



# United States Department of the Interior



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AZA-33683/AZA-30114

July 11, 2008

**NOTICE OF AVAILABILITY  
PROPOSED RIGHT-OF-WAY GRANT  
AND PLAN OF OPERATIONS  
BLACK ROCK GYPSUM MINE**

Dear Interested Party:

Please be advised that an Environmental Assessment (EA) was prepared (EA-AZ-110-2008-009) for a right-of-way (ROW) grant and plan of operations for the Black Rock Gypsum Mine as proposed by Western Mining and Minerals, Inc. (WMMI). This EA is a public document, and it is available for your review and comment.

The proposed actions analyzed in the EA are: 1) To install a waterline to the mine site from a well that WMMI has developed near the Utah-Arizona state line. The waterline is proposed to run within a 25 foot ROW that traverses approximately 10 miles across sections of Township 42 North, Range 11 West and Township 41 North, Range 12 West, Gila and Salt River Meridian, Mohave County, Arizona. 2) To open four new quarrying sites known as the Twisted Hills in Sections 18 and 19, Township 41 North, Range 12 West and Sections 13 and 24, Township 41 North, Range 13 West, Gila and Salt River Meridian, Mohave County, Arizona.

In order to meet environmental regulations, a ready supply of water is needed for dust control at the mining facility and to provide an on-site water source for other purposes; i.e. potable and sanitary purposes. Currently, the mine hauls water onto the mine site by truck from St. George, Utah (approximately 15 miles away). In order to continue meeting production requirements, WMMI needs new quarries on their unpatented mining claims in the area known as Twisted Hills.

Copies of the EA are available upon request from, and written comments may be submitted to, Laurie Ford, BLM, Arizona Strip Field Office, 345 E. Riverside Dr., St. George, Utah 84790; phone (435) 688-3271. This EA is also available on the Arizona Strip Field Office web page: [http://www.blm.gov/az/st/en/fo/arizona\\_strip\\_field.1.html](http://www.blm.gov/az/st/en/fo/arizona_strip_field.1.html). The deadline for receipt of comments is August 11, 2008. Public comments are welcome and encouraged.

Comments, including names and street addresses of respondents, will be available for public review at the BLM Arizona Strip Field Office during regular business hours, except holidays.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Sincerely,

Lorraine M. Christian  
Field Manager

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

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**Environmental Assessment  
EA-AZ-110-2008-009**

**PROPOSED RIGHT-OF-WAY GRANT AND PLAN OF  
OPERATIONS  
BLACK ROCK GYPSUM MINE**

**MOHAVE COUNTY, ARIZONA**

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U.S. Department of the Interior  
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*July 11, 2008*



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**ENVIRONMENTAL ASSESSMENT  
EA-AZ-110-2008-009**

**PROPOSED RIGHT-OF-WAY GRANT  
AND PLAN OF OPERATIONS  
BLACK ROCK GYPSUM MINE  
ARIZONA STRIP, MOHAVE COUNTY, ARIZONA**

**1.0 PURPOSE AND NEED**

**1.1 Introduction**

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of a right-of-way (ROW) grant and plan of operations for the Black Rock Gypsum Mine as proposed by Western Mining and Minerals, Inc. (WMMI). The EA is a site-specific analysis of potential impacts that could result from the implementation of a proposed action or alternatives to the proposed action. 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 regulation 40 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 Arizona Strip Proposed Resource Management Plan (RMP)/Final Environmental Impact Statement (2007a).

**1.2 Background**

WMMI is currently operating the mine known as the Black Rock Gypsum Mine, formerly operated by Western Gypsum, Inc. The Black Rock Gypsum Mine is on the Arizona Strip, approximately 4 miles south of Interstate 15 (I-15) at Exit 27. The area currently being mined is referred to as East Ridge. The quarry was first opened to the east and later progressed to the north and south. Currently, there are 280 acres affected by the quarrying portion of the operation. The majority of the mining is progressing to the north with very limited activity in the southern end. The East Ridge quarry would continue to increase in size over the life of the mine to 320 acres. However, mineable reserves in the quarry have been removed from

certain areas within the quarry and these areas are now being backfilled. Presently, backfilling of the quarry and concurrent reclamation are being accomplished on a daily basis. Ultimately, the East Ridge quarry would reach equilibrium with 100 acres being actively mined while the balance is in a phase of reclamation. A nearby gypsum deposit known as Gypsum City has been mined and reclaimed. However, some of the support facilities and processing equipment are in use and remain on location (Figures 1-3, Appendix B). WMMI proposes to open a new gypsum deposit near the existing mine site. The new production area is in an existing series of claims, largely in the Twisted Hills area (Figure 1-3, Appendix B).

The mine needs a reliable on-site water supply for dust suppression and other purposes at its mine headquarters. To that end, WMMI has filed an application with the BLM for a ROW to construct and operate a waterline across BLM land from an existing well, owned by WMMI, about 10 miles northeast of the mine site (Figures 1-3, Appendix B).

### **1.3 Need for the Proposed Action**

#### **1.3.1 Water Pipeline ROW**

In order to meet environmental regulations (40 CFR Part 60; R18-2-604 through R18-2-607), a ready supply of water is needed for dust control at the mining facility and to provide an on-site water source for other purposes; i.e. potable and sanitary purposes. WMMI has a current Air Quality Control Permit (Permit number 42257) from the Arizona Department of Environmental Quality (ADEQ). Currently, the mine hauls water onto the mine site by truck from St. George, Utah (approximately 15 miles away). Hauling water causes some limitations, limits on quantity of water delivered versus dust control needs, to a reliable on-site water supply and can result in decreased ability to sprinkle the roads and mine area for dust suppression in the event that deliveries are delayed or environmental conditions result in higher than anticipated water use. A readily available and constant water source on the mine site would allow WMMI to deal with such unexpected occurrences and would allow them to reduce their cost of operation. WMMI proposes to install a waterline to the mine site from a well that they have developed near the Utah-Arizona state line. The waterline is proposed to run within a 25 foot ROW that traverses approximately 10 miles across sections of Township 42 North, Range 11 West and Township 41 North, Range 12 West (Figures 1-3, Appendix B).

#### **1.3.2 Mine Expansion**

In order to continue meeting production requirements, WMMI needs to plan for a new quarrying site in the area known as Twisted Hills. The mining claims to be affected are: James Hardie Gypsum, Inc. No. 36, 37, 38, 75 40, 41, 79, 43, 44, 45, 54, 48, 49, 57, 58, 47, 50, 87, 61, 62, 67, 68, 70, and 91. Twisted Hills was chosen due to four (4) of the low hills contain known gypsum and would be mined individually and in sequence. When the mining of one hill as been completed, overburden and soil for the next hill would be used to reclaim



the mined out area. The topography at Twisted Hills is isolated ridges and hills. Mining of this area would remove the upper portions of the knolls, without resulting in a deep pit. Only minor grading would be needed to restore a typical landform. Topsoil would be spread and plant life reseeded. Only one knoll would be mined at any one time to minimize outstanding reclamation. Overburden removal from Twisted Hills is planned to begin when the southern mining front at East Hills is exhausted (Figures 1-3, Appendix B). (Johnson 2006)

#### **1.4 Purpose(s) of the Proposed Action**

BLM is considering approval of the continuation and expansion of locatable mineral deposits on unpatented mining claims. Mineral exploration and mining is recognized as an appropriate use of public lands in the Arizona Strip Field Office (FO) RMP, which provides management direction for locatable minerals.

##### **1.4.1 Water Pipeline ROW**

State of Arizona and federal environmental regulations require that WMMI minimize dust production at the Black Rock Gypsum Mine. Dust suppression is accomplished by sprinkling water onto the roads and processing areas of the mine. Amount of water usage needed varies with the season, summer using the most and winter using the least. The presence of miners and other personnel at the mine site results in a need for water for sanitary and consumption purposes. There is a need for a constant and reliable water supply at the mine site. Currently, WMMI is trucking water to the site from St. George, Utah (approximately 15 miles). The availability of water at the site is limited by the water company's ability to deliver water and WMMI's on-site storage capacity.

WMMI has obtained a short-term permit from the BLM and has developed a water well on BLM land at a location about 10 miles to the northeast of the mine headquarters area. Piping water from the well to the mine would provide a reliable and relatively constant supply of good quality water at the mine site as well as reducing truck traffic on the highway. WMMI has filed an application for a ROW from BLM in order to install and operate the desired pipeline.

##### **1.4.2 Mine Expansion**

The currently mined East Ridge deposits are approaching their mineable limits, and WMMI needs to develop new deposits in order to remain commercially viable. The Twisted Hills deposits are expected to allow for an increase in mine output; however, truck traffic would remain the same with 60 to 100 trucks in operation per day. In order to efficiently accommodate the changes in mining location and anticipated increases in output, the mine proposes to modify its current headquarters area. WMMI also proposed to improve infrastructure and access to allow more efficient and safe access by haul trucks entering and leaving the mine area.

## 1.5 Conformance with BLM Land Use Plan(s)

The proposed action is in conformance with the Arizona Strip FO RMP, 2008.

The following decisions are from Table 2.3. Vegetation and Fire and Fuels Management, in the RMP:

- MA-VM-13 - Certified weed-free feed, mulch, and seed will be required for all permitted uses to limit the spread of noxious weeds and other undesirable species (See Grazing Management and Recreation decisions).
- MA-VM-14 - Construction equipment, fire vehicles, and/or vehicles from outside the Arizona Strip FO used to implement authorized projects and/or uses will be required to be cleaned (using air, low pressure/high volume, or high-pressure water) prior to initiating the project. BLM vehicles will also be cleaned after being used within any infested area. As national policy is developed, the more stringent will be implemented. Vehicles leaving the area and later returning to continue the project will require re-cleaning.

The following decisions are from Table 2.10. Lands and Realty, in the RMP:

- MA-LR-06 - Individual land use authorizations (ROWs, permits, leases, easements) will be evaluated on a case-by-case basis in accordance with other RMP provisions and NEPA compliance. New land use authorizations will be discouraged within avoidance areas (i.e., Areas of Critical Environmental Concern [ACECs], lands supporting listed species, National Historic Trails, riparian areas, and areas managed to maintain wilderness characteristics) and allowed in such areas only when no reasonable alternative exists and impacts to these sensitive resources can be mitigated. New ROWs will be routed away from high-density listed species' populations and cultural sites, and along the edges of avoidance areas. In addition, mitigation measures may include underground placement of linear ROWs along existing roads in the House Rock Valley area and special protection measures for archaeological resources (See Special Status Species and Cultural decisions).
- MA-LR-07 – The use of designated ROW corridors/sites and existing ROW use areas will be encouraged to the extent possible but, depending on site-specific needs, actual locations may vary. Such variances shall be considered consistent with other RMP provisions, provided such locations and uses are consistent with the selection criteria, and goals and objectives for ROW corridors and ROW use areas.

The following decisions are from Table 2.12. Minerals Management, in the RMP:

- DFC-MI-01 - Mineral exploration and development is encouraged on public land in keeping with the BLM's multiple-use concept. Overall guidance on the management of mineral resources appears in the Domestic Minerals Program Extension Act of 1953, the Mining and Minerals Policy Act of 1970, Federal Land Policy Management Act of 1976, the National Materials and Minerals Policy, Research and Development

Act of 1980, BLM's Mineral Resources Policy of May 29, 1984, and the Energy Policy Act of 2005.

- DFC-MI-03 - Locatable Minerals: Exploration and development of locatable mineral resources are provided for by the Mining Law of 1872. 43 CFR 3809 provides for mineral exploration and development while assuring that activities are conducted in a manner that prevents unnecessary or undue degradation, provides protection of non-mineral resources, and provides for reclamation of disturbed areas.
- DFC-MI-04 - Salable Minerals: The Materials Sale Act of 1947 and 43 CFR 3600 provide for the disposal and regulation of mineral materials. Disposal is administered on a case-by-case basis. Salable minerals are sold at fair market values. Free use permits are issued to Federal and state agencies, local communities, and non-profit groups as the need arises.
- DFC-MI-05 - Allow entire Arizona Strip FO to remain open to mineral leasing, location, and sale except where restricted by wilderness designation, withdrawals, or specific areas identified in this RMP.
- LA-MI-03 - The following designations will apply to the Arizona Strip FO with regard to locatable minerals (See Map 2.11): 1,534,396 acres Open to the operation of mining laws, 145,226 acres Open with restrictions, 182,699 acres Open with plan of operation, 118,743 acres Withdrawn to mining location subject to valid existing rights.
- LA-MI-04 - The following designations will apply to the Arizona Strip FO with regard to mineral material sales (See Map 2.12): 1,264,889 acres Open subject to standard stipulations, 433,460 acres Open with restrictions, 282,715 acres Closed to mineral material disposals.
- MA-MI-01 - New reclamation stipulations for exploration and development plans directed toward maintaining naturalness and unique features and/or remoteness on the Arizona Strip FO will be developed and will be added to or replace the existing stipulations. These stipulations will be applied to site-specific proposals (See Appendix K).
- MA-MI-02 - Special mitigation will be required in mining plans of operation to avoid impacts to cultural resources, special status species, and/or other sensitive resources in ACECs.
- MA-MI-05 - Salable materials will continue to be available in a timely and orderly manner consistent with environmental constraints. Free use permits will continue to be issued to Federal and State agencies and to local communities (See Appendix M for current mineral material sites).
- MA-MI-07 - Extraction of mineral resources will proceed consistent with protection of sensitive resources and achieving Desired Future Conditions (See Appendices F, G, and K).

It has been determined that the proposed action and alternatives would not conflict with other decisions throughout the RMP.

## **1.6 Relationship to Statutes, Regulations, or other Plans**

The proposed action is consistent with Federal laws and regulations. Overall guidance on the management of minerals resources appears in the Domestic Minerals Program Extension Act of 1953, Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980, BLM's Minerals Resources Policy of May 29, 1984, and the Energy Policy Act of 2005.

Section 302 of the Federal Land Policy and Management Act of 1976 directs the Secretary to manage public lands under the principles of multiple use and sustained yield in accordance with land use plans developed under the Act.

The General Mining Law of 1872, as amended, the Federal Land Policy and Management Act of 1976, and NEPA provide the legal and regulatory framework for activities on mining claims.

All processing, including crushing, would require continuation of a permit from the ADEQ. WMMI has a current Air Quality Control Permit (Permit number 42257) from ADEQ and complies with them on a yearly basis. In addition, mine operations fall under the authority of the Arizona State Mine Inspector's Office.

The mine complies with a Storm Water Pollution Prevention Plan, permit number AZRO5B612, which was recently revised and updated in fall 2007.

The activities proposed have been reviewed and found in conformance with all applicable regulations.

## **1.7 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. The issues identified through this process were:

- Air Quality
- Vegetation
- Wildlife
- Livestock Grazing
- Cultural Resources
- Visual Resources
- Socioeconomics

## 1.8 Critical Elements of the Human Environment and Other Resources/Concerns

Critical elements of the human environment are those elements that are subject to the requirements specified in statute, regulation, or executive order, and must be considered in all EAs. Table 1-1 identifies the critical elements of the human environment not present in the project area, or present but would not be affected by any of the actions proposed in this EA. Other resources/concerns that are not present or are not affected by any of the alternatives are identified in Table 1-2.

**Table 1-1. Critical Elements of the Human Environment Not Present or Not Affected**

| RESOURCE   | RATIONALE FOR DETERMINATION   | DETERMINATION              |
|--|---|----------------------------|
| ACECs  | The proposed action is not within or adjacent to an ACEC.   | Not present                |
| Environmental Justice                              | Mine expansion and pipeline construction and operation would not have an impact on underrepresented populations or poverty areas in the region or immediate area. The proposed alternative(s) would also have no disproportionately high or adverse human health or other environmental effects on minority or low income segments of the population.   | Present, but not affected  |
| Farmlands (prime or unique)                        | Prime or unique farmlands are not present on or adjacent to the proposed mine expansion and/or the water pipeline ROW.  | Not present                |
| Floodplains  | The proposed mine expansion and/or the water pipeline ROW is not found within the 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                       | No known occurrences of noxious or invasive plants occur within the proposed mine expansion and/or water pipeline ROW. The proposed mitigation measures include power washing equipment before transporting to the site which would help prevent the spread of weeds into the project area.   | Not present                |
| 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 | No designated critical habitat for the federally threatened desert tortoise ( <i>Gopherus agassizii</i> ) occurs within or adjacent to the proposed project area. While the project area contains habitat features suitable for tortoise occupancy, a survey conducted in 2007 found no tortoise sign. It is therefore unlikely that the Mojave population of desert tortoises would be affected by this proposed action (Kay, et al 2007 a-b). | Present, but not affected  |
| Wastes (hazardous or solid)                        | The use and generation of hazardous of substances is not part of the proposed action. The proposed mitigations would limit the disposal of waste, including petroleum products to authorized sites. The use and storage of explosives is regulated by the US Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF).  | Present, but not affected. |

**Table 1-1. Critical Elements of the Human Environment *Concluded*  
Not Present or Not Affected**

| RESOURCE                        | RATIONALE FOR DETERMINATION  | DETERMINATION             |
|---------------------------------|--|---------------------------|
| Water quality (drinking/ground) | The regional aquifer is more than 1000 feet below the proposed water pipeline and mine workings. Therefore, the proposed mine expansion and/or water pipeline ROW would not impact drinking or ground water. (B. Smith 5/2008) | 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 Wild and Scenic River segments classified as designated, eligible, or suitable within the project area.   | Not present               |
| Wilderness                      | There are no designated wilderness areas within the project area.  | Not present               |

**Table 1-2. Other Resources/Concerns  
Not Present or Not Affected**

| RESOURCE   | RATIONALE FOR DETERMINATION   | DETERMINATION              |
|--|---|----------------------------|
| Woodland/Forestry  | Woodlands or forests are not present on or adjacent to the proposed mine expansion and/or the water pipeline ROW.   | Not present                |
| Vegetation including Special Status Plant Species other than Fish and Wildlife Service candidate or listed species   | Potential habitat exists in the vicinity of the proposed project area for sensitive plants known to occur in Mohave County. In the area that would be used for the mine expansion, two Arizona-listed salvage restricted cacti species were identified during the biological survey, the clustered barrel cactus ( <i>Echinocactus polycephalus</i> var <i>polycephalus</i> ) and the straw-top cholla ( <i>Opuntia echinocarpa</i> ) (Kay, et al 2007a). These cacti would be relocated away from impact areas with special Arizona State Department of Agriculture (ADA) permits.   | Present, but not affected  |
| Fish and Wildlife including Special Status Species other than Fish and Wildlife Services candidate or listed species | No Fish and Wildlife including special status species other than Fish and Wildlife Services candidate or listed species were identified within the proposed mine expansion and/or the water pipeline ROW during the biological surveys (Kay, et al 2007a-b).  | Not present                |
| Recreation   | The proposed mine expansion and water pipeline ROW are within the St. George Basin Special Recreation Management Area (SRMA) and the St. George Basin Rural Park Recreation Management Zone (RMZ). Some of the proposed water pipeline ROW falls within the Canyons and Mesas RMZ of the St. George Basin SRMA. However, the expansion of an existing large gypsum mine and development of a water pipeline would not affect the recreation activities, settings, or benefits for this SRMA and the RMZs because the mine already exists and once construction of the water pipeline occurs, the identified recreation activities and benefits could still occur in the area. (D. Hawks 5/2008) | Present, but not affected. |

**Table 1-2. Other Resources/Concerns *Concluded*  
Not Present or Not Affected**

| RESOURCE                   | RATIONALE FOR DETERMINATION   | DETERMINATION             |
|----------------------------|---|---------------------------|
| Geology/mineral resources  | Geological and/or mineral resources would not be affected more than the current mining operation standards by the proposed mine expansion and/or water pipeline ROW.  | Present, but not affected |
| Paleontology               | No paleontological resources are known to occur within the proposed mine expansion and/or the water pipeline ROW areas.   | Not present               |
| Lands/Access               | Access to the public lands within or adjacent to the proposed mine expansion and/or the water pipeline ROW areas would not be affected since the mine is utilizing established BLM and powerline roads. Lands for the proposed mine expansion have already been acquired via unpatented claims. | Present, but not affected |
| Wilderness characteristics | The proposed mine expansion and/or the water pipeline ROW do not occur within areas managed to protect wilderness characteristics.  | Not present               |
| Energy production          | Energy production is not occurring on or adjacent to the proposed mine expansion and/or the water pipeline ROW.   | Not present               |

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## 2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION

### 2.1 Introduction

This EA deals with two proposed actions that are associated with the operation of the Black Rock Gypsum Mine in Mohave County, Arizona. The actions are:

1. Granting a ROW for the construction and operation of an approximately 25-foot wide, 10-mile long water pipeline across BLM managed land from near the Arizona-Utah state line to the Black Rock Gypsum Mine site – each alternative would contain the same proposed water supply system; variation between the alternatives occurs by the proposed route.
2. Expansion of the current mining operation onto additional unpatented claims in the Twisted Hills area and to the north and south of the existing operation, and modification of existing infrastructure for the mine (see Section 2.2).

The proposed route, two alternative routes, and the “No Action” alternative for the pipeline, were examined. Only the proposed action was examined for the mine expansion because regulations at 43 CFR 3809 significantly constrain the BLM’s ability to do more than develop mitigations for a mining plan of operations sufficient to prevent the occurrence of unnecessary and undue degradation.

### 2.2 Common to All Alternatives

The proposed expansion of the current mining operation is common to all alternatives because regulations at 43 CFR 3809 constrain the BLM’s ability to do more than develop mitigations for a mining plan of operations sufficient to prevent the occurrence of unnecessary and undue degradation. Actions associated with the proposed mine expansion are described below.

#### Mine Expansion

WMMI proposes to make the following infrastructure improvements in their expanded mine operation:

- The mine access road at Exit 27 off of I-15 is established BLM road number 1009, therefore WMMI plans to continue to maintain and upgrade the road with the installation of culverts to prevent storm water damage. Care would be taken not to disturb natural drainage patterns. WMMI also plans to replace existing cattle guards. The proposed cattle guard replacements would be large enough to accommodate two-lane traffic (40 feet); however, there are no plans to widen the existing road (Figure 2, Appendix B).

- To locate a new approximately 30 foot by 50 foot prefabricated office building or trailer along the new scale road adjacent to the truck scales (Figure 3, Appendix B). A new septic system would be required for the new office building for employee's sanitary requirements.
- A 100 foot by 80 foot maintenance building is being constructed adjacent to the existing mine road on the south side (Figure 3, Appendix B). A new septic system would be required for the new maintenance building for employee's sanitary requirements.
- Relocate existing fence lines and a cattle guard in concurrence with the livestock operator on the Black Rock allotment to where it is needed (Figure 3, Appendix B).
- Upgrade WMMI's explosive practices according to the approved mine plan as well as approval of the ATF by converting to bulk explosives and relocating the current magazines and installing a small bulk storage silo (Figure 3, Appendix B). The proposed location of the proposed small bulk storage silo would be south of the new maintenance building which would allow the natural form of the wash as protection from "stray bullets." Removal of magazines from the Golden Downs claims would also allow the reclamation of the claims to be completed. Reclamation of the claims would include rehabilitation of the existing 1,800 foot by 30 foot wide access road.
- Structures and equipment that become obsolete due to the mine upgrade project would be removed as soon as practical.

The mine plans to expand its operation onto approximately 227 acres of unpatented claims in the Twisted Hills area (Figure 2-3, Appendix B) as the ore bodies in the East Ridge area are mined out.

The Twisted Hills deposit is formed by isolated gypsum outliers, the topography consists of ridges and hills. WMMI proposes to mine the Twisted Hills area following the same conventional drill and blast, open pit mining methods that traditionally have been used at the Black Rock Gypsum Mine. Soils and loose erosional debris would be removed by bulldozers, front end loaders and large haul trucks. Top soil would be retained nearby in a separate and identified pile for reclamation purposes. Consolidated overburden including the limestone cap, if present, would be removed by drilling and blasting, then utilizing the same loaders and trucks to haul the broken overburden: (1) the existing waste pile or (2) the completed southern end of the mine as backfill as part of day to day reclamation activities. Since October 2005, all overburden material has been returned to the quarry as backfill. No overburden has been placed on the waste dump. WMMI intends to continue with the concurrent backfill in the quarry, unless unforeseen circumstances require use of the waste dump. The gypsum product would be hauled to the existing crushing and processing facilities.

The following heavy equipment is proposed for mining the Twisted Hills area (Table 2-1), some of the equipment listed may be replaced by similar equipment and the list may change over time as operations require.

**Table 2-1. Black Rock Gypsum Mine Mobile Mining Equipment**

| <b>BLACK ROCK GYPSUM MINE MOBILE MINING EQUIPMENT</b>  |                  |                             |
|--|------------------|-----------------------------|
| <b>Quantity</b>  | <b>Equipment</b> | <b>Function</b>             |
| <b>Front End Loaders</b>   |                  |                             |
| 2  | Cat 992C         | Quarry loading              |
| 1  | Komatsu 900      | Quarry loading              |
| 1  | Cat 988B         | Plant operations            |
| 1  | Volvo 180C       | Plant operations            |
| 1  | Volvo 330C       | Plant operations            |
| <b>Haul Trucks</b>   |                  |                             |
| 5  | Cat 773B         | Rock Haulage                |
| 3  | Cat 777C         | Rock Haulage                |
| 1  | Komatsu 100 ton  | Rock Haulage                |
| <i>All smaller trucks would be replaced with 100 ton capacity units over the next few years.</i> |                  |                             |
| <b>Dozers</b>  |                  |                             |
| 1  | Cat D8N          | Overburden removal, grading |
| 1  | Cat D9L          | Overburden removal, grading |
| 1  | Cat D10N         | Overburden removal, grading |
| <b>Excavators</b>  |                  |                             |
| 1  | Case 1840        | Plan clean up (skid steer)  |
| 1  | Cat EL200B       | Rock Breaker                |
| 1  | Komatsu 270      | Inter-bed removal           |
| <b>Graders</b>   |                  |                             |
| 1  | Cat 14G          | Road maintenance            |
| 1  | Cat Road Roller  | Road maintenance            |
| <b>Drills</b>  |                  |                             |
| 1  | IR EMC 660       | Production drilling         |
| 1  | IR EMC 370       | Back up                     |

Other miscellaneous maintenance vehicles, service vehicles and pick-up trucks would be used as well.

Currently, there is no processing of the overburden; however, the limestone portion of the overburden has been used for riprap. The limestone has potential to be used for aggregate and other commodities. A third party, with the approval of the BLM and in cooperation with WMMI, could process the limestone for aggregate or other uses. The third party would locate a crushing and screening plant on WMMI claims. WMMI would deliver limestone overburden from the mine to the third party. The third party would be responsible for the processing, sale and transport of the finished aggregate or other products

The proposed action includes reclamation of existing and proposed facilities, newly proposed quarry sites, current quarry sites and continued rehabilitation of previously disturbed quarry

sites. The Reclamation Plan is divided into 5 distinct areas each with different requirements. These areas are as follows:

1. Golden Down – complete reclamation of disturbed areas and removal of explosive magazines.
2. Gypsum City – Mining has been completed, but support facilities and two rock processing plants remain.
3. East Ridge and Waste Dump – current active mining area. Mining is expected to continue for 25 to 30 years.
4. Twisted Hills – proposed mining front. This area consists of low hills. Mining would remove the upper portion of the hills. One hill would be mined at a time.
5. All buildings and structures would be removed or remediated.

The Golden Down claim was previously mined and partially reclaimed. The site is presently being used to store explosive magazines. It is proposed to remove the magazines and to contour areas not already contoured. The disturbed areas would be covered with topsoil and graded to match the existing topography. Approximately 8 acres would be affected.

Previously mined hills in Gypsum City have been covered, graded and reseeded. Existing facilities and processing equipment located at Gypsum City near the mined areas would be removed along with any gypsum stockpiles. About 80 acres have been affected, of which approximately 52 acres have been reclaimed.

In East Ridge, mined areas would be backfilled to the top of the highwall and sloped to match the existing topography. In the interest of public safety, no shear drop offs due to mining would be left exposed. WMMI has already initiated concurrent reclamation. The East Ridge mining has progressed far enough to allow backfilling. Lower mined areas would be dished to collect sediment and control the infrequent runoff. During mining, the overburden consisting of limestone, shale and clay are stripped and placed in designated waste dumps. In the future, WMMI may reclaim portions of the limestone for aggregate production. Any dumps not removed for aggregate would be reclaimed by rounding and grading. Terraces would be placed at maximum slope length intervals of 100 feet to minimize erosion. The disturbed areas would be covered with topsoil and graded to match the existing topography. In total approximately 320 acres would be affected.

The mining of gypsum from elevated knolls in the Twisted Hills area would remove the upper portions of the knolls, leaving a topographic surface of low relief without resulting in a deep pit. Only minor contouring would be needed to restore a typical landform. The disturbed areas would be covered with topsoil and graded to match the existing topography. Approximately 227 acres would be affected.

Haul roads would be reclaimed by ripping to a depth of 3 feet to loosen the compacted earth. Roadways would then be graded to facilitate the natural drainage. Any culverts that may be

installed would be removed as part of the haul road reclamation. The main access road to the mine site is BLM Road 1009 and would be left open for public use. During reclamation, all buildings and structures would be removed. This includes the rock processing plants, tanks, storage containers, explosive storage, maintenance buildings, Barney Trucking terminal and office buildings. This includes any sanitary facilities installed with the buildings. If equipment has no resale value, it would be demolished and taken to a steel recycler in nearby St. George, Utah. Likewise all buildings are steel framed and steel sided and would be recycled. The limited amount on non-steel construction material would be transported to an approved landfill. Non-hazardous materials of no salvage value, such as concrete would be broken and buried on site or be covered in place. Any waste classified as hazardous, i.e. diesel fuel, lubricants, and explosives, would be disposed of in accordance with applicable federal and state laws and regulations. Reclamation of the haul roads, processing plants and support facilities are included in the above estimated acreages.

The Black Rock Gypsum Mine is located in desert terrain containing sparse vegetation and little or no topsoil. Successful reclamation would be measured by two general criteria: (1) re-establishment of vegetative cover and (2) grading and stabilization of disturbed surfaces. To achieve re-vegetation of disturbed surfaces, WMMI would utilize a seed mixture and planting methods approved by the BLM. WMMI would repeat the seeding procedures for areas where the cover standard has not been achieved for three growing seasons after the initial seeding. Experience has shown that vegetation would establish itself naturally on the mine waste dumps, particularly those containing significant quantities of clay and shale. WMMI proposes to use this type of material as a growth medium for those areas to be "re-topsoiled". If necessary, the mine may use a water truck to spread water to promote germination.

WMMI has not and would not establish any impoundments, dams, heaps for leeching, tailings ponds or solution ponds. No hazardous materials have been or would be used in processing the gypsum and the overburden material is relatively inert without potential for environmental contamination. However the need for a post operational monitoring program would be assessed prior to closure. At that time, results from interim and concurrent reclamation programs and a surface materials survey would provide a sound basis for a monitoring program, if required.

### **2.3 Alternative A: Proposed Action**

#### Water Pipeline ROW

WMMI would employ a submersible pump into the well which would minimize the use of equipment on the surface. Electrical supply currently exists along with a power panel. At the well site, a small pressure relief tank (500 gallons) may be required; requirement involves engineering conditions to prevent pipe breakage. An 8-inch pipe would exit the well, loop into a trench (trench depth is 18 to 24 inches) and would be covered. Pump operation would be automatic, based on volume and pressure requirements at the mine site. Control signals would be relayed between the mine and the pump at the well via wireless communication.

Installation of the pipeline would involve a trenching machine and small track hoe and/or backhoe. The pipeline from the well to the powerline road would not be left open, and it would not be installed in the powerline road. It would be placed to the side of the existing road. It would be laid in the trench and covered with the excavated material. The path made by the excavators would not be large (less than 3 feet wide and 2 feet deep), disturbance would be minimized, and the road, if impacted, would be restored to the pre-existing or better condition. With BLM approval, earth barricades to deter vehicle passage would be created at the well site and the powerline road; signs may be used to identify reclaimed areas. Other barricades are an option; however, an earthen berm would be less obtrusive than a fence or gate. Excavation would be left in a rough hummocky condition; topsoil would be saved, spread over the excavated area and reseeded with a seed mix recommended by the BLM. Barricades would be removed when re-growth blocks the excavation path. It would not be necessary to take down any fences that are crossed by the proposed waterline during construction since the backhoe has the capability of digging on both sides of the fence from a single position. The pipe would be laid under the fence and would be backfilled without taking down the fence.

The pipeline system would use an 8-inch diameter PVC pipe beginning at the well. Over the 10 miles to the mine, the diameter of the pipe would be reduced in steps to 6 inches and then to 4 inches in order to maintain pressure at the mine. The pipe that would be used is self-coupling with no need of welding or gluing. The pipeline would normally be buried to a depth of 18 to 24 inches and typically along one side of the ROW (the north side) to allow installation and access without overreaching the width of the ROW and minimizing disturbance. Placement of the pipeline along the road ROW may vary to accommodate terrain and location of the powerline towers.

At the mine site, the mine currently has several water tanks: two 30,000 gallon tanks for dust control water used by the crushing and screening plants, one 30,000 gallon tank to dispense water to trucks for dust control on the roadways, and one 20,000 gallon tank for domestic water use in the facility. Those tanks would continue to be used and would be filled and maintained from the piped water. The majority of piping at the mine site would be in the ground. Final engineering may require an additional permanent tank which would be no larger than 100,000 gallons.

WMMI has been approached by the affected livestock permittees and has agreed to allow the installation of three taps (refer to Figure No. 2) between the well and the mine to facilitate drinkers for livestock and wildlife along the ROW. Any branches or extensions beyond the ROW would be the responsibility of the grazing permit holders and would require separate environmental review and approval by the BLM.

Under this alternative, the proposed pipeline would originate at the well location and go south about 1.6 miles until it connects with a dirt road. It would follow the road south and west about 1.5 miles until the road connects with the Navajo McCullough powerline ROW. The pipeline would then follow the powerline ROW west and south for approximately 4.1 miles to the mine access road. Finally, the proposed pipeline route would swing west for 3 miles

along the access road to the mine facilities where it would terminate. The total length of the proposed action would be approximately 10 miles.

This proposed route would avoid the Little Black Mountain ACEC and Dutchman Wash, a potential U.S. Army Corps of Engineers jurisdictional waterway. Except for the first 1.6 miles, this proposed route would utilize existing roads for access. The proposed alternative would minimize laying pipe in areas of shallow bedrock, which would allow the entire length of the line to be buried at a minimum cost to the mine.

#### **2.4 Alternative B: No Action**

Under this alternative, the BLM would not approve the pipeline ROW application. The pipeline would not be built, and WMMI would continue to transport water to the site from St. George, Utah by truck.

#### **2.5 Alternative C**

Under this alternative, the proposed pipeline would go south for about 0.5 miles (Figures 1-2, Appendix B) and then parallel Dutchman Wash for about 1 mile (Figures 1-2, Appendix B). The route would turn west and follow an existing 2-track road for about 3.1 miles. At a point where the road angles to the northwest, the pipeline route would turn south for about 2 miles until it connects with the Navajo McCullough Powerline ROW which it would follow to the mine facilities in the same manner as the proposed action. The total distance of the proposed pipeline under Alternative C would be about 11.4 miles.

The Alternative C route would approach the edge of the Little Black Mountain ACEC and cross Dutchman Wash. Although the route would utilize some existing road disturbance, approximately 4.2 miles of the route would traverse relatively undisturbed areas. The route would have an additional elevation change and would need to cross a small outcrop hill along the segment that would parallel the base of Little Black Mountain. The potential for near-surface bedrock would be high. Much of the route along the west and south traverse would be across Arizona State Trust Lands.

#### **2.6 Alternative D**

Under Alternative D, the proposed pipeline ROW would follow the same route as Alternative C to the point where the Alternative C route would turn south (Figures 1-2, Appendix B). At that point, the Alternative D route would continue west for about 5 miles where it would connect to an existing road that runs southwest which connects to the mine access road. The route proposed under Alternative D would enter the mine facility approximately where the other two routes enter. The last leg would be about 1.6 miles, and the total length of the Alternative D route would be about 9 miles.

The Alternative D route would cross two substantial rocky ridges on the long westward traverse. Most of the westward traverse would be across Arizona State Trust Lands.

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## **3.0 AFFECTED ENVIRONMENT**

### **3.1 Introduction**

This chapter provides information to assist the reader in understanding the existing situation (i.e., the physical, biological, social, and economic values and resources) of the analysis area as presented in Section 1 of this assessment. The area that may be affected is used as a baseline for comparison of impacts/consequences described in Section 4.

### **3.2 General Setting**

The project area runs adjacent to Dutchman Wash near the base of Little Black Mountain and south of the Little Black Mountain ACEC (Figures 1-3, Appendix B). The area has an elevation of approximately 2,785 to 3,200 feet. Portions of the proposed project area are cut by a braided arroyo system.

The area of the proposed mine expansion lies in and near the Twisted Hills south of I-15 between the Virgin Mountains and the Hurricane Cliffs of northwestern Arizona. The terrain of the area consists of steep to moderate slopes with rocky basalt and limestone outcrops and gentle alluvial fans. East Ridge and other topographic highs in the area range in elevation from 3,100 to 3,600 feet. The mineable gypsum occurs in the Harrisburg Member of the Permian Kaibab Formation. Precipitation in the area ranges from 8 to 10 inches a year. The principal uses of these lands in the past have been for livestock grazing, gypsum exploration and mining, and off-highway vehicle (OHV) use. The mine expansion area is within the Black Rock grazing allotment, while the well is located in the Blake Pond grazing allotment. The proposed pipeline route would pass through portions of the Blake Pond, Lizard, Pocum and Black Rock grazing allotments

Wildlife is limited to small mammals, reptiles and birds. No threatened, endangered, or candidate plant or animal species are known to exist within the project area (see Table 1-1). Surveys within and adjacent to the area have been conducted for evidence of, or habitat suitable for, listed threatened, endangered, or candidate species of plants and animals known to occur within Mohave County, Arizona. No threatened, endangered, or candidate wildlife or plant species were found (Kay, et al. 2007a-b). The area is not designated critical habitat for any threatened, endangered, or candidate species.

Soils of the proposed waterline ROW project area consist of Cave-Harrisburg-Grapevine complex, 1 to 15 percent slopes; Grapevine-Hobcan complex, 1 to 5 percent slopes; Grapevine-Shelley complex, 1 to 5 percent slopes; Gypill-Hobog complex, 6 to 35 percent slopes; Gypill very cobbly sandy loam, 15 to 40 percent slopes; Hobcan fine sandy loam, 1 to 5 percent slopes; Hobog-Tidwell family complex, 8 to 35 percent slopes; and Ruesh very gravelly fine sandy loam, 3 to 20 percent slopes (United States Department of Agriculture [USDA] 2006). The biology report and addendum (Kay, et al 2007a-b) contain detailed descriptions of the soil types.

Soils of the proposed mine expansion project area consist of Grapevine-Shelley complex, 1 to 5 percent slopes; Gypill fine sandy loam, 15 to 40 percent slopes, Gypill-Hobog complex, 6 to 35 percent slopes; Hindu-Rock outcrop-Gypill complex, 35 to 70 percent slopes; Hobog-Tidwell family complex, 8 to 35 percent slopes; Meadview very gravelly sandy loam, 2 to 18 percent slopes; Nikey family-Ruesh family-Rock outcrop complex, 10 to 40 percent slopes; and Winkel very gravelly loam, 2 to 5 percent slopes (USDA 2006). The biological survey report and addendum (Kay, et al 2007a-b) contains detailed descriptions of the soil types.

### **3.3 Resources Brought Forward for Analysis**

Resources/issues that could be affected by the proposed pipeline and the continued mine expansion are, air quality, vegetation, wildlife, livestock grazing, cultural resources, visual resources, and socioeconomics.

#### **3.3.1 Air Quality**

Air quality in the region is generally good due to the lack of major pollution sources. The site is located in a Class II airshed, which means ambient air quality standards are being met under the Prevention of Significant Deterioration Regulations as mandated by the National Ambient Air Quality Standards defined by the Clean Air Act. The major local nonpoint sources of air emissions are vehicles on the roads, which emit carbon monoxide and create fugitive dust on the dirt roads. Local air quality can decrease in winter due to burning of diesel fuel and wood for heat in St. George, Utah. Severe winds can cause temporary, local fugitive dust situations associated with the mine site.

WMMI has a current Air Quality Control Permit (Permit number 42257) from the ADEQ. The ADEQ standard for dust emission is an opacity limit of between 10 and 20 percent as determined by the U.S. Environmental Protection Agency (EPA) Reference Method 9 (EPA 1990).

#### **3.3.2 Vegetation**

Biological surveys (Kay, et al 2007a-b) were conducted in the proposed project area. Surveyed areas include the proposed water pipeline, mine expansion areas (Twisted Hills area and roadways, areas near and including East Ridge, and WMMI proposed buildings), and cattle guard widening approximately 2 miles north of the mine. Each vegetation type listed below was observed during the biological surveys.

The vegetation type of the proposed project area consists of Mojave Desert Scrub with components of Great Basin Desert Scrub due to the proximity of the latter desert and elevation (Brown 1994). Creosote-bush (*Larrea tridentata*) and shadscale (*Atriplex confertifolia*) dominate the vegetation of the mine expansion area. Other plant species identified within the proposed project area include desert needlegrass (*Achnatherum*

*speciosum*), white bur-sage (*Ambrosia dumosa*), big sagebrush (*Artemisia tridentata*), baccharis (*Baccharis* sp.), red brome (*Bromus madritensis* ssp. *rubens*), desert paintbrush (*Castilleja chromosa*), rattlesnake weed (*Chamaesyce albomarginata*), blackbrush (*Coleogyne ramosissima*), cliffrose (*Cowania mexicana*), hiddenflower (*Cryptantha* sp.), silver cholla (*Cylindropuntia echinocarpa*), calico cactus (*Echinocereus engelmannii*), brittlebush (*Encelia* sp.), Nevada jointfir (*Ephedra nevadensis*), desert trumpet (*Eriogonum inflatum* var. *inflatum*), fluff-grass (*Erioneuron pulchellum*), red-stem stork's bill (*Erodium cicutarium*), hop-sage (*Grayia spinosa*), cheesebush (*Hymenoclea salsola*), winterfat, (*Krascheninnikovia lanata*), desert pepperweed (*Lepidium fremontii*), purple aster (*Machaeranthera* sp.), fishhook cactus (*Mammillaria tetrancistra*), smoothstem blazingstar (*Mentzelia laevicaulis*), giant four o'clock (*Mirabilis multiflora* var. *glandulosa*), Porter's muhly (*Muhlenbergia porteri*), Mojave pricklypear (*Opuntia polyacantha* var. *erinacea*), wooly plantain (*Plantago patagonica* var. *patagonica*), big galleta (*Pleuraphis rigida*), desert almond (*Prunus fasciculata*), Fremont's dalea (*Psoralea fremontii*), Russian thistle (*Salsola tragus*), purple sage (*Salvia dorrii* var. *pilosa*), desert hollyhock (*Sphaeralcea ambigua*), globemallow (*Sphaeralcea gierichii*), chinch-weed (*Pectis papposa*), desert straw (*Stephanomeria pauciflora*), California barrel cactus (*Ferocactus cylindraceus*), bractscale (*Atriplex sernana*), and banana yucca (*Yucca baccata*).

Potential habitat exists in the vicinity of the proposed project area for sensitive plants known to occur in Mohave County. In the area that would be used for the mine expansion, two Arizona-listed salvage restricted cacti species were identified, the clustered barrel cactus (*Echinocactus polycephalus* var. *polycephalus*) and the straw-top cholla (*Opuntia echinocarpa*). In addition, a plant that is likely a newly described *Gypsophilous* species of globemallow (*Sphaeralcea gierichii*) was found in the Twisted Hills proposed mine expansion area. This plant seems to be returning on its own at different rates on areas of the mine that have been recently revegetated following mining (L. Hughes 5/2008).

Along the proposed pipeline ROW, creosote-bush (*Larrea tridentata*) and shadscale (*Atriplex confertifolia*) dominate the western one-third of the proposed project area. The vegetation of the eastern two-thirds of the proposed ROW is dominated by big sagebrush (*Artemisia tridentata*) and buckwheat (*Eriogonum* sp.). Other plant species identified within the proposed project area included desert needlegrass (*Achnatherum speciosum*), three-awn (*Aristida* sp.), baccharis (*Baccharis* sp.), red brome (*Bromus madritensis* ssp. *rubens*), desert paintbrush (*Castilleja chromosa*), rattlesnake weed (*Chamaesyce albomarginata*), hiddenflower (*Cryptantha* sp.), silver cholla (*Cylindropuntia echinocarpa*), Nevada jointfir (*Ephedra nevadensis*), desert trumpet (*Eriogonum inflatum* var. *inflatum*), kidneyshape buckwheat (*Eriogonum subreniforme*), desert fluff-grass (*Erioneuron pulchellum*), cheesebush (*Hymenoclea salsola*), Porter's muhly (*Muhlenbergia porteri*), Mojave pricklypear (*Opuntia polyacantha* var. *erinacea*), wooly plantain (*Plantago patagonica* var. *patagonica*), big galleta (*Pleuraphis rigida*), Fremont's dalea (*Psoralea fremontii*), Russian thistle (*Salsola tragus*), purple sage (*Salvia dorrii* var. *pilosa*), desert hollyhock (*Sphaeralcea ambigua*), and banana yucca (*Yucca baccata*).

### 3.3.3 Wildlife

Biological surveys (Kay, et al 2007a-b) were conducted in the proposed project area. Wildlife species observed are listed below. Surveyed areas include the proposed water pipeline, mine expansion areas (Twisted Hills area and roadways, areas near and including East Ridge, and WMMI proposed buildings), and cattle guard widening approximately 2 miles north of the mine.

Wildlife species identified within the proposed project area included zebra-tailed lizard (*Callisaurus draconoides*), Great Basin rattlesnake (*Crotalus oreganus lutosus*), desert collared lizard (*Crotaphytus insularis*), leopard lizard (*Gambelia wislizenii*), desert horned lizard (*Phrynosoma platyrhinos*), spiny lizard (*Sceloperus* sp.), red-tailed hawk (*Buteo jamaicensis*), black-throated sparrow (*Amphispiza bilineata*), house finch (*Carpodacus mexicanus*), black-tailed gnatcatcher (*Polioptila melanura*), Western kingbird (*Tyrannus verticalis*), mourning dove (*Zenaida macroura*), black-tailed jackrabbit (*Lepus californicus*), packrat (*Neotoma* sp.), and antelope ground squirrel (*Ammospermophilus leucurus*). The habitat in the proposed project area is also potentially suitable for a variety of other wildlife species.

### 3.3.4 Livestock Grazing

The proposed project area is within the Black Rock, Blake Pond, Lizard and Pocum grazing allotments. The allowable season of use, number of livestock authorized, and number of Animal Unit Months (AUMs) in the portions of the allotments affected by the proposed action are shown below.

**Table 3-1. Total Grazing per Allotment**

| ALLOTMENT NAME | # OF LIVESTOCK | SEASON OF USE     | FEDERAL AUMS | TOTAL AUMS |
|----------------|----------------|-------------------|--------------|------------|
| Black Rock     | 159 cattle     | 12/01 thru 05/31* | 954          | 1163       |
| Blake Pond     | 118 cattle     | 11/01 thru 05/31* | 826          | 888        |
| Lizard         | 26 cattle      | 10/16 thru 06/15  | 210          | 210        |
| Pocum          | 67 cattle      | 11/01 thru 06/15* | 503          | 503        |

\* Denotes season of use for this portion of a larger allotment which together make a year round operation.

### 3.3.5 Cultural Resources

Cultural surveys (Gibbs, et al 2007a-b) were conducted in the proposed project area. Surveyed areas include the proposed water pipeline, mine expansion areas (Twisted Hills area and roadways, areas near and including East Ridge, and WMMI proposed buildings), and cattle guard widening approximately 2 miles north of the mine.

During the cultural resources survey (Gibbs, et al 2007a-b) of the proposed mine expansion, cattle guard, and waterline, a total of three sites and 67 isolated occurrences were located within the proposed project areas. Two of the sites were previously recorded (AZ A:2:56 [ASM] and AZ A:2:62 [ASM]) and one new site was documented (AZ A:2:71 [ASM]). Two of

the sites are located within an area of potential future mine expansion (AZ A:2:56 [ASM] and AZ A:2:71 [ASM]), but outside the area proposed for mining in the immediate future. The remaining site (A:2:62 [ASM]) is located along the proposed waterline. No cultural resources were identified within the cattle guard realignment area.

All three of the sites documented during the cultural resources survey consist of temporally unknown aboriginal lithic procurement locales. All of the sites contain over 200 artifacts, including flakes in all stages of reduction, cores, and limited frequencies of bifacial tools. Site AZ A:2:71 also contains a limited Historic period component, dating to the 1900s to the 1920s. None of the sites contain features. The previously recorded sites have been previously recommended eligible for inclusion in the NRHP and the newly recorded site is also recommended for inclusion in the NRHP.

In August 2007, a cultural resources survey was conducted on approximately 131 acres for three additional proposed mine areas and three new roads in the Twisted Hills area. Two sites (AZ A:2:75 [ASM]) and (AZ A:2:76 [ASM]) were identified during the survey, as well as 21 isolated occurrences. Site AZ A:2:75 (ASM) contained approximately 50 artifacts, including flakes in all stages of reduction, cores, and one bifacial tool fragment. Eligibility for inclusion of AZ A:2:75 (ASM) in the NRHP was recommended as undetermined pending further subsurface investigation. Site AZ A:2:76 (ASM) contained approximately 400 artifacts, including flakes in all stages of reduction, and cores (see the supporting cultural resources and addendum reports for more details). Site AZ A:2:76 (ASM) was recommended as eligible for inclusion in the NRHP. Neither site was located in an area scheduled for mining in the immediate future.

### **3.3.6 Visual Resources**

The area is classified as a Class IV Visual Resource Management area, an area having a low sensitivity and seldom seen. The area is considered background to more unique features. The objective of Class IV is to provide for management activities which could require major modification of the existing character of the landscape. The level of change can be high. Management activities may dominate the view and be the major focus of viewer attention.

### **3.3.7 Socioeconomics**

The Black Rock Gypsum Mine is an important component of the local and regional economies. The current mining operation supports about 250 jobs in the St. George, Utah area plus contributing to about 350 additional jobs in the region. WMMI has an annual budget of about \$6 million, the bulk of which is spent in St. George, Utah and the immediate area. The mining operation provides direct employment and supports a variety of contractors and suppliers in the St. George, Utah area. In addition, the mine provides the raw materials for a mill at Apex, Nevada and a wall board plant in Las Vegas, Nevada, which also provides employment for trucking companies hauling the gypsum from the mine to Apex and materials from Apex to Las Vegas.

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## **4.0 ENVIRONMENTAL IMPACTS**

### **4.1 Introduction**

The potential consequences or effects of each alternative are discussed in this section. The intent is to provide the scientific and analytical basis for comparison of the effects of each alternative.

The proposed project would directly impact the area along the proposed pipeline ROW as a result of trenching to lay the water pipe and associated activities including transport of the pipe to the trench. Impacts would also include fugitive dust and increased vehicular emissions during trenching and pipe laying.

The proposed mine expansion would ultimately impact approximately 320 acres, but the impact would be spread over the life of the operation and reclamation would take place concurrent with mining in relatively small units of nearly 40 acres each.

Impacts would include fugitive dust resulting from the mining operation and from haul truck use of the dirt road from I-15 to the mine site. The continued use of heavy equipment and diesel generators at the mine and large numbers of haul trucks would continue to contribute to vehicular emissions.

### **4.2 Direct/Indirect Impacts**

#### **4.2.1 Alternative A: Proposed Action**

##### **4.2.1.1 Air Quality**

###### Water Pipeline ROW

Short-term local impacts to air quality would occur as a result of fugitive dust and increased vehicular emissions during construction of the water pipeline. Due to the short-term nature of the pipeline construction activity, fugitive dust and vehicular emissions would return to current levels fairly quickly following completion of the pipeline. Revegetation of the disturbed area along the ROW would help further reduce fugitive dust resulting from wind blowing over the disturbed soil. Installation of the pipeline would have a beneficial impact on Air Quality in long term use. More time would be spent spreading water for dust control rather than hauling water from St. George, Utah. Air emission would decrease due to the lack of travel on the highway to the water supply in St. George, Utah and back to Black Rock Gypsum Mine.

###### Mine Expansion

The mine expansion and subsequent increased production would result in increased fugitive dust and vehicular emissions compared to the current operation. Mining, processing, and hauling the gypsum would result in fugitive dust. WMMI has a current Air Quality Control

Permit from the ADEQ. The ADEQ standard for dust emission is an opacity limit of 10 percent as determined by the U.S. EPA Reference Method 9 (EPA 1990). Heavy equipment, diesel generator operation, and haul trucks all contribute to local and regional increases in vehicular emissions. Air quality deterioration which accompanies the proposed action would be within acceptable limits.

#### **4.2.1.2 Vegetation**

##### Water Pipeline ROW

The trenching associated with laying the proposed water pipeline would result in removal of approximately 13.3 acres of vegetation. The vegetation provides both livestock grazing and wildlife habitat in the area. The vegetation does not represent a unique ecosystem and the surrounding area supports an abundant potential seed base for natural revegetation. Vegetation re-growth in the area of the pipe trench would occur slowly over time. If the disturbed area were left to regenerate naturally, it might take up to 20 years after disturbance for the vegetation density and type on the site to again appear natural to the casual observer. Reusing topsoil removed during trenching and with a BLM approved seed mix would shorten the time during which the bare soil would be exposed to wind and rain erosion by providing a source of rapidly-growing shrubs, forbs and grasses.

##### Mine Expansion

Over the life of the current mine expansion about 320 acres of vegetation would be removed. The mine plan of operations (Johnson 2006) calls for the area to be mined about 40 acres at a time. As each 40-acre area would be opened for mining, the previous 40-acre area would be recontoured using stored topsoil and reject clay fines and then reseeded with a BLM approved seed mix. The result would be that over the life of the mine a patchwork of revegetating areas would be formed. Full vegetative recovery would likely take about 20 years or longer for each 40-acre block. At the end of the mine's life, some of the earliest disturbances would be fully recovered and some would be newly rehabilitated. The overall loss of productivity would be minimized as would loss of wildlife habitat and grazing potential.

Potential habitat exists in the vicinity of the proposed project area for sensitive plants known to occur in Mohave County. In the area that would be used for the mine expansion, two Arizona-listed salvage restricted cacti species were identified, the clustered barrel cactus (*Echinocactus polycephalus* var *polycephalus*) and the straw-top cholla (*Opuntia echinocarpa*). These cacti would be relocated away from impact areas with special Arizona State Department of Agriculture permits. In addition, a plant that is likely a newly described *Gypsophilous* species of globemallow (*Sphaeralcea gericshii*) was found in the Twisted Hills proposed mine expansion area. This plant seems to be returning on its own at different rates on areas of the mine that have been recently revegetated following mining (L. Hughes 5/2008).



#### **4.2.1.3 Wildlife**

##### Water Pipeline ROW

Except for some ground-nesting species, the habitat along the proposed pipeline ROW did not appear to support an abundance of migratory birds. The area contained no trees and relatively few large shrubs or arborescent cacti that might be suitable as nesting sites for most of the migratory bird species known or suspected to transit the area. No evidence of nesting was noted during the surveys. As noted in Chapter 3, the area does, however, contain habitat for a variety of other wildlife species. The loss of 13.3 acres of Mojave Desert Scrub vegetation would not have a major impact on migratory bird species' nesting in the area or the habitat of other wildlife species, although some mortality of individuals may occur. Some individuals would also likely be displaced during construction activities. Revegetation of the ROW area would result in no long-term loss of habitat. The narrow, linear nature of the pipeline would not be expected to have a major impact on wildlife species that occur in the area.

##### Mine Expansion

For most of the reasons stated above, the mine expansion would not be expected to have an adverse impact on migratory bird nesting or foraging during their transit of, or over-wintering in, the area. Indeed, the patchwork nature of the revegetation associated with the mine expansion might result in improved foraging and over-wintering habitat for at least some migratory species by providing an increase in habitat diversity. Impacts to other wildlife species would be similar to those described above, except that they would occur over a larger area and over a longer time period.

#### **4.2.1.4 Livestock Grazing**

##### Water Pipeline ROW

The project area has approximately 2575 AUMs of authorized use which includes the area of the Black Rock Gypsum Mine. Removal of approximately 13.3 acres of vegetation would remove about one AUM of productivity from the area. Reseeding of the disturbed area with a BLM-recommended seed mixture could result in fairly rapid regeneration of forage in the form of annual grasses and forbs. The proposed pipeline ROW would have a minor impact on the grazing capacity of the allotment.

##### Mine Expansion

The proposed mine expansion would, over time, impact about 280 acres of livestock forage. The mine plan of operations (Johnson 2006) calls for active mining to occur in approximately 40-acre blocks. The mine headquarters infrastructure would occupy about 14 acres for the life of the mine. An unknown area is affected along roads because dust makes the vegetation unpalatable to livestock. At any given time, more than 50 acres of forage would be eliminated. Post-mining reseeded with a BLM-recommended seed mixture would return forage to mined areas to productivity relatively quickly. The expanded mine operation would reduce the livestock forage availability by from 5 to 8 AUMs.

#### **4.2.1.5 Cultural Resources**

Five cultural sites were documented during the surveys. Four of the sites were recommended as eligible for inclusion in the NRHP and one was recommended as potentially eligible pending further subsurface investigation.

##### Water Pipeline ROW

The proposed pipeline ROW would impact one significant cultural site (AZ A:2:62 [ASM]). This site extends both south and north from the proposed waterline ROW. The pipeline would be installed inside the existing two-track road contained by the site boundaries where disturbance to the site has already occurred. Archaeological monitoring of the waterline construction within the site boundaries would be conducted.

##### Mine Expansion

Four sites are located near the proposed mine expansion (AZ A:2:56 [ASM], AZ A:2:71 [ASM], AZ A:2:75 [ASM] and AZ A:2:76 [ASM]) in an area of potential future mine expansion but outside the area slated for mining in the immediate future. All four of these sites are recommended potentially eligible or eligible for inclusion in the NRHP. If mining activity requires that these areas be used, then the sites are subjected to testing and/or data recovery efforts to ensure no significant cultural resources data are lost.

#### **4.2.1.6 Visual Resources**

The area is classified as a Class IV Visual Resource Management area, an area having a low sensitivity and seldom seen. The area is considered background to more unique features. The objective of Class IV is to provide for management activities which could require major modification of the existing character of the landscape. The level of change can be high. Management activities may dominate the view and be the major focus of viewer attention.

##### Water Pipeline ROW

The proposed pipeline ROW would have minimal visual impacts in the region. Following construction, the location of the pipeline trench would be visible because of the disturbed soil resulting from construction. Following reseeding, the scar from the line would diminish as revegetation occurs.

##### Mine Expansion

The mine currently has a visual impact in the region due to periodic dust resulting from mining activities and the white surface presented by the mined gypsum and processing area. The expanded mining operation would extend the area over which the mine is visible. However, visual impacts would be reduced over time as post-mining revegetation occurs.

#### **4.2.1.7 Socioeconomics**

##### Water Pipeline ROW

The pipeline ROW would have minimal socioeconomic impacts to the region. The mine would no longer pay to haul water from St. George, Utah, but development in the St. George, Utah area would quickly pick up the slack and minimize economic impacts to the hauler.

##### Mine Expansion

The mine expansion would allow continued operation of the Black Rock Gypsum Mine for about 20 years. The current level of economic input to the region would continue or possibly increase slightly. A small number of new jobs may be generated at WMMI in St. George, Utah.

#### **4.2.1.8 Mitigation Measures**

The operator would comply with all applicable Federal and state laws and regulations. WMMI would obtain all permits required by the State of Arizona and provide copies to the BLM. Compliance with permit requirements is mandatory.

All fugitive emissions from this operation would be kept in compliance with Arizona Administrative Code R18 2 406, which requires spray bars, dust suppressants, and the like to prevent excessive amounts of particulate from becoming airborne. Compliance with ADEQ orders is mandatory as ADEQ has enforcement jurisdiction for the Clean Air Act. Western Gypsum's Air Quality Control permit from ADEQ states that *the permittee shall not be allowed to discharge into the atmosphere any process fugitive emissions which exhibit visible emissions ~ greater than 10% opacity*. Freshwater would be used to control dust while mining, crushing, transporting and road grading. Water misters in the crushers and along the conveyor belts must be utilized to suppress dust. Use of dust palliatives such as chlorides, oils, or other chemicals shall require prior approval of the BLM Authorized Officer.

During nesting season (March through August), work shall cease in the immediate area if any nests are located on the work site and the BLM Authorized Officer would be notified.

Should the mine undergo a period of non-operation, the BLM Authorized Officer would be contacted immediately. The site would be maintained in a safe and clean manner during non-operation.

The ADA requires mitigation measures for Salvage Restricted cacti species found in the proposed project area. Appropriate mitigation includes biological monitoring of the proposed project area during construction and avoidance or relocation with the proper ADA permit should individuals be found.

During operations, the existing soil stockpiles would be signed and identified.

The mine site would be kept clean and all refuse would be removed and placed in an approved landfill. All state requirements for waste disposal would be complied with. All motor oil and lubricant spills and oil soaked soil must be cleaned up immediately and disposed of in an authorized disposal site.

Warning and directional signs would be placed to warn the public of heavy truck traffic and to provide directions for travel on the BLM Road 1009.

WMMI is responsible for maintaining the existing access road used by their mining operations and the haul trucks. Roadway widths shall not be increased nor alignment changes made without approval of the BLM Authorized Officer.

During road maintenance, the existing road shall be bladed with a center crown to allow water to drain off the road surface as quickly as possible. The crown shall have 0.75 to 0.5 inches of height for every 0.5 foot of road width. Any gravel placed on the existing roads shall not be more than 6 inches thick.

Existing roads, structures, cattle guards, fences or drainage facilities, which are damaged by the mining activity, shall be replaced or repaired to a condition equal to or better than that which existed before the start of the project.

Existing roads or trails on public lands around the mine site would not be blocked or access denied except for brief periods of time while blasting. Warning signs or personnel on the roadways would be supplied by the company.

Cattle must be controlled at the fence by either a cattle guard or a gate.

The boundary of the area to be disturbed must be marked on the ground with steel posts and flags before mining begins and must be maintained for reference during mining. Should additional activity or surface disturbance be required, an amendment must be submitted for approval by the BLM Authorized Officer. No roads would be built except as shown on the plan of operation map or within the boundary.

Areas that require repeat seeding would be fenced for a period of four years to protect from livestock and OHV's.

There is potential for the spread of noxious and invasive weeds from equipment contaminated with weed seed and/or biomass. To reduce this potential, the BLM requires the following measures be taken:

- The operator would thoroughly power wash and remove all vegetative material and soil before transporting equipment on site to help minimize the threat of spreading noxious and invasive weeds. This includes trucks, trailers, and all other machinery.
- The operator shall be responsible for the eradication of noxious weeds on disturbed areas.

- The operator is responsible for consultation with the authorized officer and local authorities for implementing acceptable weed treatment methods. Any use of chemical treatments would be made using only chemicals approved in *Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (June 2007b), by a state certified applicator who would abide by all safety and application guidelines as listed on the product label and Material Safety Data Sheet.
- Any reclamation efforts requiring seeding would be done with certified, weed-free native seed.

Archaeological monitoring of the installation of the proposed water pipeline through site AZ A:2:62 (ASM) would be conducted as part of the proposed action. The installation of the water pipeline would be placed within the existing roadcut within the site boundaries to reduce impacts to the site. Sites AZ A:2:56 (ASM), AZ A:2:71 (ASM), AZ A:2:75 (ASM) and AZ A:2:76 (ASM) must undergo cultural resources testing and/or data recovery as part of the proposed action when mining operations are slated for those affected areas. If subsurface artifacts or evidence of cultural remains are found, work would be halted and BLM would be notified. The following Standard Stipulations need to be followed:

- Any surface, or sub-surface archaeological, historical, or paleontological remains not covered by the Cultural Resource Project Record discovered during preparation or actual work would be left intact; all work in the area would stop immediately and the Authorized Officer would be notified. Commencement of work would be allowed upon clearance by the Authorized Officer in consultation with the archaeologist.
- If in connection with this work any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, the operator would stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notified the Authorized Officer. The operator would continue to protect the immediate area of the discovery until notified by the Authorized Officer that operations may resume.

#### **4.2.1.9 Monitoring and/or Compliance**

No long-term monitoring needs have been identified for this action. ADA advises short-term monitoring for the presence of Arizona Salvage Restricted cacti by a qualified biologist during pipeline construction. Cacti found during monitoring would be relocated with an ADA permit under the direction of a qualified biologist. Archeological monitoring of one site during pipeline construction would be done.

#### **4.2.2 Alternative B: No Action**

Under the no action alternative, the proposed water pipeline would not be installed on BLM administered lands. WMMI would continue to bring in water by truck. Implementation of this alternative would not result in any additional impacts on biological or physical components of the environment over and above those currently occurring in connection with existing operations in the area. Mining operations would continue until the current mine is extinguished. The St. George, Utah area would lose about 250 jobs and about \$6 million in annual spending within 1 to 3 years. The area would potentially lose additional jobs if the Apex Mill and Las Vegas, Nevada board plants were unable to find a replacement source of high-quality gypsum. There would be no known direct, indirect or cumulative impact to any cultural site. There would continue to be air quality impacts from the 24 daily truck trips involved in the water hauling activity. There would be no other direct, indirect or cumulative impacts to other areas of concern addressed within Alternative A: Proposed Action.

#### **4.2.3 Alternative C**

The general impacts associated with Alternative C would be similar to those presented in Alternative A: Proposed Action. Alternative C would approach the edge of the Little Black Mountain ACEC and would cross Dutchman Wash. Although the route would utilize some existing road disturbance, about 4.2 miles of the route would traverse relatively undisturbed habitat. The route would have an additional elevation change and would need to cross a small outcrop hill along the segment that would parallel the base of Little Black Mountain. The potential for near-surface bedrock would be high. Most of the route along the west and south traverse would be across Arizona State Trust Lands. WMMI would no longer truck water from St. George, Utah.

#### **4.2.4 Alternative D**

The general impacts associated with Alternative D would be similar to Alternative C and to Alternative A: Proposed Action. Even though it would be the shortest route, Alternative D would cross two substantial rocky ridges on the long westward traverse. Both of those ridges would pose potential problems with depth to bedrock, cost of excavation, and security of the pipeline if the pipeline could not be buried deeply enough. The ridges also would require additional lift stations to move the water over them. Most of the westward traverse would be across Arizona State Trust Lands. WMMI would no longer truck water from St. George, Utah.

### **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.

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

Past or ongoing actions that affect the same components of the environment as the proposed action are: gypsum mining, livestock grazing and OHV use. I-15 is the major traffic artery through the area, and the Navajo McCullough Powerline ROW is located 1.5 miles north of the mine. The Rhino Rally, a competitive desert motorcycle racing event, is held in the vicinity once a year. Development of the area for commercial uses near the interchange and on state land is increasing. Gypsum exploration and mining has occurred in the vicinity of the Black Rock Interchange on a small scale since the 1970s. Larger scale mining has been conducted by WMMI and predecessors since 1989 disturbing a total of 85 acres. Of that, 20 acres have been completely reclaimed and 30 acres partially reclaimed. Approximately 55 acres of the East Ridge mine would be contoured and seeded within two years of WMMI's proposed move to Twisted Hills.

#### **4.3.2 Reasonably Foreseeable Action Scenario**

Following are the reasonably foreseeable future actions that would cumulatively affect the same resources in the cumulative impact area as the alternatives.

Based on the extent of the existing gypsum claims in the project vicinity, it is likely that gypsum mining and processing activity would continue in the area for the foreseeable future. It is likely that the Rhino Rally or similar events would continue to occur in the vicinity. Livestock grazing at or near current levels of use would probably continue for the foreseeable future. St. George, Utah would probably continue to attract retirees and to grow. Growth would likely lead to increased suburbanization that would move onto the Arizona Strip via Arizona State Trust Lands.

#### **4.3.3 Cumulative Impacts**

It has been determined that cumulative impacts would be negligible as a result of the proposed action and the other alternatives. If urban or industrial growth continues moving west and south from St. George, Utah onto Arizona State Trust Lands, there would be increasing losses of native vegetation, wildlife habitat, and livestock grazing potential associated with development of the area. Increased population in the vicinity would result in increased fugitive dust and vehicular emissions associated with increased public use of existing and new gravel roads.

## 5.0 CONSULTATION AND COORDINATION

### 5.1 Introduction

Appendix A provides the status for issues that were considered by the BLM staff scoping group. The issues were identified through a staff meeting and review of potential issues by BLM staff as shown on the scoping report.

### 5.2 Persons, Groups, and Agencies Consulted

**Table 5-1. Consultations**

| NAME                                       | PURPOSE AND AUTHORITIES FOR CONSULTATION OR COORDINATION | FINDINGS AND CONCLUSIONS  |
|--|--|---|
| Arizona Game and Fish Department           | Natural Heritage Database – Special Status species list  | Species of special concern list received and incorporated in biology report |
| Arizona State Historic Preservation Office | Cultural resource concerns, permits, and data            | Information received and incorporated in cultural resources report.         |
| WMMI                                       | Details of mining effort                                 | Information received and incorporated in EA.                                |
| Kaibab Paiute Tribe                        | Tribal consultation                                      | No comments were received during the interdisciplinary review.              |



### 5.3 List of Preparers:

The following tables list preparers of the EA.

**Table 5-2. BLM Preparers and Reviewers**

| NAME               | TITLE                       | RESPONSIBILITIES                   |
|--------------------|-----------------------------|------------------------------------|
| Richard Spotts     | Environmental Coordinator   | NEPA Oversight                     |
| Rody Cox,          | Geologist                   | Geology, Minerals                  |
| Laurie Ford        | Realty Specialist           | Lands, Realty, and Minerals        |
| John Herron        | Archaeologist               | Cultural Resources                 |
| Lee Hughes         | Ecologist                   | Special Status Plants              |
| Gloria Benson      | Native American Coordinator | Native American Religious Concerns |
| Diana Hawks        | Outdoor Recreation Planner  | Recreation, Wilderness, and VRM    |
| Karen Jensen       | Wildlife Biologist          | Wildlife and T&E                   |
| Ray Klein          | GCPNM Supervisory Ranger    | Law Enforcement                    |
| Linda Price        | VCNM Manager                | Rangeland Standards and Guidelines |
| Bob Sandberg       | Rangeland Management        | Range/Vegetation                   |
| Ron Wadsworth      | Supervisory Law Enforcement | Law Enforcement                    |
| L.D. Walker        | Weed Coordinator            | Invasive, Non-Native Species       |
| Lorraine Christian | ASFO Manager                | NEPA Compliance                    |

**Table 5-3. Non-BLM Preparers**

| NAME                 | TITLE   | RESPONSIBILITIES   |
|----------------------|---|--|
| Fenton R. Kay, Ph.D. | Zia Engineering & Environmental Consultants (Zia); NEPA Coordinator | Project Manager, QA/QC Report Review, Prepared EA Report   |
| Victor Gibbs         | Zia; Archaeologist/Principal Investigator                           | Conducted Cultural Resources Field Survey and Cultural Resources Report, Prepared EA Cultural Resource Section                 |
| Robert Deitner       | Zia, GIS  | EA Maps  |
| Lee Winkelspecht     | Zia; Archaeologist  | Conducted Cultural Resources Field Survey, Prepared EA Cultural Resource Section and Cultural Resource, Biological and EA maps |

**Table 5-3. Non-BLM Preparers *concluded***

| NAME              | TITLE                          | RESPONSIBILITIES  |
|-------------------|--------------------------------|---|
| David Winnett     | Zia; Staff Scientist/Biologist | Conducted both Biological Resources Field Surveys and Biological Resources Report and Prepared EA Wildlife Sections |
| Megan Quenzer     | Zia; Staff Scientist/Botanist  | Conducted Biological Resources Field Survey and Biological Resources Report and Prepared EA Vegetation Sections     |
| Leah Markiewitz   | Zia; Envir. Tech./Biologist    | Conducted Additional Biological Resources Field Survey and Biological Resources Report, Prepared EA Report          |
| Lance Williams    | Zia; Staff Engineer            | Prepared EA Report  |
| Victoria T. Brown | Zia; Staff Scientist           | Prepared EA Report  |

## 6.0 REFERENCES AND ACRONYMS

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2007b *Addendum for the Archaelological Survey 783 Acres for a Proposed Mine Expansion and Waterline Right-of-Way for the Black Rock Mine, Mohave County, Arizona*. September. Zia Project Number: LCS-07-050.

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Kay, Fenton R., Megan Quenzer, and David Winnett.

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\_\_\_\_\_ and Leah R. Markiewitz

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2008 *Arizona Strip Field Office Record of Decision and Resource Management Plan*. February. Bureau of Land Management Arizona Strip Field Office.

## 6.2 List of Acronyms Used in this EA

**Table 6-1. Acronym or Abbreviation Table**

| ACRONYM OR ABBREVIATION |   |
|-------------------------|---|
| ACEC                    | Area of Critical Environmental Concern      |
| ADA                     | Arizona Department of Agriculture           |
| ADEQ                    | Arizona Department of Environmental Quality |
| ATF                     | Alcohol, Tobacco, Firearms, and Explosives  |
| AUM                     | Animal Unit Month                           |
| BLM                     | Bureau of Land Management                   |
| DR                      | Decision Record                             |
| EA                      | Environmental Assessment                    |
| EPA                     | Environmental Protection Agency             |
| EIS                     | Environmental Impact Statement              |
| FEMA                    | Federal Emergency Management Agency         |
| FLPMA                   | Federal Land Policy Management Act          |
| FO                      | Field Office                                |
| FONSI                   | Finding of No Significant Impact            |
| NEPA                    | National Environmental Policy Act           |
| NRHP                    | National Register of Historic Places        |
| OHV                     | Off Highway Vehicles                        |
| ROW                     | Right-of-Way                                |
| RMP                     | Resource Management Plan                    |
| RMZ                     | Recreation Management Zone                  |
| SRMA                    | Special Recreation Management Area          |
| USDA                    | U.S. Department of Agriculture              |
| WMMI                    | Western Mining and Minerals, Inc.           |

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**APPENDIX A**  
**Interdisciplinary Team Scoping Meeting**

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# ASDO SCOPING MEETING REPORT

Scoping Meeting Date: April 9, 2007

NEPA Document Number: EA-AZ-110-2006-069

Project Title: Western Mining & Minerals Mine Expansion & Water Pipeline  
Right-of-Way AZA-33683

Project Lead: **Laurie Ford & Rody Cox**

Place a check mark on the line following the names of those in attendance:

| <b>ASDO Specialists:</b>                                | <b>No effect/No Exception<br/>Determination</b> | <b>Signature</b> |
|---|---|------------------|
| Gloria Benson, Native American Coordinator <u>  X  </u> | _____   | _____            |
| Tom Folks, Recreation/Wilderness/VRM _____              | _____   | _____            |
| Laurie Ford, Lands/Realty/Minerals <u>  X  </u>         | _____   | _____            |
| Michael Herder, Wildlife/ T&E _____                     | _____   | _____            |
| John Herron, Cultural <u>  X  </u>                      | _____   | _____            |
| Lee Hughes, Special Status Plants <u>  X  </u>          | _____   | _____            |
| Ray Klein, GCPNM Supervisory Ranger _____               | _____   | _____            |
| Linda Price, S&G <u>  X  </u>                           | _____   | _____            |
| Bob Sandberg, Range/Vegetation <u>  X  </u>             | _____   | _____            |
| Richard Spotts, Environmental Coordinator <u>  X  </u>  | _____   | _____            |
| Ron Wadsworth, Supervisory Law Enforcement _____        | _____   | _____            |
| LD Walker, Weed Coordinator _____                       | _____   | _____            |
| _____   | _____   | _____            |
| _____   | _____   | _____            |
| _____   | _____   | _____            |

*\* When a specialist is not available and has delegated responsibility to another, that delegate may sign "for" the specialist. (Additional sheets may be attached to this form if more room is needed. These attachments should specify what number(s) below is subject to the extended response(s)).*

**1) Name(s) of any Manager(s) in attendance:**

|                |                 |
|----------------|-----------------|
| Scott Florence | Jeff Bradybaugh |
| Becky Hammond  | Linda Price     |
| Dennis Curtis  | _____           |

**2) Name (s) of any others in attendance:**

Linda Barwick  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**3) Threshold evaluation of the proposed action:**

Is it feasible to implement? **Yes**

Are there any RMP conformance or other legal compliance issues? **No**

**4) List potentially relevant or affected resources, issues, and/or concerns, such as is there a potential for controversy and/or effects in wilderness, wetlands, floodplains, areas where BLM has identified the presence of all three wilderness characteristics, or on threatened or endangered species, or Monument objects?**

- Gerish Mallow
- Cultural inventory has been completed – 3 sites identified/mitigation proposed
- Biological inventory has been completed
- Performance bond has been posted
- Water well – adjacent land owners have wells in Utah
- Water rights
- S&Gs won't be met until reclamation is complete; success of revegetation unknown
- Dust control to an from mine
- Anticipate same amount of truck traffic

**5) For EAs, other than the proposed action, describe any additional feasible alternatives that could achieve the purpose and need (including those that would have less adverse effects, cost less, and/or need less mitigation):**

None identified.

**6) List potentially interested or affected stakeholders:**

- Prisbrey's (private land/home owners in Utah)
- Grazing Permittees: Daryl Blake, Kelly Blake, Terry Esplin, Jay Blake
- Mohave County
- State of Utah Water Division
- Arizona Water Division

**7) Should a site visit be scheduled? If so, why, when, and who should attend?**

Yes. Will set up tour of mine and pipeline route.  
Gloria Benson, Becky Hammond, Lee Hughes, Bob Sandberg

**8) How will any required T&E, cultural, and/or other site inventories be conducted, when, and by whom?**

**Cultural Inventory:** Contracted

**T/E Inventory:** Contracted

**Other Inventory:** EA Contracted

**9) Is there any deadline for completing the NEPA document? If so, would it be difficult to meet and/or would a shortened review period be necessary?**

A shortened EA review time is not necessary.

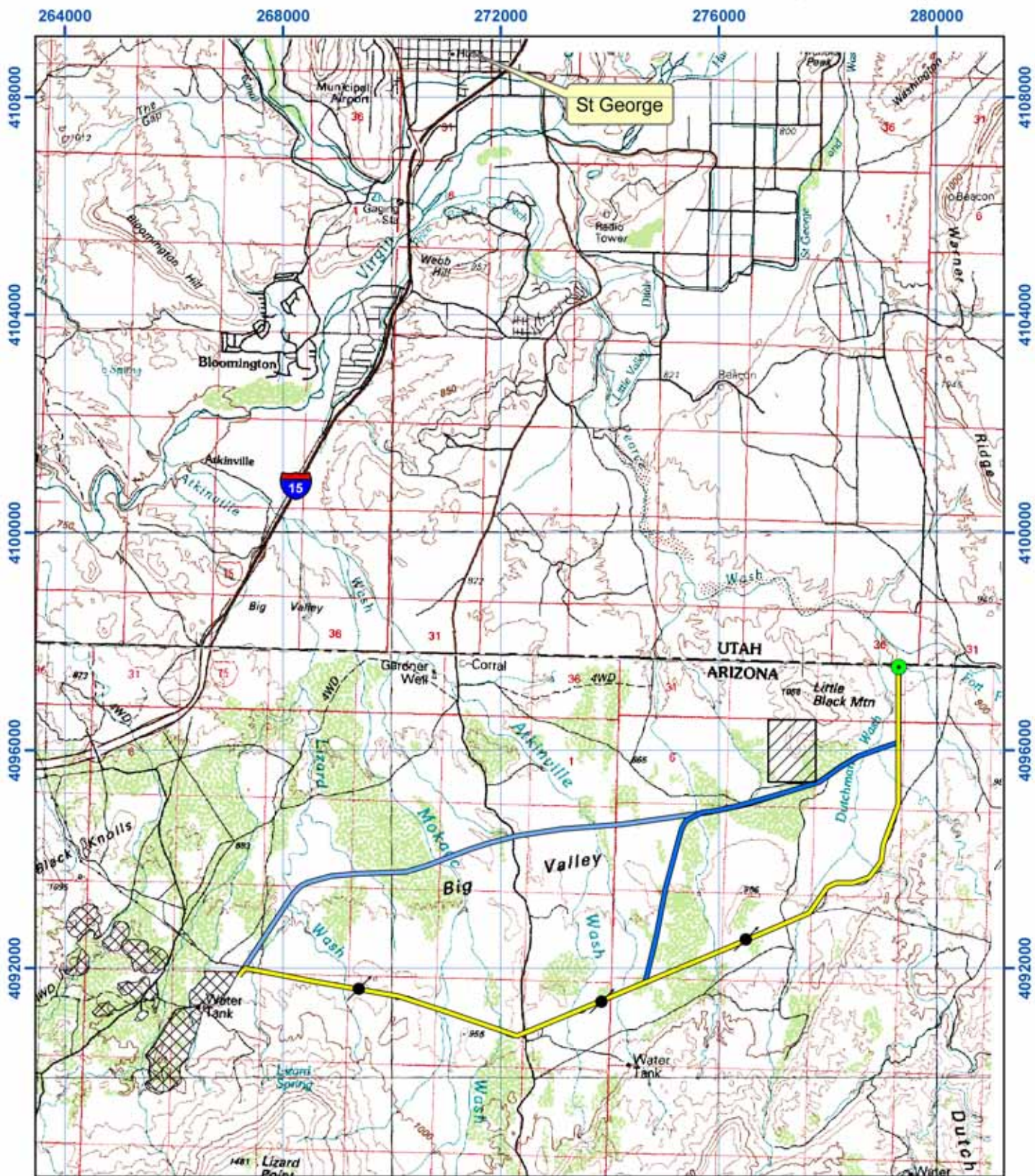
**10) Describe any other scoping meeting recommendations, decisions, or outcomes:**

None

**APPENDIX B**  
**Maps**

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Environmental Assessment for a  
Proposed Mine Expansion and  
Waterline Right of Way for the  
Black Rock Mine, Mohave County, Arizona



Based on USGS 1:100,000 DRG  
<http://seamless.usgs.gov>



UTM Zone 12  
NAD 1927  
1:100,000

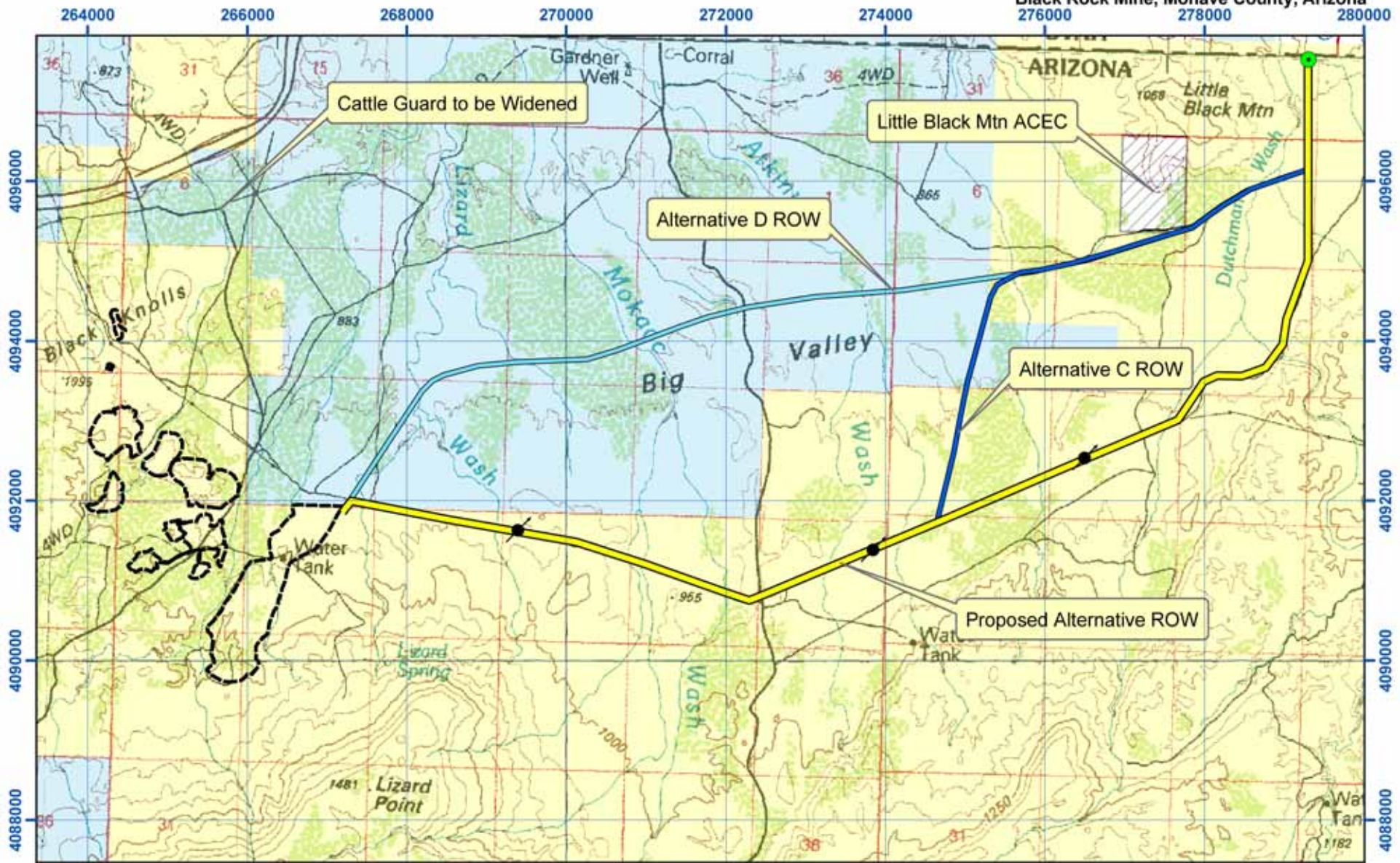
- Little Black Mountain ACEC
- Proposed Waterline ROW
- Alternate C ROW
- Alternate D Route
- Well
- Water Taps
- Mine Areas



Date: 6-4-08  
EA-AZ-110-2008-009  
Figure No.: 1



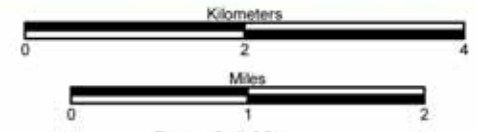
Environmental Assessment for a Proposed Mine Expansion and Waterline Right of Way for the Black Rock Mine, Mohave County, Arizona



Based on 1:100,000 USGS DRG  
<http://gisdata.usgs.gov>



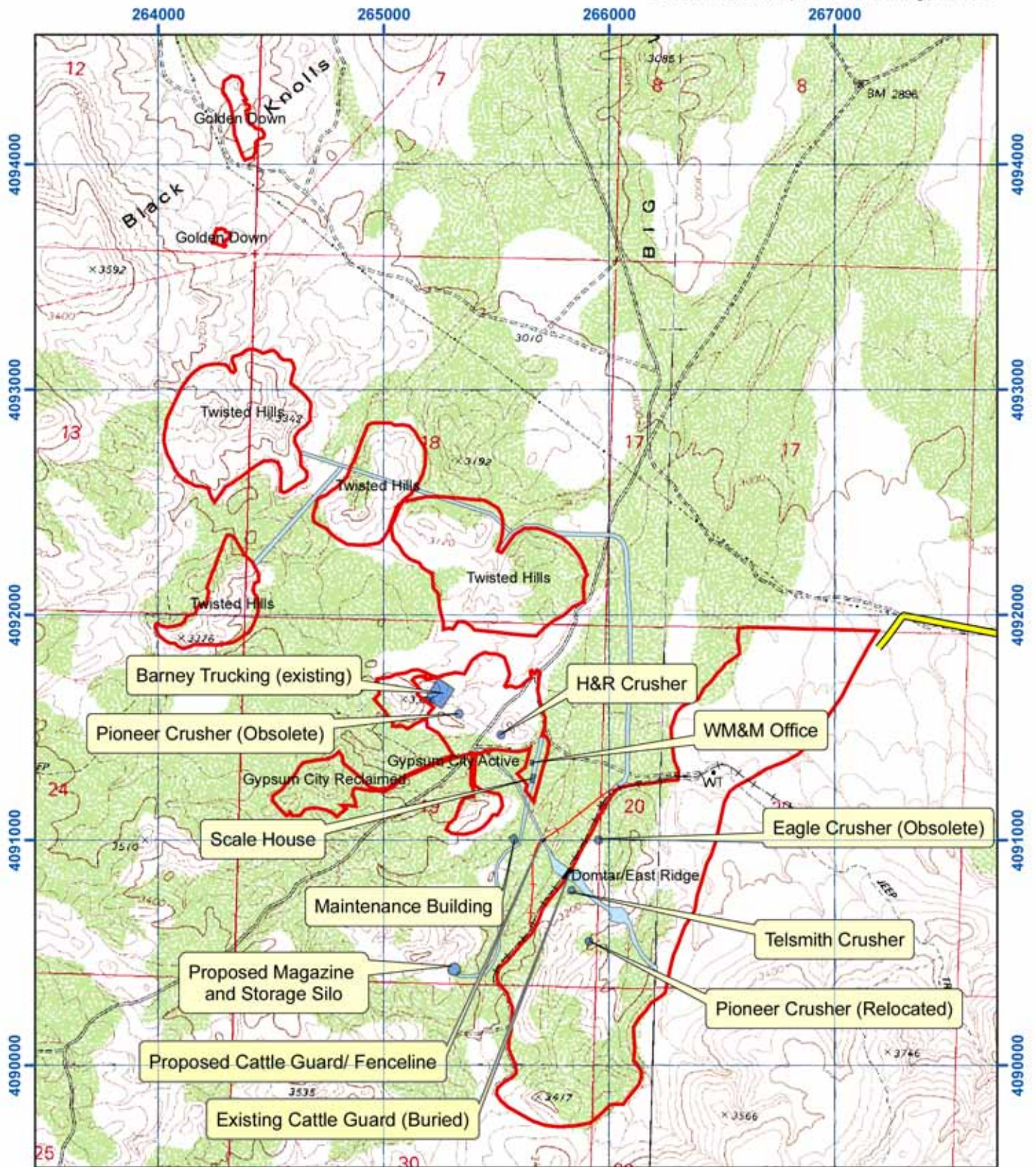
- Proposed Waterline ROW
- Alternative C ROW
- Alternative D ROW
- Mine Areas
- water well
- Little Black Mountain ACEC
- BLM Public Land
- State Trust Land
- Water Tap



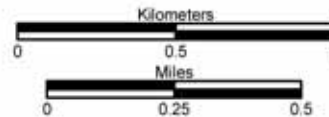
Date: 6-4-08  
 EA-AZ-110-2008-009  
 Figure No.: 2



Environmental Assessment for a  
Proposed Mine Expansion and  
Waterline Right of Way for the  
Black Rock Mine, Mohave County, Arizona



- Building / Equipment Location
- Proposed Road
- Proposed Waterline
- WMMI Quarries



Date: 6-4-08  
EA-AZ-110-2008-009  
Figure No.: 3

**APPENDIX C**  
**Agency Correspondence**

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**APPENDIX D**  
**Public Comments and Comment Analysis**

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**UNSIGNED  
FINDING OF NO SIGNIFICANT IMPACT (FONSI)**

*Right-Of-Way Grant and Plan of Operations  
Black Rock Gypsum Mine  
EA-AZ-110-2008-009  
AZA-30114/AZA-33683*

This unsigned FONSI and the attached EA (#EA-AZ-110-2008-009) for a right-of-way (ROW) grant and plan of operations for the Black Rock Gypsum Mine as proposed by Western Mining and Minerals, Inc., are available for public review and comment for 30 days beginning on July 11, 2008.

Based on the analysis of potential environmental impacts in the attached EA and consideration of the significance criteria in 40 CFR 1508.27, I have determined that with required and proposed mitigating measures the ROW and Black Rock mine expansion would not result in significant impacts on the human environment. An environmental impact statement (EIS) is not required.

The decision to approve or deny the ROW and Black Rock mine expansion, and if appropriate a signed FONSI with rationale, will be released after consideration of public comments and completion of the EA.