki "c" T kv "o qpugt*). A clean 5-gallon plastic bucket w/ a secure, vented lid; an 18"x 18"x 4" plastic sweater box w/ a secure, vented lid; or, a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location, Global Positioning System (GPS) coordinates in Universal Transverse Mercator (UTM) using the North American Datum (NAD) 83 zone 11. Date, time, and circumstances (e.g., biological survey, construction) and habitat description (i.e., vegetation, slope, aspect, substrate) will also be provided to NDOW.

- 2) Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. In the event a Gila monster is injured, you must contact NDOW and the animal, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses will not be covered by NDOW. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, date, time, habitat, and mapped location (GPS coordinates in UTM, NAD 83, zone 11).

- 3) Should NDOW's assistance be delayed, biological or equivalent acting personnel on site should detain the Gila monster out of harms way until NDOW personnel can respond. **'Vj g' I kv'b qpugt 'lj qwf 'dg'f gvclpgf 'wpvklPFQY 'dlkqpi kmvj cxg't gur qpf gf**. Should NDOW not be immediately available to respond, a digital (5 mega-pixle or higher) or 35mm camera will be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures will be provided to NDOW at the address above or the email address below along with specific location information including GPS coordinates in UTM (NAD 83, zone 11), date, time and habitat description. Pictures must show the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) an in focus, clear, overhead shot of the entire body (preferably with a ruler in the frame for scale; Gila monster should fill camera's field of view and be in sharp focus); (3) an in focus, clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).

Please contact NDOW Biologist Jason L. Jones at 702-486-5127 ext. 3718
 or by email at jljones@ndow.org for additional information regarding these protocols
