

**FINDING OF NO SIGNIFICANT IMPACT  
AND  
DECISION RECORD  
SUN VALLEY MINE CLOSURE  
(DOI-BLM-AZ-A020-2012-0004-EA)**

**FONSI:** Based on the analysis of potential environmental impacts contained in the above referenced environmental assessment, and considering the significance criteria in 40 CFR 1508.27, I have determined that the action will not have a significant effect on the human environment. An environmental impact statement is therefore not required.

**Decision:** It is my decision to approve the proposed Sun Valley Mine closure project within Vermilion Cliffs National Monument, Coconino County, Arizona, as described in the proposed action of *DOI-BLM-AZ-A020-2012-0004-EA*. This proposal is to install a bat passable grate over the mine shaft as stated in the EA.

The following best management practices will be implemented as part of this project.

- To eliminate the potential for disruption to hikers, installation of the bat grate will occur on a weekday, outside of peak hiking activity in the area.
- To minimize impacts to the visual landscape, no reflective material will be used in the bat grate. Metal will be either painted (in a color that blends with the surroundings) or non-reflective metal will be used.
- If an active bird nest is observed before or during construction, BLM biologists will be notified and measures such as rescheduling work until after nesting is complete or establishing a no disturbance buffer around the nest will be taken. This will minimize the risk of take to migratory birds as required in the Migratory Bird Treaty Act and the MOU between FWS and BLM signed in 2010.
- Those involved with project implementation will notify the BLM wildlife team lead if California condors visit the worksite while permitted activities are underway. Project activities will be modified or delayed where adverse effects to condors may result.
- The project site will be cleaned up at the end of each day the work is being conducted (e.g., trash removed, scrap materials picked up) to minimize the likelihood of condors or other raptors visiting the site. BLM staff may conduct site visits to the area to ensure adequate clean-up measures are taken.

**Plan Conformance:**

The action is in conformance with the Vermilion Cliffs National Monument (*VCNM*) *Resource Management Plan* (RMP), approved on January 29, 2008. The action is consistent with the decisions contained within this RMP (Section 1.3 of the EA). It has also been determined that the action will not conflict with other decisions throughout this RMP.

**Alternatives Considered:**

The EA considered two alternatives: the No Action Alternative and the Proposed Action. The No Action Alternative was not selected because the public would still be able to access the mine, and the site would continue to pose a potential threat to public safety.

**Rationale for the Decision:**

This decision has been made after considering impacts to the resources described and analyzed in the EA. As described in the EA, the BLM works to eliminate or reduce the dangers to public health and safety from abandoned mines on public lands. Sun Valley Mine poses a risk of death or serious injury to the public; installing the grate over the shaft will mitigate this public safety threat while providing bat passage into and out of the mine shaft, and protecting wilderness values. I have determined that the action does not result in any undue or unnecessary environmental degradation and is in conformance with the VCNM RMP.

**Administrative Review or Appeal Opportunities**

This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR, Part 4 and the attached Form 1842-1. If an appeal is taken, your notice of appeal must be filed at the Arizona Strip Field Office, 345 East Riverside Drive, St. George, Utah 84790, within 30 days from receipt of this decision. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition (request) pursuant to regulations 43 CFR 4.21(b) for a stay (suspension) of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the Office of the Solicitor (Department of the Interior, Office of the Field Solicitor, Sandra Day O'Connor U.S. Court House #404, 401 West Washington Street SPC44, Phoenix, AZ 85003-2151) (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Except as otherwise provided by law or other pertinent regulations, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

**Standards for Obtaining a Stay**

1. The relative harm to the parties if the stay is granted or denied,
2. The likelihood of the appellant's success on the merits,
3. The likelihood of immediate and irreparable harm if the stay is not granted, and
4. Whether the public interest favors granting the stay.

Lorraine M. Christian  
Lorraine M. Christian  
Arizona Strip Field Office Manager

Jan. 13, 2014  
Date

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

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**Environmental Assessment  
DOI-BLM-AZ-A020-2012-0004-EA**

**SUN VALLEY MINE CLOSURE**

**COCONINO COUNTY, ARIZONA**

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**Vermilion Cliffs National Monument**

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*January 2014*

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## Sun Valley Mine



**ENVIRONMENTAL ASSESSMENT  
DOI-BLM-AZ-A020-2012-0004-EA**

**SUN VALLEY MINE CLOSURE**

**VERMILION CLIFFS NATIONAL MONUMENT, COCONINO COUNTY, ARIZONA**

**1.0 INTRODUCTION**

**1.1 Background**

This Environmental Assessment (EA) has been prepared to disclose and analyze the proposed action and no action alternatives, and also to recommend best management practices that would eliminate or lessen environmental impacts from closure of an open shaft at the Sun Valley Mine. This EA will evaluate the impacts from the proposed closure of Sun Valley Mine, which involves installing a bat grate for public safety.

The EA is a site-specific analysis of potential impacts that could result from the implementation of one of the alternatives. The EA assists the Bureau of Land Management (BLM) in project planning and ensuring compliance with the National Environmental Policy Act of 1969, as amended (NEPA), and in making a determination as to whether any “significant” impacts could result from the analyzed actions. “Significance” is defined by NEPA and is found in the regulations at 40 Code of Federal Regulations (CFR) 1508.27.

An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of Finding of No Significant Impact (FONSI). If the decision maker determines that this project has “significant” impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record (DR) may be signed for the EA approving the selected alternative, whether the proposed action or another alternative. A DR, including a FONSI statement, documents the reasons why implementation of the selected alternative would not result in “significant” environmental impacts (effects) beyond those already addressed in the Arizona Strip Proposed Resource Management Plan (RMP)/Final EIS (BLM 2007).

Sun Valley Mine is an abandoned uranium mine site contained within the Paria Canyon-Vermilion Cliffs Wilderness and Vermilion Cliffs National Monument (see Appendix, Figure A-1). Portions of the head frame and other mine structures and debris are still in place, and the 80-foot vertical mine shaft is open. Horse wire was placed over the opening for public safety until a more permanent enclosure could be installed. The road leading to the site has not been maintained since the late 1950s and was designated in the Vermilion Cliffs National Monument RMP (BLM 2008a) as open to non-motorized uses. A hiker gate with an interpretive sign was installed at the beginning of this road near Highway 89A.

The Sun Valley Mine is located approximately twelve miles southwest of Marble Canyon in Coconino County, Arizona (Appendix, Figure A-2). This mine was established in 1954 (Lane 1982) through exploration programs to provide a source of uranium to the national energy program. The mine had been developed, ore extracted, and site abandoned by the late 1950s.

## 1.2 Purpose and Need

The Sun Valley Mine was designated as a cultural public use site in the Vermilion Cliffs National Monument RMP (BLM 2008a). BLM site visits have shown that the area receives moderate use and individual websites describe the mine location while discussing historic, mineral, and other Monument resources. The proposed project would close the mine shaft using a metal grate passable by bats. The project is therefore needed to mitigate safety hazards for the public at this designated public use site.

The purpose of this project is to help implement Goal 3 of BLM Arizona's Strategic Goals: Support Community Use; Public Safety; Abandoned Mine Reclamation, with minimal effects to wildlife, cultural and wilderness values (see [www.wilderness.net](http://www.wilderness.net)). This strategic goal directs BLM Arizona (in part) to remediate safety hazards at its abandoned mine sites. The project would therefore eliminate, or at least greatly reduce, this hazard while providing for bat conservation and the use of minimum tool methods in wilderness.

## 1.3 Vermilion Cliffs National Monument

As stated above, the project area is located within Vermilion Cliffs National Monument, designated by presidential proclamation in 2000. The purpose of this monument is to conserve, protect and preserve a vast array of outstanding "objects" (i.e. resources) for the benefit of current and future generations. These objects include spectacular geologic features, a wide variety of "outstanding biological objects that have been preserved by remoteness and limited travel corridors," cultural (prehistoric and historic) resources, and a sense of solitude, remoteness, and an unspoiled character (Presidential Proclamation No. 7374, 2000). The analysis of impacts to specific resources constitutes the analysis of impacts to Monument objects in this EA.

## 1.4 Conformance with Land Use Plan

The alternatives described in Chapter 2 are in conformance with the Vermilion Cliffs National Monument RMP, approved on January 29, 2008 (BLM 2008a). The alternatives are consistent with the following decisions contained within this plan. It has also been determined that the alternatives would not conflict with other decisions contained within the RMP.

- **LA-CL-02:** The Sun Valley Mine will be allocated to public use.
- **IMPL-CL-05:** The Sun Valley Mine Public Use Site will be developed for public use, including reconstruction of the head frame, construction of a bat grate, and interpretive signing. (See Fish and Wildlife decisions.)
- **DFC-HM-01:** All hazardous or potentially hazardous sites and situations, including hazardous materials, hazardous or solid wastes, abandoned mine sites, abandoned well sites, and other potential hazards on public lands, will be mitigated or eliminated.
- **MA-HM-04:** Public access to abandoned mine and well sites will be controlled by providing warning signage and barriers, as appropriate.
- **MA-HM-05:** As funding allows, abandoned mines will be identified and prioritized for remediation, restoration, or corrections as follows:
  - Those that are public safety hazards.

- Those that may contain high levels of heavy metals in waste rock or tailings.
  - Those that may be degrading water quality.
- **DFC-WF-07:** Adverse impacts to wildlife and wildlife resources will be avoided or mitigated.

## 1.5 Relationship to Statutes, Regulations, or other Plans

This EA has been prepared in accordance with the requirements of NEPA and any additional Federal, state, and local laws that may be relevant to the alternatives, such as those cited below.

The alternatives are consistent with the Fundamentals of Rangeland Health (43 CFR 4180.1) and Arizona's Standards and Guidelines, which were developed through a collaborative process involving the Arizona Resource Advisory Council and the Arizona BLM Standards and Guidelines team. In April of 1997, the Secretary of the Interior approved the Standards and Guidelines. These standards and guidelines address watersheds, ecological condition, water quality, and habitat for special status species. These resources are addressed later in this document.

**Surface Management Regulations (43 CFR 3809)** - The purpose of the Surface Management Regulations is to prevent unnecessary or undue degradation of public lands by operations authorized by the mining law. Operations that are properly permitted under the Surface Management Regulations by filing a notice or plan of operations with a 100 percent reclamation bond are not considered abandoned mines. Mine openings that were created prior to January 1, 1981, and have never had a notice or plan of operations filled for that particular feature (as is the case with the Sun Valley Mine) are considered abandoned.

Activities occurring on public lands are subject to all Federal, State, and local regulations concerning health and safety. While zoning laws or ordinances do not apply to federally-managed lands, the BLM strives that its actions are consistent with local plans to the extent possible. The project area is located in Coconino County, Arizona. The alternatives are consistent with the *Coconino County Comprehensive Plan* (adopted September 2003). While activities such as the proposed bat grate installation are not specifically addressed in the Coconino County Comprehensive Plan, the County Plan (page 41) does stress "Collaborative efforts with other agencies, organizations, and community groups [for] the safety of residents and visitors" (Coconino County 2003). The alternatives also do not conflict with decisions contained within this plan.

Executive Order 13186 requires the BLM and other Federal agencies to work with the U.S Fish and Wildlife Service (USFWS) to provide protection for migratory birds. Implementation of the alternatives is not likely to adversely affect any species of migratory bird known or suspected to occur in the area. No take of any such species is anticipated.

Activities occurring on public lands are subject to all Federal, state and local regulations concerning health and safety. In addition, the alternatives would comply with the following laws, and is consistent with applicable federal, state, and local laws, regulations, and plans to the extent possible.

- Endangered Species Act of 1973 as amended.
- Section 106 of the National Historic Preservation Act of 1966, as amended.

- Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001-3013; 104 Stat. 3048-3058).

## 1.6 Identification of Issues

Identification of issues for this EA was accomplished by considering the resources that could be affected by implementation of one of the alternatives.

A BLM interdisciplinary scoping meeting was conducted on April 22, 2012, which included the identification of potentially relevant or affected resources, issues, and/or concerns; any additional feasible alternatives that could achieve the purpose and need; potentially interested or affected stakeholders; and required special status species, cultural, and other inventories. A scoping letter was sent out on April 29, 2012, to 104 interested parties. Two emails and five letters were received in response to this scoping letter (see Chapter 5). The issues identified through this process, along with the rationale for analysis, are listed below.

- **Public Safety:** The Sun Valley Mine site consists of an open, vertical mine shaft that poses a potential safety risk to the public – an unsecured site such as this creates a risk of injury from falling down the shaft.
- **Threatened, Endangered, and Candidate Wildlife species:** California condors range across the Arizona Strip and are known to nest in the Vermilion Cliffs. Potential impacts to condors include noise disturbance and the deposition of consumable litter.
- **Wildlife, Including Bighorn Sheep, Migratory Birds and Sensitive Species:** Bats are known to use abandoned mine shafts for roosting and/or hibernation. Closure of Sun Valley Mine could impact bat use of the mine shaft if not designed properly. In addition, the mine site is located within the Vermilion Cliffs Wildlife Habitat Area, designated for protection of bighorn sheep. Closure activities could affect this species.
- **Wilderness:** There would be short term impacts to wilderness naturalness and solitude from the proposed project. A hand winch would be used to pull the fallen head frame away from the shaft and a small sledge hammer would create temporary noise associated with hammering in anchors needed to secure the grate over the abandoned mine shaft.
- **Visual Resources:** There could be Visual Resource Management (VRM) Class I values temporarily impacted with moving the head frame from the abandoned mine and installing a bat accessible grate over the vertical shaft.

## 2.0 DESCRIPTION OF THE ALTERNATIVES

### 2.1 Introduction

This EA focuses on the proposed action (Alternative A) and the no action (Alternative B) alternative. The no action alternative is considered and analyzed to provide a baseline for comparing the impacts of the action alternatives. Other alternatives were considered but eliminated from analysis (see Section 2.4 of this EA).

### 2.2 Alternative A: Proposed Action – Install Bat-Passable Grate

The BLM proposes to move the head frame and horse wire that is currently over the shaft, then secure a bat friendly grate over the shaft. The double-compartment shaft is 4 feet by 9 feet wide and approximately 80 feet deep (Appendix, Figure A-4). Access to the mine is on an existing primitive (two-track) route. No modification to the two-track route would be needed under the proposed action.

An inspection of the shaft by a qualified biologist was inconclusive regarding the current presence of bats, however, the inner mine area does have the potential to provide bat roosting sites. Therefore, a grate that is passable by bats and provides for public safety would be installed (see Appendix, Figures A-4 through A-8 for the proposed design). The grate would be constructed with 6 or 8 inch spacing of bars (see Figure A-6) to allow for bat egress and ingress. The BLM would build and transport the prefabricated grate to the mine site and securely install it over the exposed vertical mine shaft. This grate would be constructed with 3/4 inch metal rebar (Appendix, Figures A-5 and A-6) in four sections and transported to the site by two U. S. Forest Service pack mules. Each section would weigh about 120 pounds and each mule could carry two sections balanced on both sides of the pack saddle. Only one trip to the mine should be needed. The four sections would then be transported by hand across a deep dry wash by four persons to the site. Wire cutters would be used to remove the existing wire that covers the shaft. The wire and metal posts would be transported from the site with the pack mules on the return trip. The head frame would be moved slightly away from the shaft with a hand winch (fence stretcher) attached to a cable connected to a stake driven into the ground into competent bedrock several feet away. The four sections of the grate would be reconnected with metal bolts and placed over the shaft (see Figure A-5). The grate would be secured to the mine shaft with metal anchors. Ten to twenty metal barbed anchors (which are two and one-half feet long) would be hammered through the timbers and into the ground into competent bedrock on 45 degree angles through each joint, along the edges and four corners of the grate (see Figure A-5). The bedrock is stable and should be long lasting. The design was approved by the State Abandoned Mine Lands program lead. This project should be completed in one day, but may require two days and require five to six personnel to accomplish.

#### 2.2.1 Best Management Practices

- To eliminate the potential for disruption to hikers, installation of the bat grate would occur on a weekday, outside of peak hiking activity in the area.
- To minimize impacts to the visual landscape, metal would be either painted (in a color that blends with the surroundings) or non-reflective metal would be used.

- If an active bird nest is observed before or during construction, BLM biologists would be notified and measures such as rescheduling work until after nesting is complete or establishing a no disturbance buffer around the nest would be taken. This would minimize the risk of take to migratory birds as required in the Migratory Bird Treaty Act and the Memorandum of Understanding between FWS and BLM signed in 2010.
- Those involved with project implementation would notify the BLM wildlife team lead if California condors visit the worksite while permitted activities are underway. Project activities would be modified or delayed where adverse effects to condors may result.
- The project site would be cleaned up at the end of each day the work is being conducted (e.g., trash removed, scrap materials picked up) to minimize the likelihood of condors or other raptors visiting the site.

### 2.3 Alternative B: No Action

Under this alternative, the Sun Valley Mine would not be closed (i.e. the bat passable grate would not be installed) and the shaft would remain open. The wire spread over the shaft would remain as the only public safety measure.

### 2.4 Alternatives considered but eliminated from analysis

**a. Sealing the Shaft** – Sealing the shaft is an alternative that could have been utilized except it is inside wilderness and would require heavy equipment and no backfill material would be available without either hauling in material or excavating material from the site. This would create a visual contrast in a VRM Class I area, and would affect wilderness characteristics of the site. Although this method of closure is the most secure and permanent physical safety mitigation action, it would not be in conformance with the VRM class designation identified in the RMP, and would not be consistent with the Wilderness Act.

The use of expanding foam was also considered but is not durable – it can quickly break down with exposure to direct sunlight, as would be the case at the Sun Valley Mine. This method would require regular monitoring due to possible cave in.

Neither of these closure options would allow bat species access to the inner mine, and would therefore not meet the stated purpose and need of providing for public safety while having minimal impacts on wildlife and wilderness values.

**b. Use ATV or Pickup Truck to Transport Material** – This alternative would use a pickup truck or all-terrain vehicle (ATV) to transport the four prefabricated segments of the bat grate as close to the site as possible. There are six sites along the access route that would require extensive shovel work to allow a truck or ATV passage to the site. This alternative would require more soil disturbance and generate more noise in wilderness and would have more impacts on wilderness values than the proposed action. It would therefore not meet the stated purpose and need of providing for public safety while having minimal impacts on wilderness values.

**c. Use a Helicopter to Transport Materials** – Under this alternative, a helicopter would be used to transport the metal grate to the Sun Valley Mine site. However, utilizing a helicopter would have more impacts

than the proposed action on certain wildlife species such as bighorn sheep, California condors, and cliff-nesting raptors. Noise disturbance from helicopters would travel long distances, thereby increasing the zone of effect from a localized site (the mine shaft) to a broad area surrounding the site (including the travel corridor to and from the site). Bighorn sheep are highly sensitive to human disturbance, so helicopter use would likely cause the animals to flee the area while use is occurring. Furthermore, the Vermilion Cliffs National Monument RMP (Appendix G of the RMP) discourages aircraft use near the Vermilion Cliffs in order to avoid disturbing California condors (BLM 2008a).

### 3.0 AFFECTED ENVIRONMENT

The purpose of this chapter is to describe the existing environment potentially affected by the alternatives. The affected environment of this EA was considered and analyzed by an interdisciplinary team. Table 1 (below) addresses the elements and resources of the human environment considered in the development of this EA. The resources discussed in this chapter include the relevant physical and biological conditions that may be impacted with implementation of one of the alternatives, and provides the baseline for comparison of impacts described in Chapter 4.

#### 3.1 Elements/Resources of the Human Environment

The BLM is required to consider many authorities when considering a Federal action. Those elements and resources of the human environment that are subject to the requirements specified in statute, regulation, or executive order and must be considered in all EAs (BLM 2008b) have been considered by BLM resource specialists to determine whether they would potentially be affected by the alternatives. These elements and resources are identified in Table 1, along with the rationale for determination of potential effects. If any element or resource was determined to be potentially impacted, it was carried forward for detailed analysis in this EA; if an element or resource is not present or would not be affected, it was not carried forward for detailed analysis.

**Table 1. Elements/Resources of the Human Environment**

RESOURCE	RATIONALE FOR DETERMINATION	DETERMINATION
Air Quality	Air quality in the general area is good, although windblown dust can be a minor source of pollution. The project area is within an attainment area for all National Ambient Air Quality Standards. The proposed action could result in temporary, localized deterioration of air quality as a result of dust generated from hoof and foot traffic hauling materials to the site.	Present, but not affected
Area of Critical Environmental Concern	The proposed project area is not within an Area of Critical Environmental Concern.	Not present
Cultural Resources	The mine site is a cultural resource (historic) but is not considered eligible for the National Register of Historic Places due to its overall condition and relatively recent usage age. The proposed installation of a grate would have no effect on its value as an historic site.	Present, but not affected
Environmental Justice	The focus of the Environmental Justice evaluation is to determine whether the alternatives result in an inequitable distribution of adverse effects to special population groups, as compared to adverse effects on other population groups. These special population groups include minority or otherwise special ethnicity or low-income neighborhoods. There are no known special population groups occurring near the project area.	Not Present

RESOURCE	RATIONALE FOR DETERMINATION	DETERMINATION
Farmlands (prime or unique)	Prime or unique farmlands are not present on or adjacent to the proposed shaft closure.	Not present
Floodplains	Sun Valley Mine is not within a 100-year floodplain. It is located within Zone C, areas of moderate or minimal hazard from the principle source of flood in the area, on the Federal Emergency Management Agency (FEMA) flood maps (FEMA 1982).	Not present
Invasive, Non-native species	There are no known occurrences of noxious weeds within the proposed project area. Non-native invasive cheat grass may be present in the project area, but is not at a level to cause concern (i.e., at a level that would carry a fire), and would not be affected by implementation of either alternative.	Present, but not affected
Threatened, Endangered or Candidate plant species	There are no known threatened, endangered, or candidate plant species that occur within the project area.	Not present
Threatened, Endangered or Candidate animal species	The California condor, a Federally listed endangered species, is present throughout the Arizona Strip. Individuals that may occur at the project area are part of a non-essential experimental population under section 10(j) of the Endangered Species Act. Construction activities often result in the creation of micro-trash. Condors are attracted to micro-trash and may ingest it. Micro-trash includes bottle caps, pull tabs, broken glass, cigarette butts, small bits of plastic, bullets and casings, etc. During the breeding season the adults return to the nest where they then regurgitate this to feed the chicks. Because the chicks are unable to regurgitate, the micro trash accumulates in their stomachs and causes death. Micro-trash is the leading cause of condor chick mortality. However, implementing the best management practices listed in Section 2.2.1 would reduce the likelihood of this occurring. In addition, no condor nests are known to occur within 30 miles of the project area. The alternatives are therefore not expected to affect California condors.	Present, but not affected
Wastes (hazardous or solid)	The proposed best management practices listed in Section 2.2.1 would not allow the disposal of waste, including petroleum products. Hazardous materials would therefore not be present in the project area.	Not present
Water quality (drinking/ground)	The proposed project would not affect ground water because the regional aquifer is more than 1,000 feet below the Sun Valley Mine. The proposed project, therefore, is not expected to affect water quality.	Present, but not affected
Wetlands/ Riparian Zones	No wetlands or riparian zones exist within the project area.	Not present
Wild and Scenic Rivers	There are no river segments classified as designated, eligible, or suitable under the Wild and Scenic Rivers Act within the project area.	Not present
Woodland/ Forestry	No forests or woodlands are present on or adjacent to the proposed project area.	Not present
Recreation	The Sun Valley Mine is in designated wilderness. The installation of the bat grate would not affect the recreation activities, settings, or benefits of the area because the mine and open shaft already exist and any of the identified recreation activities and benefits could still occur.	Present, but not affected.
Livestock grazing	Sun Valley Mine is within an active grazing allotment (Badger Creek). Due to the geographic location of the mine and sparseness of vegetation, the AUM preference would not be affected by the proposed action.	Present, but not affected
Soils	Very little if any soil would be disturbed or impacted during the grate installation.	Present, but not affected
Socioeconomic Conditions	The economic base of the Arizona Strip is mainly ranching with a few uranium mine operations. Nearby communities are mostly supported by tourism (including outdoor recreation).	Present, but not affected
Vegetation	Some brush and other small plants could be crushed or disturbed during the minor movement of the head frame.	Present, but not affected
Visual resources and other issues	The project area is within a designated VRM Class I area. The objective of this VRM class is to preserve the existing character of the landscape; the level of change of the characteristic landscape should be very low and must not attract attention. VRM Class I provides for natural ecological changes, but does not preclude very limited management activity. Short term impacts from noise and dust would be generated during installation of the bat grate.	Present and potentially affected

RESOURCE	RATIONALE FOR DETERMINATION	DETERMINATION
Mineral Resources	Locatable mineral resources such as uranium are known to occur in the area (as demonstrated by the presence of Sun Valley Mine), but because this is a designated wilderness (established in 1984), no claims can be filed. Salable and leasable mineral development, including oil and gas, is also precluded by the wilderness designation. Mineral resources would therefore not be affected by either of the alternatives.	Present, but not affected
Paleontology	No paleontological resources are known to occur within the area.	Not present
Lands/Access	Access to public lands would not be altered or impaired by implementation of the proposed action. No other lands issues have been identified in connection with the alternatives.	Present, but not affected
Public Health and Safety	The Sun Valley Mine site consists of an open, vertical mine shaft that poses a potential safety risk to the public – an unsecured site such as this creates a risk of injury from falling down the shaft.	Present and potentially affected
Wilderness characteristics	The proposed project does not occur within areas managed to protect wilderness characteristics.	Not present
Wilderness	The proposed action would occur in designated wilderness and could affect wilderness values.	Present and potentially affected
Wildlife, including sensitive species and migratory birds	Disturbance to wildlife could occur during the transport and installation of the bat grate. In addition, bat use of the mine shaft could be affected if the grate is not properly designed (i.e., is not bat passable).	Present and potentially affected

### 3.2 General Setting

The Sun Valley Mine site is located approximately twelve miles southeast of the community of Marble Canyon, Arizona in T. 38 N., R. 6 E., SE $\frac{1}{4}$ SW $\frac{1}{4}$ , section 6, Gila and Salt River Meridian, in Coconino County, Arizona (Appendix, Figure A-1). Marble Canyon, just west of Glen Canyon National Recreation Area, has a population of approximately one hundred residents. The small communities of Cliff Dwellers and Vermilion Cliffs are three and seven miles, respectively, to the northeast of the mine site.

Access to the mine is provided on U.S. Highway 89A, west of Marble Canyon and east of the Kaibab National Forest. The route (an abandoned dirt road) to Sun Valley Mine from Highway 89A is approximately 1.2 miles long. The mine site is located in a small narrow valley behind steep hills at the base of the Vermilion Cliffs and is not visible from the highway.

The climate at this locality is semiarid, with occasional monsoonal moisture, characterized by moderate daily and annual ranges in temperature. Winters are mild and summers are hot. Spring and fall weather is variable from year to year and may exhibit extended fair mild weather or rain and snow storms. The average annual temperature range is estimated to be around 55° F., and transitory extremes are about 105° F. and 20° F. Average annual precipitation is 10 to 11 inches.

### 3.3 Resources Brought Forward for Analysis

#### 3.3.1 Public Safety

The Abandoned Mine Lands program addresses mine sites that were abandoned prior to January 1, 1981, the effective date of the BLM's surface management regulations (43 CFR 3809). One objective of the program is to protect public safety and reduce liabilities by eliminating or reducing risks posed by abandoned mines. As

stated previously, Sun Valley Mine consists of an open 80-foot vertical shaft. Should a person fall into the shaft, this would likely be accompanied by falling rocks and crumbling of the sides of the shaft. Even if a person were to survive the fall, it would be next to impossible to climb back out. Sun Valley Mine was identified as a public use site in the Vermilion Cliffs National Monument RMP, and it is therefore important for the BLM to provide for the safety of its visitors.

### **3.3.2 Threatened, Endangered, and Candidate Wildlife Species**

#### ***California Condor***

The California condor was listed as endangered on March 11, 1967 (32 FR 4001). The last wild condor was reported in Arizona in 1924. On October 6, 1996, the USFWS announced its intention to reintroduce California condors into northern Arizona/southern Utah and to designate these birds as an experimental, nonessential population under Section 10(j) of the Endangered Species Act (16 USC 1531). There is no critical habitat designation associated with the experimental population.

The experimental, non-essential area (10(j) area) is designated on remote Federal (BLM, U.S. Forest Service, and National Park Service) and American Indian Reservation lands in northern Arizona, with limited private lands extending north into Utah and Nevada. The Federal Register (FR) notice designating the experimental, non-essential population (50 FR 54043) defines the eastern boundary of this population area as Highway 191 from Utah into Arizona to the intersection with Interstate 40; the southern boundary as Interstate 40 from the junction with Highway 191 west across Arizona to Kingman; the western boundary from Kingman northwest along Highway 93 to Interstate 15 into Utah; and the northern boundary as Interstate 70 in Utah. Currently, BLM-administered lands within the 10(j) area in Arizona occur within the management areas of the Arizona Strip District and Kingman Field Office.

The primary condor release site is on BLM-administered lands atop the Vermilion Cliffs, 15 miles from Sun Valley Mine. In October 1996, six California condors were released at the Vermilion Cliffs; since then, additional birds have been released. As of September 2013, there were 72 wild birds in the Arizona/Utah population (Parrish 2013). Free-flying condors tend to concentrate in areas near the release site, areas of Zion and Grand Canyon National Parks, and the eastern and western slopes of the Kaibab Plateau. They may also cover great distances inside and outside the 10(j) area.

Carcasses of large mammals, such as deer, elk, bighorn sheep, range cattle, and horses, are expected to be the primary sources of food for condors released at the Vermilion Cliffs. Most California condor foraging occurs in open terrain. Typical foraging behavior includes long-distance reconnaissance flights, lengthy circling flights over a carcass, and lengthy waits at a roost or on the ground near a carcass (USBR 1999). Condors will also cue into the activity of ravens and other scavengers to locate food sources.

California condors often use traditional roosting sites near important foraging grounds. Cliffs and tall conifers, including dead trees (i.e., snags), are generally used as roost sites in nesting areas. The landforms present near the project area such as cliffs and plateaus are conducive to use by condors. While condors have the potential to occur within the general area, no nests have been verified in the project area.

### 3.3.3 Wildlife, Including Bighorn Sheep, Migratory Birds and Sensitive Species

#### ***Desert Bighorn Sheep***

Desert bighorn sheep habitat has been identified from habitat analysis that evaluates a combination of slope, topography, aspect, vegetation, proximity to escape cover, and water availability (Bighorn Sheep Core Team 2012). To escape predators, bighorn sheep prefer rough, rocky terrain with slopes greater than 20%, as is found in the Vermilion Cliffs. During the hot summer months, sheep stay in shaded areas near water as much as possible and are seldom found more than three miles from dependable water sources. When rain or snow-fall occurs, bighorn sheep expand their use of suitable habitat and range out from permanent waters. They also commonly drink from ephemeral pools of water found in rock pockets (Bighorn Sheep Core Team 2012).

Sun Valley Mine is located within the Vermilion Cliffs Wildlife Habitat Management Area, which is designated for bighorn sheep. Surveys conducted in 2011 by the Arizona Game and Fish Department (AGFD) resulted in an estimated population of 100 sheep in this area. Bighorn sheep tracks and scat were seen at the project site during a field visit in February 2012. Forage plants are minimal in the area around the mine shaft and reliable water is nonexistent within 1.5 miles of the site.

#### ***Migratory Birds***

The Migratory Bird Treaty Act protects against the take of migratory birds, their nests, and eggs except as permitted. Various migratory birds may use the project area for foraging, however habitat for migratory birds is very limited in the area around the mine shaft as there are no trees, shrubs, or water sources. Accordingly, very few birds were recorded during visits to the site (northern harrier, common raven, and black-throated sparrow). Other birds that may occur near the site include rock wren, canyon wren, and rufous-crowned sparrow.

#### ***Sensitive Species***

Based on the presence of suitable habitat and/or historical records of occurrence, the following BLM Sensitive species may occur:

- Golden eagle (*Aquila chrysaetos*)
- Peregrine falcon (*Falco peregrinus*)
- House Rock Valley chisel-toothed kangaroo rat (*Dipodomys microps leucotis*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Allen's big-eared bat (*Idionycteris phyllotis*)
- Spotted bat (*Euderma maculatum*)
- Cave myotis (*Myotis velifer*).

#### **Golden Eagle and Peregrine Falcon**

Both of these raptors frequently nest in open country on sheltered ledges or shallow caves found on high cliff faces such as those found at the Vermilion Cliffs. Foraging activities occur over large home ranges with small

to medium sized mammals and birds being the main prey items taken. Golden eagles will also feed on carrion when available.

Good habitat for both species is available near the project site. High cliffs occur within one mile of the mine shaft providing access to a variety of habitats including pinyon-juniper woodland (on the Paria Plateau, to the west of the mine site), shadscale/saltbush desert, Great Basin blackbrush (in House Rock Valley near the rim of Marble Canyon – east of the mine site), grassland (in House Rock Valley), and the Colorado River riparian corridor (to the east of the mine site). Two historic nest sites for peregrine falcons occur within 5 miles of Sun Valley Mine and golden eagles have been recorded in House Rock Valley.

### **House Rock Valley Chisel-toothed Kangaroo Rat**

This subspecies is found only in House Rock Valley of northern Arizona, in desert valleys dominated by shadscale (*Atriplex confertifolia*) and four-wing saltbush (*Atriplex canescens*). It generally occurs on rocky slopes in some areas; shrub-dominated areas with sparse grasses are the preferred habitat for this subspecies (AGFD 2005). Nests are found in underground burrows that typically open near the base of shrubs.

Chisel-toothed kangaroo rats (including the House Rock Valley subspecies) are basically solitary. Reported average home range size varies from less than one hectare (approximately two acres) to about five hectares (12 acres) (O'Farrell 1997)). Diet generally is dominated by leaves (especially of saltbush, from which hyper saline outer layers are removed) in the northern and central parts of the range, and dominated by seeds in the south. They are known to climb saltbush plants to forage for leaves and/or seeds which they cache in burrows. This species is primarily nocturnal and active throughout the year and is not known to aestivate (i.e. enter a state of dormancy to escape high summer temperatures) or hibernate.

Occurrence records for the House Rock Valley chisel-toothed kangaroo rat, dated from 1937, do exist for the area surrounding the mine shaft. However, habitat at the project site lacks the necessary shadscale/saltbush shrub component preferred by this subspecies and no burrows were located during site visits.

### **Bats**

No bat surveys have been conducted at Sun Valley Mine, however five historic mist-net sites occur within 25 miles of the mine. Sixteen bat species have been captured at these sites, including four BLM sensitive species: Townsend's big-eared bat, Allen's big-eared bat, spotted bat, and cave myotis. All four of these species have been documented to use abandoned mines for roost and/or hibernacula sites. Although bat use of Sun Valley Mine is unknown at this time, we assume that the site is being utilized. Abandoned mines provide important habitat for many species of bats and keeping these resources available on the landscape is recommended (Sherwin et al. 2009, AGFD 2003a).

Mines have proven to be particularly important roost sites for Townsend's big-eared bats (Diamond 2007; Altenbach and Milford 1995). Morrison and Fox (2009) detected Townsend's big-eared bats at 38% of inactive mines surveyed in the Great Basin and Sherwin et al. (2000) found day roosts in 21.2% of mines surveyed in Utah. Hayes et al. (2011) found hibernacula in 29% of mines surveyed in Colorado. In Arizona, summer day roosts are found in caves and mines from desert scrub up to woodlands and coniferous forests. Night roosts may often be in abandoned buildings. In winter, they hibernate in cold caves, lava tubes and mines mostly in

uplands and mountains from the vicinity of the Grand Canyon to the southeastern part of the state (AGFD 2003b). These bats prefer to hang from open ceilings in caves or mines and do not use crevices.

**Allen's big-eared bat**, also referred to as Allen's lappet-browed bat, is one of the most poorly known bat species in North America. This species is often found near boulder piles, cliffs, rocky outcroppings, or lava flows. Preferred habitats for the species include rocky and riparian areas in woodland and scrubland regions. This bat is also known to roost in abandoned mine shafts (Pima County 2011) often in association with Townsend's big-eared bats. These bats feed on a variety of soft-bodied insects either catching them in flight or gleaning them from foliage (AGFD 2001).

**Spotted bats** have been found from low desert in southwestern Arizona to high desert and riparian habitats in northwestern Arizona and Utah to conifer forests in northern Arizona and other western states. They are found in desert scrub, riparian, pinyon-juniper woodlands, and montane coniferous forests at elevations up to 8,670 feet. They generally roost in small cracks found in cliffs and stony outcrops but do use abandoned mines. Morrison and Fox (2009) detected spotted bats at 15% of mines surveyed in the Great Basin. They forage on large flying insects, primarily moths (AGFD 2003c).

**Cave myotis** roost in caves, tunnels, mine shafts, and under bridges and sometimes in buildings within a few miles of water. There are a number of records of 1 or a few individuals roosting in cliff and barn swallow nests. In summer, they are apparently tolerant of high temperatures and low humidity. Winter roosts in Arizona are wet mine tunnels above 6000 feet (AGFD 2003a).

### 3.3.4 Wilderness

Sun Valley Mine is within the Paria Canyon-Vermilion Cliffs Wilderness. This wilderness area is known for its beauty and solitude. The Vermilion Cliffs portion of the wilderness (where the mine site is located) is composed of a spectacular 3,000-foot escarpment that dominates the area with its colorful Navajo Sandstone face, steep and boulder-strewn slopes, rugged arroyos, and stark overall appearance. The area is remote, natural and undeveloped, other than the historic remnants of the access roads, scattered historic artifacts, mine tailings, collapsed wooden head frame, and mine shaft at this specific location. There are outstanding opportunities for solitude; little recreation occurs in this location because it is in such a remote location.

A minimum requirement analysis was conducted for this project using the Minimum Requirements Decision Guide (MRDG) Worksheets ([www.wilderness.net/MRDG](http://www.wilderness.net/MRDG)) (see Appendix Figure A-9). This provides the decision maker information on making the best decisions in the Paria Canyon-Vermilion Cliffs Wilderness to meet the minimum requirements for administering this area in the wilderness and preserving wilderness character. This analysis assisted the BLM in identifying the minimum tools necessary to protect the wilderness character while providing for the health and safety of the public.

### 3.3.5 Visual Resources

BLM inventories and classifies public lands in order to identify and maintain areas that contain important scenic qualities; the Visual Resource Inventory classification system is based on a combination of three elements, including scenic quality, visual sensitivity, and distance zones, with the most important to visitors probably being scenic quality (BLM 1986). Scenic quality is described as the visual appeal of an area. The rating is

based on seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. BLM lands fall into one of four VRM classes, which represent the relative value of the visual resources (BLM 2007).

Sun Valley Mine occurs within a designated VRM Class I area. The objective for this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude limited management activity. The level of change of the characteristic landscape should be low and must not attract attention by the casual observer.

## **4.0 ENVIRONMENTAL CONSEQUENCES**

The potential consequences or effects of both alternatives are discussed in this section (including a description of the direct and indirect impacts, and cumulative effects if any). Impacts are defined as modifications to the existing condition of the environment and/or probable future condition that would be brought about by implementation of one of the alternatives. The intent is to provide the scientific and analytical basis for comparison of the effects of each alternative.

Impacts can be direct or indirect; direct impacts are those effects that are caused by the action or alternative and occur at the same time and place, while indirect effects are those effects that are caused by or would result from an alternative and are later in time or further removed in distance, but that are still reasonably certain to occur. Cumulative effects are generally assessed using the environmental impacts of past, present, or reasonably foreseeable future actions within the project area.

The impact analyses in the following sections were based on knowledge of the resources and the project area, review of existing literature, information provided by experts and other agencies, and professional judgment.

### **4.1 Environmental Consequences of the Proposed Action (Alternative A)**

#### **4.1.1 Public Safety**

The BLM's abandoned mine program works to eliminate or reduce the dangers to public health and safety from abandoned hard rock mines on public lands. Unsecured abandoned mines, such as Sun Valley Mine, pose a risk of death or serious injury by falling down the shaft. The proposed grate would therefore mitigate this public safety threat. The proposed grate would be secured to competent rock around the opening so that the shaft would not be accessed, either intentionally or unintentionally, and the grate would not collapse. Thus, visitors to the site would be protected from the hazards connected with an open mine shaft.

#### **4.1.2 Threatened, Endangered, and Candidate Wildlife Species**

##### ***California Condor***

The proposed action would not alter any habitat components (cliff faces or roost sites) used by condors. However, human activities could have an effect on California condors if they intrude into areas where the species is roosting, foraging, or feeding. Condors are naturally curious and often fly near human activity areas

such as Grand Canyon Village. This behavior can place the birds at risk, particularly from ingestion of microtrash. Microtrash including small bits of plastic and metal such as bottle caps, pop-tops and broken glass that are inadvertently fed to hatchlings by their parents is an important factor affecting condor breeding success (Grantham 2007; Mee et al. 2007). Because bone chips are a normal part of a growing condor's diet and provide an important source of calcium to mineralize growing bones, it is generally assumed that adult condors inadvertently feed bits of microtrash to their young believing the hard pieces to be bone (Houston et al. 2007). Although the digestive systems of young condors might be well adapted to digesting bone fragments, they are not suited to handling plastic, metal and glass. Microtrash may come from a variety of possible sources, including scattered refuse piles.

Activities proposed in this alternative would occur in areas where condors likely fly over, since California condors occur in the Vermilion Cliffs and nearby Marble Canyon. Inadvertent harassment of condors occurring within the project area would be negligible. In the unlikely event that condors visit the project area during construction, best management practices would be followed to minimize or eliminate any disturbance or interactions with this species (see Section 2.2.1). In addition, any microtrash unintentionally left by workers packing in materials for the bat grate and/or workers constructing the grate would be removed. Therefore, the proposed action would result in **no effect** to the California condor.

#### **4.1.3 Wildlife, Including Bighorn Sheep, Migratory Birds and Sensitive Species**

##### ***Desert Bighorn Sheep***

The proposed action would not alter any habitat components utilized by bighorn sheep. The nearest water sources are 1.5 miles from the project area and vegetation at the Sun Valley Mine site is minimal. Sheep would likely avoid the area during installation of the grate, which is expected to take one day. This would be a negligible amount of disturbance given the amount of habitat available in the Vermilion Cliffs Habitat Area and given that the project area does not contain any water resources and little forage.

##### ***Migratory Birds***

The proposed action would not alter habitat for migratory birds nor would it interfere with nesting, roosting, or foraging activities. Habitat for birds in the project area is minimal because the area is largely devoid of vegetation. In addition, the short time period of disturbance during installation of the grate (one or two days) would not be substantial enough to have an adverse effect on migratory birds. Best management practices relevant to migratory birds would be followed, thereby reducing any impact from the proposed action.

##### ***Sensitive Species***

##### ***Golden Eagle and Peregrine Falcon***

Similar to the California condor, the proposed action would not alter any habitat components (cliff faces or roost sites) used by these raptors. Both species may avoid the area during installation of the grate which is expected to take one day. This would be a negligible amount of disturbance given the amount of habitat available in the Vermilion Cliffs and given that the project area does not contain water and few forage resources. Therefore, the proposed action would result in no impact to golden eagles or peregrine falcons.

## ***House Rock Valley Chisel-toothed Kangaroo Rat***

Project activities included in the proposed action would occur on previously disturbed sites such as the old road leading to the mine shaft and the area around the mine shaft itself. No forage plants or burrow sites would be affected by the proposed action and therefore no impacts to this species are expected because these areas are largely devoid of vegetation and contain none of the important shadscale/saltbush shrubs important to this subspecies for use as forage resources or burrow sites.

## **Bats**

Gates and grates have been used to control human access to mines and caves for over 40 years. A wide variety of “bat friendly” designs have been used with varying degrees of success (White and Seginak 1987). Design selection must take into account the size and type (adit or shaft) of opening, the target species of bats and their ecology, public safety, and the risk of vandalism or illegal entry. Recommended design criteria for gates/grates allow for free passage of bats while precluding human entry.

Disturbance from human entry can cause bats to abandon roost sites (Wegiel and Wegiel 1998) and has been shown to increase flight activity in hibernating bats (Thomas 1995). White-nose syndrome has reportedly killed as many as 5.7 million bats in the United States since its discovery in 2006 (USFWS 2012). One suspected cause for the rapid spread of this fungus is transmittal from infected caves to uninfected caves by humans (BCI 2012). In response, many land management agencies have issued orders prohibiting human entry into caves and abandoned mines in an attempt to prevent the spread of white-nose syndrome ([www.caves.org/WNS/Cave\\_Closures.htm](http://www.caves.org/WNS/Cave_Closures.htm)). No closure orders have been issued for the Arizona Strip because white-nose syndrome has not been reported in Arizona or adjacent states ([www.azgfd.gov/w\\_c/whiteNoseBats.shtml](http://www.azgfd.gov/w_c/whiteNoseBats.shtml)).

Improper design of bat gates can restrict movements or alter flight patterns into or out of entrances to caves and mines. Some studies have shown an increase in energy expenditure by bats at newly gated mines (Spanjer and Fenton 2005) while others have shown no restriction in movements (Currie 2000). Diamond (2007) found a 6-fold increase in circling activity by Townsend’s big-eared bats before entering a newly gated mine. Pugh and Altringham (2005) found that a minimum spacing of 150 mm (5.9 inches) had no significant effect on bat swarming behavior at a cave gate.

Currie (2000) recommends horizontal bar spacing of 5.75 inches and vertical spacing of 24 inches on gates at vertical openings (adits). Bat Conservation International also recommends minimum spacing of 5.75 inches on grates for mine shafts and suggests that some species of bats, including Townsend’s big-eared bat, may fly through cable net structures with spacing as small as 4 inches (Sherwin et al. 2009).

The bat grate proposed to be installed at Sun Valley Mine would have spacing between bars of 6 to 8 inches. This spacing is compatible with the current recommendations proposed by Bat Conservation International. Although some sources call for 24-inch spacing on the “vertical” bars (Currie 2000), this was considered too large to prevent entry for small children at this site.

Visitation to Sun Valley Mine is low and entry into the mine shaft by humans is likely a rare occurrence. However, excluding entry into the mine would benefit any bat species that may be present by eliminating the potential for disturbance and possible abandonment of a roost or hibernaculum site. The potential for the spread of white-nose syndrome by human contamination would also be eliminated with the installation of the proposed grate.

Bats may be impacted by increased flight time or maneuvering with the presence of the grate. However, bats potentially using the mine shaft in its current state must already avoid a large amount of debris from the fallen head frame (Appendix, Figure A-3). The proposed action would remove debris from over the shaft entrance (Appendix, Figure A-3) prior to installing the grate, thereby opening it up to potential use by bats. Installation of the proposed grate would likely provide a clearer and more consistent flight path for bats to utilize when entering or exiting the mine shaft. The proposed action would have a net beneficial impact on bat species, including the four sensitive species listed above, that potentially use the mine now or may use it in the future.

#### **4.1.4 Wilderness**

The remoteness, naturalness and outstanding opportunities for solitude (wilderness character in this portion of the wilderness) would be temporarily affected by the noise and dust associated with moving large objects with hand winches, hammering in anchors, and moving the metal bat grate up the trail and head frame debris down the trail for a short time period (anticipated at one day, although it could take two days). Effects to wilderness character would not be permanent or long-term. The MRDG Worksheets (see Appendix, Figure A-9) found that the proposed action is the minimum necessary to successfully, safely, and economically accomplish the project objective.

#### **4.1.5 Visual Resources**

The project meets Class I VRM standards as the grate would not add any contrast to the existing debris surrounding the mine's entrance. The proposed action includes a best management practice that no reflective material would be used in the grate, or the grate would be painted in a color that blends with the surroundings (see Section 2.2.1). In addition, the bat grate would lie flush to the ground surface (or slightly below ground level) so would not be visible to a casual observer (unless standing right at the mine site). The only effects to the characteristic landscape from the proposed action would be from the temporary foot and animal traffic on the existing route and around the mine site that could cause some short-term dust. (See Visual Contrast Rating Worksheet in the Appendix, Figure A-10.)

#### **4.1.6 Monitoring and Compliance**

The BLM would monitor the grated shaft one or more times a year to ensure the grate is in good condition and intact over the mine shaft.

### **4.2 Environmental Consequences of No Action (Alternative B)**

Under the "No Action" alternative the proposed bat grate would not be installed. The head frame and horse wire covered shaft would remain unchanged (see Figure A-3).

#### **4.2.1 Public Safety**

The public would still be able to access the interior of the mine. All they would need is a wire cutting tool to remove the wire that is presently over the shaft. It would therefore not be difficult for a person to climb into the open 80-foot vertical shaft associated with this mine. As described previously in this EA, this would likely be accompanied by falling rocks and crumbling of the sides of the shaft, making it next to impossible to climb back out. Sun Valley Mine was identified as a public use site in the Vermilion Cliffs National Monument RMP, and it is therefore important for the BLM to provide for the safety of its visitors. Since this alternative would not close the mine shaft, the site would continue to pose a potential threat to public safety. An existing danger sign (Page iii) would remain at the shaft area.

#### **4.2.2 Threatened, Endangered, and Candidate Wildlife Species**

##### ***California Condor***

Under the No Action Alternative the grate would not be installed over the mine shaft and the site would be left as is. No disturbance from construction activities would occur. Therefore, the no action alternative would result in **no effect** to the California condor.

#### **4.2.3 Wildlife, Including Bighorn Sheep, Migratory Birds and Sensitive Species**

##### ***Desert Bighorn Sheep***

Under the No Action Alternative the grate would not be installed over the mine shaft and the site would be left as is. No disturbance from construction activities would occur, eliminating the potential for short-term displacement from the project area and resulting in no impact to this species.

##### ***Migratory Birds***

Under the No Action Alternative the grate would not be installed over the mine shaft and the site would be left as is. No nest or roost sites would be affected by this alternative and no impacts to these species are expected because no disturbance from construction activities would occur, eliminating the potential for short-term displacement from the project area.

##### ***Sensitive Species***

##### **Golden Eagle and Peregrine Falcon**

Under the No Action Alternative the grate would not be installed over the mine shaft and the site would be left as is. No nest or roost sites would be affected by this alternative and no impacts to these species are expected because no disturbance from construction activities would occur, eliminating the potential for short-term displacement from the project area.

## **House Rock Valley Chisel-toothed Kangaroo Rat**

Under the No Action Alternative the grate would not be installed over the mine shaft and the site would be left as is. No forage plants or burrow sites would be affected by the No Action Alternative because no disturbance from construction activities would occur and therefore no impacts to this species are expected.

### ***Bats***

Under this alternative, the wire currently covering the mine shaft and the head frame would be left in place which would result in continued blockage of the entrance to the mine shaft, making access more difficult for bats. Given the importance of roost and hibernacula sites to bats and the relative scarcity of such sites, both Bat Conservation International and AGFD recommend the management of abandoned mines as important components of bat habitat (Sherwin et al. 2009, AGFD 2003a). For species that rely heavily on abandoned mines, such as Townsend's big-eared bat, the No Action Alternative may impact individuals by limiting or restricting access to a potential roost site but a trend toward Federal listing or loss of viability is not expected. Other bat species that are less dependent on mines would be similarly impacted but on a smaller scale.

#### **4.2.4 Wilderness**

The remoteness, naturalness and outstanding opportunities for solitude (wilderness characteristics occurring in this portion of the wilderness) would remain unchanged under the No Action Alternative. There would be no disturbance by the noise and dust associated with hauling and placing a bat grate over the mine shaft.

#### **4.2.5 Visual Resources**

Under the no action alternative, no grate would be installed so there would be no changes to the characteristic landscape. This alternative would therefore result in the Sun Valley Mine area continuing to meet the VRM Class I objectives.

### **4.3 Cumulative Impacts Analysis**

"Cumulative impacts" are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions. This EA attempts to qualify and quantify the impacts to the environment that would result from the incremental impact of the alternatives when added to other past, present, and reasonably foreseeable future actions. These impacts can result from individually minor but collectively important actions taking place over a period of time.

#### **4.3.1 Past and Present Actions**

There are a wide variety of activities occurring on the lands in the vicinity of the project area, including livestock grazing, hiking and other recreational activities. Specific actions that are occurring, or are likely to occur in the reasonably foreseeable future, are:

- *Livestock grazing* – Sun Valley Mine (and the adjacent area) is within the Badger Creek Allotment, an active grazing allotment. This allotment is managed under a grazing system that is documented and described in an allotment management plan. Livestock grazing has occurred in the area for 150+ years.
- *Recreation* – Recreation activities occurring in the vicinity of the project area (surrounding the mine site) involve a broad spectrum of pursuits ranging from dispersed and casual recreation to organized, BLM-permitted group uses. Typical recreation in the region includes off highway vehicle driving, scenic driving, hiking, wildlife viewing, horseback riding, camping, picnicking, night-sky viewing, and photography. Highway 89A is the major traffic artery through the area to the Kaibab Plateau. The Arizona Strip is known for its large-scale undeveloped areas and remoteness especially the Paria Canyon-Vermilion Cliffs Wilderness and Vermilion Cliffs National Monument, both of which provide an array of recreational opportunities for users who wish to experience primitive and undeveloped recreation. Vermilion Cliffs National Monument also provides opportunities for those seeking more organized or packaged recreation experiences. However, at the specific mine site location, minimal recreation typically occurs and this is usually hiking by individuals or small groups. Wildlife viewing, horseback riding, camping, picnicking, night-sky viewing and photography typically do not occur at this remote and isolated location; motorized recreation does not occur at the site due to its location within designated wilderness.

#### **4.3.2 Cumulative Impacts Analysis**

**Public Safety** – Over time, continued population growth of the communities in the Marble Canyon/House Rock Valley area will contribute to greater visitation to the area. Such a shift could result in an increase in visitation to Sun Valley Mine, with a potential for increased risk of visitors removing the wire over the mine shaft and wanting to explore into the mine itself. There are no other known abandoned mines in the area. Given the fact that neither of the alternatives propose to increase the interpretation of or public information about the mine site, it is not anticipated that either alternative would result in cumulative impacts to public safety when added to other past, present, and reasonably foreseeable activities in the project area or surrounding areas.

**Threatened, Endangered, and Candidate Wildlife Species** – Development pressure exists throughout the southwestern U.S. As a result, community expansion, which has led to increased pressure for water and developable land, and issuance of rights-of-way, has reduced these habitats and has had adverse impacts on wildlife resources. Community expansion would be limited in this area because no public lands in the vicinity of Cliff Dwellers, Vermilion Cliffs, and Marble Canyon were identified as available for disposal in the Arizona Strip Field Office RMP, and no private parcels (inholdings) are present within this portion of the Paria Canyon-Vermilion Cliffs Wilderness or Vermilion Cliffs National Monument; however, increased recreational uses are anticipated as these nearby communities grow.

Recreational pursuits, particularly OHV use, have caused disturbance to most species and their habitats. With the increase in local populations has come a dramatic increase in the level of OHV use, resulting in increased disturbance, injury, and mortality to wildlife, particularly ground dwelling species with low mobility.

Livestock grazing related activities have increased the possibility of some wildlife species being trampled. During years of drought and/or low productivity, livestock grazing can reduce forage availability for species that share habitats with them.

Given the fact that neither of the alternatives would authorize motorized use within designated wilderness, or contribute to increased motorized uses in the area, it is not anticipated that either alternative would result in cumulative impacts to wildlife when added to other past, present, and reasonably foreseeable activities in the project area or surrounding areas.

***Wildlife, Including Bighorn Sheep, Migratory Birds and Sensitive Species*** – Cumulative impacts to wildlife would be the same as those described above for threatened, endangered, and candidate wildlife species.

***Wilderness*** – Wilderness character (i.e., solitude, naturalness, and primitive/unconfined recreation) is primarily influenced by the proximity of motorized travel corridors and the volume and density of recreational uses. As described above, development pressure exists throughout the southwestern U.S., including in the communities in the Marble Canyon/House Rock Valley area, although community expansion would be limited in this area because no public lands in the vicinity of Cliff Dwellers, Vermilion Cliffs, and Marble Canyon were identified as available for disposal in the Arizona Strip Field Office RMP, and no private parcels (inholdings) are present within this portion of the Paria Canyon-Vermilion Cliffs Wilderness or Vermilion Cliffs National Monument. However, increased recreational uses are anticipated as these communities grow – recreational pursuits can cause impacts to wilderness characteristics. With the increase in local populations has come an increase in the level of recreational use, including OHV use and other forms of motorized recreation, although motorized use is generally prohibited within designated wilderness.

Given the fact that neither of the alternatives would authorize motorized use within designated wilderness, or contribute to increased recreational uses in the area, it is not anticipated that either alternative would result in cumulative impacts to wilderness when added to other past, present, and reasonably foreseeable activities in the project area or surrounding areas.

***Visual Resources*** – Various actions can create changes to the basic landscape elements of form, line, color, and texture. Over time, population growth of the communities in the area could erode natural night sky conditions; development of lands for community expansion purposes would result in increased recreational use, which could produce an increase in the creation of fugitive dust that could change the visual character of adjacent public lands. Air quality in the general area is currently good, although windblown dust can be a minor source of pollution. The project area is within an attainment area for all National Ambient Air Quality Standards. Community expansion would be limited in this area because no public lands in the vicinity of Cliff Dwellers, Vermilion Cliffs, and Marble Canyon were identified as available for disposal in the Arizona Strip Field Office RMP, and no private parcels (inholdings) are present within this portion of the Paria Canyon-Vermilion Cliffs Wilderness or Vermilion Cliffs National Monument. However, increased recreational uses are anticipated as these communities grow, including increased motorized uses. Given the fact that neither of the alternatives would authorize motorized use within designated wilderness, contribute to increased motorized uses in the area, or result in any changes to the basic landscape elements of form, line, color, and texture, it is not anticipated that the alternatives would not result in cumulative impacts to visual resources when added to other past, present, and reasonably foreseeable activities in the project area or surrounding areas.

## 5.0 CONSULTATION AND COORDINATION

### 5.1 Public Participation

On April 29, 2012, a scoping letter was sent to 104 parties of interest on the Arizona Strip District mailing list which invited public participation in identifying issues that should be considered in the EA and encouraged written comments on the scope of the analysis and on the specific issues and potential alternatives the analysis should address. Comments were accepted until May 11, 2012. Five comment letters and two emails were received. A notice of availability (NOA) letter was sent out on July 9, 2013 to announce that the preliminary EA was available for public review and comment. One comment letter was received in response to the NOA letter. All comments are summarized in Table 2, along with a response to each comment.

**Table 2. Summary of Comments and Responses**

COMMENT SUMMARY	RESPONSE
<b>SCOPING COMMENTS</b>	
<u>Comment 1</u> BLM must use the minimum tools necessary for this project.	The BLM completed the Minimum Requirements Decision Guide Worksheets (see Appendix, Figure A-9) as required for wilderness management and will follow those guidelines for this project.
<u>Comment 2</u> BLM should consider other restoration efforts in conjunction with the proposed action.	The purpose and need of this project is for public health and safety (cover the mine shaft with a bat friendly grate). The other actions suggested are outside the scope of this purpose and need.
<u>Comment 3</u> BLM must follow agency guidance for temporary roads.	The proposed action was revised so that pack animals and foot traffic are now the only proposed means of accessing and transporting material to and from the site. This change was made in order to minimize impacts on wilderness values.
<u>Comment 4</u> BLM should provide information on contamination of the area.	Danger signs and symbols are already in place at the parking area along Highway 89A and at the mine site (see Figure A-1).
<u>Comment 5</u> Work with Bat Conservation International (BCI) on the bat gate design.	An analysis of potential impacts was conducted by a wildlife biologist for several bat species that could potentially use the mine (see Section 4.1.3 of this EA). BCI recommendations for the proposed bat grate were incorporated into its design. For example, Sherwin et al. (2009) provide a design of a cable net with 4"x4" spacing over shafts readily used by Townsend's big-eared bats. Our design is based on this cable net but uses larger spacing (6"x6" to 6"x8").
<u>Comment 6</u> Supportive of the project.	No issues, no response necessary.
<u>Comment 7</u> Supportive of the project, but had a concern about bat white nose syndrome disease.	White nose syndrome has not been reported in Arizona; however by closing the mine to human entry it would prevent one possible cause of the spread of this disease. In addition, no evidence of bats was found at the mine entrance and the BLM has decided not to survey for bats inside the mine due to safety issues. We are, however, proceeding as if the mine is being utilized by bats. The proposed grate would allow bats to use the site in the future or if currently present.

<p><u>Comment 8</u> Potential impacts to visual resources, as the wilderness is a Class I area</p>	<p>This issue was analyzed in the EA and a Visual Contrast Rating Sheet was completed (see Appendix, Figure A-10).</p>
<p><u>Comment 9</u> Potential temporary impacts to existing outstanding opportunities for solitude</p>	<p>This issue was analyzed in the EA and a MRDG was completed (see Appendix, Figure A-9). The MRDG resulted in a change to the proposed action (i.e., use of pack stock to haul materials to the site rather than motorized equipment).</p>
<p><u>Comment 10</u> Potential short-term impacts to naturalness resulting from possible motorized entry in the wilderness</p>	<p>Pack animals and foot traffic are now the only proposed means of accessing and transporting material to and from the site.</p>
<p><u>Comment 11</u> Potential long-term impacts to historic resources tied to the Sun Valley Mine area</p>	<p>Historic resources would remain at the site and only wire and fence posts would be removed as addressed in this EA. Other actions would be outside the scope of identified purpose and need (which is to mitigate public safety hazards at the Sun Valley Mine site).</p>
<p><b>COMMENTS ON PRELIMINARY EA</b></p>	
<p><u>Comment 12</u> Provide more information on how larger spacing (6"x24" or 8"x24") would be too large for public safety.</p>	<p>During internal scoping we determined that larger spacing may not be the safest option for small children, especially for a mine shaft. Recommendations from Bat Conservation International (Sherwin et al. 2009) include designs of a "cable net" (p. 81) with 4"x4" spacing installed over shafts that is readily used by Townsend's big-eared bats. Our design is based on this cable net but with larger spacing (6"x6" or 6"x8").</p>
<p><u>Comment 13</u> Recommendation that 1-2 BLM staff be tasked with scouring the area for microtrash once work is completed to ensure compliance with BMP in Section 2.2.1</p>	<p>BLM personnel would be present during construction and would be responsible for making sure the site is clean when the project is completed (or at the end of each work day if the project takes two days rather than the anticipated one day).</p>
<p><u>Comment 14</u> The following BMP from Section 2.2.1 is vague: "If an active bird nest is observed before or during construction, measures would be taken to protect the nest." What measures would be taken? There was also a recommendation to avoid the nesting season altogether.</p>	<p>We agree and the BMP has been rewritten: "If an active bird nest is observed before or during construction, BLM biologists would be notified and measures such as rescheduling work until after nesting is complete or establishing a no disturbance buffer around the nest would be taken." Construction is likely to take place in the late fall or early winter which would avoid the nesting season.</p>
<p><u>Comment 15</u> There was a question if the site would be monitored.</p>	<p>The BLM would visit the site at least once a year to check on the grate and correct or repair any security breach or vandalism at the site.</p>
<p><u>Comment 16</u> We recommend that the BLM consider using this project to determine what bats utilize the site and are present in the area.</p>	<p>Bat monitoring is outside the scope of this project (i.e. does not meet the project purpose and need.). However, the BLM does plan to work with outside groups at some time in the future, to determine bat use of abandoned mines. The Grand Canyon Trust is currently conducting bat surveys in other areas of Vermilion Cliffs National Monument.</p>
<p><u>Comment 17</u> What measures are proposed to minimize the risk of introducing invasive species to this area as a result of this project?</p>	<p>No motorized vehicles would be used to transport materials from U.S. Highway 89A to the mine site – transport would be by mules which are fed only certified weed-free feed. No weed BMPs were therefore deemed necessary for this project.</p>

## 5.2 List of Preparers and Reviewers

**Table 3. BLM Preparers and Reviewers**

NAME	TITLE	RESPONSIBILITIES
Richard Spotts	Environmental Coordinator	NEPA Oversight
Rody Cox	Geologist	Geology, Minerals
Laurie Ford	Team Lead, Lands & Realty/Minerals/Hazmat	Lands & Realty
John Herron	Archaeologist	Cultural Resources
Jacquilyn Roaque	Rangeland Management Specialist	Special Status Plants
Gloria Benson	Tribal Liaison	Native American Religious Concerns
Diana Hawks	Team Lead, Recreation/Wilderness/Archaeology	Recreation, Wilderness, and VRM
Jon Jasper	Outdoor Recreation Planner	Visual Resources
Ken Shurtz	Surface Protection Specialist	Project Lead
John Sims	Supervisory Law Enforcement	Law Enforcement
Whit Bunting	Team Lead, Rangeland Management	Range/Vegetation/Weeds
Lorraine Christian	Arizona Strip FO Manager	NEPA Compliance, Project Oversight
Bob Smith	Soil, Water, & Air Specialist	Air Quality, Soils
Shawn Langston	Wildlife and Special Status Animals	Wildlife, Special Status Wildlife Species

**Table 4. Non-BLM Reviewers**

NAME	AGENCY/ORGANIZATION	TITLE
Andi Rogers	Habitat Specialist, AGFD	Special Status Species, Wildlife
Sarah Reif	Habitat Specialist, AGFD	Special Status Species, Wildlife
LeAnn Skrzynski	Environmental Program Director, Kaibab Band of Paiute Indians	Native American Religious Concerns, Cultural Resources
Brian Wooldridge	Fish & Wildlife Biologist, USFWS	Special Status Species, Wildlife
Luke Thompson	Wildlife Manager, AGFD	Special Status Species, Wildlife
Peter Bungart	Hualapai Tribe	Cultural Staff
Dawn Hubbs	Hualapai Tribe	Cultural Staff

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## 6.2 List of Acronyms Used in this EA

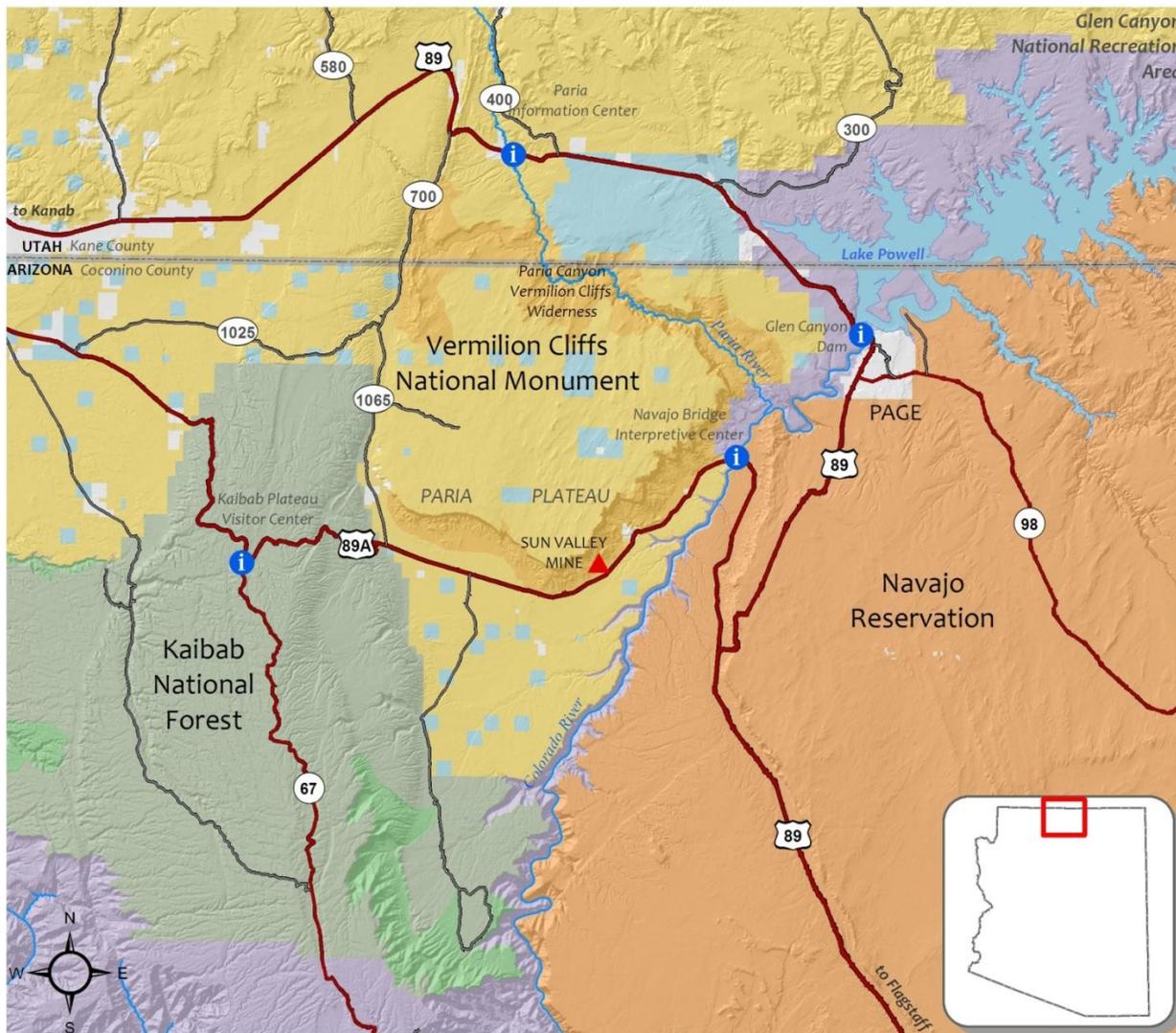
**Table 5. Acronyms and Abbreviations**

ACRONYM OR ABBREVIATION	
AGFD	Arizona Game and Fish Department
ATV	All-Terrain Vehicle
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
DR	Decision Record
EA	Environmental Assessment
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FR	Federal Register
MRDG	Minimum Requirement Decision Guide
NEPA	National Environmental Policy Act
RMP	Resource Management Plan
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management

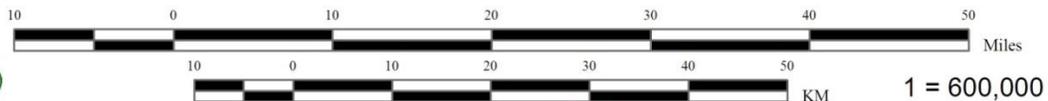
# Appendix

Figure A-1: Location Map

# Sun Valley Mine: Area Overview



Legend		Route		Land Ownership	
	Visitor Center		U.S. Highway		Bureau of Land Management
	Sun Valley Mine		State Highway		BLM Wilderness
	Major River		County		Bureau of Relamation
	State Boundary		BLM		Indian Lands
	Water		Other		NPS
					USFS
					USFS Wilderness Area
					Private
					State
					State Park and Recreation

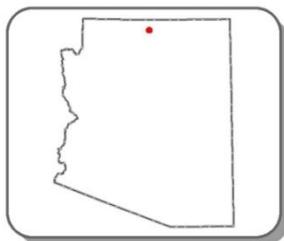
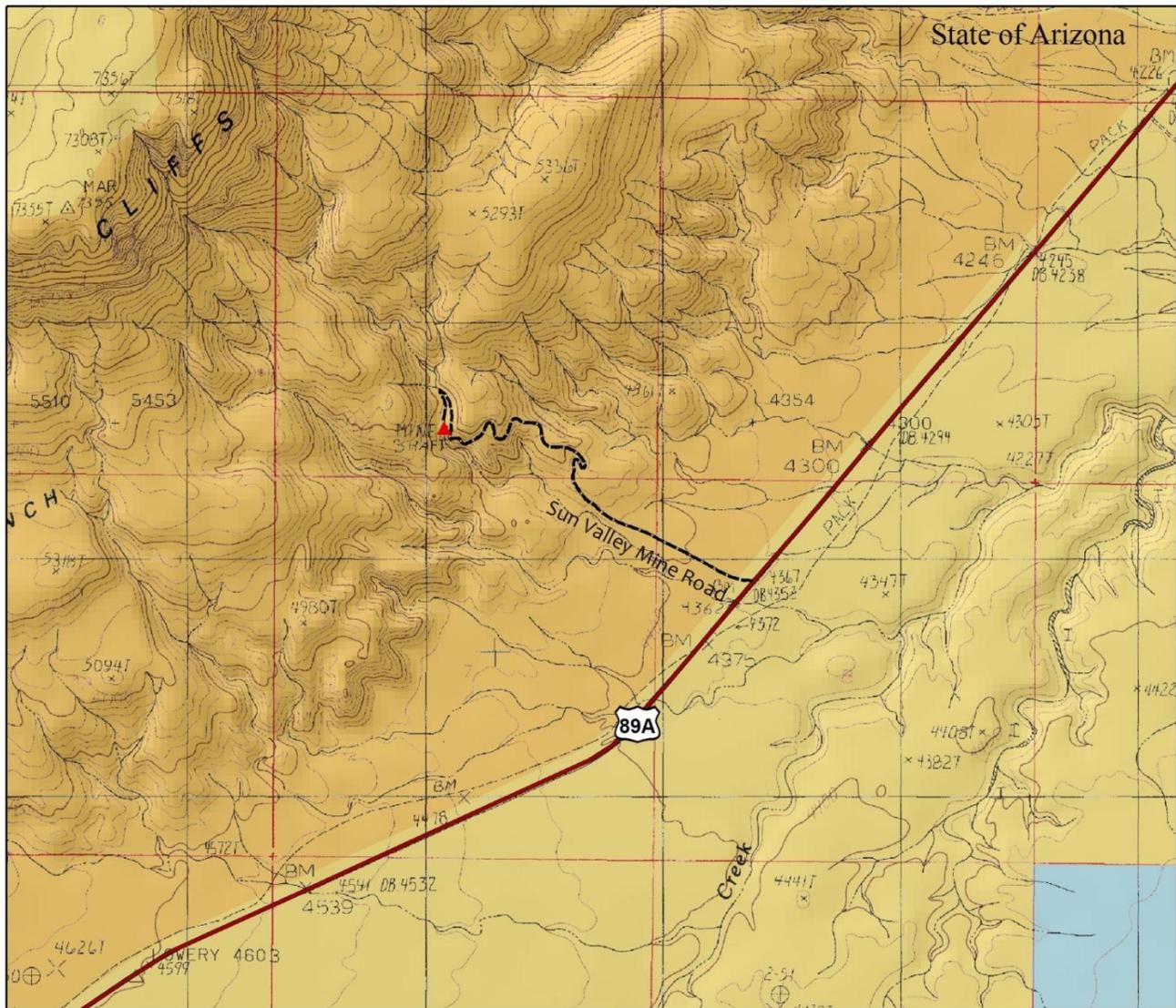


United States Department of the Interior  
 Bureau of Land Management  
 Arizona Strip Field Office  
 Map created on October 22, 2012

**CAUTION:**  
 Land ownership data is derived from less accurate data than the 1:8000 scale base map. Therefore, land ownership may not be shown for parcels smaller than 40 acres, and land ownership lines may have plotting errors due to source data.  
 No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.

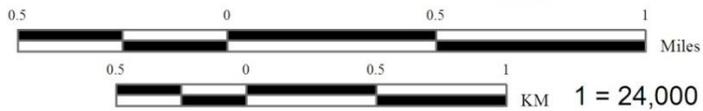
Figure A-2: Site Map

# Sun Valley Mine: Site



### Legend

- ▲ Sun Valley Mine Shaft
- Sun Valley Mine Path
- Bureau of Land Management
- BLM Wilderness
- State
- U.S. Highway



**CAUTION:**  
Land ownership data is derived from less accurate data than the 1:24000 scale base map. Therefore, land ownership may not be shown for parcels smaller than 40 acres, and land ownership lines may have plotting errors due to source data.

No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.



United States Department of the Interior  
Bureau of Land Management  
Arizona Strip Field Office

Map created on October 22, 2012

Figure A-3: Top: Head Frame and Shaft  
Bottom: Dry Wash Route to Access the Site.



Figure A-4: Proposed Bat Grate Design

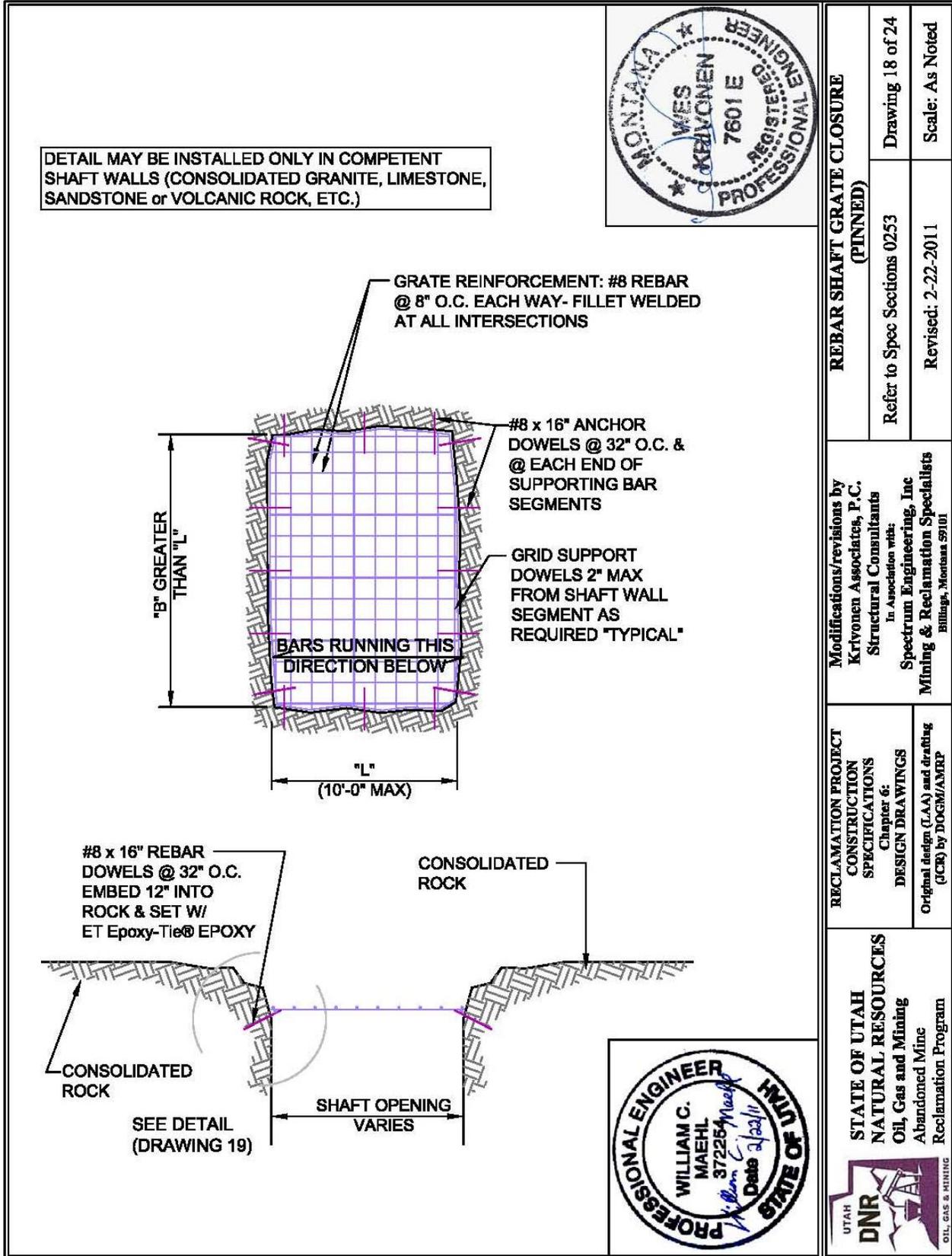


Figure A-5: Sun Valley Mine Grate Concept

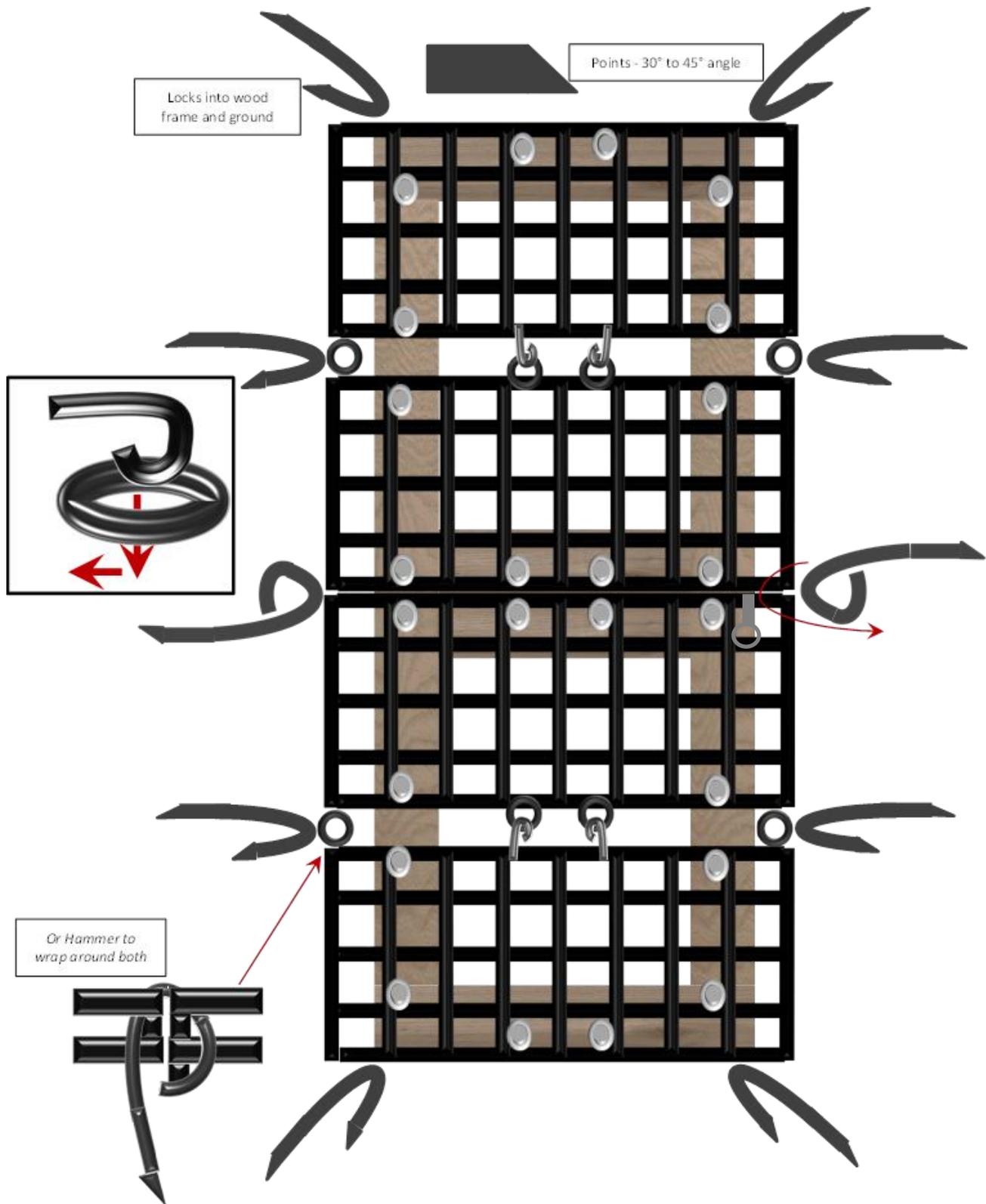


Figure A-6: Grate Section Measurements

\*This is a single section. Four total sections with these measurements will be pre-welded together. No welding at the site will be required. (see Diagram A-5).

See Diagram D and E (Figure A-7) for general location of lag bolts, anchors, and best placement of hook and eyelet locations during installation.

The cross-section C below is the view from the edge. All four edges of each section will be double reinforced.

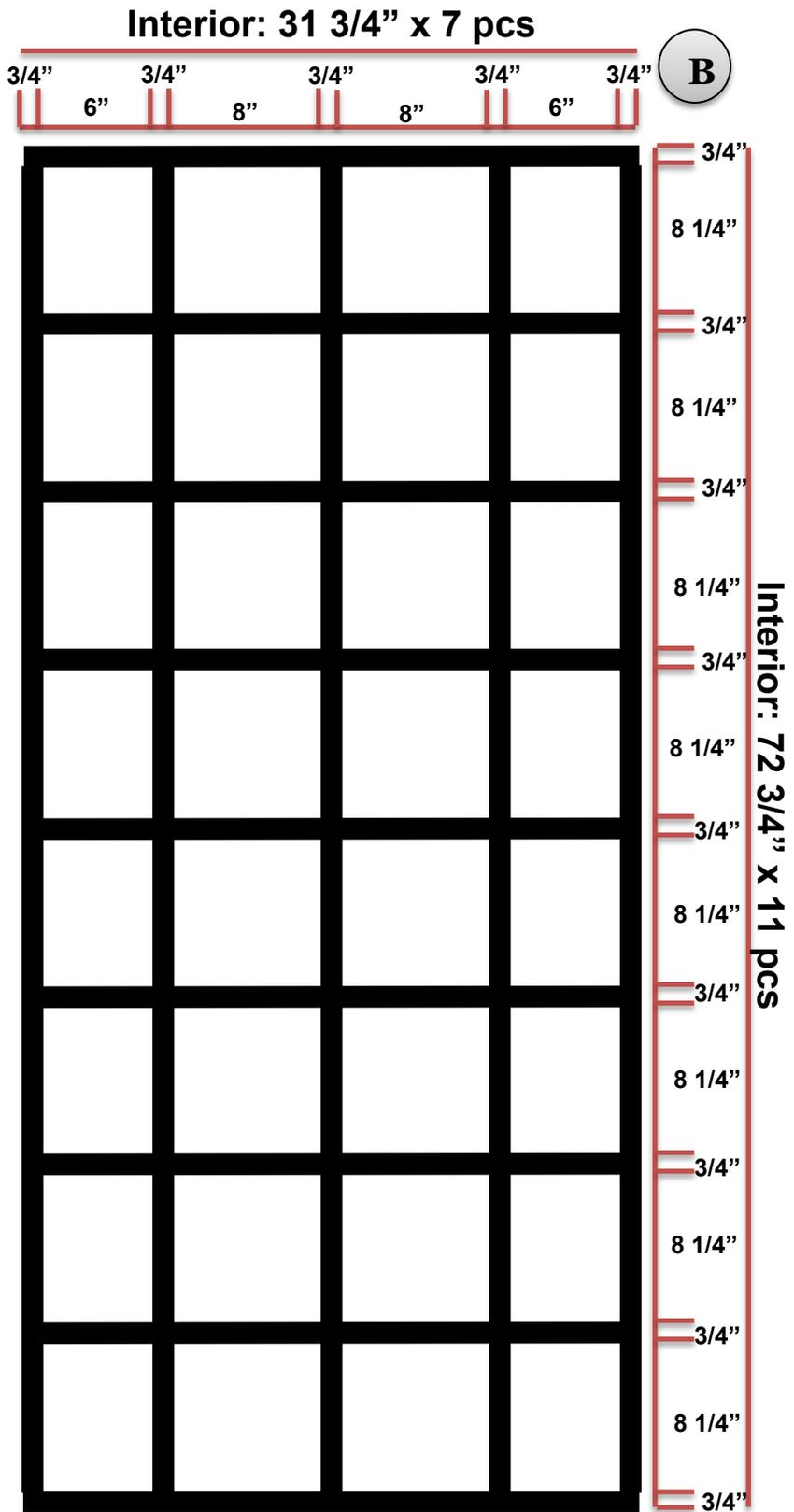
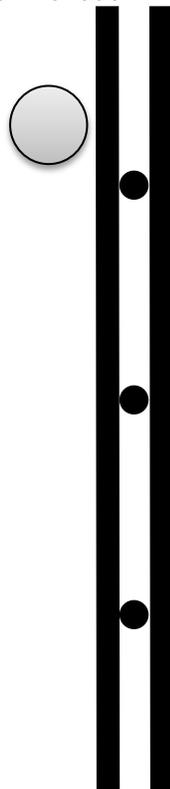
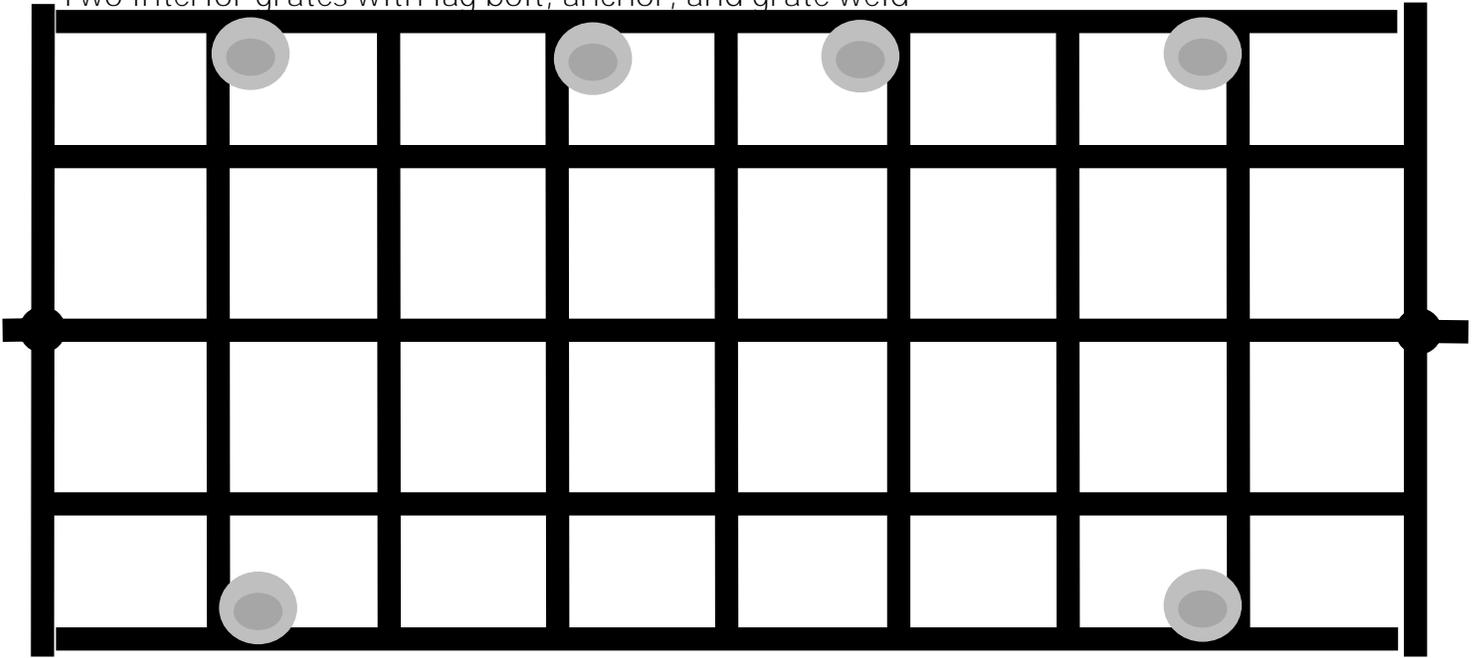


Figure A-7: Grate Section Designs

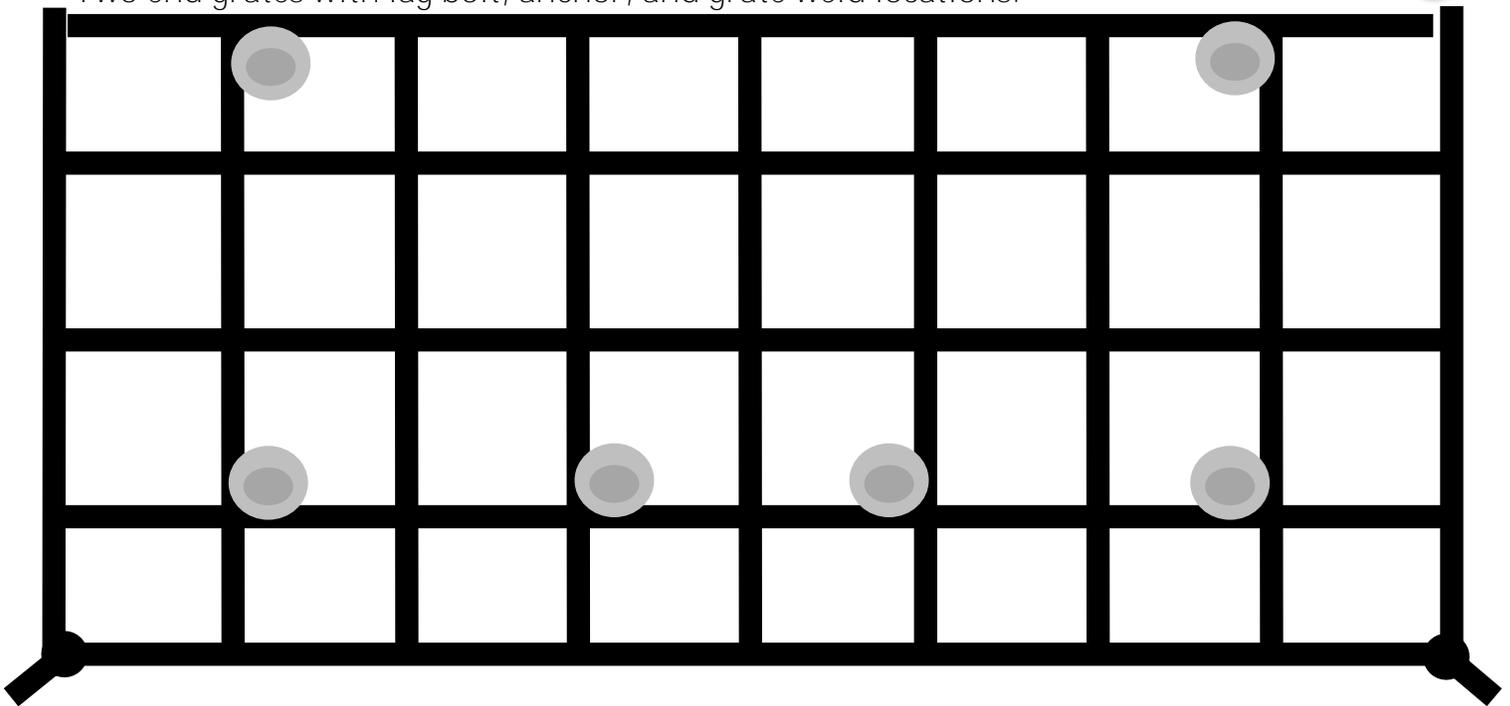
D

Two interior grates with lag bolt, anchor, and grate weld



E

Two end grates with lag bolt, anchor, and grate weld locations.



**Figure A-8: Materials Overview**

## 31.75" x 72.75" Grate

Total Rebar needed:

72.75" – 28 pcs (7 per section)

31.75" – 44 pcs (11 per section)

20 ft Lengths	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Total Used (inches)	Extra Length (inches)	
1	72.75	31.75	31.75	31.75	31.75	31.75	231.5	8.5	
2	72.75	31.75	31.75	31.75	31.75	31.75	231.5	8.5	
3	72.75	31.75	31.75	31.75	31.75	31.75	231.5	8.5	
4	72.75	31.75	31.75	31.75	31.75	31.75	231.5	8.5	
5	72.75	31.75	31.75	31.75	31.75	31.75	231.5	8.5	
6	72.75	31.75	31.75	31.75	31.75	31.75	231.5	8.5	
7	72.75	31.75	31.75	31.75	31.75	31.75	231.5	8.5	
8	72.75	31.75	31.75	31.75	31.75	31.75	231.5	8.5	
9	72.75	31.75	31.75	31.75	31.75	20	219.75	20.25	
10	72.75	72.75	72.75				218.25	21.75	
11	72.75	72.75	72.75				218.25	21.75	
12	72.75	72.75	72.75				218.25	21.75	
13	72.75	72.75	72.75				218.25	21.75	
14	72.75	72.75	72.75				218.25	21.75	
15	72.75	72.75	72.75				218.25	21.75	
16	72.75						72.75	167.25	
<b>Length</b>	<b>#</b>	<b>Use</b>							
8.5 x	8	Bent to function as hooks and eyelets							
21.75 x	6	6 Anchors (all 21.75")							
40.25 x	4	2 Anchors (20" and 20.25")							
167.25 x	1	Additional Material to function as reinforcement or anchors							

Additional Hardware:

Up to 24 Lag Bolts and 24 1/4" steel plates

6 hook and eyelet sets

12 oversized eyelets as additional non welded support

Figure A-9: Minimum Requirements Decision Guide

ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER



# MINIMUM REQUIREMENTS DECISION GUIDE

## WORKSHEETS

*“ . . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act...”*

– the Wilderness Act, 1964

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Please refer to the accompanying MRDG [Instructions](#) for filling out this guide.

The spaces in the worksheets will expand as necessary as you enter your response.

The MRDG Instructions may be found at: <http://www.wilderness.net/mrdg/>

Project Title: **SUN VALLEY MINE CLOSURE**

**Step 1:** Determine if any administrative action is necessary.

**Description:** Describe the situation that may prompt action.

The Sun Valley Mine site consists of an open, vertical mine shaft that poses a safety risk to the public – an unsecured site such as this creates a risk of injury from falling down the shaft. The project is therefore needed to secure the site and reduce safety hazards to visitors at this designated public use site.

To determine if administrative action is necessary, answer the questions listed in A - F on the following pages by answering Yes or No, and providing an explanation.

**A. Options Outside of Wilderness**

Is action necessary within wilderness?

Yes:  No:

**Explain:** The Sun Valley Mine is located within the Paria Canyon-Vermilion Cliffs Wilderness.

**B. Valid Existing Rights or Special Provisions of Wilderness Legislation**

Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows or requires consideration of the Section 4(c) prohibited uses? Cite law and section.

Yes:  No:

**Explain:** There are no valid existing mineral rights and no special provisions associated with the Sun Valley Mine.

**C. Requirements of Other Legislation**

Is action necessary to meet the requirements of other laws? Cite law and section.

Yes:  No:

**Explain:** There are no other laws relevant to this action.

**D. Other Guidance**

Is action necessary to conform to direction contained in agency policy, unit and wilderness management plans, species recovery plans, or agreements with tribal, state and local governments or other federal agencies?

Yes:  No:

**Explain:**

The proposed action described in Section 2.2 of the Environmental Assessment is in conformance with the Vermilion Cliffs NM RMP Pg. 2-45 and 2-88. The proposed action is in conformance with the following decisions contained within this RMP:

Decision No.: IMPL-CL-05 (which states in part): "The Sun Valley Mine Public Use Site will be developed for public use, including ...construction of bat gate..."

Decision No.: DFC-HM-01: "All hazardous or potentially hazardous sites and situations, including hazardous materials, hazardous or solid wastes, abandoned mine sites, abandoned well sites, and other potential hazards on public lands, will be mitigated or eliminated."

Decision No.: MA-HM-01: "Areas known to have hazardous materials, hazardous wastes, or solid wastes, including abandoned mine lands, will be remediated, restored, or corrected."

Decision No.: MA-HM-05: "As funding allows, abandoned mines will be identified and prioritized for remediation, restoration, or corrections as follows:

- Those that are public safety hazards.
- Those that may contain high levels of heavy metals in waste rock or tailings.
- Those that may be degrading water quality."

In addition, the Abandoned Mine Lands program addresses mine sites that were abandoned prior to January 1, 1981, the effective date of the BLM's surface management regulations (43 CFR 3809). One objective of the program is to protect public safety and reduce liabilities by eliminating or reducing risks posed by abandoned mines.

### E. Wilderness Character

Is action necessary to preserve one or more of the qualities of wilderness character including: Untrammeled, Undeveloped, Natural, Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation, or Unique Attributes or Other Features that reflect the character of this wilderness area?

**Untrammeled:** Yes:  No:

**Explain:** The project would not change the site's untrammeled wilderness character but is merely replacing one item for another.

**Undeveloped:** Yes:  No:

**Explain:** The project would not change the site's undeveloped wilderness character but is merely replacing one item for another and would not change the developmental nature of the mine.

**Natural:** Yes:  No:

**Explain:** The project could improve the movement of bat species that access the mine. The wire currently covering the mine shaft blocks the entrance and makes ingress / egress more difficult. The proposed bat grate would allow easier passage by bats into and out of the mine.

**Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation:**

Yes:  No:

**Explain:** There are outstanding opportunities for solitude or a primitive and unconfined type of recreation in the areas surrounding the site. There are practices proposed for the proposed action to address the need to provide for the opportunities of solitude or a primitive and unconfined type of recreation. These practices include; 1) Installing the bat grate on a weekday, outside of peak hiking activity in the area; 2) limiting the amount of trips to /from the site to the minimum necessary; and 3) conducting all work in as short a timeframe as possible (anticipated as one day) to minimize disturbance to other users that may be in the area. The action proposed would not cumulatively impair the long term or future wilderness setting.

**Unique Attributes or Other Features that reflect the character of this wilderness:**

**Yes:**  **No:**

**Explain:** There are no unique attributes at this site that would be affected by the proposed project.

Is action necessary to protect one or more of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreational, scenic, scientific, educational, conservation, and historical use?

**Recreational:** **Yes:**  **No:**

**Explain:** The project would increase visitor safety to the area by closing an open mine shaft that a visitor could inadvertently fall into.

**Scenic:** **Yes:**  **No:**

**Explain:** The project would enhance the visual value by removing some of the debris (i.e., the wire covering the mine shaft) and installing a bat grate below the surface level rather than lying over the top as the current wire does.

**Scientific:** **Yes:**  **No:**

**Explain:** The project would have no scientific value.

**Educational:** **Yes:**  **No:**

**Explain:** The project would not affect education because there is no interpretive component of the proposed action and no historical objects would be removed from the site.

**Conservation:** **Yes:**  **No:**

**Explain:** The project would allow for easier ingress / egress into the mine by bat species that may use the site for roosting and/or breeding.

**Historical:** **Yes:**  **No:**

**Explain:** The installation of the bat grate and subsequent removal of the existing wire covering the mine shaft would have no impact on the historical significance of the site.

Step 1 Decision: **Is any administrative action necessary in wilderness?**

*In reviewing the Step 1 questions in A - F above, note that not all answers have equal weight in the Step 1 Decision: A - C and E have first priority; F has second priority; D has third priority. See [Instructions](#) for details.*

Yes:  No:

**Explain:** The purpose of this project is to help implement Goal 3 of BLM Arizona's: Support Community Use; Public Safety; Abandoned Mine Reclamation, with minimal effects to wildlife, cultural and wilderness values (see [www.wilderness.net](http://www.wilderness.net)). This strategic goal directs BLM Arizona (in part) to remediate safety hazards at its abandoned mine sites. The project would therefore eliminate or at least greatly reduce those hazards at this designated public use site, while providing for bat conservation and the use of minimum tool methods in wilderness.

If action is **necessary**, proceed to Step 2 to determine the **minimum** activity.

## Step 2: Determine the minimum activity.

Please refer to the accompanying MRDG [Instructions](#) for information on identifying alternatives and an explanation of the effects criteria displayed below.

### Description of Alternatives

**For each alternative**, describe what the action is, when the activity will take place, where the activity will take place, and what methods and techniques will be used. Detail the impacts to the qualities of wilderness character and other comparison criteria, including safety. Where mitigation is possible, include mitigation measures. In addition to describing the effects of the alternative, it may be useful to break down each alternative into its component parts and list in tabular form the impacts to each comparison criterion.

**ALTERNATIVE # A**

**Description: Install Bat-Passable Grate**

The BLM proposes to move the head frame and wire that is currently over the shaft, then secure a bat friendly grate over the shaft. The double-compartment shaft is 4 feet by 9 feet wide and approximately 80 feet deep (Appendix, Figure A-4). Access to the mine is on an existing primitive (two-track) route that is designated "closed" in the Vermilion Cliffs National Monument travel management plan. No modification to the two-track route would be needed under the proposed action.

An inspection of the shaft by a qualified biologist was inconclusive regarding the current presence of bats, however, the inner mine area does have the potential to provide bat roosting sites. Therefore, a grate that is passable by bats and provide for public safety would be installed. The grate would be constructed with 6 to 8 inch spacing of bars to allow for bat egress and ingress. The BLM would build and transport the prefabricated grate to the mine site and securely install it over the exposed vertical mine shaft. This grate would be constructed with 3/4 inch metal rebar (Appendix, Figures A-5 and A-6) in four sections and transported to the site by two U. S. Forest Service pack mules. Each section would weigh about 120 pounds and each mule could carry two sections balanced on both sides of the pack saddle. Only one trip to the mine should be needed. The four sections would then be transported by hand across a deep dry wash by four persons to the site. Wire cutters would be used to remove the existing wire that covers the shaft. The wire and metal posts would be transported from the site with the pack mules on the return trip. The head frame would be moved slightly away from the shaft with a hand winch (fence stretcher) attached to a cable connected to a stake driven into the ground into competent bedrock several feet away. The four sections would be reconnected and placed over the shaft (see Figure A-5 in the EA). The grate would be secured to the mine shaft with metal anchors. Ten to twenty metal barbed anchors (which are two and one-half feet long) would be hammered through the timbers and into the ground into competent bedrock on 45 degree angles through each joint, along the edges and four corners of the grate (see Figure A-5). The bedrock is stable and should be long lasting. The design was approved by the State Abandoned Mine Lands program lead. This project should be done in one day but may require two days and require five to six personnel to accomplish.

### **Best Management Practices**

To eliminate the potential for disruption to hikers, installation of the bat grate would occur on a weekday, outside of peak hiking activity in the area.

If an active bird nest is observed before or during construction, measures would be taken to protect the nest. This would minimize the risk of take to migratory birds as required in the Migratory Bird Treaty Act and the MOU between USFWS and BLM signed in 2010.

Those involved with project implementation would notify the BLM wildlife team lead if California condors visit the worksite while permitted activities are underway. Project activities would be modified or delayed where adverse effects to condors may result.

The project site would be cleaned up at the end of each day the work is being conducted (e.g., trash removed, scrap materials picked up) to minimize the likelihood of condors or other raptors visiting the site. BLM staff may conduct site visits to the area to ensure adequate clean-up measures are taken.

To minimize impacts to the visual landscape, metal would be either painted (in a color that blends with the surroundings) or non-reflective metal would be used.

### **Impacts to Wilderness Character:**

**Untrammelled** – The bat grate adds a development to the wilderness, however, the grate would be installed below the surface or at ground level, making it substantially unnoticeable. Impacts are confined to a small area and this grate replaces existing mesh material, therefore there would be no net effect.

**Undeveloped** – Due to the short length of the project (i.e., installation of the grate) and the use of non-motorized / non- mechanized transportation, imprint of man's work would remain substantially unnoticeable. However, a development (the bat grate) is being installed, but it is replacing the wire that currently covers the mine shaft.

**Natural-** The installation of a grate that has wider openings than the existing horse wire could potentially have a positive impact for any wildlife (i.e., bats or birds) that may inhabit the mine.

**Solitude or Primitive and Unconfined Recreation** - The impacts from installation of the grate would be confined to a small area and would be temporary, and would therefore have minimal to no impact to visitors. Visitors coming upon the bat grate would have their opportunity for primitive and unconfined recreation degraded, although other debris already exists at the mine site.

**Unique Attributes or Other Features - none**

**Impacts to other criteria:**

**Maintaining Traditional Skills** – Using a hand winch, hammers, and wire cutters along with pack animals to transport material the project would help maintain the proficiency in the use of primitive and traditional skills, non-motorized tools

**Economics and Timing Constraints** - To eliminate the potential for disruption to hikers, installation of the bat grate would occur on a weekday, when potential use of the area would be minimal.

**Impacts to safety of visitors and workers** - The Sun Valley Mine was designated as a public use site in the Vermilion Cliffs National Monument RMP (BLM 2008a). BLM site visits have shown that the area receives moderate use and individual websites describe the mine location while discussing historic, mineral, and other Monument resources. This alternative is designed to increase public safety.

### Impacts Comparison Tables

#### Wilderness Character Alternative A Install Bat-Passable Grate

##### Untrammeled

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Grate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
TOTAL	NI	NI	<b>Untrammeled Grand Total</b> NI

##### Undeveloped

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of transport	+ The use of stock to transport material	No impact	
2 <sup>nd</sup> component: Design of Grate	+ The sub-surface design would be less visually impacting than if the grate was installed above ground level.	- Yes	
			<b>Undeveloped Grand Total</b>

3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	+ The use of stock to transport material	No impact	
TOTAL	+++	-	

### Natural

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of transport	+ The use of stock to transport material	No impact	
2 <sup>nd</sup> component: Design of Grate	+ The use of a grate designed for bat ingress / egress.	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	+ The use of stock to transport material	No impact	
TOTAL	+++	NI	Natural Grand Total +++

### Solitude or Primitive and Unconfined Recreation

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of transport	No impact	- Yes	
2 <sup>nd</sup> component: Design of Grate	+ The sub-surface design would be less visually obtrusive than a grate that was installed above ground.	- Yes	
3 <sup>rd</sup> component: Method of installation	No impact	- Yes	
4 <sup>th</sup> component: Method of removal	No impact	- Yes	
TOTAL	+	----	S or P&UR Grand Total ---

### Unique Attributes or Other Features

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Grate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
TOTAL	NI	NI	UA or OF Grand Total NI

## Other Criteria

### Maintaining Traditional Skills

	actions with beneficial effects	actions with adverse effects	Traditional Skills Grand Total
1 <sup>st</sup> component: Method of transport	+ The use of stock to transport material	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	+ Yes	No impact	
4 <sup>th</sup> component: Method of removal	+ The use of stock to transport material	No impact	
TOTAL	+++	NI	+++

### Special Provisions

	positive impacts	negative impacts	Special Provisions Grand Total
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
TOTAL	NI	NI	NI

### Economics and Timing Constraints

	positive impacts	negative impacts	Economics & Timing Grand Total
1 <sup>st</sup> component: Method of transport	+ The project would only require one trip	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	+ The project would only require one trip	No impact	
TOTAL	++	NI	++

### Safety of Visitors and Workers

	positive impacts	negative impacts	Safety Grand Total
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Gate	+ The grate would provide a stronger support for visitor protection	No impact	
3 <sup>rd</sup> component: Method of installation	+ The grate would be anchored into the surrounding rock face.	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
TOTAL	++	NI	++

**ALTERNATIVE # B NO ACTION**

**Description:** Under this alternative, the Sun Valley Mine would not be closed (i.e. the bat passable grate would not be installed) and the shaft would remain open. The horse wire would remain as the only public safety measure.

**Impacts to Wilderness Character:**

**Untrammeled** – none (i.e., no activities would occur).

**Undeveloped** – The existing horse wire is draped over the mine creating a slight visual impact to visitors in the immediate area of the mine. No new grate would be installed and the horse wire would remain in place

**Natural**- The use of the mine shaft by bats and birds would not be improved by leaving the horse wire in place.

**Solitude or Primitive and Unconfined Recreation** – The existing horse wire is noticeable to visitors at the site diminishing the primitive experience. But the head frame creates more of a visual impact (the horse wire is only slightly noticeable in comparison).

**Unique Attributes or Other Features - none**

**Impacts to other criteria:**

**Maintaining Traditional Skills** – none

**Special Provisions** – none

**Economics and Timing Constraints** – none

**Impacts to safety of visitors and workers** – The Sun Valley Mine was designated as a cultural public use site in the Vermilion Cliffs National Monument RMP (BLM 2008a). BLM site visits have shown that the area receives moderate use and individual websites describe the mine location while discussing historic, mineral, and other Monument resources. Some sort of mine shaft closure is therefore needed to improve safety for visitors at this designated public use site. This alternative would not address this issue.

**Impacts Comparison Tables**

**Wilderness Character Alternative B, No Action**

**Untrammeled**

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of transport	No impact	No impact	<b>Untrammeled Grand Total</b>
2 <sup>nd</sup> component: Design of Grate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
TOTAL	NI	NI	NI

### Undeveloped

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
<b>TOTAL</b>	NI	NI	<b>Undeveloped Grand Total</b> NI

### Natural

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	- The use of a horse wire was not designed for bat ingress / egress.	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
<b>TOTAL</b>	NI	-	<b>Natural Grand Total</b> -

### Solitude or Primitive and Unconfined Recreation

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
<b>TOTAL</b>	NI	NI	<b>S or P&amp;UR Grand Total</b> NI

### Unique Attributes or Other Features

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
<b>TOTAL</b>	NI	NI	<b>UA or OF Grand Total</b> NI

## Other Criteria

### Maintaining Traditional Skills

	actions with beneficial effects	actions with adverse effects	Traditional Skills Grand Total
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
TOTAL	NI	NI	NI

### Special Provisions

	positive impacts	negative impacts	Special Provisions Grand Total
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
TOTAL	NI	NI	NI

### Economics and Timing Constraints

	positive impacts	negative impacts	Economics & Timing Grand Total
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	No impact	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	
4 <sup>th</sup> component: Method of removal	No impact	No impact	
TOTAL	NI	NI	NI

### Safety of Visitors and Workers

	positive impacts	negative impacts	Safety Grand Total
1 <sup>st</sup> component: Method of transport	No impact	No impact	
2 <sup>nd</sup> component: Design of Gate	No impact	- The design of the current covering does not provide sufficient protection for visitors to the site.	
3 <sup>rd</sup> component: Method of installation	No impact	No impact	

4 <sup>th</sup> component: Method of removal	No impact	No impact	
TOTAL	NI	-	-

## Comparison of Alternatives

It may be useful to compare each alternative's positive and negative impacts to each of the criteria in tabular form, keeping in mind the law's mandate to "preserve wilderness character."

	Alternative A	No Action
Untrammelled	NI	NI
Undeveloped	++	NI
Natural	+++	-
Solitude or Primitive and Unconfined Recreation	- - -	NI
Unique / Other Features	NI	NI
<b>WILDERNESS CHARACTER</b>	<b>++</b>	<b>-</b>

	Alternative A	No Action
Maintaining Traditional Skills	+++	NI
Special Provisions	NI	NI
Economics & Timing	++	NI
<b>OTHER CRITERIA SUMMARY</b>	<b>+++++</b>	<b>NI</b>

	Alternative A	No Action
<b>SAFETY (visitors &amp; workers)</b>	<b>++</b>	<b>-</b>

## Safety Criterion

Occasionally, safety concerns can legitimately dictate choosing one alternative which degrades wilderness character (or other criteria) more than an otherwise preferable alternative. In that case, describe the positive and negative impacts in terms of risks to the public and workers for each alternative here but avoid pre-selecting an alternative based on the safety criteria in this section.

The No Action alternative would provide no additional protection to the public. Alternative A would provide a sturdy structure that would protect the public from falling into the shaft or climbing under the existing wire. Wilderness character would only be temporarily affected for one day in a small localized area within the wilderness.

## **Documentation:**

To support the evaluation of alternatives, provide an analysis, reference, or documentation and avoid assumptions about risks and the potential for accidents. This documentation can take the form of agency accident-rate data tracking occurrences and severity; research literature; or other specific agency guidelines.

### **Other methods considered but eliminated**

#### **d. Sealing the Shaft**

Sealing the shaft is an alternative that could have been utilized except it is inside wilderness and would require heavy equipment and no backfill material would be available without either hauling in material or excavating material from the site. This would create a visual contrast in a VRM Class I area, and would affect wilderness characteristics of the site. Although this method of closure is the most secure and permanent physical safety mitigation action, it would not be in conformance with the VRM class designation identified in the RMP, and would not be consistent with the Wilderness Act.

The use of expanding foam was also considered but is not durable-it can quickly break down with exposure to direct sunlight, as would be the case at the Sun Valley Mine. This method would require regular monitoring due to possible cave in, is the least cost effective remediation, and neither option would allow bat species access to the inner mine, and would not meet the stated purpose and need of providing for public safety while having minimal impacts on wildlife and wilderness values.

#### **e. Use ATV or Pickup Truck to Transport Material**

This alternative would use a pickup truck or all-terrain vehicle (ATV) to transport the four prefabricated parts of a bat grate as close to the site as possible. There were six sites on the route that would require extensive shovel work to allow a truck or ATV passage to the site. This alternative would require more soil disturbance and generate more noise in wilderness and would have more impacts on wilderness values than the proposed action.

#### **f. Use a Helicopter to Transport Materials**

Under this alternative, a helicopter would be used to transport the metal grate to the Sun Valley Mine site. However, utilizing a helicopter would have more impacts than the proposed action on certain wildlife species such as bighorn sheep, California condors, and cliff-nesting raptors. Noise disturbance from helicopters would travel long distances thereby increasing the zone of effect from a localized site (the mine shaft) to a broad area surrounding the site (including the travel corridor to and from the site). Bighorn sheep are highly sensitive to human disturbance, so helicopter use would cause the animals to flee the area while use is occurring. Furthermore, aircraft use near the Vermilion Cliffs is discouraged to avoid disturbing California condors:

Aircraft use along the Vermilion Cliffs, Paria Plateau, or any sites where condors are actively breeding or roosting will be minimized to the extent possible. Known active nest sites will be avoided. (VCNM RMP, App. G)

## Step 2 Decision: What is the Minimum Activity?

Please refer to the accompanying MRDG [Instructions](#) before describing the selected alternative and describing the rationale for selection.

### SELECTED ALTERNATIVE: **ALTERNATIVE # A INSTALL BAT-PASSABLE GRATE**

Install a bat-passable grate over the shaft on the Sun Valley Mine using livestock to transport material to and from the site. The installation would involve the use of hand tools only.

#### **Rationale for selecting this alternative (including safety criterion, if appropriate):**

Public safety would be improved at the site. A grate would be installed below the surface contributing to it being less noticeable than the existing horse wire that covers the entrance now. The selected alternative would use traditional means of transportation along with hand tools helping to maintain traditional skills.

#### **Monitoring and reporting requirements:**

The Project Manager would instruct personnel involved in this project in Leave-No-Trace techniques to ensure that any traces of the installation are removed upon completion of the project.

#### **Check any Wilderness Act Section 4(c) uses approved in this alternative:**

mechanical transport

landing of aircraft

motorized equipment

temporary road

motor vehicles

structure

motorboats

installation

Record and report any authorizations of Wilderness Act Section 4(c) uses according to agency policies or guidelines.

Follow agency policies for the following review and decision authorities:

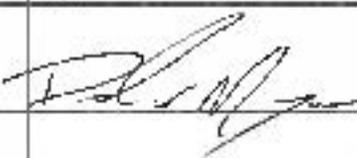
Approvals	Signature	Name	Position	Date
Prepared by:		Wayne Monger	Outdoor Recreation Planner	5/31/13
Recommended:				
Recommended:				
Approved:		Lorraine Christian	Arizona Strip Field Office Manager	7/5/13

Figure A-10: Visual Contrast Rating Worksheet

Form 8400-4  
(September 1985)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

Date 8/24/2012  
District Arizona Strip District  
Resource Area Vermilion Cliffs N.M.  
Activity (program) Mine Reclamation

VISUAL CONTRAST RATING WORKSHEET

SECTION A. PROJECT INFORMATION

1. Project Name <u>San Valley Mine Grate</u>	4. Location Township _____ Range _____ Section _____	5. Location Sketch
2. Key Observation Point <u>San Valley Mine</u>		
3. VRM Class <u>Class I</u>		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	<u>Toe hills of Vermilion Cliffs</u>	<u>sparse vegetation grasses/scrubs</u>	<u>Loading chute, debris at shaft entrance, occasional machinery</u>
LINE	<u>harsh lines created from bedding planes.</u>	<u>weak line created at vegetated benches</u>	<u>horizontal &amp; vertical lines from loading chute and port at bench with shaft</u>
COLOR	<u>Red, Brown, grey</u>	<u>Green, light green</u>	<u>Brown to black; rustic possible metallic shine</u>
TEXTURE	<u>Rough blocky texture. Some smooth</u>	<u>rough to medium texture</u>	<u>medium to coarse texture.</u>

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	<u>Cleanup at mine entrance</u>	<u>Restore benches created at mine ent.</u>	<u>Grate on Mine ent.</u>
LINE	<u>Removal of debris on horizontal line/bench</u>	<u>Benches line restored w/ removal of debris</u>	<u>horizontal line added but <del>at</del> <sup>at</sup> surface grade</u>
COLOR	<u>Removal of aged metal debris</u>	<u>no changes in vegetation color</u>	<u>Rebar, may be painted dark color (Brown or Black)</u>
TEXTURE	<u>Removal of rough textural debris</u>	<u>no texture change</u>	<u>smooth</u>

SECTION D. CONTRAST RATING  SHORT TERM  LONG TERM

1. DEGREE OF CONTRAST	FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)		
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				3. Additional mitigating measures recommended? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)		
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None			
ELEMENTS	Form			X				X					X	Evaluators' Names	
	Line			X				X					X	Dates	
	Color			X				X					X	<u>Jon Jasper</u> <u>8/24/2012</u>	
	Texture			X				X					X		

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SECTION D. (Continued)

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Comments from item 2.

The project does meet CLASS I URM standards as the added grate will not add any contrast to the existing mesh and debris surrounding the mine's entrance. Any ~~contrast~~ contrast added will be positive more natural looking landscape. Only negative effects would be from added foot and animal traffic to the existing route, and disturbed area.

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Additional Mitigating Measures (See item 3)

Make effort to restore or help revegetate routes to mine. Also remove as much mining debris from landscape AS ALLOWABLE.