BLM

Royal Gorge Field Office

United States Department of the Interior
Bureau of Land Management

Environmental Assessment
DOI-BLM-CO-F020-2018-0042 EA

Hard Rock Main Pit – Expansion and Road Realignment

April 2020

U.S Department of the Interior
Bureau of Land Management
Rocky Mountain District
Royal Gorge Field Office
3028 E. Main Street
Cañon City, CO 81212

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1. INTRODUCTION

1.1. Identifying Information

Project Title: Hard Rock Main Pit - Expansion and Road Realignment

Legal Description: New Mexico Principal Meridian, Chaffee County, CO
T. 49 N., R. 9 E., secs. 7, 8, 17 and 18.

Applicant: Hard Rock Paving & Redi-Mix, Inc

NEPA Document Number: DOI-BLM-CO-F020-2018-0042 EA

Lease/Casefile/Project Number: COC-080188

1.2. General Setting

The Hard Rock Paving & Redi-Mix, Inc., Salida Main Pit is located approximately 1-mile south of the City of Salida along County Road 107 in Chaffee County, Colorado. The current operation is authorized for approximately 47 acres with 27.6 acres of private, 9.6 acres of split estate and 9.8 acres of BLM managed lands. The proposed action consists of expanding aggregate reserves to an additional 62.8 acres of BLM managed lands to the east and south of the existing mine site. Reference Figures 1 and 2.

The proposed action area is located approximately 2.0 miles southwest of Salida, Colorado. The topography of the area ranges from 7,200 to 7,400 feet in elevation and is located 1.7 miles upgradient from the Arkansas River. The landscape is dominated by the Southern Rocky Mountain Pinyon-Juniper Woodland with grasslands consistent with Blue grama and wheatgrass. Geologically, the action area primarily consists of a loamy sand and gravel deposit with the Dry Union Formation outcropping in the northeastern corner of the expansion boundary. From the SCS report, this area is categorized as Rough and Broken Land (RU), meaning gravel and cobbles generally cover the surface with limited topsoil and humus build up between 3 to 4 inches. The Tigiwon-Turret grayish brown cobbly sandy loam outcrops approximately 3 inches with a 3 to 25 percent slope with a subsoil consistent with a gravelly sand approximately 5 inches thick. The principal uses of the proposed mine site and surrounding area are grazing, mining and recreational (e.g., hunting, hiking, rafting, and fishing) activities. Current mining operations, adjacent to the project area have been approved since 1999 to extract aggregate for use as construction materials.

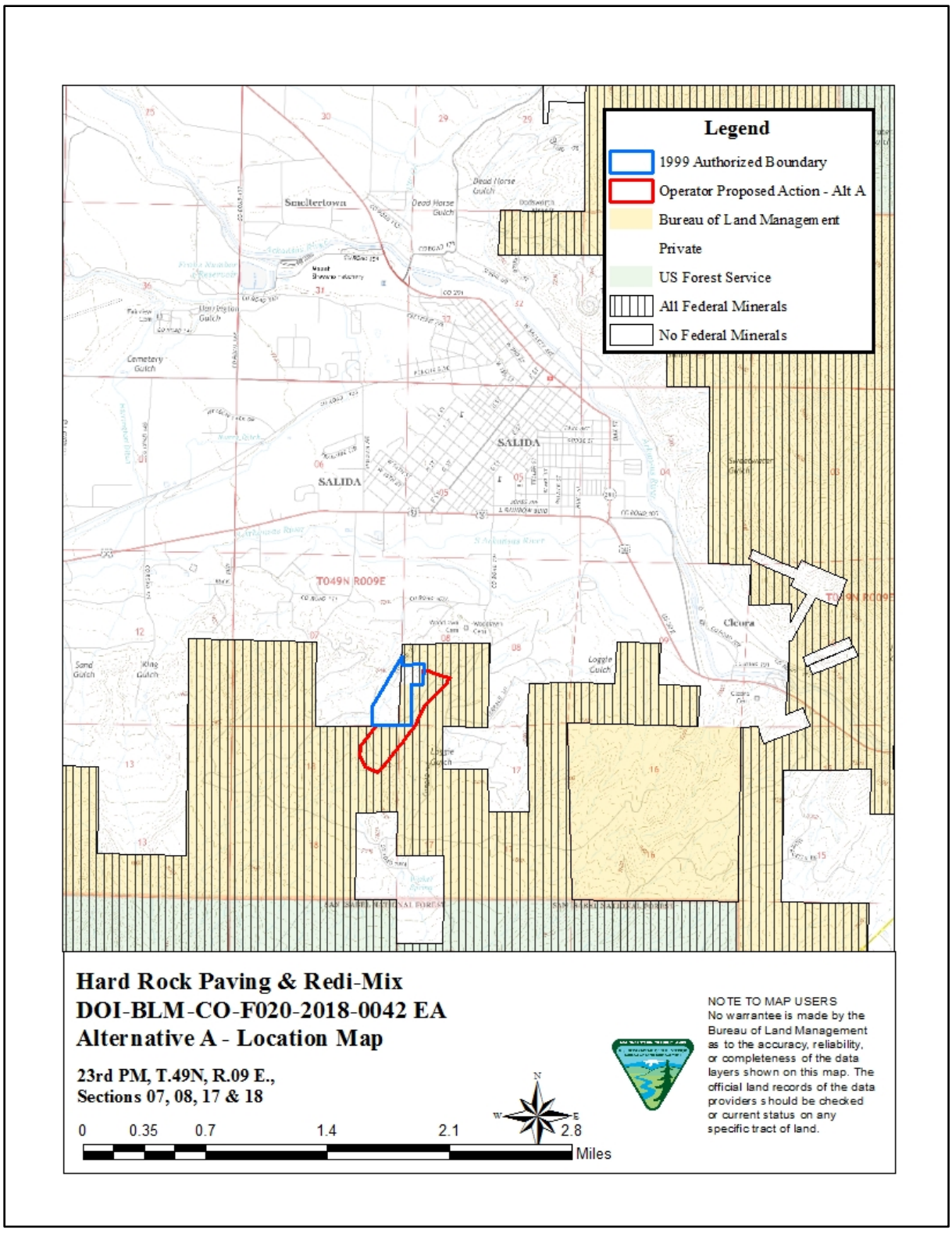


Figure 1: General location map depicting the active and proposed mine boundary relative to the City of Salida, CO.

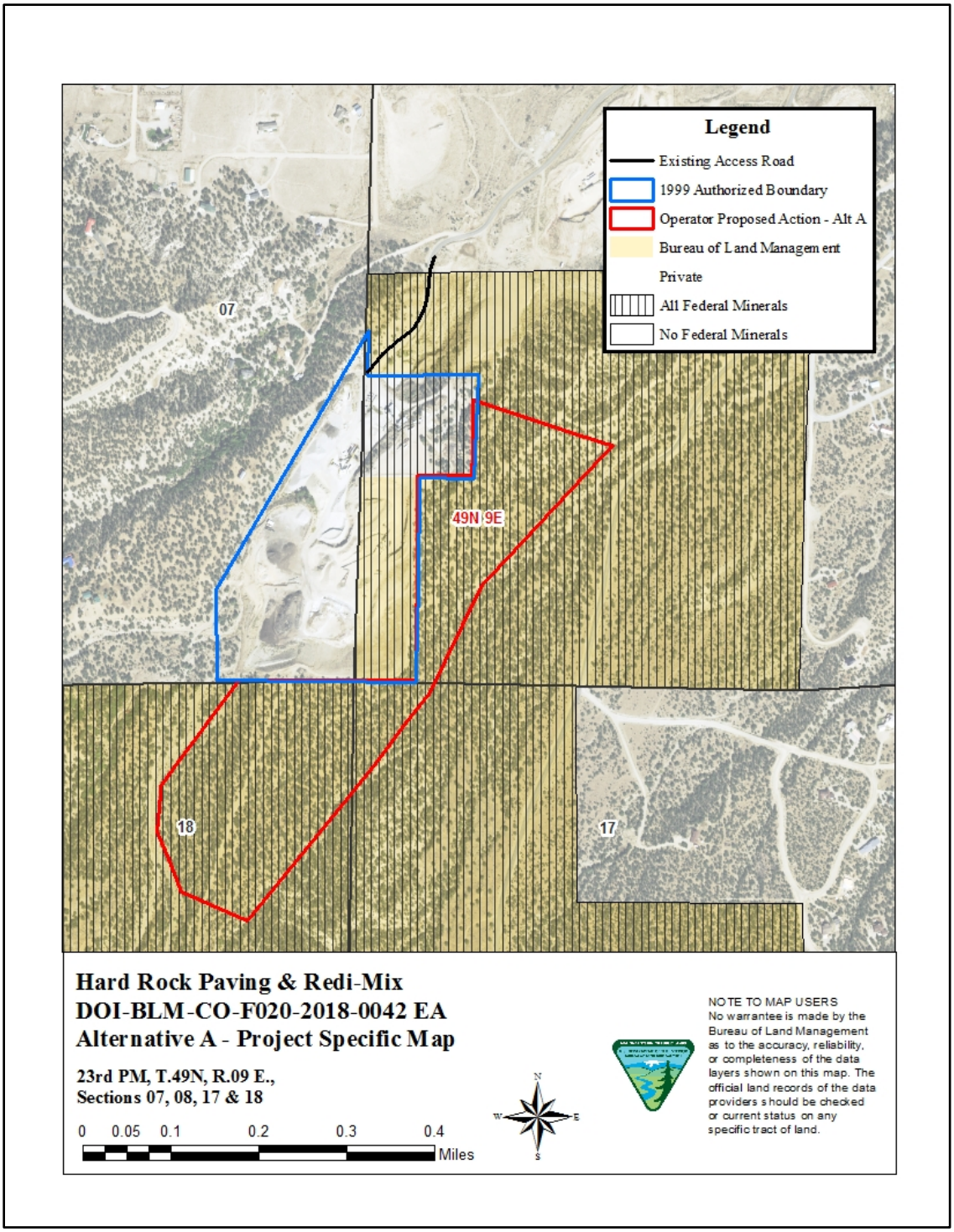


Figure 2: Project area map depicting the existing access road (black), current mine boundary (blue) and proposed expansion boundary (red). The road realignment specifics would be determined following the completion of a stamped PE road construction design. The existing road would be reconstructed to prevent flooding and sediment deposition along the road and further down gradient; therefore, the current road location is not proposed to change but be elevated and recontoured to decrease the existing road gradient (slope).

1.3. Background

An application was submitted by Hard Rock Paving & Redi-Mix, Inc., in November 2017 regarding their need to re-construct the currently used access road for safety purposes and ease of access, as well as expand reserves to the east of the existing Salida Main Pit. Following an initial evaluation of the expansion proposal, BLM determined a previously approved mountain bike trail intersected with the proposed expansion acreage. After further consideration and planning, the applicant proposed a modified boundary in February 2021, which included the initial eastern expansion and additional acreage to the south, for a total of 62.8 acres. This modified proposal avoids the eastern portion of the bike trail; however, the southern portion of the expansion boundary intersects the bike trail. The operator has proposed a trail redesign plan for the southern portion of the trail as a component to the proposed action, outlined in Appendix A, Part 2 as an operator project design feature (PDF). The proposed road realignment was unaffected and, therefore, remains the same as in the 2017 proposal.

The current active operation was analyzed under an EA (CO-057-99-067-EA) in 1999 and was approved for approximately 47 acres with 27.6 acres of private, 9.6 acres of split-estate (private surface and federal mineral estate) and 9.8 acres of BLM managed lands. "Mitigation measures" were suggested in the EA to prevent the degradation of storm and/or melt water quality with the supplementation of a Stormwater Management Plan (SWMP) and permit (reference Appendix D). The 1999 EA also authorized the use of County Road 107 as the access road to transport raw, processed and waste materials on and off the site. These operations are also managed under a Colorado Division of Reclamation, Mining and Safety (CDRMS) 112(c) permit. Prior to the issuance of the mineral material contract, the applicant would be required to update all existing federal, state and county permits, easements, variances, etc., as necessary.

Material is currently mined using front-end loaders and dozers and then processed using a crusher/screener plant. All material is considered product with zero percent waste (e.g., overburden and fill) and commodities consisting of pit/run embankment fill, ½-inch, 6-inch minus and class 6 road base ($^3/_4$-inch minus). All commodities, including amended materials (e.g., recycled concrete and asphalt) are stored on private lands. Topsoil is stripped and stockpiled and stored along the authorized boundary perimeter for later use in reclamation. Mining occurs on the northern and eastern BLM land boundaries along a 25-to-30-foot highwall with a 2:1 (Horizontal:Vertical; H:V) working slope. No blasting is necessary as the geologic deposit consists of an unconsolidated sand and gravel material. Mining operations have occurred in this area since the late 1800s, with Salida Main Pit operating since the late 1970s. Sand and gravel can be used for various industrial applications with this material primarily mined for roadbase and material for the precast concrete industry.

Since the existing mine and proposed expansion are located 1 mile south of the City of Salida, the growing community would directly benefit from the availability of local mineral materials such as gravel, roadbase, asphalt, concrete and a variety of other landscaping and construction materials. Hard Rock Paving and Redi-Mix Inc. proposes the road re-alignment and the expansion to meet federal and state safety standards and increased mineral material demands, both locally and regionally.

1.4. Purpose and Need for Action

The purpose of the action is to respond to a request by Hard Rock Paving & Redi-Mix, Inc. regarding a road realignment and an expansion of reserves adjacent to their existing mining operations, in an area located southwest of Salida, Colorado. The need is based on BLM's multiple-use mission, set forth in the Federal Land Policy and Management Act of 1976, which mandates that BLM manages public land resources for a variety of uses. These uses include mining, and more specifically in this case, the development of mineral materials.

BLM's authority to respond to a request from Hard Rock Paving & Redi-Mix Inc., for a mineral material contract to expand reserves and reconstruct the current access road is summarized below:

A. BLMs multiple-use mission, set forth in the Federal Land Policy and Management Act of 1976 mandates that we manage public land resources for a variety of uses. These uses include mining, and more specifically in this case, the development of mineral materials.

B. Per 30 USC Section 1602 (01/03/2012), the Congress declares that it is the continuing policy of the United States to promote an adequate and stable supply of materials necessary to maintain national security, economic well-being and industrial production with appropriate attention to a long-term balance between resource production, energy use, a healthy environment, natural resources conservation, and social needs. The Congress further declares that implementation of this policy requires that the President shall, through the Executive Office of the President, coordinate the responsible departments and agencies to, among other measures: (1) identify materials needs and assist in the pursuit of measures that would assure the availability of materials critical to commerce, the economy, and national security and (2) encourage Federal agencies to facilitate availability and development of domestic resources to meet critical materials needs.

C. It is BLM policy to make mineral materials available in accordance with the Mineral Materials Act, provided adequate measures are taken to protect public land resources and the environment and that damage to public health and safety is minimized (43 CFR 3601.6). Since disposal of mineral materials is discretionary on the part of BLM, no disposals will be made if it is determined by the Authorized Officer that the aggregate damage to public lands and resources would exceed the public benefits that BLM expects from the proposed disposal.

D. Agencies should base the purpose and need for a project (and thus the range of alternatives considered) on the applicant's goals and the agency's statutory authority. (40 CFR 1502.13). For an applicant-proposed project, it is important for the purpose and need statement to be based on the applicant's goals and the agency's statutory authorities for consideration of that application. If it were not for the proposed project and agency authority to consider the proposal, there would be no permit application and no need for NEPA review in the first place. This interpretation is consistent with case law holding

> that “agencies may not define a project's objectives so narrowly as to exclude all alternatives” but “where a private party's proposal triggers a project, the agency may ‘give substantial weight to the goals and objectives of that private actor.’” *Biodiversity Conservation Alliance v. Bureau of Land Mgmt*., 608 F.3d 709, 715 (10th Cir. 2010); *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 255 196 (D.C. Cir. 1991), *cert. denied*, 502 U.S. 994 (1991) (”When an agency is asked to sanction a specific plan, see 40 CFR 1508.18(b)(4), the agency should take into account the needs and goals of the parties involved in the application . . . . Perhaps more importantly, an agency should always consider the views of Congress, expressed, to the extent that the agency can determine them, in the agency’s statutory authorization to act, as well as in other congressional directives”). Accordingly, where the agency action is in response to an application for permit or other authorization, 40 CFR 1508.1(q)(3)(iv), the agency should consider the applicant’s goals based on the agency’s statutory authorization to act, as well as in other congressional directives, in defining the proposed action’s purpose and need.

BLM will determine if the proposed project results in no significant impacts (either because none exist or if they do exist, they can be adequately mitigated) during the EA process. Results and any mitigation developed through this environmental assessment and resulting decision document will be forwarded by BLM to the CDRMS and Chaffee County, as needed, for inclusion into their respective permitting processes.

1.5. Decision to be Made

Based on the analysis contained in this EA, the BLM will decide whether to approve or deny the application and issuance of a mineral material contract for the additional reserves and road reconstruction and if so, under what terms and conditions. Under the National Environmental Policy Act (NEPA), the BLM must determine if there are any significant environmental impacts associated with the Proposed Action warranting further analysis in an Environmental Impact Statement (EIS). The Field Manager is the responsible officer who will decide one of the following:

- To approve the Proposed Action with design features as submitted;
- To approve the Proposed Action with additional mitigation added;
- To analyze the effects of the Proposed Action in an EIS; or
- To deny the Proposed Action.

1.6. Conformance with the Land Use Plan

The Proposed Action is subject to and is in conformance (43 CFR 1610.5) with the following land use plan:

Land Use Plan: Royal Gorge Resource Management Plan

Date Approved: 05/13/2996

Decision Number/Page: 2-37

Decision Language: Areas will be open to mineral entry and available for mineral materials development: administered under existing regulations and standard mineral operating practices; limited by closure if necessary; special mitigation will be developed to protect values on a case-by-case basis.

1.7. Relationship to Statutes, Regulations, Other NEPA Documents

1. The current active operations were analyzed and prepared by the BLM under CO-057-99-067 EA, with a Record of Decision signed on 06/16/1999.
2. This action will be processed in accordance with the 43 CFR 3600, Mineral Materials Disposal regulations.
3. Other Federal, State and County permits, if applicable (Reference Section 3.1.1, Table 2):
    a. Colorado Division of Reclamation, Mining, and Safety (CDRMS), *112 Construction Material Permit*
    b. Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division, *General Air Pollutant Emission Notice (APEN)*
    c. Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Division, *COG5000000 Sand and Gravel Stormwater Permit*
    d. Mine Safety and Health Administration (MSHA), Registered Portable Crushers
    e. Chaffee County Permit

2. PUBLIC INVOLVEMENT

BLM published a News Release (NR) on August 10, 2020. The NR initiated a 45-day formal scoping period during which the BLM solicited input from the public on the issues and impacts to be addressed in this EA. Substantive public comments received were the following**:** 2 Cultural, 71 Air Quality and Climate, 248 Socioeconomics, 2 Fire and Fuels, 105 Public Health & Safety, 40 Minerals & Geology, 37 Noise, 513 Recreation, 4 Forestry, 1 Vegetation, 55 Visual, 6 Water Quality, 34 Wildlife, 11 Editorial, 94 FLPMA, 188 NEPA, 14 Other Laws and 511 No Further Response Required. All public scoping comments were considered in the preparation of this document.

BLM uses a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to identify issues, concerns, and potential impacts that require detailed analysis. Scoping is both an internal and external process. Internal scoping was initiated when the project was presented to the Royal Gorge Field Office (RGFO) interdisciplinary team on June 8, 2021. Information related to this application has been posted on ePlanning since July 16, 2020.

BLM published a News Release (NR) of the EA on July 15, 2021. The NR announced the availability of the EA, summarized the alternatives and other key information presented in the EA, provided a link to the project website, provided the methods by which comments on the EA might be sent to the BLM, and noted a 30-day formal public comment period in which comments

must be received. A summary of the EA public comment process, including substantive comments received, and responses to those comments are included in Appendix E.

3. PROPOSED ACTION AND ALTERNATIVES

This EA has been prepared by BLM to analyze the applicants request for a mineral material contract, to expand reserves and realign the currently used access road at the Hard Rock Paving & Redi-Mix, Salida Main Pit located in Chaffee County, Colorado. Per 43 CFR 3600 regulations, this proposed disposal would be administered under a mineral materials' competitive sale contract, with option of renewal. Although Hard Rock Paving and Redi-Mi may not be the successful bidder in this mineral materials sale, their proposed mining and reclamation plan, future reserves and existing operations and access would be analyzed in this EA as they provide a reasonable industry standard approach to mining the proposed expansion parcels.

The following points are applicable to both Alternative A and Alternative B analyzed in this EA:

- Development of the additional BLM acreage would be done to increase reserves and subsequently mine life to an additional 30 to 50 years; therefore, production rates, haul truck traffic and frequency of active mining and processing are not proposed to change from the current operational status.
- The proposed operations are anticipated to mirror what is presently being implemented at the current mine site.
- As the batch plant and processing facilities are zoned by the City of Salida as an industrial complex; all processing, stockpiling, concrete batching, equipment maintenance, fueling and scaling will continue to occur on private lands.
- Per the interim reclamation plan, only 10 acres of land would be disturbed at any given time with interim reclamation occurring simultaneously with mining; therefore, not all 62.8 acres of BLM managed lands would be disturbed all at once.
- Bonding would include both the cost to reclaim the current operation and the entire expansion footprint, not just the disturbed lands.
- All reserve calculations do not consider acreage loss (lateral extent) from the 3:1 (H:V) highwall slopes, buffer requirements or potential vertical loss as the deposit depth is unknown. These factors could affect the volume of reserves available within both alternatives.
    - Conversion factor to convert volume to weight (cubic yards (yd^3) to short tons), calculated by the BLM RGFO for the Salida Main Pit, is 1.55 short tons/yd^3.
    - All potential reserves were calculated using the max mining depth of 40 feet.
    - The max mining depth is proposed at 40 feet; however, the average mining depth for current operations is 30 feet.
      Mining depth is relevant to the starting top and final bottom elevations which are subject to change based on factors such as the dip angle and thickness of the deposit.

3.1. Operator Proposed Action (Alternative A)

3.1.1. Project Components and General Schedule

PROPOSED EXPANSION:

General

The active operation is currently under a negotiated mineral material contract which accounts for current and future federal mineral production and all reclamation requirements associated with any past, present, and future disturbances within the authorized boundary. Any future mineral material contracts, per the proposed expansion would be issued under a competitive contract. Current contract stipulations will be applied to all future contracts; however, these are subject to change per the approval conditions of this EA (e.g., PDFs and BMPs or mitigation measures). No mining or other activity may occur on the proposed expansion acreage until the NEPA is approved, all other federal, state and county compliance are met, and a mineral material contract is issued.

Information has been consolidated throughout the coordination process between BLM and the applicant, to include a final mine and reclamation plan received on February 02, 2021, an onsite inspection conducted by BLM on March 31, 2021, and continued written and verbal correspondence between BLM and the applicant. Hard Rock Paving and Redi-Mix Inc. have proposed to remove material from the elevated knob located west of the existing road as a portion of the road reconstruction plan. The operator has obtained terms of agreements with both Xcel Energy and Qwest Corporation for either the relocation or removal, if needed of the power and telephone lines trending north to south along the knob ridge. These agreements have been received by BLM and are available in the casefile. Project design features (PDFs) and best management practices (BMPs) that would be implemented onsite are summarized in sections 3.1.2 and 3.1.3 of this EA.

Reserves and Mine Life

The proposed operations will proceed east onto the proposed BLM acreage up to the mountain bike trail located along the eastern toe of the back slope or when the mineral material reserves are exhausted. Once the easterly reserves have been exhausted, mining will proceed south within the proposed expansion footprint. Mining progression would not be designed as a phased operation; however, the proposed operations would involve the extraction of federal mineral material reserves in 10-acre segments. With a maximum mining depth of 40-feet, the total reserves for both the eastern and southern regions of the 62.8-acre BLM are approximately 6.4 million net tons (4.1 million cubic yards). Given the additional reserves, the mine life has been estimated at 50 years; however, the mine life would strongly depend upon the future demand and viability of the material and maximum extent of the potential reserves. As the max extent and depth of the deposit is unknown to the operator in the southern region, the mine life and potential reserves are an estimate based on the maximum expansion parameters (e.g., acreage, max depth, etc.).

Site Preparation – Stripping Topsoil and Overburden

Prior to mining, site preparation would consist of removal of vegetation and stripping topsoil and overburden in 10-acre intervals. Per the 1999 authorized mine and reclamation plans, approximately 4-8 inches of topsoil, with an average of 6 inches, would be stripped and stockpiled for later use for reclamation. The topsoil would be stockpiled along the quarry boundaries to avoid disturbance from ongoing mining operations. These stockpiles would be stored, reseeded, and stabilized as to decrease erosion and topsoil degradation. The operator believes that the topsoil onsite is of sufficient quality for revegetation, equal to the quality present prior to disturbance used for reclamation. All material is considered production; therefore, the operator anticipates 0% waste (e.g., overburden or fines). If deforestation is necessary, the operator would obtain a forestry permit from the BLM prior to any excavation.

Mining and Processing

Development of the additional BLM acreage would be done to increase reserves for an existing operation, rather than increase levels of production, therefore the level and intensity of operations should not change. The production rate would then remain at 30,000 tons per year with active mining, processing, concrete batching, and hauling occurring year-round, Monday through Saturday 7:00 am to 6:00 pm. Per the 1999 authorized mine and reclamation plan, maximum disturbance would not exceed 10 acres at any one time; however, this is not designed nor proposed as a phased operation. As mining proceeds, reclamation will follow extraction in such a manner as to keep the affected area the same throughout the life of the mine. The proposed operations are anticipated to mirror what is presently being implemented at the current operation, which has been in production under Hard Rock and Paving Redi-Mix, Inc. since 1977.

Mining is proposed to initially progress east of the existing mine and then south once the eastern reserves are exhausted. The maximum height of the highwall would be 40-foot with a 2:1 H:V working slope with no interstitial benches; however, the highwall height would be dependent upon the initial top and final bottom elevations. Earthen berms located along the top of the highwall and along the mine perimeter would be utilized for stormwater control to divert surface water runoff towards the outer portions of the mine site and extend to the main stormwater drainage channels and ponds. Monitoring and maintenance would occur to ensure highwall stability (e.g., raveling, tension cracks, rock falls etc.). All safety regulations and precautions (e.g., following all federal, state and county permit/contract stipulations and monitoring, daily visual inspections, signage, site specific training, etc.) would be taken during scheduled maintenance.

Once the mining area has been stripped and leveled, mining would commence by removing material top down using a dozer and then hauled using a front-end loader to the processing plant (e.g., crusher/screener conveyor system). Mining methods (e.g., standard open pit sand and gravel operation) currently implemented at the active mine site would be applied to the expansion proposal. To date, there have been no complaints or concerns regarding active mining operations. Blasting is not anticipated, as the material is mined from an unconsolidated sand and gravel deposit. If blasting is ever required all MSHA regulations would be enforced including a

licensed blaster onsite to plan, load and monitor each shot. All federal laws and regulations pertaining to the storage and handling of explosives would be followed accordingly.

Current processing operations are not proposed to change per the expansion proposal. The material would be "primary crushed" and "secondary crushed based on desired product types. Final products would be pit/run embankment fill, ½-inch, 6-inch minus and class 6 road base ($^{3}/_{4}$-inch minus). All material would be considered product with zero percent processed waste and no rejects. Final products would be stockpiled for short timeframes, until it could be hauled offsite or used to make concrete and asphalt products. No water would be used during processing. All final products are scaled at the scale house prior to hauling offsite. Equipment types are not anticipated to change from what is currently used at the active operation. Below, Table 1 lists the types of equipment and their subsequent use(s) onsite:

Equipment Type	Use
Lippman Portable Jaw Crusher	Processing
Fab Master Portable Feeder	Processing
Cedar/Rapids Portable Screen Plant	Processing
Terex/CedarRapids Portable Cone Crusher	Processing
Telesmith Portable Stacking Conveyor	Processing
2 Front-end Wheel Loaders	Mining/Reclamation
1 Track Dozer	Mining/Reclamation

Table 1: Description of equipment types and uses during proposed mining and processing activities.

Processing operations would remain at their current location, which is on privately owned lands. The manufacturing of asphalt material at the various batch plants and the addition of supplementary functions such as fuel storage/fueling area would continue to occur within the adjacent private quarry footprint and not on BLM managed lands.

Interim Management Plan

The operator does not predict any extended non-operational periods; however, the operator would follow specific guidelines proposed in the mine plan and other contract and permit stipulations. If operations were closed for an extended period, all portable equipment would either be removed or secured onsite. Any petroleum, oil, and lubricants (POLs) or other materials/substances would be properly examined for long-term storage or removed offsite. The site would be routinely monitored to comply with all federal, state and county permits, contract, etc.

Stormwater and Drainage Management

All ephemeral drainage pathways have a northeastern topographic gradient trending toward the Arkansas River. These water drainages would not be substantially impacted before, during or post mining. The drainage located west of the southern portion of the expansion footprint, approximately 100-foot-wide and trending south to north, would not be disturbed or impacted during active operations (Figure 3). A 30-foot buffer would be constructed between the drainage and highwall and the highwall would have a 3:1 working slope for material stability (Figure 5). These mining parameters would provide a barrier to decrease the potential for stormwater degradation and ensure the structural integrity of the drainage during active operations.

The operation is currently permitted with the Colorado Department of Public, Health and Environment (CDPHE), Water Quality Control Division for a Stormwater Permit (COG5000000 permit; reference Table 2) and subsequent Stormwater Management Plan (SWMP) which describes the types of controls and measures taken to manage the quality of surficial storm/meltwater runoff. All stormwater controls implemented at the active operation would extend to the expansion acreage (reference SWMP; Appendix D). Prior to CDPHE's authorization, the site was inspected and exempted from obtaining a Colorado Discharge Permit (CDP). Water diversions and impoundments would not be utilized on-site nor the exposure of groundwater during active mining, subsequently, a CDPHE, Substitute Water Supply Plan (SWSP) is not required by the State of Colorado.

Exposure to groundwater is not anticipated during the life of the mine. Colorado Division of Water Resources (CDWR) well log data reports groundwater depth from 45 to 496 feet throughout the surrounding area, therefore a maximum mining depth of 40 feet with an average of 30 feet is not predicted to intercept groundwater. The current operational mining depth has never exceeded 35 feet; however, mining depth is dependent upon the extent and depth of the deposit and the starting top and bottom elevations during mining. At no time has groundwater been encountered during active operations. If the Salida Main Pit were to encounter groundwater at any point during the expansion process, the operator would immediately backfill the area and cease mining deeper. If required, the operator would comply with all CDWR regulations (e.g., obtaining a Substitute Water Supply Plan (SWSP)) to account for all evaporation loss).

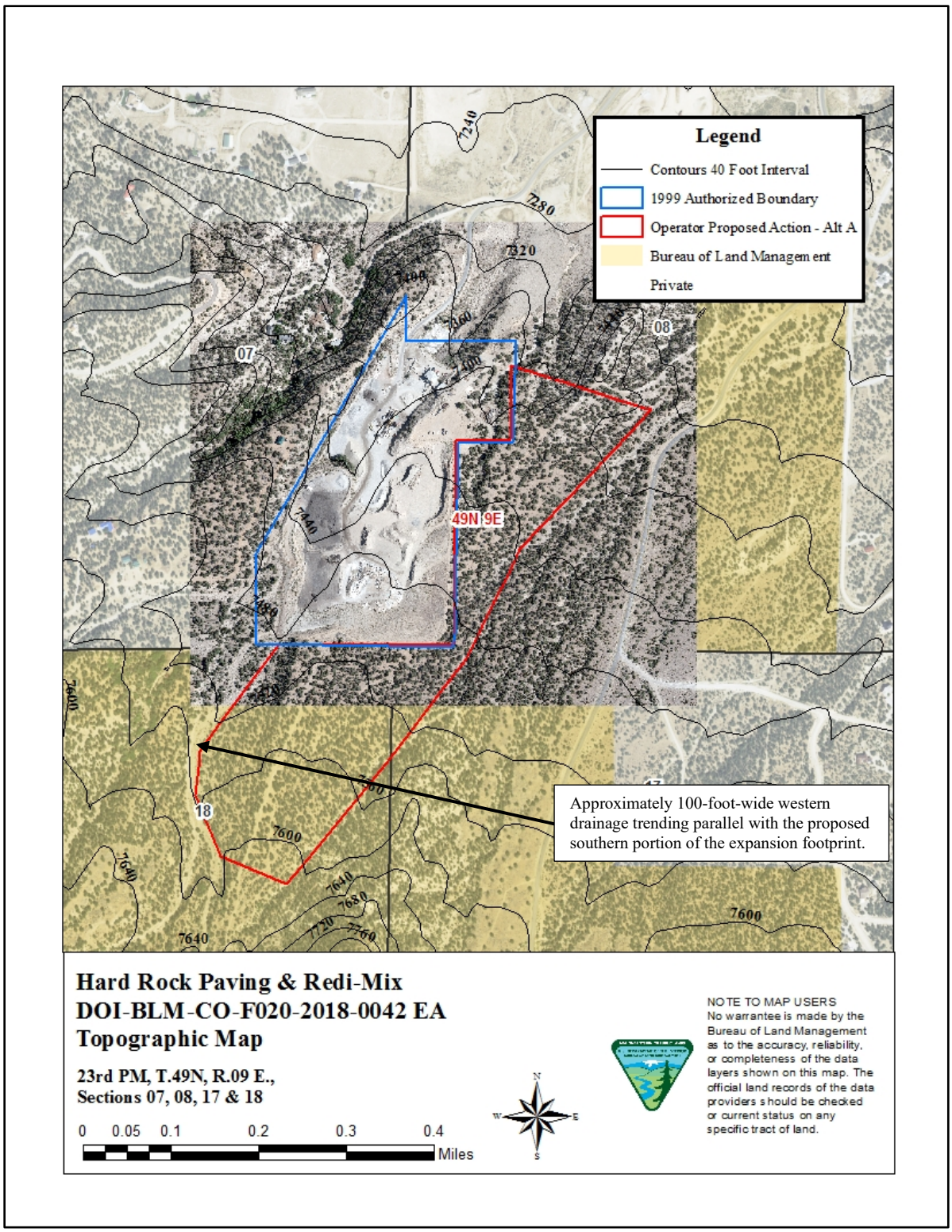


Figure 3: Topographic map displaying the western drainage area relative the boundary and 40-foot contour intervals. A 30-foot buffer and 3:1 slopes would be constructed to provide a barrier between the drainage and active highwall.

Structures

All facilities will remain on private lands (e.g., batch/asphalt plant, ready-mix plant, office, parking, restrooms, maintenance shop, parking, POL storage, material and waste storage) and are not projected to change per the expansion. These facilities and man-made structures would continue to be maintained and monitored according to all federal, state and county laws and regulations. Types of POL storage, secondary containment, and location are outlined the SWMP (Appendix D).

Safety

The mine site would be permitted with all below permits following the initiation of the expansion. The site would be regularly monitored during active operations and interim closures or delays. Frequency and type of monitoring depend on what is being monitored and who requires the monitoring. The site is routinely inspected by all permitted agencies with the addition of daily site and equipment inspections per the operator/mine manager or equipment operator. BLM currently inspects this site 2 to 4 times per year, based on production. These BLM inspections would continue with or without the authorization of the expansion proposal.

All haul loads would be covered, whether company trucks or contracted trucks, for aggregate loads entering or leaving the site. Speed limit restrictions are 10 mph on site per the stipulations of the air pollution permit (CDPHE, APEN). All Federal Motor Carrier Safety Administration (FMCSA) regulations would be enforced, and all commercial haul trucks would be registered with CDOT. These regulations include, but not limited to, daily vehicle inspections, job specific driver trainings and certifications, hours of service, etc. Haul truck loads are anticipated to remain between 50 to 60 trucks per day; however, this is a year-round operation and hauling is subject to change based on weather, material demand, viability, etc.

PROPOSED ROAD RE-ALIGNMENT:

During inclement weather, the main haul road through the quarry has the potential to flood and ice. Travel conditions are then degraded for large equipment to safely transport material off-site and the safety of people traveling to and from the quarry, therefore, the proposed road realignment would improve the overall safety for truckers, employees, and miners. The current access road to the active mine, batch plant and subsequent expansion acreage, is a private road segment trending south off County Road (C.R.) 107 (Figure 1). This access road is the only access to/from the mine site which dead ends at the mine site office located on private lands; therefore, the only traffic utilizing this road are employees, miners, truckers, and other visitors associated with the Salida Main Pit operation.

The operator proposes to elevate and regrade the existing access road to prevent flooding and sediment deposition along the road and further down gradient; therefore, the current road location and mine entrance is not proposed to change. Fill material would either be hauled in from an offsite location or excavated from the elevated knob located west of the current access road. An Xcel Energy power line and Qwest underground telephone line runs parallel along the

elevated knob. Agreements are in place between the operator and Xcel Energy and Qwest and copies are on record with BLM. Prior to initiating road construction, the operator would provide a copy of a stamped Professional Engineered (PE) construction design based on a 100-year storm event to BLM for review. The design would include, but not limited to, the cut/fill volumes, cross-sections, topographic gradients, dimensions, and stormwater controls (e.g., low water crossings, culverts, detention basins, drainages, etc.).

PERMITS

The operator would acquire all necessary permits, variances, easements, etc. required to operate within the proposed operational boundary. The following list summarizes the major permits already in place, required to be amended, or new authorizations that could be needed, upon BLM issuing a mineral materials contract to Hard Rock Redi-Mix and Paving, Salida Main Pit:

	Federal Agency and/or State Department	Permit Type	Permit Number	Issue Date	Notes
Permits	Colorado Division of Reclamation, Mining and Safety (CDRMS)	Construction Material Regular (112)	M-1977-197	1997	Permit expiration is Life of Mine
	Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Division	COG5000000 - Sand and gravel mining process water and stormwater combined	COG501587	12/29/2016	Stormwater discharge associated with sand and gravel mining and processing authorization to discharge under the Colorado Discharge Permit System
	Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division	General Air Pollutant Emission Notice (APEN)	92CH705F	10/9/2013	Permit for sand and gravel operation source, specific to material extraction, handling, stockpiling, hauling and associated conveyors and transfer points
	Mine Safety and Health Administration (MSHA)	Mine ID indicates 3 portable crushers are registered with MSHA and	Portable crushers #1: 05-04854 #2: 05-03808 #3: 05-04706	-	Mine ID expiration is Life of Mine; Portable crushers are subject to their regulations regarding the health and safety of the operator's employees
	Bureau of Land Management (BLM), Royal Gorge Field Office (RGFO)	Right-of-Way (ROW) - Water Pipeline (287300)	COC0-40083	10/27/1960	Commodity 971: Non-Energy Facilities; Expiration date: 01/01/9999

Table 2: Current permits issued to Hard Rock Paving and Redi-Mix Inc., Salida Main Pit.

RECLAMATION

A substantial amount of interim reclamation has already occurred along the southeastern operational boundary. The reclaimed region was regraded to a 3:1 slope with the addition of 4 to 8 inches of topsoil and revegetated with the approved seed mixture outlined in the authorized 1999 reclamation plan. As a result of the modification to the original 2017 expansion proposal, the reclaimed southern region was incorporated in the final expansion proposal footprint. Subsequently, this region will be re-disturbed, however reclamation would continue similarly as the mineral reserves are exhausted and mining advances further east and south.

The reclamation plan will be consistent with the current approved reclamation plan analyzed under the 1999 EA (reference Appendix A and B; Reclamation Plans). All disturbed BLM lands would be reclaimed to rangelands with a 3:1 topographic slope and at least 4 inches of topsoil spread along all disturbed areas. Prior to initiating revegetation efforts, the operator would supply this seed mixture to BLM for approval. An appropriate and well adapted seed mix would be utilized to reestablish vegetation. If necessary, the addition of scarifying, fertilizing, additional re-seeding methods and mulching would be conducted to finalize reclamation requirements (reference Table 3). There would be no backfilling and all regrading and recontouring would be conducted using heavy equipment to mimic the surrounding topographic gradient. Per the operator, final reclamation would be finished once all stockpiles have been removed and would be within 5 years after mining completion. Final reclamation will be determined complete once conditions in the reclamation plan have been met and as applicable, the BLM RGFO reclamation standards (Appendix C).

	Final Reclamation Requirements	1999 EA Mitigation Measures	2018 Expansion Proposal
Reclamation	Slope Reclamation	3H:1V	3H:1V
	Reseeding	Disturbed areas will be revegetated with the approved seed mix (ref. Table 3) by BLM and CDRMS (Colorado Division of Reclamation, Mining and Safety)	Disturbed areas will be reseeded with an approved seed mix by BLM and CDRMS prior to initiating revegetation efforts
	Soil Reclamation	Soil Testing, Topsoil Supplementation, if necessary	Stockpiled along perimeter, Topsoil will only be handled once to prevent degradation, Topsoil stockpiled longer than one growing season will be seeded with 7#/A Western Wheatgrass, Topsoil 4"-8" (avg. 6") on BLM lands

Table 3: Reclamation requirements for both the 1999 EA and 2018 expansion proposal.

3.1.2. Operator Proposed Design Features

1. No mining or disturbance beyond the south/southeastern trending approximately 100-foot natural drainage.

2. All stormwater controls would be installed prior to mining the expansion acreage.

3. All fuels and other chemicals would be stored in secondary containment on private lands and a spill contingency plan and kit available for spill/leak cleanup.

4. As mining progresses, the perimeter fence will be installed to include all mining related disturbance.

5. All mining would occur in 10-acre intervals with disturbance not exceeding 10 acres at any given time. Interim reclamation would occur simultaneously as mining occurs.

6. Visual and noise berms would be installed west of the bike trail to decrease potential visual and noise pollution.

7. Site specific trainings to employees and visitors (e.g., inspectors, haulers, etc.).

8. Compliance with all other federal, state and county laws and regulations.

9. Prior approval by BLM of the seed mixture used for reclamation.

10. Topsoil stockpiles would be sloped and revegetated for stability.

11. Secure all non-operable equipment during seasonal shutdowns and non-operational periods.

12. Routine site monitoring during operational and non-operational periods.

13. Weed Management Plan – All State and county weed regulations would be followed accordingly.

14. Trail Redesign and Relocation Proposal – As the southern portion of the proposed expansion boundary intersects the Solstice Mountain Bike Trail, the operator proposed a trail redesign and relocation plan. Reference Appendix A, Part 2 for a detailed summary and map of the redesign efforts.

15. Road Realignment Proposal – The operator will provide a copy of a stamped Professional Engineered (PE) road construction design prior to initiating construction for BLM review. Reference section 3.1.1. Proposed Road Realignment.

3.1.3. BLM Proposed Design Features

1. *Air Resources –*

    - Proponent will curtail operations during high wind events as defined in section 5.1.6 below.
    - All active mining and other site activities with the potential to generate fugitive dust will be controlled using water or other methods to limit offsite transport, as necessary.

2. *Cadastral Resources* – The responsible party will identify and protect evidence of the Public Land Survey System and related Federal property boundaries prior to the commencement of any ground-disturbing activity. Contact BLM Cadastral Survey to coordinate data research, evidence examination and evaluation, and locating, referencing, or protecting monuments of the PLSS and related land boundary markers from destruction. In the event of obliteration or disturbance of the Federal boundary evidence, the responsible party shall immediately report the incident, in writing, to the AO. BLM Cadastral Survey will determine how the marker is to be restored. In rehabilitating or replacing the evidence, the responsible party will reimburse the BLM for costs, or if instructed to use the services of a Certified Federal Surveyor, procurement shall be per qualification-based selection. All surveying activities will conform to the Manual of Surveying Instructions and appropriate State laws and regulations. Cadastral Survey will review local surveys before being finalized or filed in the appropriate State or county office. The responsible party will pay for all survey, investigation, penalties, and administrative costs (BLM, H-9600-1).

3. *Geology and Mineral Resources* – Minerals within the proposed project area are open to entry under the mining law and are open to development under regulations codified at 43 CFR 3809. As of July 13, 2021, there are no active federal mining claims located within the boundary of the proposed project. If work on active claims is required, the project proponent will need to contact the claimant regarding potentially restricted access, disturbance to the mineral resource, offsite material being placed on the claim, mining operations and reclamation of disturbed areas. A letter, or similar form of documentation, will need to be provided to the BLM that outlines details of the coordination between any mining claimant and the mineral material contract holder and is signed by both parties involved.

4. *Wastes, Hazards, or Solids* – Spills must be cleaned up and disposed of in accordance with State and Federal regulations. Spill reporting will be aligned with the BLMs contingency plans.

5. *Invasive Plants* – Operator will be required to effectively control noxious weed species within the project area per BLM policy, state, and county regulations, and

may be required to control other invasive plants, if present, in order to meet final reclamation standards.

3.2. Other Alternatives

3.2.1. Alternative B – No Bike Trail Disturbance

This alternative considers not redesigning or relocating the Solstice Mountain Bike Flow Trail; therefore, the expansion footprint would run parallel along the eastern edge of the existing bike trail (Figure 4). All mining and reclamation methods outlined in Alternative A would be applied to all mining, processing, and reclamation efforts for this alternative. A 30-foot buffer would be installed between the mine boundary and bike trail to add a visual barrier for recreation users. The operator has proposed to install an earthen berm; however, the berm dimensions (e.g., length, width, and height) are unknown until construction is authorized. Mining would be conducted on 41 acres of BLM managed lands with a maximum mining depth of 40 feet and a mine life of approximately 30 years. Max reserves would consist of approximately 4.1 million net tons of potential minable aggregate. As the max extent and depth of the deposit is unknown to the operator in the southern region, the mine life and potential reserves are an estimate based on the maximum expansion parameters (e.g., acreage, max depth, etc.). The primary difference between Alternative A and B is the acreage amount proposed for authorization. Alternative B would decrease the expansion acreage by approximately 22 acres and subsequently the available reserves (Figure 5).

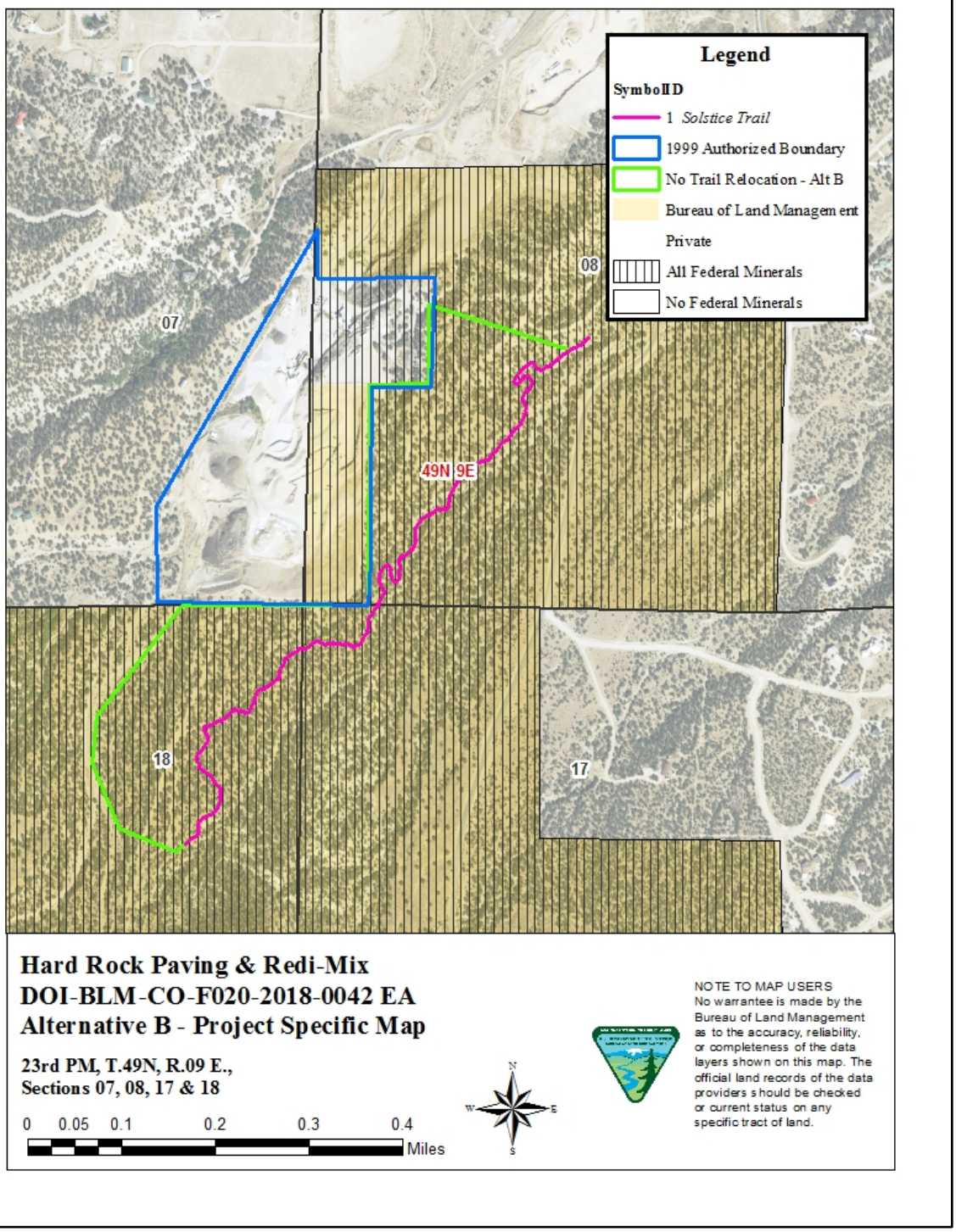


Figure 4: Alternative B: No Trail Relocation project specific map

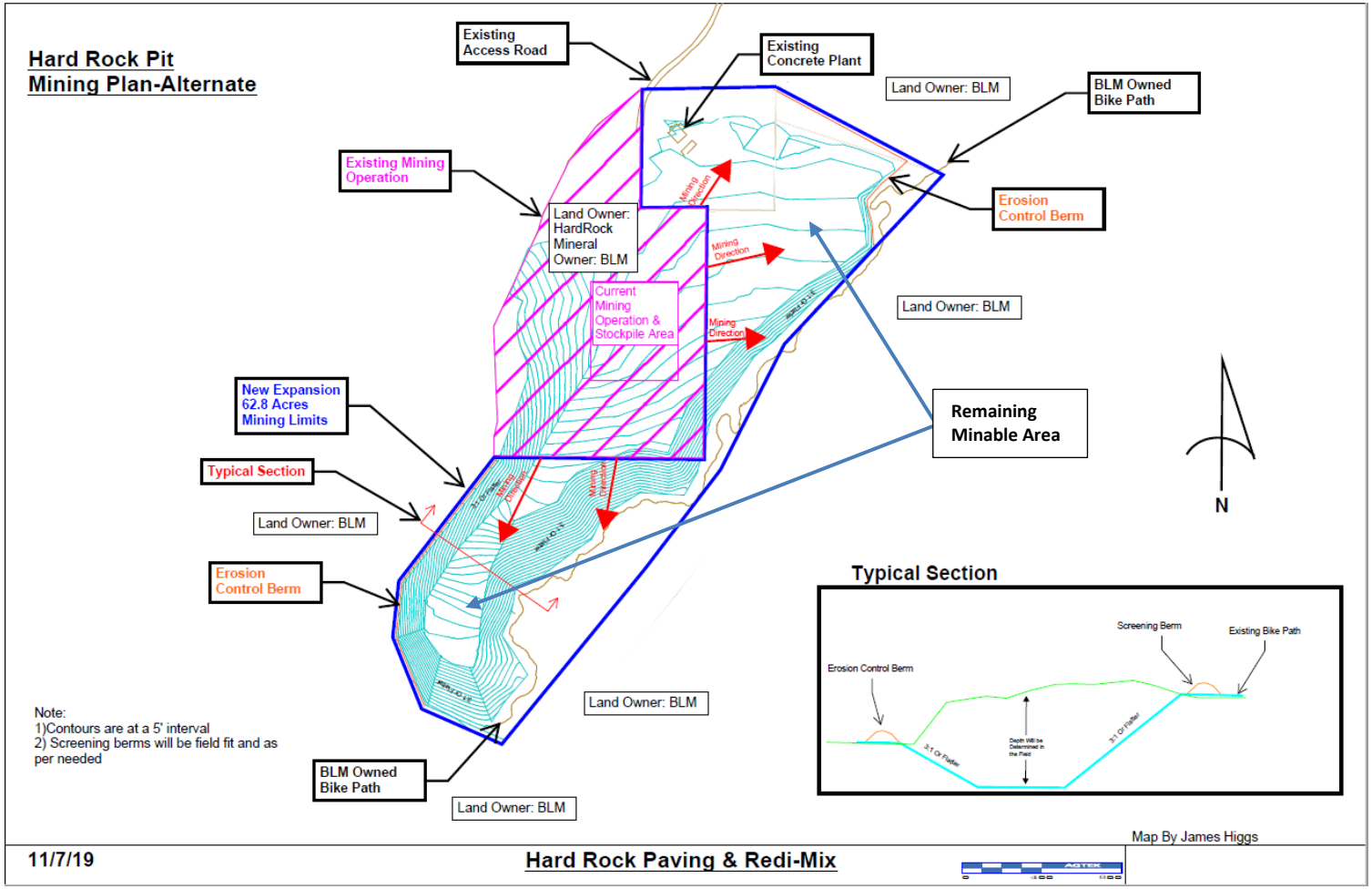


Figure 5: Alternative B: mine plan map if no trail relocation decision. Operator developed mine plan map displaying a cross section with the cut and fill, 3:1 active slopes, acreage available to mine (blue arrows), and proposed expansion boundary (blue boundary; Alternative A) relative to the Solstice Mountain Bike Flow Trail (labeled as BLM owned trail).

3.3. No Action Alternative (Alternative C)

3.3.1. Denial of Road Realignment and Expansion Proposal

A no-action decision would constitute a denial of the proposed mine expansion and road realignment. This could potentially strain the applicant's ability to supply local markets with roadbase material and concrete. Also, the existing access road would remain unsafe for truckers transporting materials, and employees and miners entering and leaving the quarry. As the private operations and structures (e.g., concrete/asphalt batching, material processing, scaling, equipment maintenance, fueling, hauling, office, parking, etc.) have been zoned by the City of Salida as an industrial complex, these activities would continue, regardless if the expansion proposal were authorized. The Salida Main Pit is the primary supplier of aggregate material to the surrounding community; therefore, materials would need to be hauled in from other locations to continue to meet demand. The closest aggregate operations, outside of Salida, are in either Buena Vista, Colorado (ACA Products; Trout Creek Mine; approximately 25 miles north) or Parkdale, Colorado (Martin Marietta; Parkdale Quarry; approximately 47 miles east). The operator would need to haul material from either of these locations, to continue operations at the private mine site. As the material would be sourced off site, this would directly increase haul truck traffic by at least 50%. Current haul loads range from 50 to 60 loads per day; given that truck traffic would double, loads would increase to 100 to 120 loads per day. The applicant could continue operating the currently active quarry within the approved permit boundary; however, the overall potential reserves and mine life are limited to less than 6 months.

3.4. Alternatives Considered but Eliminated from Detailed Analysis

3.4.1. Operator Initial Expansion Proposal and Boundary Modification Proposal

BLM received a mineral material application from Hard Rock Paving & Redi-Mix, Inc. in October 2017, regarding their need to re-align the currently used access road, as well as expand aggregate reserves to the east at the Salida Main Pit. As the initial expansion footprint overlapped with an approved mountain bike trail (Figure 6; purple boundary), BLM met with both Hard Rock Paving & Redi-Mix, Inc. and Salida Mountain Trails (SMT) organization on two separate occasions to discuss alternatives and potential solutions. On December 20, 2018, BLM met with John Ary, owner of Hard Rock Paving & Redi-Mix Inc. and Mike Sugaski, president of Salida Mountain Trails. Following the meeting, the owner/operator agreed to 1) reanalyze the southern reclaimed region in order to determine if the geologic material would be an adequate aggregate reserve and 2) decrease the eastern expansion footprint to eliminate any interference with the mountain bike trail. On April 04, 2019, BLM met with Brian Sack, mine manager and Mike Sugaski at the Salida Main Pit to determine an adequate buffer distance and height between the expansion proposal boundary and the SMT mountain bike trail. Following multiple discussions and site visits with the various above parties, Hard Rock Paving and Redi-Mix Inc. submitted a modified expansion plan in May 2019, which minimized interaction between the proposed mining operation and the recreational mountain bike trail. In doing this, the expansion would include a 26.76-acre BLM parcel trending northeast to southwest (Figure 6; teal boundary). After further consideration and evaluation of needed reserves, the operator rescinded

the modified boundary and proposed the final expansion plan, defined as Alternative A above. These expansion proposals were considered by BLM; however, eliminated from further analysis as the proposals were rescinded by the proponent.

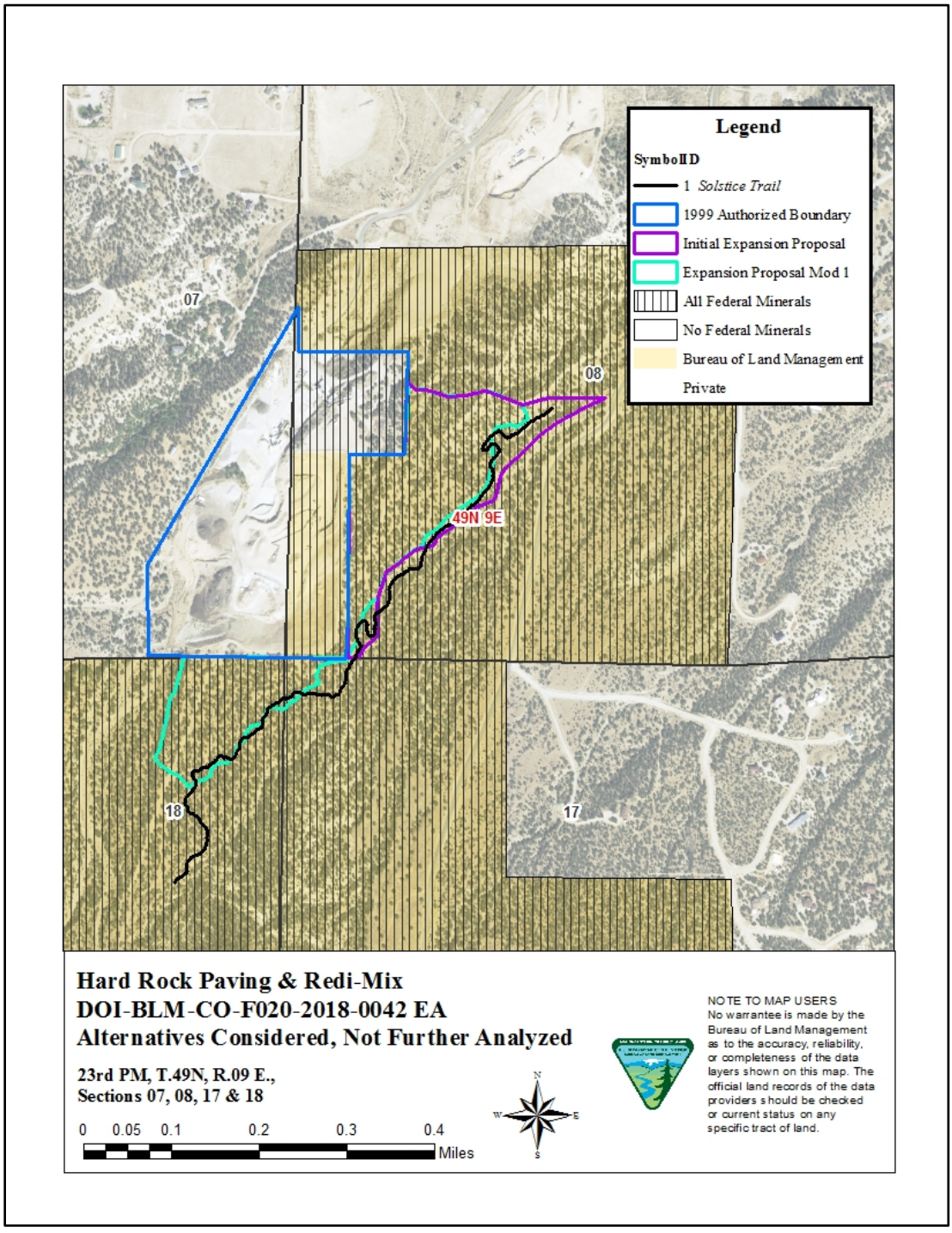


Figure 6: Initial and Modification 1 Expansion Proposal in relation to the Solstice Flow Trail.

3.4.2. Visual Survey Alternative

In response to public comments concerning the change to the visual landscape, an extensive visual resource study was conducted. The study was a two-step analysis, the first being a GIS analysis followed by a ground truthing survey using the Visual Resource Management assessment tool and Contrast Rating system. A copy of the full study is in Appendix F, Visual Survey Report and Data. The Contrast Rating Forms are available in the Administrative Record for reference.

The purpose of the study was to determine how many locations within a one-mile radius of the Hard Rock Paving and Redi-Mix Inc., Salida Main Pit have a potential view of the mine and how much change would be introduced if the mine were expanded to the maximum proposal footprint. The one-mile radius included residential areas and commercial businesses as well as views from Highway 50 capturing a sample of residents as well as casual observers passing through the area. The GIS study uses a representative sampling of viewpoints; however, technology does not allow the model to consider features such as trees, buildings, and other visual obstructions. To further strengthen the results of the GIS study, key observation points (KOPs) were chosen based on the data locations that would see the most change from the proposed mine expansion. Ground truthing analysis was completed using the KOPs with additional photo points taken in places that indicated a high amount of change.

Using this data, an alternative to minimize the amount of change could be formulated. Results from the study found the following: The overall pattern of potential impact of the existing mine and the proposed expansion areas was less than a mean of 1% of the overall viewshed. The ground truthing Contrast Rating System analysis confirmed that only a slight change would be noticed from two of the KOPs with no noticeable contrast change from the other three KOPs. With this minimal amount of visual effect, it was determined that an additional alternative is not needed.

4. ISSUES

The Council on Environmental Quality (CEQ) Regulations state that environmental assessments (EA)s should “briefly provide sufficient evidence and analysis” for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI) (40 CFR 1501.5) and that agencies should only briefly discuss issues other than significant ones (40 CFR 1500.4(e)). While many issues may arise during scoping, not all the issues raised warrant analysis in an EA. Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant impact, or where analysis is necessary to determine the significance of the impact. The following sections list the resources considered and the determination as to whether they require additional analysis.

4.1. Issues Analyzed

The following issues are analyzed in detail in this EA (Section 5):

1. How would the proposed Hard Rock Main Pit Expansion and Road Realignment affect Recreation?

2. How would the proposed Hard Rock Main Pit Expansion and Road Realignment affect economic and social conditions in Chafee County?

3. What effect does the proposed action have on mule deer severe winter range?

4. What effect does the proposed action have on migratory birds?

5. How would the proposed Hard Rock Main Pit Expansion and Road Realignment affect Visual Resources?

6. How would the proposed Hard Rock Main Pit Expansion and Road Realignment affect existing air resources and noise levels?

7. What is the effect of the proposed expansion/development on forest resources (pinyon-juniper woodlands)?

8. What effect does the Hard Rock Main Pit Expansion and the Road Realignment affect paleontological resources.

4.2. Issues Considered but not Analyzed in Detail

Program Area	Reason there is no issue or that further analysis is unnecessary
Cadastral Survey	The proposed road realignment and mine expansion may result in disturbance of evidence of the Public Land Survey System; however, if the above Design Feature is implemented, the impacts will be minimized. (Reference BLM Project Design Feature, Section 3.1.3., No. 3).
Cultural Resources	Although cultural resources were found in the area of potential effect (see report CR-RG-20-035 P), no sites determined to be eligible for the National Register of Historic Places (NRHP) were found. Therefore, the proposed undertaking will have no effect on any historic properties (those eligible for the NRHP).
Environmental Justice	Based on BLM's review of U.S. Census Data, Chaffee County does not contain an environmental justice population.
Farmlands, Prime and Unique	Not Present
Fire/Fuels	The proposed action will not adversely affect fire suppression or Fuels treatments activities.
Fluid Minerals	The project is in an area with no potential for fluid mineral development. Any fluid mineral resources present would not be impacted by the proposed action.

Program Area	Reason there is no issue or that further analysis is unnecessary
Geology/ Minerals	The proposed action will not create significant impacts to geology and mineral resources if the above Design Feature is implemented. (Reference BLM Project Design Feature, Section 3.1.3, No. 3).
Invasive Plants	Operator will be required to effectively control noxious weed species within the project area per BLM policy, state, and county regulations, and may be required to control other invasive plants, if present, in order to meet final reclamation standards. Due to these requirements, the proposed action is not expected to contribute to the establishment or spread of weeds.
Lands and Realty	An agreement is in place with Xcel and Qwest; County Road 107 is not authorized to the county but is recognized under RS2477, and any permits with the County or DOT will be in place prior to initiation of road re-alignment; the only other ROW is to the applicant themselves for a water pipeline; therefore, the proposed action will not adversely affect any Lands and Realty proposed or existing authorizations.
Range Management	The area is not within an active grazing allotment
Special Designations: WSAs, ACECs, Wild and Scenic Rivers, Other	Within the project area, there are no special designations therefore no issues associated with this resource.
Soils	Three soil types are located within or around the project site with elevation ranging between 7280 feet in the north and 7680 feet in the southern portion the project. All soils have low soil erosion factor indicating these soils have low susceptibility to sheet and rill erosion by water. However, slope gradient is high at or nearby road realignment site indicating high potential for soil erosion. Based on hydrologic soil group rating the soils within the project site are grouped as Group A and B showing low and moderate runoff potential, respectively. All portions of the proposed road realignment are located on moderate runoff potential (hydrologic soil group B). The primary effects during project activities would result from soil compaction, disturbance, soil profile mixing, and erosion. Exposed and loosen soil material during road construction would be susceptible to erosion until stabilized. Temporary erosion-control measures would reduce the potential for short-term erosion and soil loss during construction. The proposed mining requires removal of vegetation along with underlying soil mantle and overlying material that results in destruction of landscape in the area. Disturbed areas will be reseeded with BLM and CDRMS approved seed mix. Prior to initiating road construction, the operator would provide a copy of a stamped Professional Engineered (PE) construction design based on a 100-year storm event. Indicated stormwater and drainage management plan, issued current permits, final reclamation requirements, mitigation measures, and operator proposed design features listed in the proposed action would be used to protect soil resources from impacts caused by proposed mining and road construction activities. Therefore, the proposed action and other alternatives will not create a potential significant impact to soil health.
Tribal Concerns	No phenomena that appear to be culturally sensitive were observed or recorded by the archaeologists who performed the cultural resources inventory. BLM is continuing to work with the tribes on the development of a streamlined consultation process.
Vegetation	The proposed mine expansion and road realignment will result in vegetation disturbance of 63 acres. Post mine reclamation will be done in increments of 10 acres resulting in 100%

Program Area	Reason there is no issue or that further analysis is unnecessary
	reclamation upon mining completion. The reclamation plan includes vegetation benchmarks and standards that must be met before reclamation is determined complete.
Wastes, Hazardous or Solid	The proposed action provides for proper disposal of solid and hazardous wastes and proper storage and containment of petroleum, oil, and lubricants. Spills must be cleaned up and disposed of in accordance with State and Federal regulations. Spill reporting will be aligned with the BLMs contingency plans.
Water Quality, Surface, and Ground	The proposed road realignment and mineral reserves expansion is located within King Gulch-South Arkansas River HUC-12 sub-watershed. The nearest perennial stream (South Arkansas River) is located about 0.50 mile from project site. All streams that are located within the sub-watershed are not indicated under 303(d) impaired streams and Monitoring/Evaluation list of 2020. All ephemeral drainages that are located within or nearby the project site have northeast trend towards South Arkansas River. These ephemeral drainages would not be substantially impacted during or post mining. South Arkansas River alluvial aquifer is located near by the mining site. However, considering the minimum groundwater level and average mining depth, mining activities will not reach to the groundwater avoiding a potential impact to groundwater quality. Indicated stormwater and drainage management plan, issued current permits, final reclamation requirements, mitigation measures, and operator proposed design features listed in the proposed action would be used to protect surface and groundwater resources from impacts caused by proposed mining and road construction activities. Therefore, the proposed action and other alternatives will not create a potential significant impact to Water resources.
Wetlands and Riparian	Some riparian vegetation within the ephemeral drainage may be disturbed or removed when re-constructing the road. Due to avoidance of the drainage with mining activities as proposed, along with engineered design of road crossing drainage, reclamation practices and adherence to stormwater permit vegetation should recover.
Wilderness Characteristics	The proposed project area was not identified in the 2015 inventory as having lands with wilderness characteristics.
Wildlife: Aquatic	There is no aquatic wildlife habitat within the project area. Due to avoidance of drainages with mining activities as proposed, along with engineered design of road crossing drainage, reclamation practices and adherence to stormwater permit vegetation, the proposed action is not expected to result in impacts to downstream aquatic wildlife.
Wildlife: T&E, Sensitive Species	There are no populations or habitats of T&E or BLM sensitive species within the action area.

Table 4: List of resource programs with no issue with the proposed action or further analysis not required as a project design feature or best management practice is implemented.

5. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

5.1. BLM, RGFO – Internal Disciplinary Team Analyses

5.1.1. How would the proposed Hard Rock Main Pit Expansion and Road Realignment affect Recreation?

Affected Environment

Chaffee County is known for its recreational opportunities and has developed trail systems to the north and south of the community of Salida. Since 2003, over twenty-five miles of non-motorized trails have been developed through partnerships with local organizations, City of Salida, US Forest Service and BLM. Trailhead development and construction was completed with support from the county to provide parking for trail users. Funding for project work as well as providing portable toilets was raised locally and through Colorado Parks and Wildlife. Salida Mountain Trails (SMT) has been the primary driver behind this work and has a proven track record for providing quality trails, signage, and maintenance of the trails systems.

The Methodist Mountain Trail System is on the south side of the Hard Rock Mine. Approximately 20,000 local residents and visitors use this trail system annually. In 2013, SMT began working with the BLM on a proposal for the Solstice trail along with several other trails. Solstice trail is a downhill optimized mountain biking trail and is located on the east side of the Hard Rock mine. It was designed and constructed professionally at a cost of $50,000 along with hundreds of volunteer hours dedicated to the project. Since its completion in 2019, Solstice has become a very popular trail and is heavily used.

Reasonably Foreseeable Environmental Trends and Planned Actions in the Area

Population increases in Colorado and Chaffee County have been projected over the next 5-10 years. With this growth, outdoor recreation demand increases including the desire for more trail systems offering a variety of skill levels and experiences.

Effects of Alternative A (Proposed Action)

The proposed action includes a redesign and relocation of the Solstice trail. This trail was designed with a specific objective of providing an enhanced downhill experience for mountain bike trail users. Changes to the design, risk a loss of the quality and user experience that trail users have come to expect in this area. This optimized trail is intended to offer a unique experience to the trail system that is designed to offer a variety of skill level options. With the variety, trails users stay engaged and interested and don't tend to stray off the trails seeking new opportunities through user created routes. Trail users highly value the Solstice trail current alignment. If the route is moved to the east, there is a risk that the trail experience may change and displace trail users who are looking for the unique downhill optimized experience that Solstice provides. Because the trail was designed and constructed using partner grant funding, a complete rebuild may give an unfavorable impression to future grant requests.

Mitigation Measures

If Alternative A is selected, it is recommended the design include similar objectives to the original trail. To achieve this, the proponent will be required to hire a professional mountain bike trail designer to redesign the trail and a professional construction firm to build it.

Effects of Alternative B No Trail Disturbance

Alternative B would not change or relocate the Solstice Trail. The trail would serve as the boundary with a 30-foot buffer for the mine expansion. Trail users would continue to use the trail in its current alignment. It is possible that the close proximity of the mine activity could change the experience for some trail users. However, the trail objective would not change, and Solstice would still provide the same downhill optimized experience as first constructed.

Effects of Alternative C

Alternative C would not change or relocate the Solstice Trail. Trail users would continue to use the trail in its current alignment. No impacts would be introduced to recreation.

5.1.2. How would the proposed Hard Rock Main Pit Expansion and Road Realignment affect economic and social conditions in Chafee County?

Affected Environment

Chaffee County is known for its recreational opportunities and has seen its population grow by almost 1,500 people (8%) between 2013 and 2018 and the population is predicted to continue to increase (EMSI, 2019). Nearly 80 percent of the County's land is public land and community members value the ruralness and natural beauty (BLM 2017). Travel and tourism play an important economic role in Chaffee County with 25 percent of jobs in the leisure hospitality industry (EMSI, 2020). More than 50 percent of the County's income is derived from non-labor sources (e.g., dividends, interest, rent, social security) (Headwaters, 2020).

Table 6 shows the percent of jobs in each sector and annual pay. Tourism sector jobs tend to be lower paying. The State of Colorado does not project an increase in tourism-related jobs for Chaffee County, though jobs catering to retirees may increase (EMSI, 2020).

Sector	Percent of Jobs	Average Annual Pay
Accommodations and Food Service	16	$22,390
Retail Trade	13	$33,350
Arts, Entertainment, and Recreation	7	$24,358
Government	23	$56,849
Construction	10	$52,250
Farm and agricultural	1	$24,829
Mining	<1	$54,474

Table 5: Selected Employment Sector Characteristics for Chaffee County (2018)

Source: EMSI 2019

A goal of the Chaffee County Comprehensive Plan is to promote diverse employment opportunities (Terrell 2020). During the plan development, residents expressed concern about

low pay, which combined with the influx of population, including second home purchasers, has created a lack of affordable housing.

Approximately 20 percent of homes in Chaffee County are second homes compared to 5 percent within Colorado (Headwaters 2020). Population growth and increase in second homes has increased the local demand for the products produced by Hard Rock Paving and Redi-Mix Inc. Because most of these materials are heavy relative to their value, transportation costs are important, and markets for their utilization are typically local in nature (e.g., within 60 miles).

Reasonably Foreseeable Environmental Trends and Planned Actions in the Area

As population and associated development increases along the Front Range, the BLM anticipates an increasing demand for mineral materials. Increases in recreational tourism would continue to contribute to local economic activity.

Effects of Alternative A (Proposed Action)

Commercial exploitation of locatable minerals generates economic output, labor income, and jobs in the areas where the minerals are extracted and processed. The current operations have 13 employees associated with their redi-mix operations, with additional temporary jobs during mining. That number does not include the entire company, of which there are approximately 235 employees. Many of these employees have some interaction with the mine site (e.g., truck drivers that haul material; mechanics who help maintain the equipment at the site; accounting clerks that complete billing tasks). The company does not anticipate any change in employment numbers due to this expansion, but it will keep jobs long-term.

The BLM estimates the reserves associated with the expansion proposal would allow for continued operations for approximately 50 years. Although there are no federal royalties on locatable minerals, the proponent estimated federal tax generation of at least $1.3 million dollars over the life of the operation. In 2019, they paid $125,271 in county and city sales tax.

This alternative will require the shifting of the Solstice Trail, which is a popular mountain bike trail which allows local residents and visitors to enjoy this recreational activity. The proposed recreational mitigation measure for Alternative A is to ensure that a comparable route is developed by the proponent that mimics the current experience as much as possible. There will be some short-term impacts during the trail construction where recreationalists may need to utilize other trails. The BLM does not anticipate any economic impacts given alternative mountain bikes trails available and proposed mitigation measures.

Mitigation Measures

Public involvement on the revised trail route design will help ensure that current experiences of the Solstice Trail are recreated as much as possible.

Effects of Alternative B (No Trail Disturbance)

Based on the smaller footprint and the operational restrictions due to the material type, buffer requirements, and unknown deposit thickness, BLM's estimation of the aggregate reserves with current production levels would reduce the support of Hard Rock's operations by 20 years. Associated jobs and tax generation would remain for 30 years. This alternative would keep the Solstice Trail as is with a buffer to maintain similar quality of experience for recreationalists.

Effects of Alternative C (No Action)

The current pit may have up to six months of reserves left depending on the market demand. The proponent has indicated to keep its operations going and meet local demand for aggregate materials, it would source materials further away, which would require hauling aggregate from other areas. This option would increase haul truck traffic on county and state roads in the area. Responsible for safety on their roads would fall to the State and County Government. If the road realignment on BLM land is not authorized, then the increase in haul truck traffic could cause safety issues to truck drivers entering and leaving the mine site. This would increase the likeliness of vehicle accidents near or around the mine site. It's beyond the scope of this EA to speculate on the economic impacts of this option on the proponent.

5.1.3. What effect does the proposed action have on mule deer severe winter range?

Affected Environment

Mule deer and elk also utilize the action area as winter range and winter concentration areas. Colorado Parks and Wildlife defines severe winter range in the feature class description as that part of the winter range where 90% of the individual animals are located when the annual snowpack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten. Not all populations exhibit migratory behavior during severe winters, many will stay within the defined winter range regardless of conditions. Thus, some populations may not have a mapped severe winter range distribution.

Numerous studies have shown that most native forages available in winter are too low in nutritional value to meet maintenance needs of wild ungulates. Mackie et al. (1998:30) observed that deer survive primarily by supplementing energy reserves accumulated prior to winter with energy intake from sub-maintenance winter diets. This requires behavior that emphasizes energy conservation. Skovlin (1982:379) credits Beall (1974) with the observation that cold-climate ungulates seek habitats with micro-climates that furnish the greatest comfort with the least expenditure of energy. Wood (1988 in Mackie et al. 1998:58) reported that foraging was energetically inefficient for mule deer during severe winter weather conditions. Bedding in protected sites was the favored strategy because it conserved energy. In general, most ungulates demonstrate behavioral adaptations related to energy conservation when winter survival is at stake.

Reasonably Foreseeable Environmental Trends and Planned Actions in the Area

The expansion of the quarry is an additive impact to the current operational private quarry. The Methodist Mountain vicinity has experienced developed single track mountain bike trail network and multiple fuels/wildlife/firewood projects that have contributed to human induced habitat modification. Continued increase in public recreation is expected to occur in the area that will continue to increase stress to wildlife species.

Effects of Alternative A (Proposed Action)

Impacts associated with this action could be similar to those seen during oil and gas drilling operations. Sawyer et al. (2006) demonstrated an avoidance response by mule deer of well pads and roads in the development of a natural gas field in western Wyoming. Northrup et al. (2015) indicate similar results in which mule deer avoided well pads with active drilling to a distance of at least 1000 meters in the Piceance Basin of Colorado with the strongest avoidance 0-600 meters. The response was immediate (i.e., year 1 of development) and no evidence of acclimation occurred during the 3-year study of the Piceance Basin. However, they noted that indirect habitat loss caused by an avoidance response of mule deer could be reduced by 38-63% with the use of advanced technologies and proper planning that minimize the number of well pads and amount of human activity associated with them (Sawyer et al. 2006). Northrup et al. (2015) also suggested that measures aimed at mitigating impacts from oil and gas drilling (which may also be pertinent to the proposed project), such as seasonal activity restrictions, sound and light barriers, and reductions in vehicle traffic, are likely to have greatest benefit to deer.

Van Dyke and Klein (1996) and Buchanan et al. (2014) found elk compensated for site-specific environmental disturbance by shifts in use of range, centers of activity, and use of habitat rather than abandonment of range. Elk tended to have behavioral and distributional shifts whereby during development, elk demonstrated a higher propensity to use distances and escape cover to minimize exposure to developmental activity.

Mitigation Measures

- The mineral materials associated with the proposed action will be tied into an existing private quarry immediately adjacent to the action area. Therefore, logistically, a timing restriction to mitigate impacts to big game winter range during the winter months is not practical. Therefore, no mitigations measures are recommended.

Effects of Alternative B (No Trail Disturbance Alternative)

Similar to Alternative A except the action area is slightly smaller.

Effects of Alternative C (No Action Alternative)

A no-action decision would constitute a denial of the proposed quarry. Mining activities would not occur, therefore no impacts to terrestrial wildlife would be expected.

5.1.4. What effect does the proposed action have on migratory birds?

Affected Environment

Piñon-juniper habitat supports the largest nesting bird species list of any upland vegetation type in the West, and this habitat type is the most prevalent in the resource area. The richness of the piñon-juniper vegetation type is important due to its middle elevation. Survey tallies in piñon-juniper are similar in species diversity to the best riparian. Several species are found in the piñon-juniper habitat and include black-chinned hummingbird, gray flycatcher, Cassin's kingbird, gray vireo, piñon jay, juniper titmouse, black-throated gray warbler, Scott's oriole, ash-throated flycatcher, Bewick's wren, mountain chickadee, white-breasted nuthatch, and chipping sparrow.

Reasonably Foreseeable Environmental Trends and Planned Actions in the Area

The expansion of the quarry is an additive impact to the current operational private quarry. The Methodist Mountain vicinity has experienced developed single track mountain bike trail network and multiple fuels/wildlife/firewood projects that have contributed to human induced habitat modification. Continued increase in public recreation is expected to occur in the area that will continue to increase stress to wildlife species.

Effects of Alternative A (Proposed Action)

Species mentioned above may be seen or their sign identified within the project boundary during any season of the year. The effect of the project action will be the ground disturbed by quarry operation and an additional buffer area that will be impacted by noise and human presence. The proposed action will cause an eventual loss existing habitat to excavation. Outside the physical

project area, some species of migratory bird will incur additional habitat loss during quarry operation hours due to noise and human presence while others may not be affected by these activities (Gilbert and Chalfoun 2011). Species richness of newly impacted habitat will decrease as bird species not tolerant to noise will avoid the area (Francis et al. 2009). The additional acreage is difficult to quantify because species react and adapt differently to anthropogenic features and activity.

Mitigation Measures

Pursuant to BLM Instruction Memorandum 2008-050, to reduce impacts to Birds of Conservation Concern (BCC), no habitat disturbance (removal of vegetation such as timber, brush, or grass) is allowed during the periods of May 15 - July 15, the breeding and brood rearing season for most Colorado migratory birds. The provision will not apply to activities in previously disturbed areas that were initiated prior to May 15 and continue into the 60-day period.

An exception to this timing limitation will be granted if nesting surveys conducted no more than one week prior to vegetation-disturbing activities indicate no nesting within 30 meters (100 feet) of the area to be disturbed. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 a.m. under favorable conditions.

Effects of Alternative B (No Trail Disturbance Alternative)

Similar to Alternative A except the action area is slightly smaller.

Effects of Alternative C (No Action Alternative)

A no-action decision would constitute a denial of the proposed quarry. Mining activities would not occur, therefore no impacts to terrestrial wildlife would be expected.

5.1.5. How would the proposed Hard Rock Main Pit Expansion and Road Realignment affect Visual Resources?

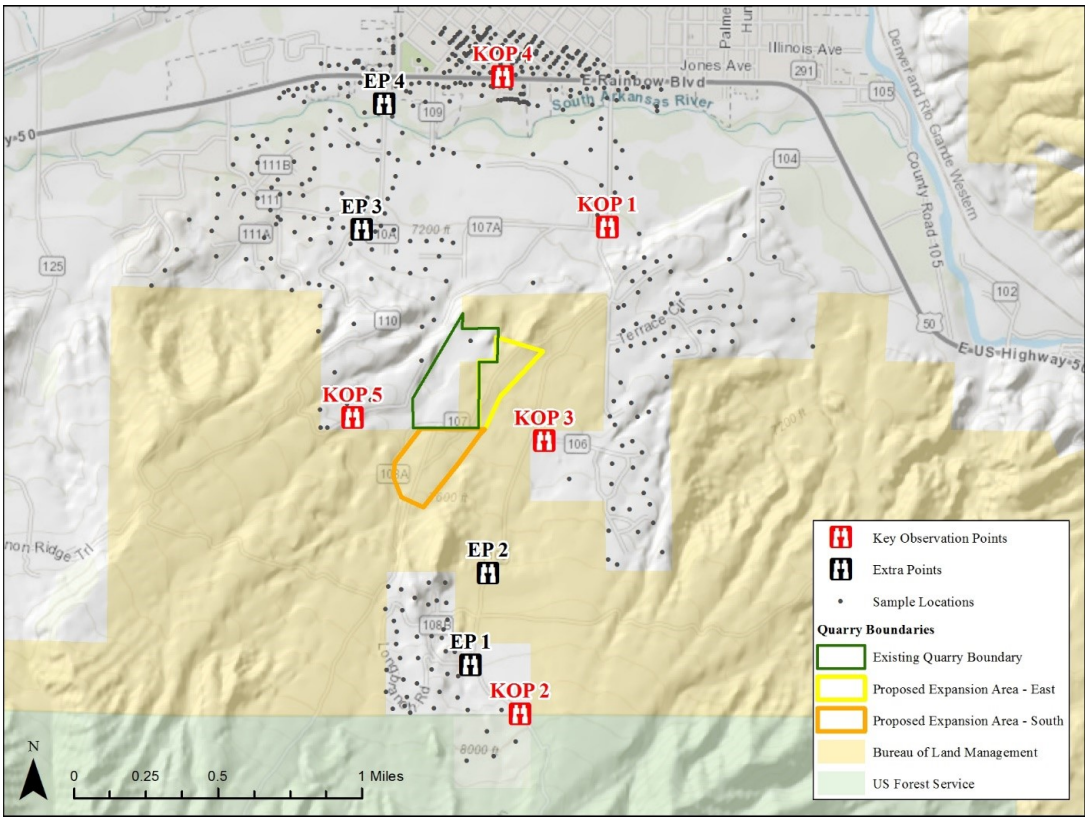
Affected Environment

Visual Resource Management (VRM) classes along with the corresponding VRM Objectives were established in the Royal Gorge Field Office in 1996 with the approval of the Royal Gorge Resource Area Resource Management Plan (RMP). In addition, a Visual Resources Inventory VRI was conducted in 2015 that set objectives, sensitivity to change and scenic quality. Visual Resource Management objectives corresponding to the various management classes provide standards for analyzing and evaluating proposed projects from selected Key Observation Points (KOPs). Projects are evaluated using the Contract Rating System to determine if it meets VRM objectives established by the RMP. The VRM classes established for the project area is Class II with an objective of retaining the existing character of the landscape and manage for low levels of change that do not attract the attention of the casual observer by repeating the basic

elements of form, line, color and texture found in the predominant features of the characteristic landscape. Sensitivity to change is high and the surrounding viewshed is highly valued.
The proposal includes changing the road alignment by cutting back the slope on the curve for a better approach and safety.

The proposal for mining expansion is located approximately 1 mile south of Highway 50 and the City of Salida. Comments received during public scoping indicated that there were concerns regarding visual impacts to the community as a whole. In order to better describe the affected environment, a GIS based visibility analysis was conducted to determine the extent that the existing mining operation is visible within a one-mile radius of the proposed development (see Appendix F for the full analysis report).

The GIS study uses a representative sampling of viewpoints and is based on the height of an average person standing however the technology does not allow for taking into account features such as trees, buildings, and other visual obstructions. The one-mile radius included residential areas as well as views from Highway 50 capturing a sample of residents as well as casual observers passing through the area. The data queries indicate that 363 sample locations have no view of the existing quarry.



To further strengthen the results of the GIS study, Key Observation Points KOPs were chosen based on the data locations that would see the most change from the proposed mine expansion. Ground truthing analysis was completed using the KOPs with extra photo points (EP) taken in places that indicated a high amount of change.

The photo was taken from KOP 4 along Highway 50. There were very few points on the highway with an opening to view the mine. The contrast from the exposed soil on the private mine was the most prominent feature visible just above the rooftops. The buildings of the current Hard Rock mine were also visible. These features are not part of the proposed action and will remain in place.

KOP 3 in the below photo points directly toward the current Hard Rock mine toward the west. The mine is screened by vegetation and the terrain. It was found to be the typical view from most of the area.

Reasonably Foreseeable Environmental Trends and Planned Actions in the Area

The proposed action will create contrasts with the surrounding natural environment and contribute to the overall visual impacts currently seen in the area; however, the most prominent view is the privately owned quarry adjacent and north of the Hard Rock mine. Because the two mines are so close in proximity, it gives the appearance of being larger and creates stronger contrasts with the surrounding natural environment in color, shape, line, and texture degrading the overall scenic qualities of the specific area. This private land mine has a cumulative effect and any decisions in this analysis will not change the activity of the private mine. Given the interest in minerals in the various geologic formations in this area combined with construction demand it is anticipated that this type of development will continue in the future, further impacting visual resources. The proposed action contributes to this overall impact and further degrading of visual resources.

Effects of Alternative A (Proposed Action)

In Alternative A, the road would be cut back. The road has limited use mainly by employees and customers accessing the road to the mine who would see the disturbance to the existing route. The roadside change would expose contrast affecting color and texture to the roadside from vegetation removal and exposure of the soils; however, vegetation regrowth would return within approximately 2-5 years. The changes would not be noticeable from a distance.
The data queries indicate that 363 sample locations have no view of the existing quarry. Of those locations, 19 locations or 5% will potentially have a change in their view due to expansion; however, because the study does not include trees and structures, this percentage may be less than the study indicates. Considering trees and structures, it can be assumed that the current operation is actually visible to fewer addresses.

The mine expansion would occur over time and in a phased approach with reclamation following removal of materials in each phase. Data from the viewshed analysis study indicate the overall pattern of potential impact of the existing mine and the proposed expansion areas was less than a mean of 1% of the overall viewshed. The ground truthing Contrast Rating System analysis confirmed that only a slight change would be noticed from KOPs 4 and 5. No noticeable contrast change is expected from KOPs 1, 2, 3.

The visual resource would be disturbed to a minor extent mainly obscured by the heavy vegetation and strong terrain changes with deep drainages that act as visual barriers.

Mitigation Measures

None

Effects of Alternative B (No Trail Disturbance)

Same as Alternative A except to a slightly lessened extent.

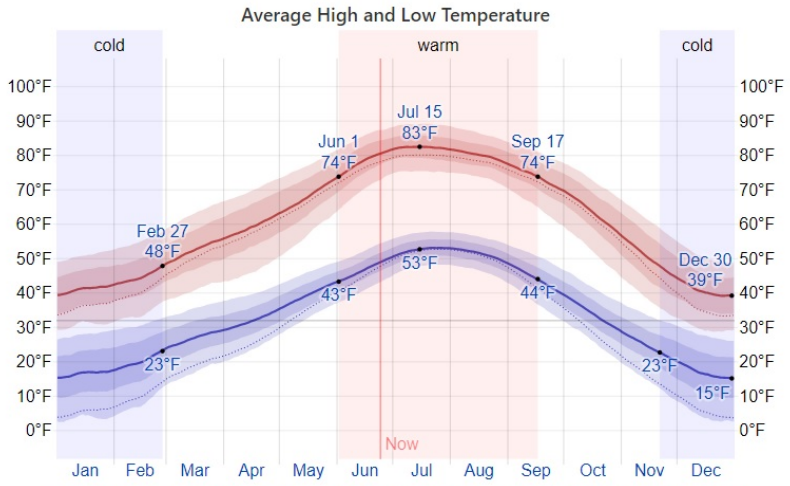
Effects of Alternative C (No Action Alternative)

In the No Action Alternative, the current location of the mine and the access road would not change. Because the mining operations would continue by bringing in outside aggregate for distribution, the truck traffic would still be seen and possibly increase to a higher level than currently occurring in the area. Changes to the visual resource would be slight in this alternative.

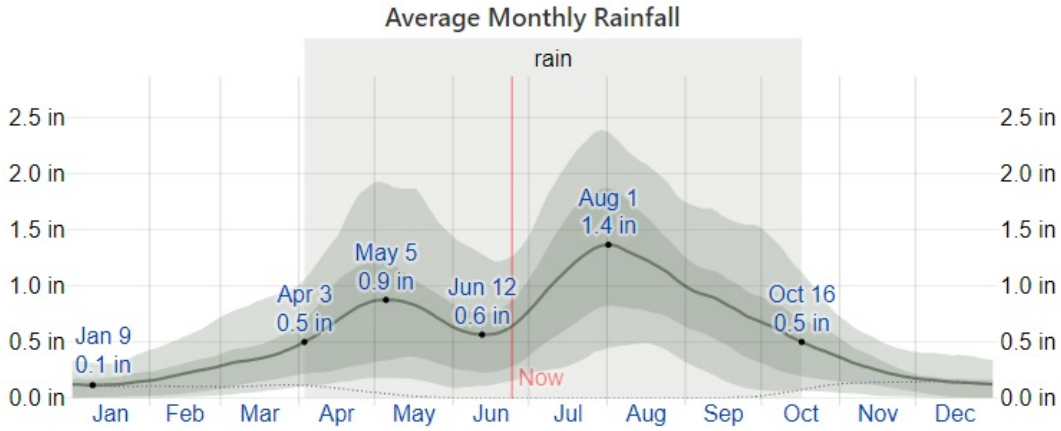
5.1.6. How would the proposed Hard Rock Main Pit Expansion and Road Realignment affect existing air resources and noise levels?

Affected Environment

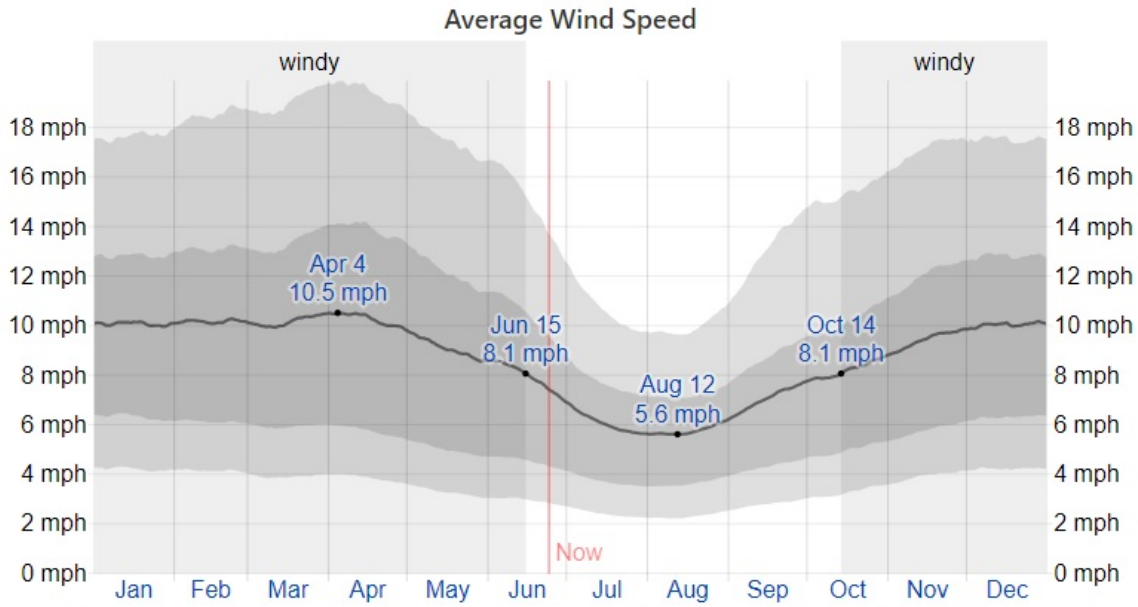
The Colorado Department of Public Health and Environment (CDPHE) data shows that Chafee County is designated as attainment for all State and National Ambient Air Quality Standards. The charts below (Figure 5.1.7-1) describe the area's climate (Salida, CO) for temperature, precipitation, average wind speeds, and the prevailing wind direction distributions.



The daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to 90th percentile bands. The thin dotted lines are the corresponding average perceived temperatures.



The average rainfall (solid line) accumulated over the course of a sliding 31-day period centered on the day in question, with 25th to 75th and 10th to 90th percentile bands. The thin dotted line is the corresponding average liquid-equivalent snowfall.



The average of mean hourly wind speeds (dark gray line), with 25th to 75th and 10th to 90th percentile bands.

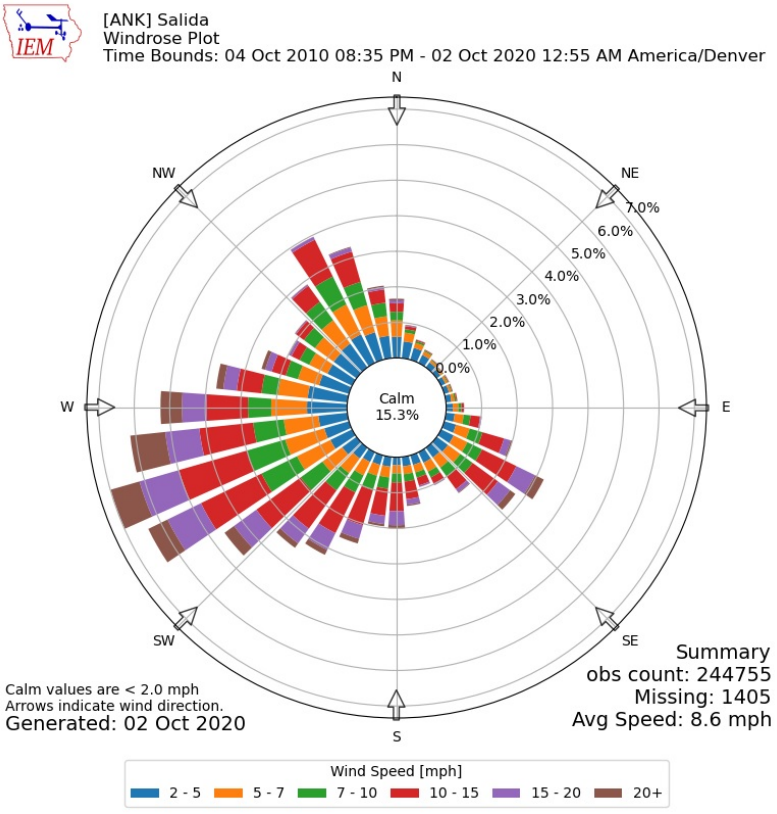


Figure 5.1.7-1. Meteorological Data

Effects of Alternative A (Proposed Action)

The primary pollutant of concern for the proposed action is fugitive dust resulting from earth moving activities, and more specifically the offsite transport of any generated dust. Colorado's climate is conducive to the production of fugitive dust from earthworks regardless of the activity, as is the prescription for mitigation. Watering the ground and maintaining moisture in the disturbed soils is the most common immediate control methodology employed to control fugitive dust. Soil compaction and stabilization, followed by revegetation is the longer-term solution for controlling fugitive dust. The State of Colorado already requires fugitive dust controls for land disturbance activities the facility is subject to by virtue of their APEN (Air Pollution Emissions Notice), as well as specific controls for processing equipment via permits.

Although mining and batch operation processes can occur seasonally, they are not continuous, and thus neither is the production of fugitive dust and equipment exhaust. The analysis of the proposed action does not foresee or authorize an increase in the intensity for mining operations (production) at the site, or any increase in areas open to mining that have not been properly reclaimed (i.e., stabilized such that the production of fugitive dust is unlikely). Production and equipment use rates, including onsite vehicles, heavy equipment, and road traffic from hauling operations would continue at present rates and are ultimately limited by the permitted throughputs prescribed by CDPHE. Thus, there is no basis to conclude that ambient air quality would be affected to any degree beyond which is presently occurring. In issuing permits to the facility, the CDPHE has basically determined the operations at the site do not constitute a potential for serious ambient air quality impacts so long as Hard Rock complies with the operational controls listed within their APEN and permits.

BLM has best management practices for land disturbance activities that mirror those typically prescribed by CDPHE. Additionally, the BLM can prescribe operational limits, such as no operations during high wind events, which would limit the potential for fugitive dust to become sufficiently entrained in the atmosphere and transported offsite. High wind events are typically defined for the following conditions: 1) sustained winds of 40 mph or higher for one hour or more, 2) wind gusts of 58 mph or higher for any duration. The National Weather Service will issue a high wind advisory or watch to alert the public when such conditions are possible. The climate data shown above indicates that such weather conditions are unlikely on average; however, the operator has committed to limit operations when such advisories are issued as a design feature of the project. The data also shows that on average active mining and processing months are also likely to be the wettest and calmest which should also help to control any potential offsite transport of fugitive dust.

Noise levels associated with the proposed action are not anticipated to increase in frequency or duration. The major center of activity is a at the processing / batching facilities which are all located on private lands. This area is also where a majority of the truck traffic and load outs will occur and where the highest decibel levels are likely to be experienced. As mining in the pit progresses to the east and south towards route 108, the proposed bike trail berm, mining setbacks, pit walls, and the final contouring of previously mined sections will all provide natural

attenuation for noises associated with actual mining activity. Mining in the northern section of the proposed action boundary is entirely surrounded by public lands such that there are no nearby receptors that would be impacted by active mining noise. Here too, the pit walls on the northern boundary would provide natural attenuation for sound waves such that the perceptible noise levels could not be construed as a nuisance. The intermittent nature of actual pit mining and operations that would all occur in an area zoned for industrial use is not likely to cause irreparable harm to the area's aesthetics.

Mitigation Measures

See design features 8, 15, and 16.

Effects of Alternative B (No Trail Disturbance)

This alternative would have an anticipated effect of shortening the life of the operations due to lessor available reserves, but potential impacts to air resources and area noise would be the same as described under Alternative A.

Effects of Alternative C (No Action Alternative)

As stated in the no action narrative, if the other alternatives are denied the proponent will likely seek to haul in offsite sources of aggregate such that the batching operations would continue. These operations occur on the proponent's property and would extend the life of the business. It would be inappropriate to speculate on such operations other than to conclude that the mining of the sourced aggregate is still likely to occur with greater or lesser potential air quality impacts at sourced locations. This alternative also makes it very likely that truck traffic trips would have the potential to double if site processing were to continue at permitted throughput levels. This increase in traffic would also have an associated increase in air pollutants (e.g., smog, haze, etc.) and greenhouse gas emissions (e.g., CO_2 and CH_4), such that it is likely this alternative would have the largest carbon footprint of the three alternatives considered. The potential increase in traffic would also lend to increased frequency and duration of any potential noise impacts on public roadways and private lands adjacent to the batching operations.

The BLM would have no mitigation authority over any impacts associated with this alternative as it would constitute a denial of the proponent's request.

5.1.7. What is the effect of the proposed expansion/development on forest resources (pinyon-juniper woodlands)?

Affected Environment

Pinyon-Juniper woodlands. The proposed expansion area contains approximately 150 live trees per acre, with an estimated total of 4,000 trees. The stand is generally healthy, while exhibiting natural rates of mortality from insect and drought damage. Pinyon-juniper woodlands are prolific in the surrounding region.

Alternative A (Proposed Action)

Direct and Indirect Impacts
The proposed expansion would result in the removal of all pinyon-juniper woodland species within the expansion boundary.

Protective/Mitigation Measures
If mitigation measures are employed, a selection of diverse, healthy seed trees of both pinyon and juniper species could be individually marked as reserves by RGFO Forestry staff. These select trees would be reserved from removal and protected to expedite the stand re-establishment once the project is complete.

Alternative B (No Trail Disturbance)
Similar effects and impacts as outlined in Alternative A

Alternative C (No Action Alternative)
No effects or impact to forest resources from the no action alternative.

5.1.8. 5.1.8 What effect does the Hard Rock Main Pit Expansion and the Road Realignment affect paleontological resources.

Affected Environment – The Hardrock Main Pit currently is mining gravel and terrace deposits that are not very likely to contain paleontological resources; however, portions of the proposed expansion and the road realignment include proposed disturbance within the Dry Union Formation that is a Class 5 paleontological resource indicating a high likelihood of containing paleontologic resources.

All alternatives propose some element of ground disturbing activities to take place in Class 5 paleontologic resources unmitigated access to these resources has the potential for irreversible damage to paleontologic resources.

Proposed Mitigation for all Alternatives: Any ground disturbing activities proposed within the Dry Union formation including the road realignment and all of the proposed pit expansion options must first be evaluated by a BLM Authorized Paleontologist. Evaluation will include a literature search and field visit to the site followed by a report of recommendations to be provided to the BLM Authorized officer, all to be completed prior to ground disturbing activities. The report will indicate whether or not a BLM authorized paleontologist will be required to be present on site during ground disturbing activities. If any paleontologic resources are identified during the road realignment work must stop until the BLM Authorized officer has developed a plan to mitigate any damage to paleontologic resources. Paleontologic resources within the active mining area will be mitigated through a BLM approved mitigation plan that may contain

elements of educating the work crew about paleontogic resources, and cyclic inventory work along the active mining surface to be completed by a BLM authorized paleontologist.

6. SUPPORTING INFORMATION

6.1. List of Preparers

Name	Title	Area of Responsibility	Date Signed
Chad Meister	Air Resource Specialist	Air Resources	6/25/2021
Rebecca M. Bruno	Lead Surveyor, RMD	Cadastral Survey	6/30/2021
Monica Weimer	Archaeologist	Cultural Resources	6/10/2021
Amy Stillings	Economist	Economics; Environmental Justice	6/11/2021
J Williams	Range Specialist	Farmlands, Prime and Unique	6/22/2021
T. Webb	FMO	Fire/Fuels	6/8/2021
J. Moore	Forester	Forest Management	6/28/2021
J. Pike	NRS/Geologist	Fluid Minerals	6/23/2021
A. Sanderson	Geologist	Geology/ Minerals	07/13/2021
Aaron Richter	Fisheries Biologist	Invasive Plants	7/12/2021
V. Vogan	Realty Specialist	Lands and Realty	6/24/2021
Chad Meister	Air Resource Specialist	Noise	6/25/2021
Melissa Smeins	Geologist	Paleontology	7/12/2021
J WIlliams	Range Specialist	Range Management	6/22/2021
L Skinner	Outdoor Recreation Planner	Recreation	6/17/2021

Name	Title	Area of Responsibility	Date Signed
L Skinner	Outdoor Recreation Planner	Recreation: Visual Resources	6/22/2021
L Skinner	Outdoor Recreation Planner	Recreation: Wilderness Characteristics	6/17/2021
L Skinner	Outdoor Recreation Planner	Recreation: WSAs, ACECs, Wild and Scenic Rivers, Other	6/17/2021
N. Tedela	Hydrologist	Soils	7/12/2021
Monica Weimer	Archaeologist	Tribal Concerns	6/10/2021
J. Williams	Range Specialist	Vegetation	6/22/2021
Melissa Smeins	Geologist	Wastes, Hazardous or Solid	7/12/2021
N. Tedela	Hydrologist	Water Quality, Surface, and Ground	7/12/2021
Aaron Richter	Fisheries Biologist	Wetlands and Riparian	7/12/2021
Aaron Richter	Fisheries Biologist	Wildlife: Aquatic	7/12/2021
Matthew Rustand	Wildlife Biologist	Wildlife: Migratory Birds	6/14/2021
Matthew Rustand	Wildlife Biologist	Wildlife: T&E, Sensitive Species	6/14/2021
Matthew Rustand	Wildlife Biologist	Wildlife: Terrestrial	6/14/2021
		Planning & Environmental Coordinator	

6.2. Tribes, Individuals, Organizations, or Agencies Consulted

See Table 4.2 above for cultural resources and tribal consultation information.

6.3. References

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Appendix A. Operator Mineral Materials Application

Part 1. Mine and Reclamation Plan Table

FREMONT (HARD ROCK) PAVING AND READY MIX MINE AND RECLAMATION PLAN SUMMARY						
COC-078861 Date - 3/9/2020 initiated Date - 06/07/21 last revised				**BLM use only**		**Additional Info Needed from Operator**
BLM Required Information	**Operator Supplied Information for Pit Expansion**	**Current Authorized Mine and Reclamation Plan (Authorized in 1999)**	**MAP/Figure Provided**	**Additional Info Needed for Analysis**	**Additional Info Needed Prior to Contract /Plan authorization**	
1. General Information						
a. Operator information	Fremont Paving and Ready Mix	Hard Rock Paving and Redi-Mix, Inc.	N	N		-
b. Location	New Mexico PM, T49N, R09E, sections 07 SE 1/4, 08 SW 1/4, 17 NW 1/4 and 18 NE 1/4; Chaffee County	New Mexico PM, T.49N, R09E, sections 07 SE 1/4 and 08 SW 1/4	N	N	N	-

c. Acreage proposed	62.8 acres	46.57 acres	Y	N	N	-
d. Surface and mineral rights ownership	Current - Mixed (Private, Split Estate and BLM); Proposed - BLM surface and federal minerals	Private (27.6 acres), Split Estate (9.6 acres; private surface and federal mineral estate, and BLM managed lands (9.8 acres)	N	N	N	-
e. Easements, Right-of-Ways, existing structures, etc.	Century Link - a structure agreement was signed between Hard Rock Paving & Redi Mix and Century Link on 6/27/19 (possibly a joint structure with Xcel).	-	N	N	N	-
f. Schedule - Seasonal and daily hours of operation and shifts	Operations are year-round Monday through Saturday from 7:00 am to 6:00 pm	-	N	N	N	-
g. Personnel employed by company	The company has 13 employees employed onsite at all times with the addition of 2 to 5 employees during active mining and processing. The entire company, state-wide, includes approximately 235 employees. Many of these employees have	-	N	N	N	-

	some interaction with the Salida Main Pit, i.e., haul truck drivers, mechanics, fabrication personnel, management and accounts payable/receivable clerks. The company does not anticipate an increase in employment numbers as a result of the proposed expansion reserves.					
2. Mine Site						
a. Mine method and direction	The surface mine is targeting the primary commodity of sand and gravel for construction aggregates, to be used in concrete and asphalt. The proposed mining direction for the expansion will be directly east; however once reserves are exhausted mining will progress south of the existing mine site.	Mining will proceed into the pit faces on the east and south to the toe of the backslope area. Since this will be reclaimed as an industrial use on the deeded acreage, as per the grandfathered usage, reclamation will primarily consist of backsloping and seeding the 2H: IV backslopes on the pit perimeters, except where daylighting. The BLM materials purchase area will be handled in the same manner, except	N	N	N	-

		that the backslope will be at 3H: IV and the area will be covered with available topsoil and growth media and reclaimed for rangeland.				
b. Facilities (buildings, scales, wash areas, hazardous materials storage, tank farms, restrooms, smoking area, etc.)	All facilities will remain on private lands (e.g., batch/asphalt plant, ready-mix plant, office, maintenance shop, parking, POL storage, material, and waste storage) and will continue to be maintained and monitored.	Industrial use facilities - ready-mix plant, asphalt plant, crusher/screener, and office (located on the 9.40 acres of private lands designated as "industrial use")	N	N	N	-
c. Man-made structures (culverts, bridges, portals, etc.)	All man-made structures will remain the same as the current operations. New stormwater controls will be installed that mimic the current control in-place for the road. These controls are outlined in the SWMP and managed under the CDPHE Stormwater Permit.	Reference the 2015 SWMP	N	N	N	-

d. Geology and deposit thickness and consistency	The surface 4" -6" is gravel and cobbles, along with some cobbly sandy loam. At best, this can be called "growth media" as opposed to topsoil. There is no overburden. The entire deposit is sand and gravel with a small amount of humus developed in the top layer. It appears in exposed outcrops that the stratum below the aggregate is shale. The operator is unsure of the exact deposit thickness until the company can access and pothole the expansion area.	Sand and gravel deposit	N	N	N	-
e. Geotechnical stability	There will be no potential slide areas in this operation and existing highwalls will either be eliminated or stabilized prior or during to mining activity. Current highwall dimensions and stability monitoring will be implemented for the proposed mine acreage.	Working slopes at 2:1 and no greater than the angle of repose to maintain adequate stability	N	N	N	-
f. Communications system	2-way radios	-	N	N	N	
g. Utilities (include	All utilities will remain the same as the current operations. All	-	N	N	N	-

installation and upgrades, as applicable)	utilities currently reside on private lands owned by the proponent. Reference the mine plan map for details.					
h. Proximity to waterways	The proposed road realignment and mineral reserves expansion is located within King Gulch-South Arkansas River HUC-12 sub-watershed. The nearest perennial stream (South Arkansas River) is located about 0.50 mile from project site.	-	N	N	N	-
i. Approximate depth of water table, if known	This operation will have no effect on groundwater. The operator uses active well logs taken from the CDWR website which documents groundwater depth in the area ranging from 45 to 496 feet from the surface. Water is pumped from a well offsite from a USFS water right that is paid by the company. Current mining is at 30-feet (max highwall height). Groundwater has never been encountered since the mine has been in operation in 1977. If groundwater were ever encountered, the operator would back fill immediately and not	This operation is not expected to directly affect surface or groundwater systems in the area. It will be operated as a dry pit that, again, will not affect water rights or hydrology of the area. The applicant will apply for a Colorado Water Quality Control Division Stormwater Discharge Permit concurrently with this application and develop the appropriate	N	N	N	-

	mine beyond that depth. Though the max mining depth is proposed at 40 feet this depth is based on varying top and bottom elevations and topographic relief.	Stormwater Management Plan.				
j. Surface water controls	All stormwater controls s will remain the same as the current operations. New stormwater controls will be installed that mimic the current controls in-place for the road. These controls are outlined in the SWMP and managed under the CDPHE Stormwater Permit.	Reference the 2015 SWMP and permit	N	N	N	-
k. Documented outfalls (point source discharge to surface waters)	N/A	-	N	N	N	-
l. Safety controls	The road realignment will decrease current safety issues as the road collects water during stormwater events causing safety hazards to haul trucks in/out of the site. All current safety controls implemented at the active mine site will be	-	N	N	N	-

	implemented for the expansion proposal. All employees are trained according to MSHA regs and equipment and job specific.					
m. Signage	Signage will remain the same as what is currently implemented at the active mine site. The sign is located upon the entrance to County Road 8 and the mine entrance.	-	N	N	N	-
Access						
a. Road construction	The realigned access road would be regraded, recontoured and elevated to help manage storm/meltwater runoff and decrease safety issues. During inclement weather, the main haul road through the quarry has the potential to flood. Travel conditions are then degraded for large equipment to safely transport material off-site and the safety of people traveling to and from the quarry, therefore, the proposed road realignment would improve the overall safety for truckers, employees, and miners.	The access road was constructed prior to the approved mine and reclamation plan and prior to Hard Rock Paving and Redi-Mix ownership of the mine and processing facility.	Y	N	Y	PE stamped Road Construction Plan

	A stamped PE road design will be provided to BLM for review prior to initiating road construction. The design will outline the following: road realignment dimensions, slopes, stormwater controls and models depicting the topographic relief changes and cut and fill volumes.					
a. Berm construction	N/A	N/A	-	-	-	-
c. Security - Fencing, gates, signage, guard	Similar signage will be installed along the new road to ensure all safety precautions are enforced (i.e., warning signs, speed limit signs, etc.)	The access road was constructed prior to the approved mine and reclamation plan.	N	N	N	-
d. Surface water controls	Similar stormwater controls will be installed along the newly realigned road that are currently in-place. Reference the 2015 SWMP and permit.	The access road was constructed prior to the approved mine and reclamation plan.	N	N	N	-
4. Mining Operation						

a. General overview of process	The mining activity is associated with a typical sand and gravel pit operation. A sand and gravel pit are a type of open pit mine used for the extraction of sand and gravel (aggregate) from a deposit near the surface of the earth. The mined sand and gravel are used in the mixing of concrete for road construction/surfacing/maintenance and the production of other construction-related materials. The material would be mined and processed using backhoes, front-end loaders, and bulldozers. No blasting is projected to be necessary as the material is a loosely consolidated deposit. Currently, processing occurs on private lands. The operator does not predict the processing location to change as the mine expands. All material will be hauled to the processing facility located on private lands. Processing includes sorting, crushing, and screening various sized material types (i.e., Pit/Run Embankment fill, 6" minus, Class 6 road base and 1/2").	Mining methods will be consistent throughout the life of the mining operation. The mining will be accomplished with front-end loaders and/or dozers removing material from the pit face for transport to crushing and screening plants located in the industrial portion of this permit. When mining reaches the toe of the proposed backslope, extraction will then be at the proposed backslope of 3:1 H:V (BLM) or 2:1 H:V (deeded). Extraction basically consists of widening and deepening the valley by removing the sand and gravel from the sides and bottom. mining will proceed to the east and south into the present pit faces. It is possible that the pit floor might	N	N	N	-

		eventually daylight on the east end at some time in the distant future. Upon completion of the above-described mining plan, it is proposed that another 20' lift will then be removed in the same manner. This amendment will also provide material and allow for backsloping in final reclamation. A maximum of 46.57 acres, which includes the industrial site, will be disturbed. As stated above, it is estimated that a maximum of IO A will be worked at any one time, with part of this being deeded and the other part BLM materials purchase. This is not designed as a phased operation. As mining proceeds, reclamation will follow extraction in such a manner as to keep the				

		affected area to be worked about the same at all times. The primary commodity to be mined is sand and gravel for construction aggregates.				

b. Operations, production rates and mining methods	Mining methods will be consistent throughout the life of the mining operation. With the expansion reserves the operator proposes an additional 40 years to the mine life; however, without the additional reserves the mine has approximately 2 years life as of 07/23/2020. The proposed mining will be accomplished with front-end loaders and/or dozers removing material from the pit face for transport to crushing and screening plants located in the industrial portion of this permit. When mining reaches the toe of the proposed backslope, extraction will then be at the proposed backslope of 3H:1 V (BLM) or 2H: l V (deeded). Extraction basically consists of widening and deepening the valley by removing the sand and gravel from the sides and bottom. It is anticipated that a maximum of 10 acres will be worked at any one time. Part of this will be in the BLM area, and the balance in the deeded property of the owner. The proposed operations are anticipated to mirror what is	As stated earlier, there will be a maximum of 46.57 acres affected by this operation. The 9.44 acres (industrial area) in Section 8 has been affected as much as it will be with no future mining proposed. This is a comparatively medium size operation. The amount of material available on site makes this a long-term operation, especially with 2 lifts of material to be removed. To complete the first lift through the increased amendment acreage could take 6 - 10 years. The second lift proposed to be another 20' in depth over the entire permit area could take another 20 - 30 years, depending upon business demand. Predicting business demand and aggregate usage is difficult and	N	N	N	-

	presently being implemented at the current operation, which has been in production under Hard Rock and Paving Redi-Mix, Inc. since 1977. The proposed operations will proceed east onto the proposed BLM acreage until the 30-foot buffer, along the eastern toe of the back slope is reached or the mineral material reserves have been exhausted. Once the easterly reserves have been exhausted mining will proceed south. Mining progression will not be designed as a phased operation; however, the proposed operations will involve the extraction of federal mineral material reserves in 10-acre segments. The production rate will remain the same approximately 30,000 tons per year. The maximum mining depth is proposed at 40 feet; however, until the operator is authorized to mine the expansion acreage, the depth will remain an approximation. Development of the additional BLM acreage would be done to increase reserves and subsequently mine	compounds the problem of predicting time periods. The first lift which is presently being extracted, exhibits a 40' face of material in some spots. It is projected that the 2"d lift to follow will have a depth of20'.				

	life of the existing operation, rather than increase the levels of production, therefore, the level and intensity of operations would not change. Trucking, mining, processing, etc. would stay the same as the current operations.					
c. Blasting Program	N/A	N/A	-	N	N	-
d. Mine geometry, design, and composition - Bottom	The Rough Broken Land (RU) in the SCS report states: "Gravel and cobbles generally cover the surface." Obviously, topsoil is quite limited. Humus has built up	When mining reaches the toe of the proposed backslope, extraction will then be at the proposed backslope of	N	N	N	-

elevation, working slopes, benches (production and interim reclamation), soil and rock type	in the to 3" - 4", which helps sustain vegetation. The Tigiwon-Turret cobbly sandy loam, 3 to 25 percent s lopes in the SCS report states: "Typically the surface layer is grayish brown cobbly sandy loam 3 inches thick. The subsoil is gravelly sandy loam 5 inches thick".	3:l H:V (BLM) or 2:1 H:V (deeded). Extraction basically consists of widening and deepening the valley by removing the sand and gravel from the sides and bottom. mining will proceed to the east and south into the present pit faces.				
e. Stationary, mobile and processing equipment. Provide the following - 1) Year, make, model; 2) Function in the mining operation; 3) Special accommodations (white noise backup alarm,	All equipment currently used on the active mine will be used to mine the expansion reserves (i.e., front end loaders, haul trucks, etc.). All processing equipment is portable, therefore is only onsite during active processing. Reference processing equipment below for specific model types. Lippman Portable Jaw Crushers Fab Master Portable Feeders CedarRapids Portable Screen Plants	The earthmoving equipment to be used in this project will consist primarily of front-end wheeled loaders and dozers. Haul trucks may be used at some times to haul material to job sites or to the crusher.	N	N	N	-

lighting, scrubber, etc.)	Terex/CedarRapids Portable Cone Crusher Telesmith Portable Stacking Conveyor					
f. Development activities	Mining would commence in the requested BLM acreage as soon as it would be authorized. Mining would proceed into the pit face until the projected toe of the backslope is reached. Mining will then be done at 3:1 H:V as per the plan. Processing operations will remain at their current location, which is on privately owned lands.	Ref. 4.a. current mine plan	N	N	N	-
g. Topsoil stripping, stockpiling, and stabilizing	Ref. 5.i.	Approximately 4-8" of topsoil, with an average of 6", will be stripped and stockpiled for later use for reclamation. The topsoil or growth media will be stockpiled on the perimeters of the pit area and located to be undisturbed by ongoing mining operations. These stockpiles have been included in the	N	N	N	-

		affected area and will be reclaimed as per the plan. The operator finds that it is better operationally to move topsoil only once. There is less degeneration of the material as well as being more economical. Topsoil or growth media in this operation will only be handled once. The operator believes that the topsoil or growth media on site is of sufficient quality for revegetation - equal to that existing before mining. There are no more suitable materials for revegetation on site.				
h. Overburden stripping, stockpiling, and stabilizing	0% overburden produced (waste material)	0 % overburden	N	N	N	-
i. Development rock	Ref. 4.a. and 4.b. Current stockpile and highwall height is 30 feet. These heights are not	Ref. 4.a. current mine plan	N	N	N	-

processing and stockpiling	anticipated to change per the expansion proposal.					
j. Approximate percent of process and overburden waste rock generation	0 % waste produced	All mined material is product material	N	N	N	-
k. Grading plan	Ref. 8.f.; all working slopes will be grading to a 2:1 slope with all reclaimed slopes at 3:1. The site will be graded to maintain adequate stormwater controls, site stabilization, slopes, and haul roads.	No backfilling is proposed for this operation. The backsloping will be an integral part of the mining operation, and there will be no excavation that will require backfilling.	N	N	N	-
l. Excavation, stockpiling and earthwork balance for surface structures	Some stormwater controls will be constructed from earthen material onsite (i.e., drainages, berms, ponds, etc.).	-	N	N	N	

m. Geochemistry of Ore, Waste Rock and Peripheral Rock, if potential concern	N/A - There are no acid-forming or toxic materials that could be leached.	N/A	N	N	N	-
n. Mine backfill, as applicable	All material is considered product material; therefore, 0% waste (i.e., fines and overburden) is generated during processing. The reclamation plan is designed to leave a level pit floor and stable backslopes, which precludes any slippage. There will be no backfilled surfaces to be compacted or scarified.	No backfilling is proposed for this operation. The backsloping will be an integral part of the mining operation, and there will be no excavation that will require backfilling.	N	N	N	-
o. Treatment and Containment Plan for Mine Related Material (i.e. tailings pond, as applicable)	N/A	N/A	N	N	N	-

p. Development rock conveyance and transport, both onsite and off	All haul loads will be covered, whether company trucks or contracted trucks for aggregate loads entering or leaving the site. Speed limit restrictions are 10 mph on site due to the stipulations of the air pollution permit. All Federal Motor Carrier Safety Administration (FMCSA) regulations will be enforced, and all the commercial haul trucks are regulated by CDOT. These regulations include, but not limited to, daily vehicle inspections, job specific driver trainings and certifications, hours of service limits, etc. The operator strives to go above and beyond all local, state, and federal government laws and regulations with regard to the mining operations and trucking. Haul truck loads are not anticipated to increase per the expansion proposal. Approximately, 50 to 60 trucks per day haul material from the current operation. Since this is a year-round estimate, some days may see higher numbers than others.	-	N	N	N	-

q. Processing operations (primary crusher, secondary crusher, etc.)	Current processing operations are not proposed to change per the expansion proposal. Processing rates are not predicted to change with increasing reserves and mine life.		N	N	N	-
r. Additional processes onsite (batch plant, wash plant, etc.)	All concrete and asphalt batching are conducted on private lands. Reference mine plan map.	The batch plant is designated as an industrial use with the city and county and is therefore managed per that designation. All concrete batching occurs on private lands	N	N	N	-
s. Interim reclamation	The operation will still be intervally mined in 10-acre intervals with reclamation occurring once these 10-acre reserves are exhausted.	It is estimated that a maximum of 10 acres will be worked at any one time, with part of this being deeded and the other part BLM materials purchase. This is not designed as a phased operation. As mining proceeds, reclamation will follow extraction in such a manner as to keep the affected area to be	N	N	N	-

		worked about the same at all times. The applicant will carry reclamation to completion with all reasonable diligence. Since a second lift is proposed to be removed from the pit floor, some portions of reclamation cannot be performed until removal is complete for this second lift. However, reclamation will be an ongoing process, following mining and processing as close as operationally feasible.				
5. Management Practices						
a. Containers and tanks	Ref. 2015 updated Stormwater Management Plan	-	N	N	N	-
b. Fuel handling and chemical usage (Spill	Ref. 2015 updated Stormwater Management Plan	-	N	N	N	-

Response Plan)						
c. Blasting materials handling and storage	N/A	N/A	N	N	N	-
d. Spill prevention, control, and countermeasures plan, if applicable	Ref. 2015 updated Stormwater Management Plan	-	N	N	N	-
e. Solid &/or hazardous waste	Any hazardous materials (e.g., batteries, spent solvents, POLs, etc.) stored on private lands will be disposed of according to State and federal regulations. No hazardous materials stored or located on BLM lands.	-	N	N	N	-
f. Hazardous substances	N/A	N/A	N	N	N	-

g. Weeds	The operator manages weeds according to county and State regulations to decrease the spread of Class A and B noxious weeds. Physical removal will be the preferred method either using heavy equipment or hand tools, but if chemical treatment is necessary all county and state requirements will be followed.	Managed per the State and County requirements for class A and B invasive plant species.	N	N	N	-
h. Sanitary system	All sanitary facilities are located on private lands within the primary office and maintenance shop. These locations will remain the same per the expansion proposal.	-	N	N	N	-
i. Stockpiles - topsoil, product, overburden/waste material, process waste rock	The topsoil or growth media will be segregated to help prevent deterioration and erosion. If topsoil or growth media is to remain in stockpile for more than 1 growing season, 7#/ acre of Western Wheatgrass shall be employed so that the topsoil or growth media is protected from erosion, remains free of any contamination, and in a suitable condition for reclamation. Mined material (e.g., roadbase, fines,	Approximately 4-8" of topsoil will be stripped and stockpiled for later use for reclamation.	N	N	N	-

	etc.) will stored on both private and BLM lands at a 2:1 slope or to not exceed the angle of repose per the material type. The staging area is not proposed to change per the expansion proposal.					
j. Additional material used for blending	Amended material is brought onsite and stored on the private staging area to supplement mined material to batch concrete. This is material is not mined from the Salida Main Pit sand and gravel deposit. This material is not considered production and is not accounted for in monthly production reporting. BLM will inspect these amended materials during quarterly inspection to verify these materials are being stored on private lands.	-	N	N	N	-
k. Roads & berms	The access road will be bermed according to MSHA regs. No haul roads will be constructed.	-	N	N	N	
l. Water usage, treatment and discharge	There will be no water diversions or impoundments on site since no water will be used for this operation and none is available. The operator has a CDPHE Water	There will be no water diversions or impoundments on site since no water will be used for this operation	N	N	N	-

	Quality Control Division Stormwater Discharge permit and Stormwater Management Plan (SWMP). These documents will be updated if the expansion proposal is authorized.	and none is available. The operator has a CDPHE Water Quality Control Division Stormwater Discharge permit and Stormwater Management Plan (SWMP). These documents will be updated if the expansion proposal is authorized.				
m. Wastewater sources, treatment, and discharge	N/A (no wastewater generated in relation to mining or processing)	N/A	N	N	N	-
n. General housekeeping	All general housekeeping measures currently in-place at the active mine site will be implemented per the expansion proposal.		N	N	N	-
o. Interim management plan during shutdown periods	The operator does not anticipate any shutdowns as this a working operation 5+ days of the week; however, if the operation were to close for an extended period of time, we will either remove or secure all portable and	-	N	N	N	-

	nonportable equipment. The site would be secured and monitored regularly. Any fuel tanks and containers would be monitored and possibly removed, if necessary. Monitoring would occur on a routine basis to inspect site conditions per federal, state and county laws and regulations.					
p. Administrative policies affecting mine site and regional resources (training, onsite fire & EMT response, shift work, etc.)	All employees receive both MSHA and OSHA training.	-	N	N	N	-
6. Compliance (Provide all Federal, State and local regulatory permits that will be required)						
Reclamation Permit (CDRMS)	Active 112 permit - Amendment to the 112-construction permit upon approval of expansion	Active 112	N	N	Y	BLM requires operations to

MSHA	Active permit for current operations	Active	N	N	Y	comply with all other Federal, State and County laws and regulations. Stipulations will be included with the issuance of the contract. Operator is currently in compliance with applicable regulatory agencies. Operator plans to update these permits to include the expansion acreage once the NEPA analysis is complete and
Air (CDPHE)	Active permit for current operations - Amendment to permit upon approval of expansion	Active	N	N	Y	
Water quality (CDPHE)	Active permit SWMP for current operations - Amendment to permit upon approval of expansion	Active	Y	N	Y	
Water quantity, surface and groundwater (State of Colorado)	N/A	N/A	N	N	-	
Oil spills prevention and preparedness (CDPHE/EPA)	N/A	N/A	N	N	-	
404 Clean Water Act (USACE)	N/A	N/A	N	N	-	
Blasting/explo	N/A	N/A	N	N	-	

sives (CDOPS/ATF)						BLM authorizes the mineral material disposal. Final SWMP updates will be designed and submitted following authorization.
Any other regulatory requirement applicable to the operation	Chaffee County permit	-	N	N	Y	
7. Quality Assurance/Quality Control						
a. Active mining monitoring plans - 1) Air quality, water quality, water quantity, noise, weeds, interim reclamation, and others as applicable; 2) Tanks, facilities, equipment,	Mine site will be permitted with the above permits following the initiation of the expansion. The site will be regularly monitored during active operations and interim closures/delays. Frequency and type of monitoring depend on what is being monitored and who requires the monitoring. The site is routinely inspected by all permitted agencies mentioned above with the addition of daily site and equipment inspections per the operator/mine manager or	-	N	N	N	-

security structures, and others as applicable	equipment operator. BLM currently inspects this site 2 to 4 times per year, based on production. These BLM inspections will continue with or without the authorization of the expansion proposal.					
b. Interim (temporary cessation and/or seasonal shutdown) monitoring plans	ref. 5.o.	-	N	N	N	-
c. Post-closure monitoring	The operator would routinely monitor the site during closures or extended periods of nonoperation. Monitoring frequency will be dependent upon requirements provided by BLM or other federal, state and county agencies.	-	N	N	N	-
8. Interim & Final Reclamation						

a. Sequence and timing	As mining proceeds, reclamation will follow extraction in such a manner as to keep the affected area about the same at all times. The operator will have all reclamation finished within 5 years after mining is completed and all stockpiles removed. Reference the reclamation map in the EA. a. Grade pit floor b. Topsoil 4" - 8" (average 6"). Deeded acres on backslopes only. BLM topsoil backslopes and Pit floor. c. Scarify/Ripping. if necessary. d. Fertilize. e. Drill or broadcast seed. f. Mulch, if required.	The mechanics of earthmoving will consist of backsloping the pit perimeters at 2H: 1 Vin the deeded industrial area belonging to the operator. The BLM materials purchase area will be finished at 3:1 H:V. Growth media will be applied on the backslopes only in the industrial area, at a depth of 4" to 8", with an average of 6", if available. The BLM area will have the same treatment, but the pit floor will also be topsoiled. The pit floor will be left basically flat in both areas. The BLM area will have the same topsoiling as that proposed on the backslopes. The industrial area will not have the pit floor topsoiled. That would be a useless expenditure, plus the fact that the	Y	N	N	-

		topsoil would be of more value in other parts of reclamation. The operator will have reclamation finished within 5 years after mining is completed and all stockpiles removed.				
b. Final land use and composition	The final reclamation plan is for the grandfathered industrial use on the operator's deeded portion of the permit area, and rangeland on the BLM portion. The limited topsoil on the site will be stockpiled on the pit perimeters for replacement on the backslopes - especially on the BLM rangeland area.	The applicant has chosen Industrial Use type reclamation for their deeded acreage, and the BLM has specified rangeland for the materials purchase area of 9.46 A the applicant will be affecting. The rangeland reclamation specified by the BLM is compatible with other land uses in the area the rangeland is gradually being divided into smaller residential parcels or ranches. This is in compliance with	N	N	N	-

		adopted state and local land use and programs.				
c. Removal of structures	All mining and processing related structures located on BLM lands will be removed following earth work. Any structural removal will happen in year 1 or 2.	-	N	N	N	-
d. Access roads/trails	The access roads and any haul roads will be ripped, recontoured, regraded and reseeded with the below seed mix once all product material and structure removal and site contouring has been completed.	-	N	N	N	-
e. Benches & slopes	Stockpiled material will be used for backsloping in final reclamation. No backfilling is proposed for this operation. The backsloping will be an integral part of the mining operation, and there will be no excavation that will require backfilling.	Backs lopes will be finished at a maximum of 2H: IV on the deeded acreage, and a maximum of 3H: 1 Von the BLM area.	N	N	N	-

f. Grading	All grading will be done in a manner to control erosion and siltation of the affected lands to protect areas outside the affected lands from slides and other damage. If not eliminated, all highwalls, if any, will be stabilized. This plan is designed to leave a level pit floor and stable backslopes, which precludes any slippage. There will be no backfilled surfaces to be compacted or scarified. There will be no heavy textured spoil surfaces on this site.	The pit floor will be left basically level. No backfilling is proposed for this operation. The backsloping will be an integral part of the mining operation, and there will be no excavation that will require backfilling. There will be no potential slide areas in this operation and existing highwalls will either be eliminated or stabilized. Grading will be performed as reasonably consistent with mining, stockpiling and equipment movement. Reclamation will follow mining as closely as operationally feasible. Backs lopes will be finished at a maximum of 2H: IV on the deeded acreage, and a maximum of 3H: 1 Von the BLM area. These are compatible with the surrounding	N	N	N	-

		slopes in this foothills area. No swimming or ponding will be involved after reclamation.				
g. Soil stabilization and revegetation	Reclamation cannot commence until a large enough area has been developed to allow equipment movement. When sufficient area is developed, growth media will be placed at a depth of 4" to 8"and the seeding program will be instituted. There is little to no woody vegetation on the mining site to be affected. The below seed mixture is subject to change if a more adequate seed mixture is provided by the operator to BLM prior to initiating reclamation. If this occurs, prior authorization by BLM will be required.	The 2 soil types have different topsoil availability. The operator will make every effort to salvage topsoil and growth media available. Obviously, neither one of these soil types is of the highest quality. However, with the humus buildup and annual moisture in the area, the prognosis for successful reclamation should be satisfactory. Soil Type 1: The Rough Broken Land (RU) in the SCS report states: "Gravel and cobbles generally cover the	N	N	N	-

		surface." Obviously, topsoil is quite limited. Humus has built up in the to 3" - 4", which helps sustain vegetation. Soil Type 2: The Tigiwon-Turret cobbly sandy loam, 3 to 25 percent slopes in the SCS report states: "Typically the surface layer is grayish brown cobbly sandy loam 3 inches thick. The subsoil is gravelly sand loamy 5 inches thick". The pit floors and 3H: IV backslope in the BLM area will be able to be traversed with farm machinery. The 2:1 H:V backslope in the deeded acreage will be seeded broadcast and will probably not be traversed by farm machinery. Seeding is proposed for late Fall - late October and November. Past experience shows best				

		results seeding in this period. Fertilization: 40#/ A available N & P will be applied shortly before seeding.				
h. Cost estimate (for locatable operations only)	N/A	N/A	N	N	N	-

Part 2. Trail Redesign Proposal

As the southern portion of the proposed expansion boundary intersects the Solstice Flow Trail, the operator has developed a trail redesign and relocation plan. The total trail length that runs adjacent to the expansion boundary is 4,998 feet and the southern portion of the trail that intersects the boundary is approximately 2,228 feet. The southern portion has been proposed to be relocated just east of the southern expansion boundary and primary drainage pathway (reference Figure 1, Appendix A, Part 2). The proposed expansion boundary is approximately 63 acres of BLM managed lands; however, excluding the acreage east of the bike trail, the acreage would decrease to 41 acres. This acreage does not consider the working standards that would be applied to sustain a sand and gravel operation (reference summary below). All expenses in relation to the redesign and relocation would be funded by Hard Rock Paving and Redi-Mix. The operator would hire the necessary specialists (e.g., flow trail designer) to properly construct and relocate the on-ground trail.

A summary of the working standards that would be applied:

- Earthen visual and noise berms installed west of the bike trail to decrease visual and noise pollution from active mining.
- Perimeter slopes of 3:1 to increase stability of the unconsolidated material. This slope would decrease potential vertical reserves (reference Section 3.2.1., Figure 5)
- Mining would occur 25 to 30 feet below surface grade with a 30 foot, 2:1 working highwall.
- All processing, batching, stockpiling, equipment, and machinery maintenance, and fueling would continue to be conducted on the private mine site.

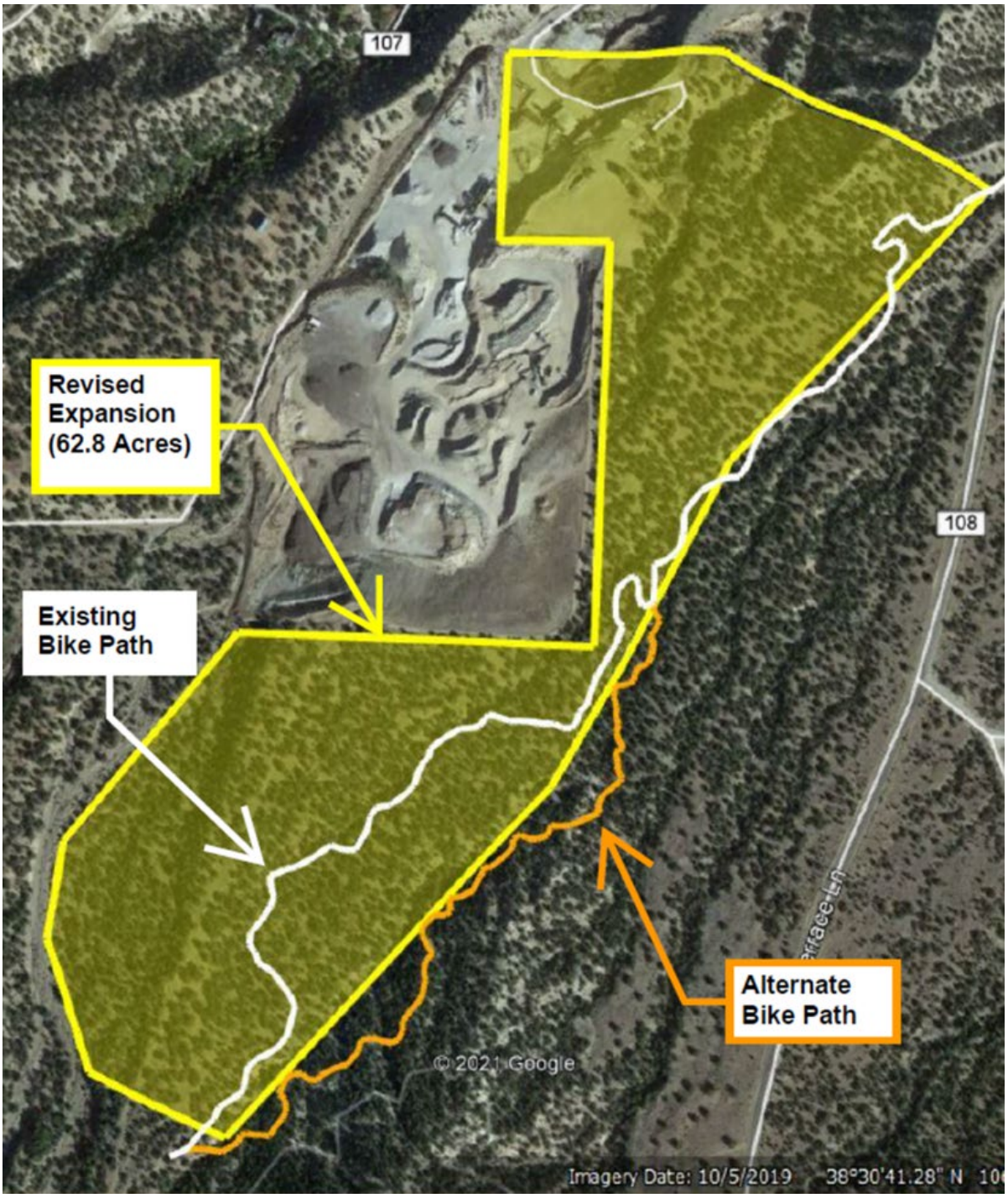


Figure 1: Trail Relocation Map

Appendix B. 1999 MINE AND RECLAMATION PLAN

EXHIBIT "D"

MINING PLAN

a. Description of the methods of mining in each stage of operations related to any surface disturbance on affected lands:

Mining methods will be consistent throughout the life of the mining operation. The mining will be accomplished with front-end loaders and/or dozers removing material from the pit face for transport to crushing and screening plants located in the industrial portion of this permit. When mining reaches the toe of the proposed backslope, extraction will then be at the proposed backslope of 3H:1V (BLM) or 2H:1V (deeded).

Extraction basically consists of widening and deepening the valley by removing the sand and gravel from the sides and bottom. The final reclamation plan is for the grandfathered industrial use on the operator's deeded portion of the permit area, and rangeland on the BLM portion. The limited topsoil on the site will be stockpiled on the pit perimeters for replacement on the backslopes - especially on the BLM rangeland area. With approval of this amendment, mining will proceed to the east and south into the present pit faces. It is possible that the pit floor might eventually daylight on the east end at some time in the distant future. Upon completion of the above described mining plan, it is proposed that another 20' lift will then be removed in the same manner. This amendment will also provide material and allow for backsloping in final reclamation. A maximum of 46.57 A, which includes the industrial site, will be disturbed.

b. Earthmoving:

The earthmoving equipment to be used in this project will consist primarily of front-end wheeled loaders and dozers. Haul trucks may be used at some times to haul material to job sites or to the crusher.

c. Water diversions and impoundments:

There will be no water diversions or impoundments on site since no water will be used for this operation and none is available. The operator will be securing a Colorado Water Quality Control Division Stormwater Discharge permit. The Colorado Department of Health, Water Division inspected this site at the request of the applicant when the original permit was issued. They concluded that no NPDES permit was necessary.

d. Size of the area to be worked at any one time.

For purposes of this amendment, plans are to consider the entire permit area of 46.57 A as affected area. The industrial operation in Section 8 will remain as is and will not be mined any more. It is anticipated that a maximum of 10 A will be worked at any one time. Part of this will be in the BLM amendment area, and the balance in the deeded property of the owner..

e. An approximate timetable to describe the mining operation and the relationship between mining and reclamation:

With the grandfathered industrial use for this operation, the operator plans to start seeding the 2H:1V backslopes when a sufficient area is available. Backsloping will start to be a part of the mining operation on the pit perimeters. As sufficient backslope area is developed, the area will have seed boradcast. With industrial end use proposed, the backslopes will be the only area to be treated and reclaimed in the deeded portion. The pit floor has a gravel plate, and the second lift will continue down through it.

Mining will commence in the amended BLM acreage being added, as soon as this application is complete. As explained earlier, mining will proceed into the pit face until the projected toe of the backslope is reached. Mining will then be done at 3H:1V as per the plan. Reclamation cannot commence until a large enough area has been developed to allow equipment movement. When sufficient area is developed, growth media will be replaced and the seeding program will be instituted.

(i) An estimate of the periods of time which will be required for the various stages or phases of the operation.

As stated earlier, there will be a maximum of 46.57 acres affected by this operation. The 9.44 A (Industrial area) in Section 8 has been affected as much as it will be with no future mining proposed. This is a comparatively medium size operation. The amount of material available on site makes this a long-term operation, especially with 2 lifts of material to be removed. To complete the first lift through the increased amendment acreage could take 6 - 10 years. The second lift proposed to be another 20' in depth over the entire permit area could take another 20 - 30 years, depending upon business demand. Predicting business demand and aggregate usage is difficult and compounds the problem of predicting time periods.

CRS 34-32I-112(b) (VIII) of the Act states: "A timetable estimating the periods required for the various stages of the mining operation - the operator shall not be required to meed the timetable, nor shall the timetable be subject to independent review by the Board or Office."

(ii) A description of the size and location of each area to be worked during each phase.

As stated above, it is estimated that a maximum of 10 A will be worked at any one time, with part of this being deeded and the other part BLM materials purchase. This is not designed as a phased operation. As mining proceeds, reclamation will follow extraction in such a manner as to keep the affected area to be worked about the same at all times.

(iii) Outline the sequence in which each stage of the operation will be carried out:

Mining will proceed into the pit faces on the east and south to the toe of the backslope area. Since this will be reclaimed as an industrial use on the deeded acreage, as per the grandfathered usage, reclamation will primarily consist of backsloping and seeding the 2H:1V backslopes on the pit perimeters, except where daylighting.

The BLM materials purchase area will be handled in the same manner, except that the backslope will be at 3H:1V and the area will be covered with available topsoil and growth media and reclaimed for rangeland.

(f) A map in Exhibit C may be used along with the narrative to present the following information:

(i) Nature, depth and thickness of the deposit to be mined and thickness and type of overburden.

The first lift which is presently being extracted, exhibits a 40' face of material in some spots.. It is projected that the 2nd lift to follow will have a depth of 20'. The surface 4" - 6" is gravel and cobbles, along with some cobbly sandy loam. At best, this can be called "growth media" as opposed to topsoil. There is no overburden. The entire deposit is sand and gravel with a small amount of humus developed in the top layer.

(ii) Nature of the stratum immediately beneath the material to be mined in sedimentary deposits:

It appears in exposed that the stratum below the aggregate is shale.

(g) Identify the primary and secondary commodities to be mined and describe the intended use:

The primary commodity to be mined is sand and gravel for construction aggregates. As indicated by the company name - Hard Rock Paving and Redi-Mix - the majority of the material will be used for those 2 products. At the present time there are no known secondary products that will be mined and produced.

(b) Name and describe the intended use of all incidental products to be produced:

No incidental products will be involved with this operation.

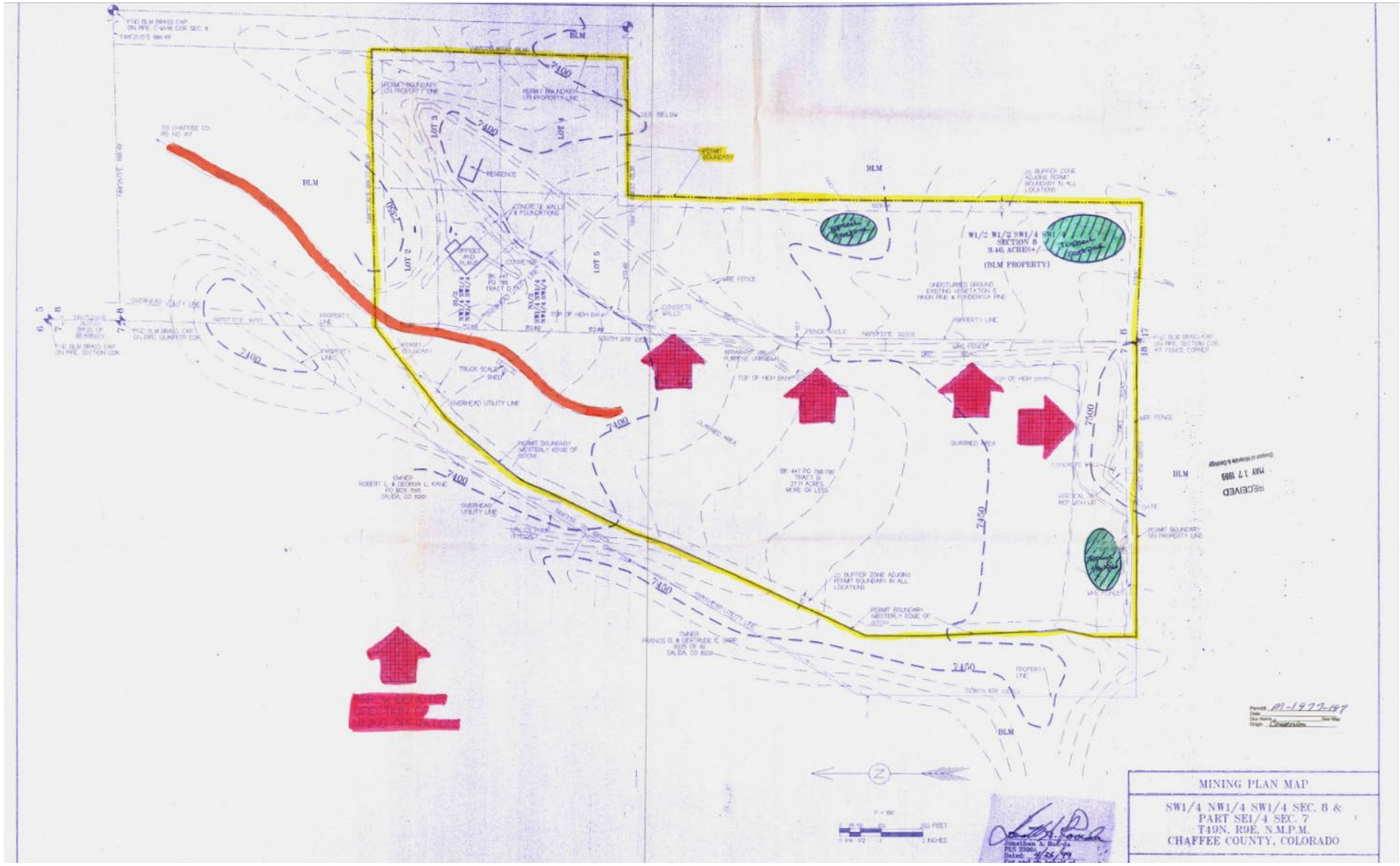

BLM
W1/2 W1/2 SW1/4 SW1/4
SECTION 8
9.46 ACRES+/-
(BLM PROPERTY)
MINING PLAN MAP
SW1/4 NW1/4 SW1/4 SEC. 8 &
PART SE1/4 SEC. 7
T49N, R9E, N.M.P.M.
CHAFFEE COUNTY, COLORADO

EXHIBIT "E"

RECLAMATION PLAN

Items (1) and (2) are general instructions and comments on the preparation of the plan. Specifics start at 2(a) and are as follows:

(a) A description of the type of reclamation proposed to be achieved in the reclamation of the affected land and why chosen, the amount of acreage accorded to each, and a general discussion of methods of reclamation as related to the mechanics of dirt moving.

The applicant has chosen Industrial Use type reclamation for their deeded acreage, and the BLM has specified rangeland for the materials purchase area of 9.46 A the applicant will be affecting.

For permitting purposes, it is proposed that a maximum of 40 A be affected, which could possibly include a portion of the industrial area in Section 8. However, no mining is proposed for there. This is a long-term project for the operator and the BLM materials purchase area will add to the life of the operation. Depending upon business conditions, this deposit could possibly have a life of 30 to 50 years.

The mechanics of earthmoving will consist of backsloping the pit perimeters at 2H:1V in the deeded industrial area belonging to the operator. The BLM materials purchase area will be finished at 3H:1V. Growth media will be applied on the backslopes only in the industrial area, at a depth of 4" to 8", with an average of 6", if available. The BLM area will have the same treatment, but the pit floor will also be topsoiled. The pit floor will be left basically flat in both areas. The BLM area will have the same topsoiling as that proposed on the backslopes. The industrial area will not have the pit floor topsoiled. That would be a useless expenditure, plus the fact that the topsoil would be of more value in other parts of reclamation.

(b) A comparison of the proposed post-mining land use to other land uses in the vicinity and to adopted state and local land use program.

This industrial use appears to have been occurring since 1952, according to records available to the operator. One gravel pit is presently in operation to the east and another was in operation before that. The rangeland reclamation specified by the BLM is compatible with other land uses in the area the rangeland is gradually being divided into smaller residential parcels or ranchettes. This is in compliance with adopted state and local land use and programs.

(c) A DESCRIPTION OF HOW THE Reclamation Plan will be implemented to meet each applicable requirement of Section 3.1

3.1.1 Establishing Post-Mining Use:

(i) The operator plans to continue the present industrial use on their deeded acres and rangeland as per BLM instructions on that portion of their land that the operator is using.

(ii) The results of this application, of which this is a part, had all of these decisions formulated into what the applicant believes is an appropriate and workable Reclamation Plan.

3.1.3 Time Limit and Phased Reclamation:

The applicant will carry reclamation to completion with all reasonable diligence. Since a second lift is proposed to be removed from the pit floor, some portions of reclamation cannot be performed until removal is complete for this second lift. However, reclamation will be an ongoing process, following mining and processing as close as operationally feasible. This is not designed as a phased operation. Mining will continue to the perimeters of the deeded acreage and eastward into the BLM area.

3.1.4 Public Use

Neither the operator nor the BLM plan on opening the subject to public use. This would not be consistent with the proposed industrial usage.

3.1.5 Reclamation Measure - Material Handling

(1) Grading shall be carried on so as to create final topography appropriate to the final land use elected as the Reclamation Plan.

(2) When backfilling is part of the plan.....

No backfilling is proposed for this operation. The backsloping will be an integral part of the mining operation, and there will be no excavation that will require backfilling. There are no acid-forming or toxic materials that could be leached.

(3) All grading will be done in a manner to control erosion and siltation of the affected lands to protect areas outside the affected lands from slides and other damage. If not eliminated, all highwalls, if any, will be stabilized.

There will be no potential slide areas in this operation and existing highwalls will either be eliminated or stabilized.

(5) All backfilling and grading shall be completed as soon as feasible after the mining process. The applicant shall establish reasonable timetables consistent with good mining practices and reclamation procedures.

As stated earlier, there will be no backfilling. Grading will be performed as reasonably consistent with mining, stockpiling and equipment movement. Reclamation will follow mining as closely as operationally feasible.

(5) There are no refuse, acid-forming or toxic materials that will be mined or handled on site that could cause unsightliness or affect the drainage system.

(6) There are no drill or auger holes involved in this operation to be plugged to prevent pollution drainage. Neither are there any adits of shafts to be closed or reclaimed.

(7) Maximum slopes and combinations shall be compatible with the configuration of surrounding conditions as selected land use.

Backslopes will be finished at a maximum of 2H:1V on the deeded acreage, and a maximum of 3H:1V on the BLM area. These are compatible with the surrounding slopes in this foothills area. No swimming or ponding will be involved after reclamation.

(8) If the operator's choice of reclamation is for agricultural or horticultural crops which normally required the use of farm machinery, the operator shall grade so that the area can be traversed with farm machinery.

The pit floors and 3H:1V backslope in the BLM area will be able to be traversed with farm machinery. The 2H:1V backslope in the deeded acreage will be seeded broadcast and will probably not be traversed by farm machinery.

(9) An operator may backfill structural fill material generated within the permitted area into an excavated pit within the pit area.....

Structural backfill generated will be sold as product in the operator's market area. Therefore none will be available to be used with or affect reclamation. Neither will there be any excavated pit areas that will require filling.

(10) All mined materials to be disposed of within the affected area must be handled in such a manner as to prevent any unauthorized release of pollutants to the surface drainage system.

The material to be mined and exposed is sand and gravel aggregate. This material is basically chemically inert and would not release any pollutants to the drainage system.

(11) No unauthorized release of pollutants to groundwater shall occur from any materials mined, handled or disposed of within the permit area.

There will be no pollutants or pollutant bearing material that will be handled, mined or disposed of in the permit area that could be released to groundwater.

3.1.6 General Requirements

None of the items mentioned apply to this project.

3.1.7 Groundwater - Specific Requirements

This operation will have no affect on groundwater or bring any other water permit requirements into play, except that the Water Quality Control Division Stormwater Discharge Permit and this does not deal with groundwater.

3.1.8 Wildlife

(1) The operator will consider the safety and protection of wildlife on site - if any.

No described critical periods or species are known for this site.

(2) Habitat management is not part of the reclamation plan for this project. It does not appear that there are any unique opportunities to enhance habitat in this and neighboring gravel pits.

3.1.9 Topsoiling

(1) The topsoil or growth media will be segregated to help prevent deterioration and erosion. If topsoil or growth media is to remain in stockpile for more than 1 growing season, 7#/A of Western Wheatgrass shall be employed so that the topsoil or growth media is protected from erosion, remains free of any contamination by toxic or acid-forming material (none of which is on or used on site), and in a suitable condition for reclamation.

(2) There is little to no woody vegetation on the mining site to be affected.

(3) The topsoil or growth media will be stockpiled on the perimeters of the pit area and located so as to be undisturbed by ongoing mining operations. These stockpiles have been included in the affected area, and will be reclaimed as per the plan.

(4) The operator finds that it is better operationally to move topsoil only once. There is less degeneration of the material as well as being more economical. Topsoil or growth media in this operation will only be handled once.

(5) This plan is designed to leave a level pit floor and stable backslopes, which precludes any slippage. There will be no backfilled surfaces to be compacted or scarified. There will be no heavy-textured spoil surfaces on this site.

(6) The operator believes that the topsoil or growth media on site is of sufficient quality for revegetation - equal to that existing before mining. There are no more suitable materials for revegetation on site.

(7) The topsoil or growth media will be replaced evenly over the site at a depth of 4" - 8", and will average 6" where available. 40# of Available N & P will be applied per acre as recommended.

(8) There are no vegetative materials or piles to be dealt with in reclamation of this site.

(a) Not applicable

(b) For special 111 operations and Regular 112 operations, the area proposed to be disturbed by mining operations for which a Financial Warranty and Performance Warranty have been posted shall be the affected area.

6.4.5 Exhibit "E" - Reclamation Plan

(2) (d) Where applicable, plans for segregation, preservation and replacement, compaction and grading of soil and used for revegetation. The revegetation plan shall contain a list of the preferred species of grass, legumes, forbs, shrubs or trees to be planted, the methods and rates of seeding and planting, the estimated availability of viable seeds in sufficient quantity of the species proposed to be used, and the proposed time of seeding.

The items refered to in the first section were answered in Section 3.1.5 -"Reclamation Measure - Material Handling" earlier in this section.

The items referred to in the sentence are covered in detail in Section 3.1.10 "Revegetation" - presented earlier in this reclamation section. Any that were not will be covered in item (e) and (f) immediately following. Detailed grass seeds are available at seed dealers in this area in adequate quantities.

(e) A plan or schedule indicating how and when reclamation will be implemented. The plan shall include:

(i) An estimate of the period of time which will be required for the various stages of reclamation.

Reclamation will start as soon as operationally feasible after there is sufficient room for equipment movement and stockpiling. However, it should be remembered that a second lift of material will be removed after the first lift is completed. This will delay some of the reclamation. The operator will seed the backslopes as soon as possible. The pit floor will not be reclaimed until after the second lift is removed. This is a long-term operation. The operator will have reclamation finished within 5 years after mining is completed and all stockpiles removed.

(ii) A description of the size and location of each area to be reclaimed during each phase.

This is not a phased operation. The entire proposed affected area is considered in one sequence. Mining will continue south and east to the pit perimeter setbacks with backslopes being a part of mining. As stated above, the only reclamation that can be completed for quite sometime is on the backslopes, since a second lift is proposed to lower the pit floor another 20 feet.

(iii) An outline of the sequence in which each stage or phase of reclamation will be carried out.

a. Grade pit floor.
b. Topsoil 4" - 8" (average 6"). Deeded acres on backslopes only. BLM topsoil backslopes and Pit floor.
c. Scarify, if necessary.
d. Fertilize.
e. Drill or broadcast seed.
f. Mulch, if required.

(f) A description of each of the following:

The pit floor will be left basically level. Backsloping has been expalined earlier. Deeded acreage for industrial reclamation will be backsloped at 2H:1V and BLM acreage for rangeland reclamation will be backsloped at 3H:1V.

(i) Final grading.

This will consist of replacing topsoil.

(ii) Seeding type, mixtures, quantities and expected time of seeding:

Variety	Species	#/A PLS	% of Mix
Redondo	Arizona fescue	1.35	30
San Luis	Slender wheatgrass	3.30	30
Arriba	Western wheatgrass	4.80	30
Appar	Lewis flax	0.40	10

This is for drilled rates for the BLM acreage. The seed amounts will be doubled for the deeded acreage 2H:1V backslopes, since this will be broadcast.

Seeding is proposed for late Fall - late October and November. Past experience shows best results seeding in this period.

(iii) Fertilization type, quantity and time of application.

40#/A available N & P will be applied shortly before seeding.

(iv) Revegetation - types of trees, shrubs, etc.

None proposed for this industrial and rangeland reclamation.

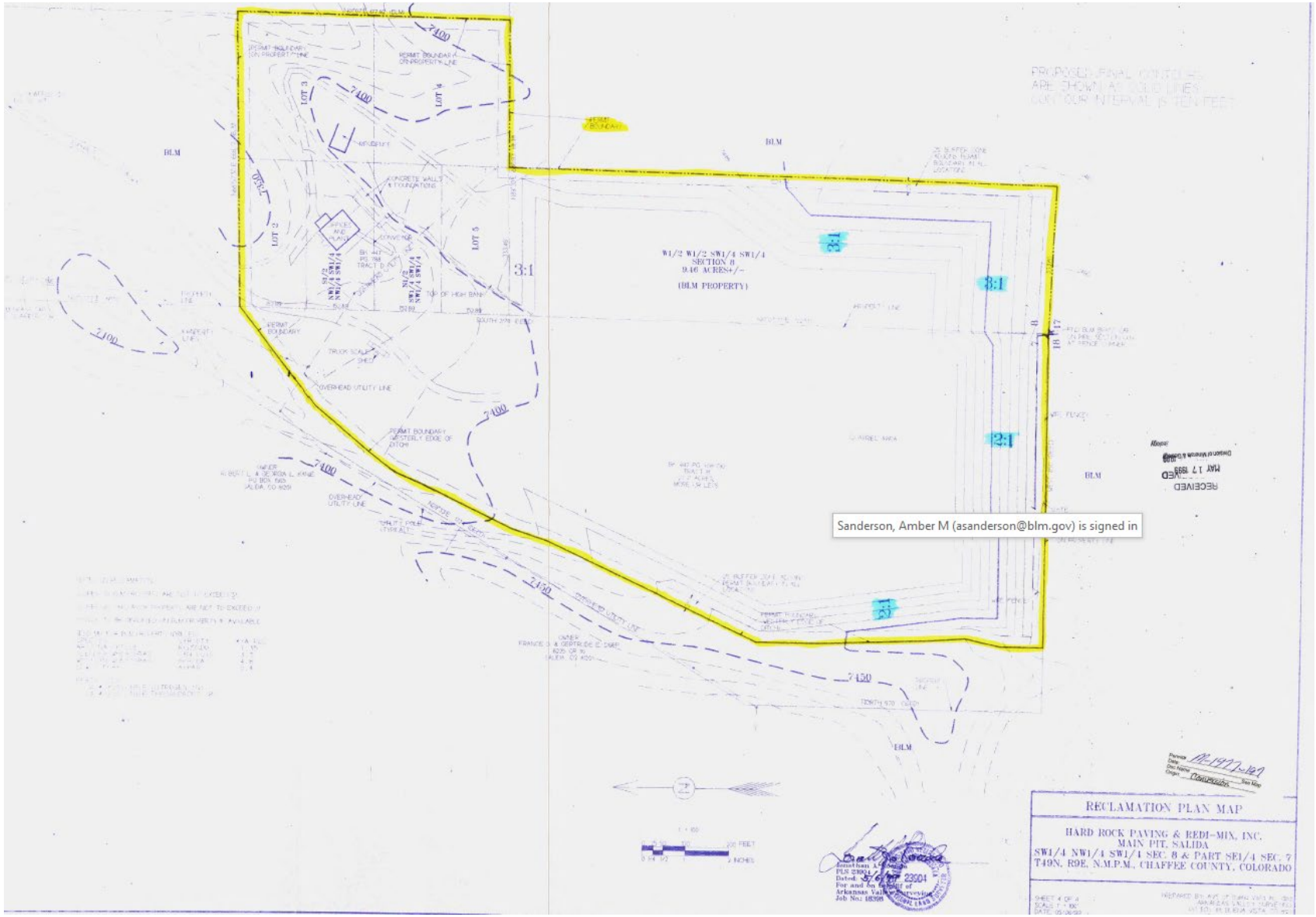
(v) Topsoiling - specify anticipated minimum depth or range of depths for those areas which will be topsoiled.

The 2 soil types have different topsoil availability. The operator will make every effort to salvage topsoil and growth media available.

The Rough Broken Land (RU) in the SCS report states: "Gravel and cobbles generally cover the surface." Obviously, topsoil is quite limited. Humus has built up in the to 3" - 4", which helps sustain vegetation.

The Tighvon-Turret cobbly sandy loam, 3 to 25 percent slopes in the SCS report states: "Typically the surface layer is grayish brown cobbly sandy loam 3 inches thick. The subsoil is gravelly sand loam 5 inches thick".

Obviously, neither one of these soil types is of the highest quality. However, with the humus buildup and annual moisture in the area, the prognosis for successful reclamation should be satisfactory.



Sanderson, Amber M (asanderson@blm.gov) is signed in

Appendix C. BLM RGFO Solid Minerals Final Reclamation Standards

Example of final reclamation standards form:

Date ***BLM POC*** ***Site Name/COC#*** ***Operator***

- It is the operator's responsibility to monitor the site and take the necessary steps to ensure reclamation success.
- Reclamation is considered complete by BLM once the following standards have been achieved, as applicable, and in accordance with the authorized Reclamation Plan on file.
- BLM RGFO will inspect the location of the mining and/or exploration operations to ensure all final reclamation requirements have been achieved before the release of a reclamation or performance bond.
- Coordination between BLM and the Colorado Division of Reclamation, Mining and Safety and/or other applicable agencies is required, prior to release of a reclamation or performance bond.

	Item	Item Description	Applicable	Complete	Not Complete	If not complete, what is still needed
Highwall Reclamation	*Benches*	All benches are established with final reclamation dimensions and slopes.				
		No raveling or fracturing is evident.				
		Tailored rock placement complete.				
	Water Drainage	Positive Drainage design established.				
		No standing water present following a representative precipitation event.				
		Stabilized water channels, accounting for all flows, including upgradient and downgradient of the mine site, as applicable.				
	Vegetation	Adequate vegetation coverage is typically considered sufficient when a self-sustaining, vigorous, diverse, native (or otherwise approved), desirable plant community is established throughout the benches, in accordance with reclamation and safety requirements outlined in the reclamation plan.				
		Regrowth percentage is sufficient to control erosion and noxious weed invasion and support				

		re-establishment of wildlife habitat or forage production.				
	Noxious Weed Control	Disturbed area is free of State and County Class A & B noxious weeds.				

	Item	Item Description	Applicable	Complete	Not Complete	If not complete, what is still needed
Structure Reclamation	*Borehole or Well Abandonment*	All boreholes and wells are abandoned in accordance with State of Colorado requirements.				
		Abandonment reports are filed with State of Colorado and copied to BLM.				
		There is no visible casing: either completely removed or cutoff at a minimum of 2-feet below the surface.				
		The abandoned borehole surface area is regraded and has established vegetation[1].				
	Well Establishment	All wells are constructed and developed in accordance with State of Colorado requirements.				
		Coordination with RGFO water/well POC completed. Water rights addressed, as applicable.				
		All permits are filed with the State of Colorado and copied to BLM.				
		Surface casing is locked, as applicable.				
		There is a concrete pad, bollard posts or similar features completed on the surface to protect well integrity, as applicable.				
		The surface area around the well is regraded and has established vegetation[1].				
	Adit and/or Shaft Closures	No trash, debris, metal, timber, wire or other mining related materials are present.				
		Adits and/or shafts are plugged in accordance with the Reclamation Plan.				
		Plugged material is covered and compacted with a natural impervious material (e.g., clay)				

		The finished surface of adits and/or shafts are graded, which provides positive drainage away from the openings.				
		Established vegetation[1] in areas around the shafts and/or adits.				
	Removal	All equipment, blasting materials, and man-made structures are removed from the site. Evidence of final disposition provided.				
		All mining related waste and demolition materials disposed of offsite, in accordance with applicable laws. Evidence of final disposition provided.				

	Item	Item Description	Applicable	Complete	Not Complete	If not complete, what is still needed
Surface Reclamation	*Stockpiles and Berms*	All product and overburden stockpiles, concentrates and road/stormwater berms are recontoured and spread throughout the site.				
	Recontour & Regrade	The mined area, working floor, access road(s) and all other disturbances are recontoured and/or regraded to mimic the surrounding natural topography, prior to the establishment of the mining operation.				
	Topsoil & Amendments	Topsoil is spread throughout disturbed areas and amended as needed.				
		Measurements of topsoil depths are documented and, at a minimum, equal to depths stated in reclamation plan.				
	Vegetation	Established vegation[1].				
	Noxious Weed Control	Density less than or equal to area outside the authorized mine ops perimeter.				
		Disturbed area is free of State and County Class A & B noxious weeds.				
	Water Drainage	Positive Drainage design established; Water detention features in accordance with design requirements in mine & reclamation plan.				

		Water drainage follows the surrounding natural drainage patterns and topography.				
		Stabilized water channels, accounting for all flows, including upgradient and downgradient of the mine site, as applicable.				
	Surface Stability	Comparable to area outside the authorized mine ops perimeter.				
		No evidence of atypical gullying, headcutting, slumping and/or deep and excessive rilling.				

[1] Established vegetation is defined as:

1. Adequate vegetation coverage is typically considered sufficient when a self-sustaining, vigorous, diverse, native (or otherwise approved), desirable plant community is established throughout all disturbed areas. BLM will evaluate the vegetation conditions using the appropriate method.
2. Attainment of approximately 70% or more native plant foliar cover. If pre-disturbance conditions indicate that the 70% native plant species foliar cover criterion may be difficult to achieve post-reclamation, the AO has discretion to adjust this percentage.
3. Regrowth percentage is sufficient to control erosion and noxious weed invasion and support re-establishment of wildlife habitat or forage production.
4. A minimum of three growing seasons, with a self-sustaining upward trend in native plant species foliar cover.
5. Absence of non-native invasive plant species above baseline (i.e. non-native invasive species are no greater than the pre-mining conditions or surrounding area).
6. The AO may consider alternative (non-vegetative) wildlife habitat features as a partial substitute for foliar cover.
7. The operator is generally not responsible for achieving full ecological restoration of the site. Instead, they need to achieve the short-term stability, visual, hydrological, and productivity objectives in the Reclamation Plan AND take steps necessary to ensure that long-term objectives will be reached though natural processes.

Appendix D. Stormwater Management Plan

Hard Rock Paving & Redi-Mix, Inc.
P. O. Box 37
Salida, Colorado 81201
Phone 719-539-2222

Salida Main Pit

Storm Water Management Plan (SWMP)

Chaffee County, Colorado

August 1999

Prepared by:
Angela Bellantoni

Index of Figures, Tables and Appendices

Storm Water Management Plan (SWMP)

Salida Main Pit

August 1999

Introduction, Location and Site Map

Hard Rock Paving & Redi-Mix Inc. is the operator of the Salida Main Pit, a sand and gravel pit located approximately 1 mile south of Salida, Colorado (Figure 1). The total property boundary is approximately 46.57 acres. For the purposes of this SWMP, the facility area is considered the same as the Mined Land Reclamation Board (MLRB) permitted area.

The legal description of the property is as follows:

> A tract of land in portions of the SE ¼ of Section 7 and SW ¼ of Section 8, Township 49 North, Range 9 East of the New Mexico Prime Meridian, and 9.46 acres in the W ½ of the SW ¼ of Section 8 being leased as materials purchase from BLM in Chaffee County, Colorado.

The operator is seeking storm water permit coverage under a Colorado Discharge Permit System (CDPS) General Permit for Sand and Gravel Mining and Processing. Operations within the area will include extraction of sand and gravel, processing and stockpiling, periodic manufacturing of asphalt paving material and various supporting ancillary functions including a fuel storage/fueling area.

Storm water Management Plan (SWMP) Administrator

The operator has designated the following SWMP Team to administer the plan:

Mr. John P. Ary
Fremont Paving & Redi-Mix, Inc.
839 MacKenzie Avenue
P.O. Box 841
Canon City, Colorado 81215-0841
Phone: 719-275-3264

Angela Bellantoni
Fremont Paving & Redi-Mix, Inc.
839 MacKenzie Avenue
P.O. Box 1720
Canon City, Colorado 81215-1720
Phone: 719-275-1280

The team is responsible for developing the SWMP, implementation, inspections, maintenance and revisions as necessary.

Potential Pollutant Sources

Drainage

Storm water runoff occurs as a result of overland flow due to direct precipitation and spring thaw. Precipitation that falls directly onto the permitted area either remains in temporary depressions or flows into catchment basins on vacant adjacent property to the north of the site. Precipitation that falls on unaffected

regions of the permitted area is channeled into diversionary channels along the west boundary of the property.

Site Map

The provided site map (Figure 1) illustrates the facility area, access roads, topography, existing storm water surface runoff patterns, various control features to be implemented, outfalls and other information.

Inventory of Exposed Materials

The site has been inspected and materials that are handled at the site were inventoried. Table 1 lists significant materials used, stored or produced on site that are currently exposed to storm water and those exposed during the last three years. The table reflects method, storage and controls for such materials.

Significant Spills or Leaks

No known spills or leaks of toxic or hazardous pollutants have occurred in the three years prior to permit certification.

Sampling Data

Data does not exist pertaining to the quality or quantity of storm water discharges from this facility.

Risk Identification and Summary of Potential Pollutants

Pollutants at this facility that may contribute to potential spills may be broadly classified into two categories:

1. Chemicals, Fuels, Oils, Waste, etc. These are used in the manufacture of rock products (eg. liquid asphalt for paving, etc.) or are used in vehicles or equipment that support the operations (eg. fuels, oils, coolants, solvents, etc.), and waste products such as trash and oily rags.

2. Other Types of Materials. These are natural types of sediment (eg. raw materials/materials stockpiles, sediment in the drainage control system, loading and unloading of haul trucks, etc.) produced as a result of the gravel mining operations.

Table 2 lists potential pollution sources and associated pollutant parameters.

Measures and Controls

Table 3 describes specific structural and non-structural pollution prevention measures and best management practices (BMPs) that will be implemented and their corresponding implementation schedule. Figure 2 is a map illustrating the relationship of any storm water discharge points and other information pertaining to the facility.

Employee Education Program

Training will occur once a year during the spring between March and June. Topics addressed will include spill response actions, good housekeeping, material management practices, reporting, preventative maintenance, emergency procedures,

BMPs for various areas. Forms to document employee training are provided in Appendix A.

Record Keeping and Internal Reporting Procedures

Record keeping shall include the following: a copy of the SWMP, official incidents such as spills or other discharges along with other information describing the quantity and quality of the storm water discharge (if required), and notes/reports from inspection and maintenance activities. Such records shall be maintained for a minimum of three (3) years.

Storm Water File

A special file related to the storm water permit will be created. The file will contain the aforementioned information and will be kept at the company's office at 6200 County Road 107, Salida, Colorado. The regulations require that a copy of the SWMP be kept on site of the subject facility.

Internal Reporting

A description of any incidents, such as spills, leaks, potential failures of the storm water control and employees will report containment systems to the storm water team without fear of disciplinary action.

Non-Storm water Discharges

Testing or Evaluation for Non-Storm water

Dry weather observations were conducted July 29,1999 to determine the presence of non-storm water discharges. At the time of the inspection, the facility consisted of only a relatively small pit. No structures or equipment were present on site. No mine drainage, spoil springs, sanitary waste or process water of any kind was observed to exist at the facility.

Non-Storm water Discharge Assessment Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

John P. Ary, Secretary-Treasurer

8-16-99
Date signed

Sediment and Erosion Control

Management of Runoff

Areas having relatively high potential for erosion, management practices to be implemented and the storm water pollutant source area or activity controlled is listed in Table 4. Storm water runoff occurs as a result of overland flow. Run-on to the facility from upland areas is limited by the topographic setting of the facility and diversionary channels.

The permitted area is comprised of high terraces along the Arkansas River corridor in Chaffee County. The soils comprising the site demonstrate rapid to medium surface runoff with moderate to high hazard of erosion. Measurable runoff is primarily due to snowmelt in the spring and summer thunderstorms. The cobbly nature of the ground results in difficult in establishing typical erosion controlling vegetation.

Storm water will be managed via diversions, ditches, berms, grading and revegetation.

Comprehensive Site Compliance Evaluation

Regulations require periodic site compliance evaluations. Qualified personnel shall conduct the inspections and evaluations. Evaluations shall occur biannually, during the spring and fall. Specific duties to be performed during an inspection are listed below.

1. For the site in general: Inspect disturbed areas and areas used for material storage, that are exposed to precipitation, for evidence of, or potential for, pollutants entering the drainage system. Inspect all erosion and sediment control measures (ditches, berms, sediment basin collection areas, vegetated areas, etc.) identified in this SWMP to ensure that they are operating correctly.

2. Inspect any equipment needed to implement this plan, eg. spill response equipment, supplies such as adsorbents, etc., and plant areas.

3. For reclamation of the pit area: Inspect integrity of diversions, conveyance systems, sediment control and containment. Areas where vegetative controls and side slopes are used, to determine if soil erosion has occurred.

4. For the asphalt plant area: Inspect material storage and handling areas, liquid storage tanks, hoppers and silos, vehicle and equipment maintenance, fueling areas, material handling areas, vehicles, equipment and processing area.

5. For fueling area: Inspect the tank(s), fittings, hoses and pipes for leaks and integrity of hardware; inspect containment berm and containment area for integrity. Inspect the integrity of sediment control and containment system for evidence of actual or potential pollutant discharges of contaminated storm water.

6. Based on the results of the inspection, the description of the potential pollutant sources and the pollution prevention and control measures identified

in this SWMP shall be revised as appropriate within two (2) weeks after the inspection. The revised control measures shall be implemented no more than 60 days after the inspection.

7. The inspection report must remain on file for at least three (3) years following the inspection. Summarize results of the inspections in the annual report submitted to CDPHE.

Monitoring and Reporting Requirements

This storm water permit is effective for five (5) years, expiring August 2004. The general permit may be revised, reissued (or terminated) by CDPHE. Reapplication must occur within 6 months prior to expiration of the original permit submission date.

Monitoring

As long as process water discharge does not occur, sampling and testing of storm water for specific parameters is not required on a routine basis under this permit. It is noted, however, that CDPHE reserves the right to require sampling and testing on a case-by-case basis.

Annual Report

An annual report is required to be submitted on or before February 15th of each year. The report summarizes the inspections and incidents of the preceding calendar year.

Information to be included in the report:

1. The facility's overall compliance with the SWMP.
2. Name of permittee, address, phone number and permit certification number.
3. Summary of each comprehensive storm water facility inspection with date, findings and action taken.
4. Results and interpretation of any storm water monitoring performed.
5. Signed and certified with the following statement:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

John P. Ary, Secretary-Treasurer

8-16-99
Date

Noncompliance Notification

If the permittee does not comply or will be unable to comply with any discharge limitations, standards or permit requirements, the Water Quality Control Division of CDPHE and EPA are to be notified with the following information:

Section A

1. Description of the discharge and cause of noncompliance
2. The period of noncompliance, including exact dates and times and/or the anticipated time when the discharge will return to compliance; and
3. Steps taken to reduce, eliminate and prevent recurrence of the noncompliance discharge.

The following instances of noncompliance shall be reported orally within 24 hours from the time the permittee becomes aware of the noncompliance and shall provide a written report within 5 days to the Water Quality Division of CDPHE.

Section B

1. Any instance of noncompliance which may endanger health or the environment
2. Any unanticipated bypass which exceeded effluent limitation
3. Any upset which causes an excess of any effluent limitation
4. Any spill which causes any effluent limitation to be violated
5. Daily maximum violations for any toxic pollutants or hazardous substances. This includes any toxic pollutant or hazardous substance or any pollutant specifically identified as the method to control any toxic pollutant or hazardous substance.

All other instances of non-compliance will be disclosed on the Discharge Monitoring Report outlined in Section A of the above.

Table 1

Inventory of Materials Exposed to Stormwater
Current and During Last 3 Years

Material	Quantity	Method of Storage or Disposal	Material Management Practice
Runoff Berm*	Variable	Piles	Stabilization and maintenance
Topsoil	Variable Max. 68000 cys	Piles	Revegetation. To be used in reclamation of pit.
Raw Material (Sand, Gravel)	Variable	Piles	Depleted/Renewed as needed. Contained w/i light berm or silt fence
Crushing, Screening Fines	Variable	Piles	Contained w/i light berm or silt fence
Finished Products	Variable	Piles	Contained w/i light berm or silt fence
Fuel	2,000-10,000 gal	Steel Tank(s)	Lined dirt containment berm
Lube Oil/ Hydraulic Fluid	6 drums	Sealed Drums	Lined dirt containment berm
Grease	4 drums	Sealed Drums	Lined dirt containment berm
Emulsion	5,000 gal	Tanker	Dirt containment berm
Asphalt	60,000 gal	Hot oil tanks	Immediately clean spills

*Not currently on site but potential exists for future use.

Table 2

Potential Pollutant Sources at the Facility

Activity	Potential Pollutant Source	Potential Pollutants/Indicators
Site Preparation	Soil Stockpiles	TSS, TDS, dust, turbidity
Denudation of Surface Ground	Sediment from Exposed Ground	TSS, TDS, dust, turbidity
Processing	Crushing/Screening	TSS, TDS, dust, turbidity, fines
	Product Storage Stockpiles	TSS, TDS, dust, turbidity
	Loading	TSS, TDS, dust, turbidity
Other Activities	Settling Basin Upsets	TSS, TDS, pH, turbidity
	Sediment from Ditches	TSS, TDS, pH, turbidity
Equipment and Vehicle Maintenance	Fueling with Diesel, Gas, Oil and Additions of Hydraulic Fluid, Coolant, Grease	Fuel, oil/grease, BOD, COD, organics ethylene glycol, arsenic, heavy metals
Material Storage/ Handling At Asphalt Plant	Additives, Asphalt, Asphalt Products, Release Agents, Sand/Gravel/Crushed Rock, Fuel, Lubricants/Oil, Mineral Spirits, Reclaimed Asphalt Pavement, Unloading of Gravel	TSS, oil/grease, pH, COD
Fuel Storage/Fueling	Spills/Leaks during Delivery and And Topping Off Tank	Fuel, oil, heavy metals
	Rainfall/Storm Water on Fueling Area	Fuel, oil, heavy metals

	Leaking Storage Tank	Fuel, oil, heavy metals
Above Ground Liquid Storage	External Corrosion and Structural Failure, Failure of Pipes, Fittings	Fuel, other materials being stored
	Spills and Overfilling during Delivery, Pumping or Otherwise Dispensing	Fuel, other materials being stored
Reclamation	Site Preparation for Stabilization	TSS, TDS, dust, turbidity

Table 3

Structural and Non-Structural Best Management Practices and Schedule for Implementation

Measure or Control	Tasks to be Performed	Schedule for Implementation
Good Housekeeping	Maintenance of areas that may contribute pollutants to storm water discharges. Keep areas clean and free of materials that may contribute to the degradation of storm water quality.	Beginning October 1,1999 and continuing on a regular basis.
	Collect trash in suitable containers and properly dispose of the refuse.	
Preventative Maintenance	Inspect and repair as necessary straw bales, ditches, silt fences and other management devises, including sediment basins. Remove debris from sediment basins and runoff ditches if necessary. Stabilize eroded areas.	Biannually; after spring thaw and during fall. Perform repairs immediately following inspection.
Erosion Control	Seed soil stockpiles, road banks	Within 6 months of formation
	Reclamation of Pit: Grade and terrace slopes as necessary, replace available soil and revegetate areas where mining has been completed as described in the MLR permit.	Perform as soon as feasible after area is mined.
	Site Maintenance: Repair where rilling or erosion is evident.	As necessary
	Final Site Reclamation: grade containment berm of settling pond(s), revegetate.	Upon completion of mining activity

Sediment Control Conveyance and Collection	For Outdoor Storage of Materials: Contruct light berms or silt fences down slope from stockpiled materials, and where temporary measures are needed.	Implement as necessary when stockpiles are present.
	Construct conveyance ditches to settling basins. Place culverts as needed.	Fall 1999
	Construct settling basins and outfalls	Fall 1999
	Maintain settling ponds to retain/detain sediment.	Ongoing following completion of ponds.
	For Unpaved Roads and Road Ditches: Place straw bale barriers, silt fences, and/or rock check/filter dams to retain sediment in local access road ditches. Maintain road ditches.	Begin Fall 1999 and complete in exising by Spring 2000. Ongoing as needed. Include in biannual inspections.
Vehicle and Equipment	Conduct maintenance and fluid changes indoors to the extent possible at company's maintenance facility in Salida. If necessary to change fluids outdooors on the site, collect fluids in enclosed containers and recycle or properly dispose of the fluid.	Ongoing during operations
	Dispose of greasy rags, oil filters, batteries, spent coolant properly.	Ongoing during operations
	Train employees on proper waste control.	Initiate in Fall 1999, annually thereafter.
Storage of Fuel and Fueling Activities	Minimize runon of storm water to the fueling area by grading.	Prior to establishment of fueling area.
	Construct lined secondary containment berms	Prior to establishment of fuel tanks.

	for fuel tanks. Use dry clean up methods for fuel area rather than hosing down the area.	Ongong following establishment of fueling area.
	Perform preventative maintenance on storage tanks to detect potential leaks, and inspect the fueling area for problems.	Ongoing following establishment of fueling area.
	Train employees on proper fueling techniques	Ongoing following establishment of fueling areas.
Dust Control on Traveled Areas	Treat unpaved roads and regularly traveled areas with water or $MgCl_2$ to suppress airborne particles.	Implement as necessary to control dust.
Storage of Dry Bulk Materials	Divert storm water around stockpiles and exposed material areas using, ditches and berms where practical. Place light berms or Silt fences down slope of storage areas.	Implement when operation begins.
Liquid Storage Above Ground	Maintain integrity of storage containers	Implement when storage occurs.
	Inspect storage tanks, piping system and fittings to detect potential leaks, and perform preventative maintenance.	Implement when storage occurs.
	Train employees on proper filling and transfer procedures.	Begin fall 1999 and annual thereafter.
Storage of Lube Oil, Grease, Coolant, Hydraulic Fluid	Use enclosed tanks. Construct secondary berms to contain fluids. Line the secondary containment berms.	Implement when storage occurs.
Storage of Asphalt Oil	Use enclosed tanks. Construct secondary lined containment berms if necessary.	Implement when storage occurs.

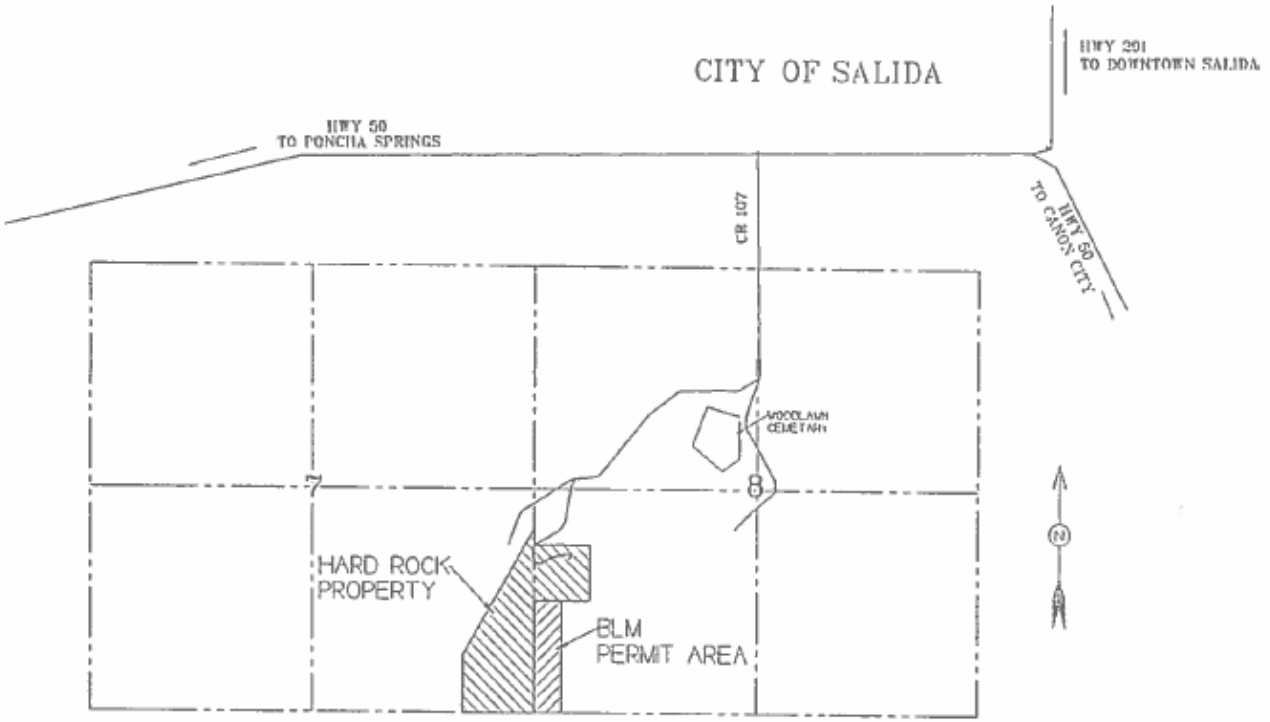
Cold Weather Activities	Brief employees on proper salt, or dirt application.	Implement prior to precipitation
Diposal of Waste Oil, Empty Drums and Containers	Recycle or properly dispose of oil, return empty barrels to vendor or properly dispose of them.	Regularly as necessary to minimize Accumulation

Table 4

Potential High Erosion Areas and BMPs to Control Erosion

Erosion and Sediment Source Area	Best Management Practices	Controlled Pollutant Source
Overland Flow from Upland Areas to the Pit Side Slopes	Diversionary channels direct runon flow to collection ponds north of the property. Overland flow within the permitted area settles in the bottom of the site.	Sediment from adjacent properties
On Site Access Road Banks	Revegetate when practical	Sediment from road banks
On Site Access Road Ditches	Install check structures, water bars, hay bales, culverts, etc. as needed.	Sediment from roads and road
Soil Stockpiles	Temporary revegetate	Stockpile erosion
Pit Side Slopes	Reclaim by grading slopes and revegetating	Sediment from side slopes
Misc. Fill Slopes Around Perimeter of Site	Reclaim by removing or reducing slopes of fill where possible.	Sediment from fill slopes
Sediment Basins/Berm and Outfall Adjacent to Roads	During operation, clean out as necessary. Maintain berm and outfall overflow point.	Sediment from basin upsets.
	Reclaim by grading berm and revegetating	Sediment from basin upsets.

INDEX MAP



1" = APPROX. 2000' +/-

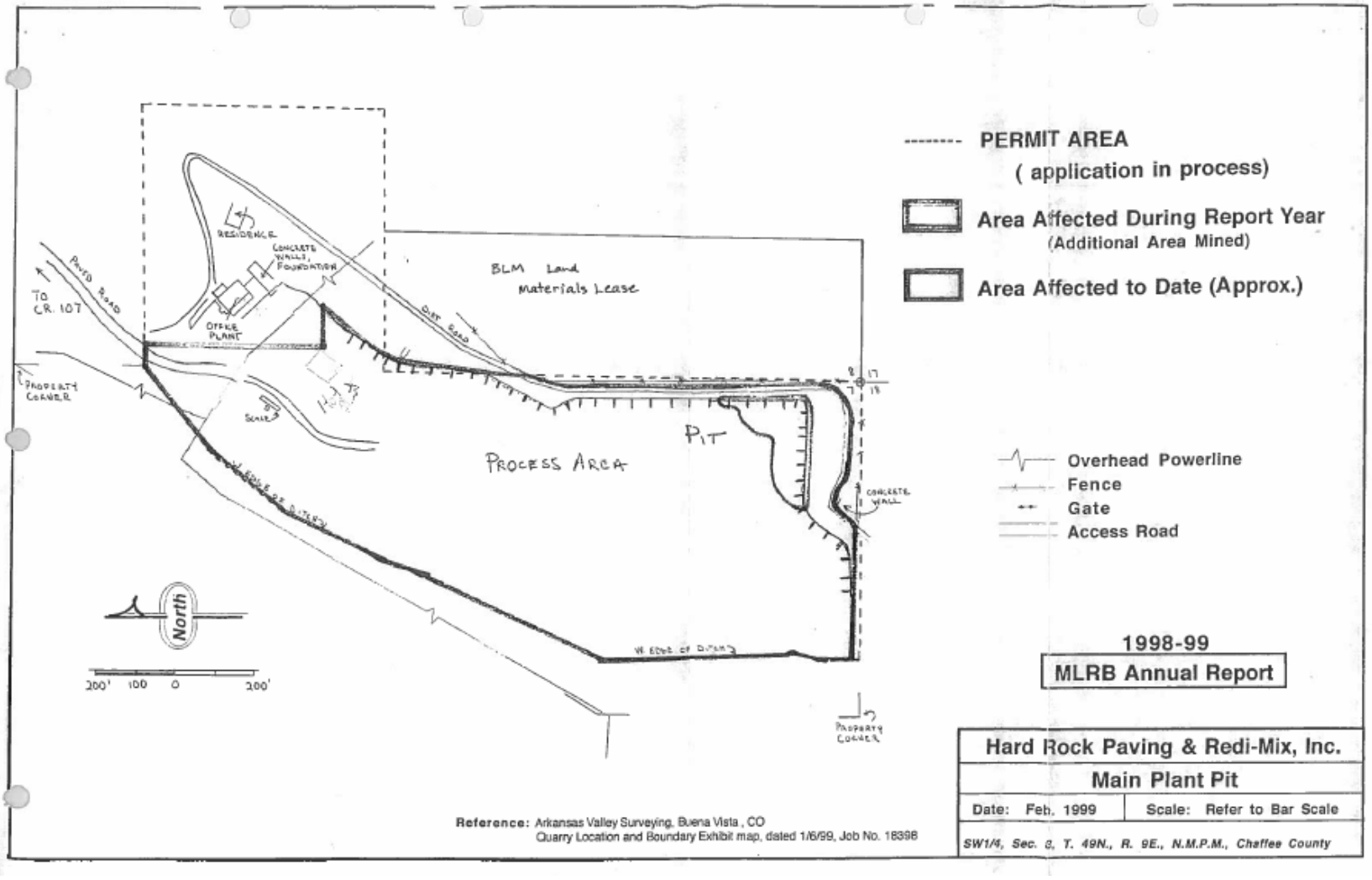
Employee Training	Completed by:_____ Title:_____ Date:_____

Training Topic	Brief Description of Training Include Materials Used	Schedule of Training	Attendees
Spill Prevention and Reponse			
Good Housekeeping			
Material Management Practices			

Employee Training		Completed by:_____ Title:_____ Date:_____	
Training Topic	Brief Description of Training Include Materials Used	Schedule of Training	Attendees
Spill Prevention and Reponse			
Good Housekeeping			
Material Management Practices			

Employee Training	Completed by: _____ Title: _____ Date: _____

Training Topic	Brief Description of Training Include Materials Used	Schedule of Training	Attendees
Spill Prevention and Reponse			
Good Housekeeping			
Material Management Practices			


PERMIT AREA
(application in process)
Area Affected During Report Year
(Additional Area Mined)
Area Affected to Date (Approx.)
BLM Land
Materials Lease
RESIDENCE
CONCRETE WALLS, FOUNDATION
OFFICE
PLANT
PAVED ROAD
TO CR. 107
DIRT ROAD
PROPERTY CORNER
SCALE
PIT
PROCESS AREA
CONCRETE WALL
PROPERTY CORNER
North
200' 100 0 200'
Overhead Powerline
Fence
Gate
Access Road
1998-99
MLRB Annual Report
Hard Rock Paving & Redi-Mix, Inc.
Main Plant Pit
Date: Feb. 1999
Scale: Refer to Bar Scale
SW1/4, Sec. 3, T. 49N., R. 9E., N.M.P.M., Chaffee County
Reference: Arkansas Valley Surveying, Buena Vista, CO
Quarry Location and Boundary Exhibit map, dated 1/6/99, Job No. 18398

Appendix E. Visual Survey Report and Data

Introduction

Since the late 1970's, the Bureau of Land Management (BLM) has had in place protocols for analyzing the impact of projects undertaken on public lands on "visual resources" at locations from which such projects are potentially visible. These protocols present some challenges for BLM managers, indeed even knowing which locations could potentially be affected by a large project such as the construction of a road or the expansion of a quarry or mining operation is not straight forward, especially for projects that are potentially visible over a wide area. The BLM's current protocol for evaluating the potential visual impacts of a project require that a series of representative sample points be selected and evaluated to determine the potential impact on scenic resources of the project at the sample location. While GIS mapping and GIS analysis operations such as viewshed analysis (in conjunction with the more traditional techniques such as site visits and field evaluations) have been used for some time, such evaluations still provide an incomplete picture of potential visual impacts on a regional scale as impacts in areas between sample points must be inferred. Additionally, on the ground evaluation of the relative potential visual impact of features that do not yet exist on the landscape (i.e., a proposed road, cell tower, or quarry expansion) is difficult if not impossible in most cases, leaving managers no way of estimating the potential impact a project will have and which areas will be most affected.

In 2021, the BLM Colorado Royal Gorge Field Office reviewed and responded to public comments on an environmental assessment document on the proposed expansion of a quarry onto public lands south of Salida in Chaffee County, CO. Many of the commenters expressed concern about potential impacts to scenic values from their homes and Highway 50 near the proposed expansion. In response to public concern, BLM staff sought a way to assess and evaluate the potential visual impacts of the project in a more complete manner. Specifically, the BLM wanted to know how many and which locations in and around the community of Salida, CO that had no previous view of the quarry might have views of the areas in which the proposed expansion would be located, and what the relative impact of the proposed expansion might be at those locations.

Using ArcGIS's Python scripting module to perform an iterative viewshed analysis, a more complete picture of the potential impacts of the quarry expansion was created. In addition to quantifying how many locations with no view of the existing quarry have potential views of the areas in which the proposed expansion would be located, the BLM was also able to quantify the potential increase in visual impacts at all locations and map the spatial shift in potential visual impact due to quarry expansion.

To assist in ground truthing the results of the analysis and provide an indication of the accuracy of the viewshed results, the contrast rating system was incorporated. This process is a visual design tool used in project design and assessment. Considering the rate of obstruction by actual on-the-ground features such as buildings, trees, large signs and billboards, and other visual obstructions, ground truthing provided a more complete understanding of the views of the areas in which the proposed expansion would be located

from key observation points across the landscape. The key observation points were chosen based on locations from the analysis that were predicted to have the most change introduced into their viewshed as a result of the proposed quarry expansion.

Assumptions and Limitations

Features such as buildings, trees, billboards, and other visual obstructions were not incorporated into the analysis. The viewshed analysis does not account for vertical offsets or views from above ground level, i.e., views from multi-story buildings or structures.

The boundaries of the proposed expansion areas do not indicate disturbance areas or visible disturbance. The viewshed analysis identifies areas that are visible from observer points, whether disturbance is present or not. Quarry operations within the proposed expansion areas are not expected to disturb the entire expansion areas evenly or all at the same time.

Iterative Viewshed Analysis Process

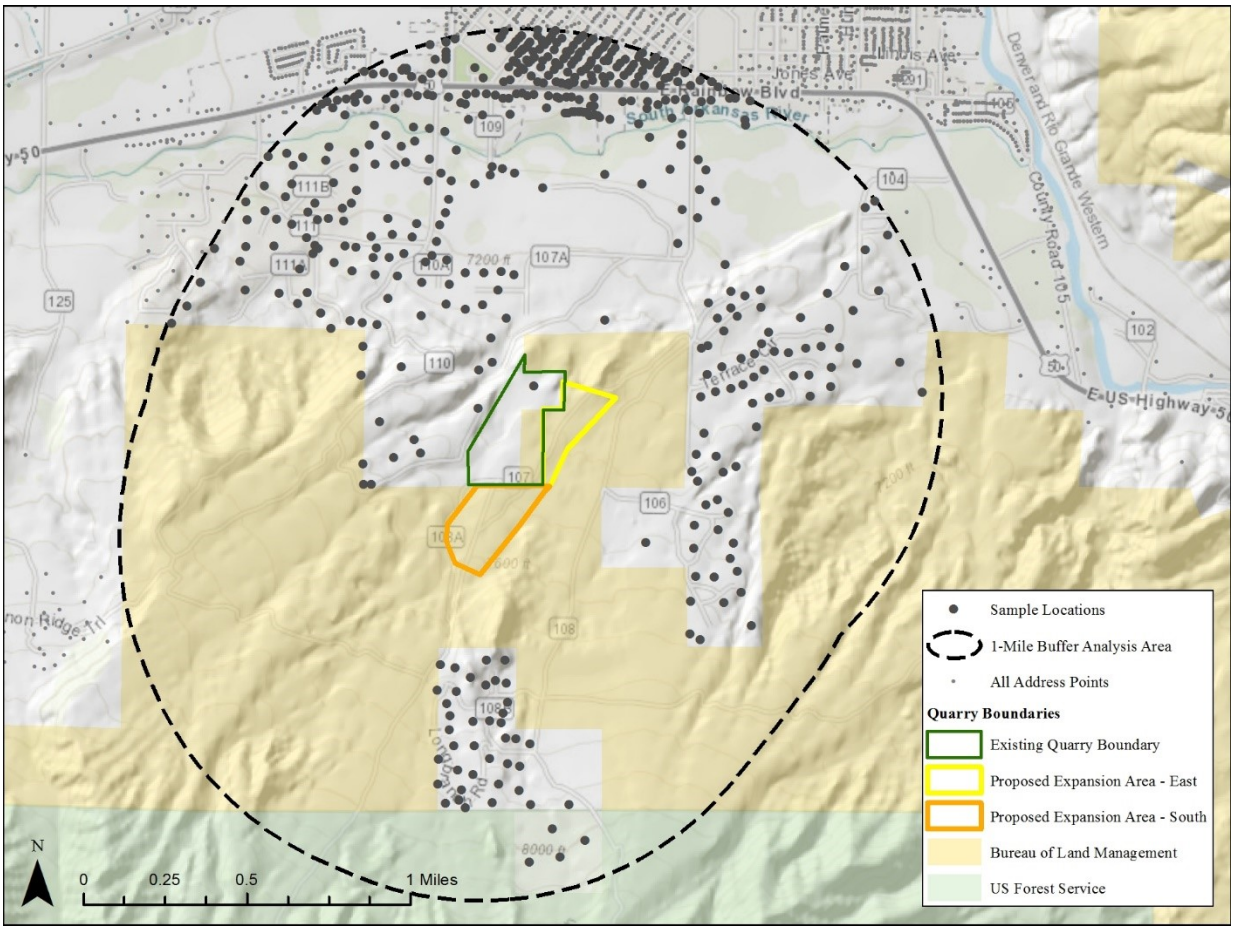


Figure 1 - Overview of analysis scenario.

The datasets used to analyze the potential visual impacts to sample locations within a one mile buffer of the boundaries of the existing quarry and proposed expansion areas included: a USGS 10 meter digital elevation model; a polygon feature class with features representing both the existing quarry boundary and the proposed expansion area boundaries to the east and to the south (the green, yellow, and orange outlined features shown on the map in figure 1); a point feature class of address points in Chaffee County dated 2019.

Address points within one mile of the existing quarry and proposed expansion area boundaries were used as sample locations (489 points) from which to test the visibility of the existing quarry and the proposed expansion areas. The Spatial Analyst Viewshed tool, in combination with other geoprocessing tools (intersect, dissolve, etc.), formed the core of an iterative analysis process through which hundreds of potentially affected sample locations were tested. The output of the analysis process was a point feature class containing a record for each unique sample location with attributes recording the total area of the viewshed within the existing quarry, each of the proposed expansion areas, and the entire viewshed area from each sample location.

The scripted process used to generate the output visible areas is outlined in the maps and text below:

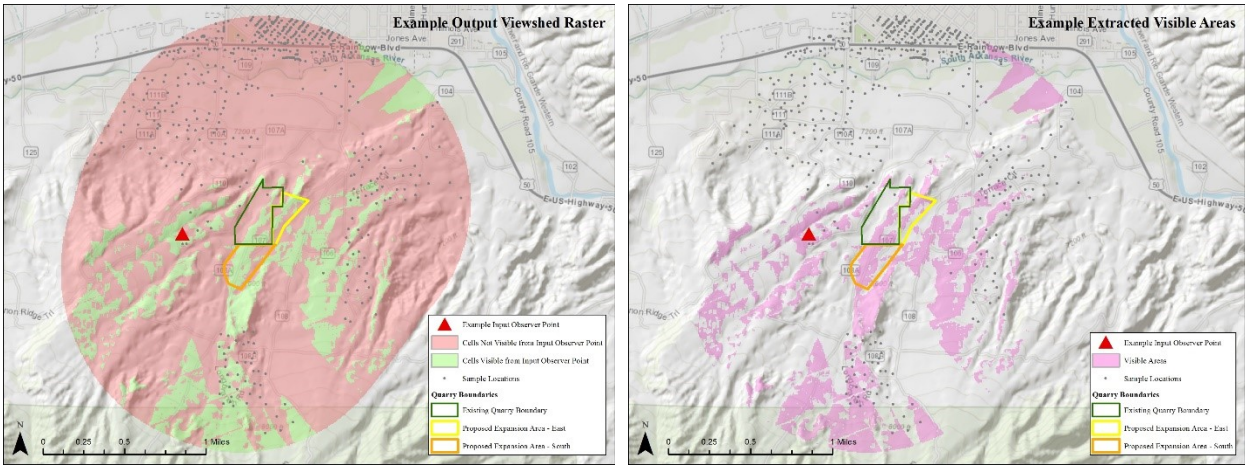


Figure 2 - Analysis Steps 1 (left) and 2 (right) showing total viewshed of example input observer point, and the extracted visible areas.

1) Each point in the sample location point feature class is used as the input observer feature in a viewshed operation. A feature layer is created for the input sample location point and the output viewshed raster is stored in-memory.
2) From the output viewshed raster, grid cells with a value of 1 (1 = visible) are extracted and then converted to an in-memory polygon feature layer.

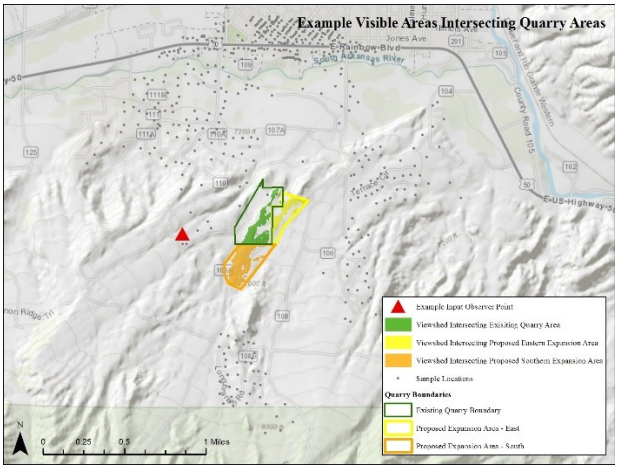


Figure 3 – Result of Analysis Steps 3, 4, and 5 showing visible areas of example input observer point that intersect the quarry boundaries.

3) The total visible areas from each sample location are recorded in the sample location attribute table. To determine if the visible areas are within the quarry boundaries, the visible area polygons are intersected with the quarry boundary polygons and the number of intersected features is counted.
4) If 1 or more features exist in the intersected polygon, the intersected polygon is dissolved using the attribute field in the quarry boundaries polygon identifying if the features are part of the existing quarry or the proposed expansion areas. If there are no features in the output intersected polygon (i.e., neither the existing quarry nor the proposed expansion areas are visible from the sample location), then a unique identifier of the sample location along with a value of 0.0 for the total area of the existing quarry and proposed expansion areas visible are entered into the sample location attribute table, and the scripted iterative viewshed operation moves on to the next sample location point.
5) Using the dissolved polygons, the visible areas in the existing quarry and the proposed expansion areas from each sample location are calculated and entered in the sample location attribute table as separate fields for each area, and the scripted iterative viewshed operation moves on to the next sample location point.

Displaying Visible Areas

Figure 4 below displays the resulting raster of a viewshed analysis using all sample location points as input observer points. The output raster records the number of times each cell in the raster surface can be seen by the input observer points and can be helpful for determining which surface areas have the highest frequency of visibility.

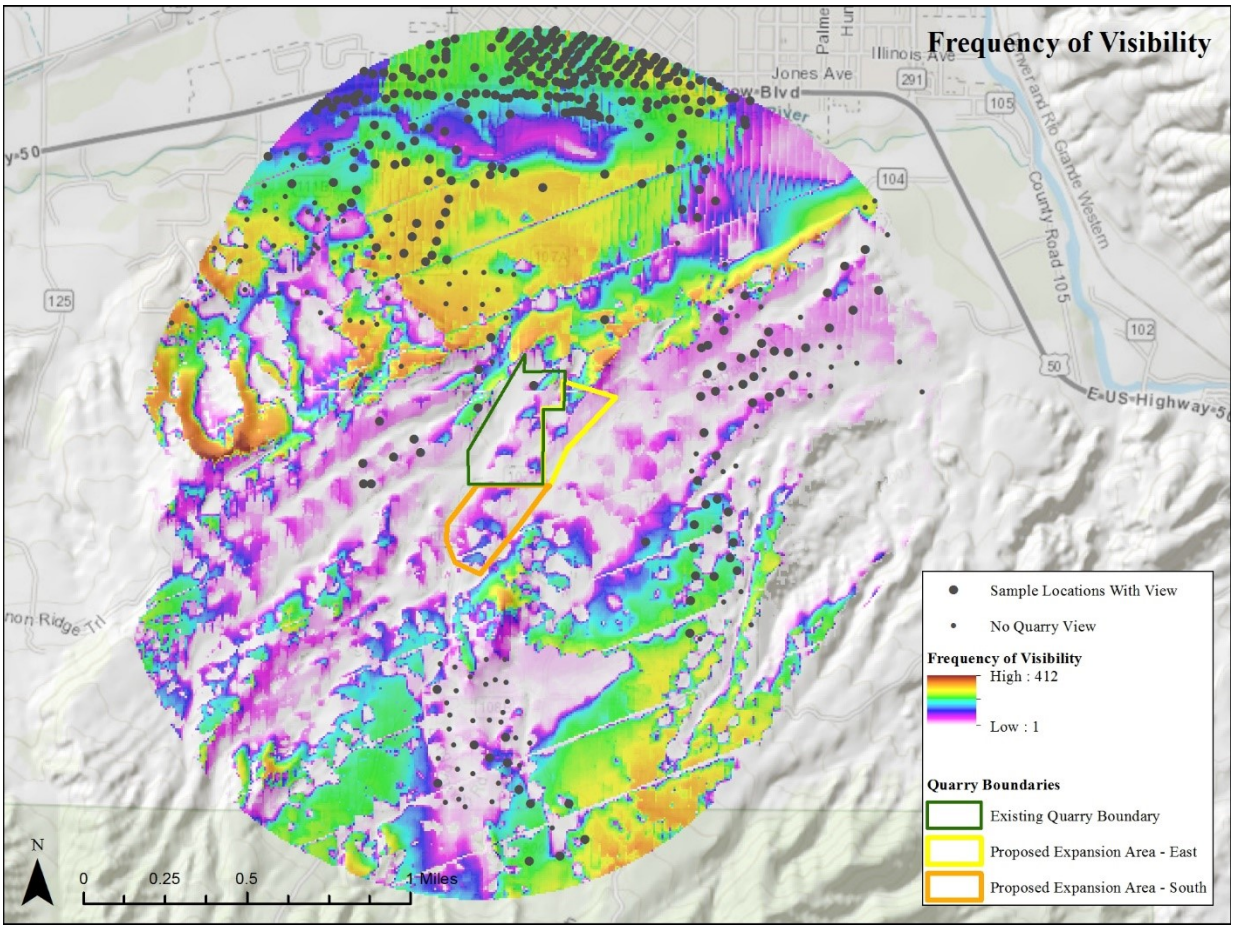


Figure 4 – Map using a cool-to-warm color ramp to display the frequency of raster surface locations visible to the sample location observer points.

Categorical Results

The data resulting from the iterative viewshed analysis can be queried and mapped to answer specific questions related to potential visual impacts. For instance, a simple query of the output table (e.g., Cur_Acres = 0 AND Expansion_Acres <> 0) can answer the question of how many sample locations that had no view of the existing quarry have a potential view of the proposed expansion areas (19 locations, or 5% of the 363 sample locations with a view). The opposite query reveals that 21 sample locations, or 7% of the 363 sample locations with a potential view of the existing quarry have no potential view of the proposed expansion areas.

Additionally, questions such as how many sample locations with potential views of the existing quarry have a greater potential view of the proposed expansion areas (219 locations, or 60% of the 363 sample locations with a view); and how many sample locations with potential views of the proposed expansion areas have greater potential views of the existing quarry (144 locations, or 40% of the 363 sample locations with a view); can also be answered using simple attribute queries of the output table. Mapping the results of these queries categorically is effective for displaying the spatial patterns of the types of potential impact described by the queries on a study area wide scale.

Figure 5 below displays the categorical visibility queries described.

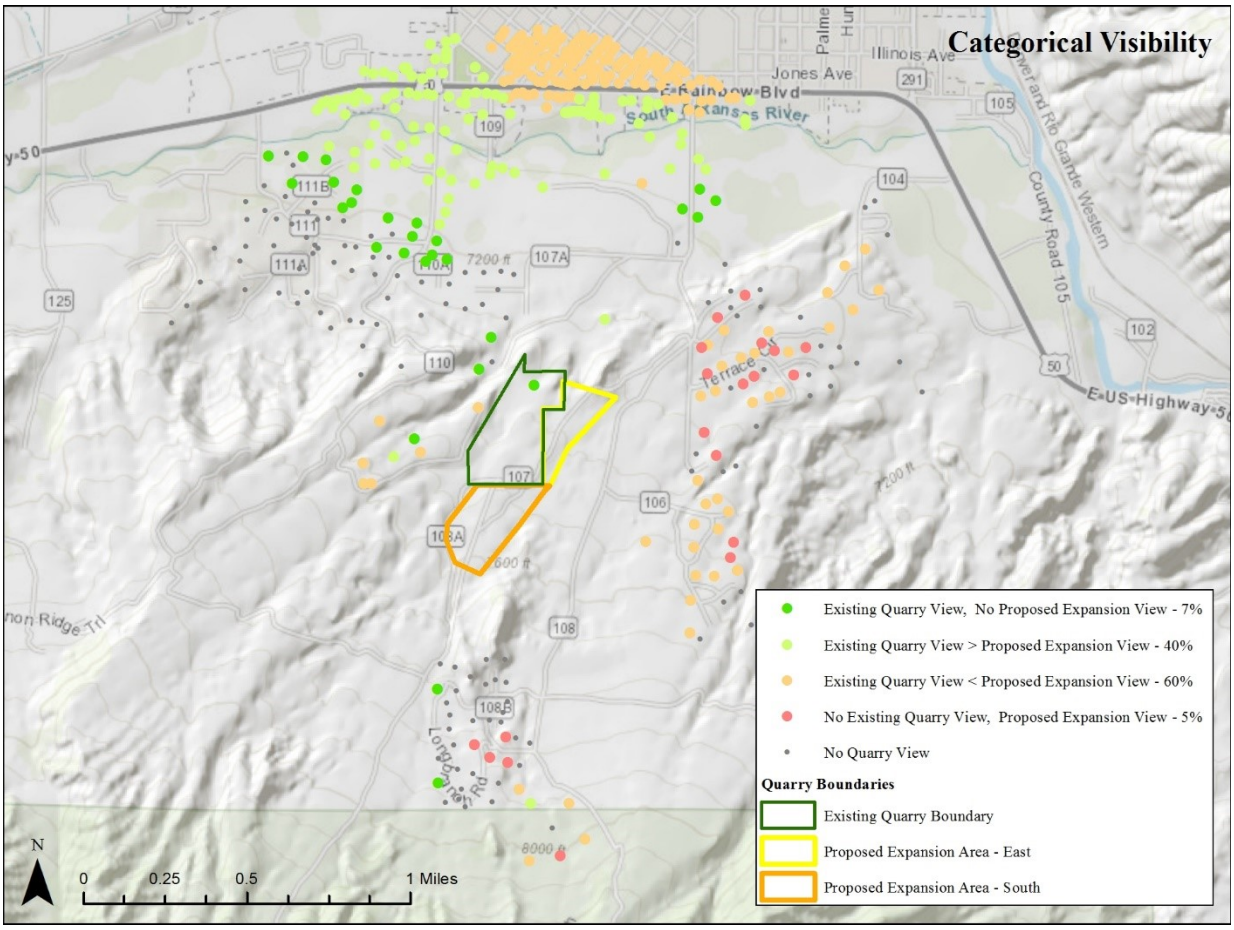


Figure 5 - Categorical visibility of queried features.

Figure 6 below is an example of sample locations symbolized to identify the potential visibility of each quarry area, and using pie chart symbology, display the amount of each quarry area's visible area relative to the total visible area of all quarry areas.

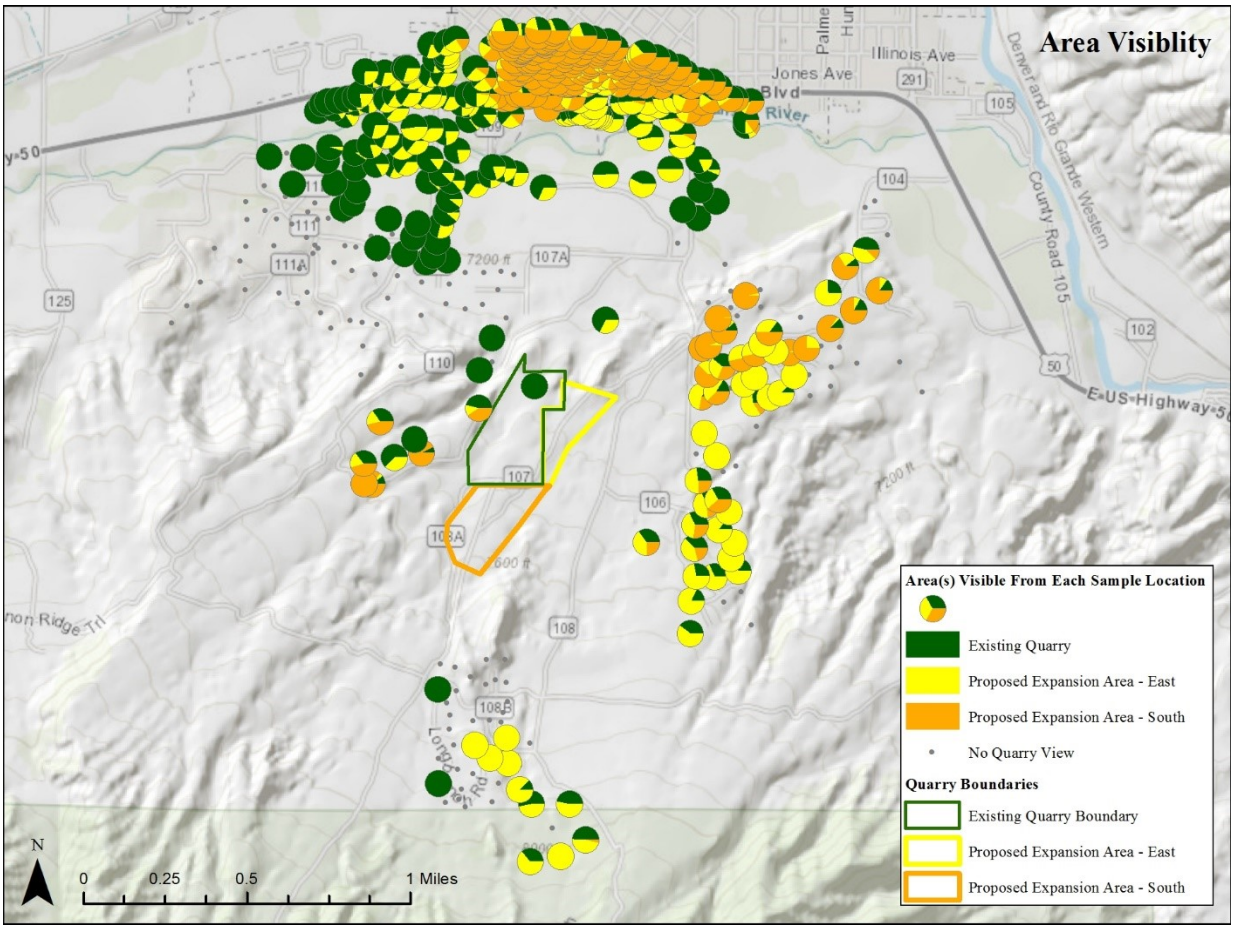


Figure 6 – Comparative visibility of quarry areas from each sample location.

Quantifying Results

The analysis results can be displayed based on the calculated percent of visible area. The results can show the percent of each quarry area that is potentially visible from each sample location, as well as the percent of each sample location's overall viewshed that is within the quarry areas.

Figure 7 below is an example of symbolizing sample locations by the percent of the overall viewshed that is within the existing quarry area on the left (mean 0.3%) and the proposed expansion areas on the right (mean 0.6%). This display allows the overall pattern of potential impact to be mapped and visualized on a study-area-wide scale.

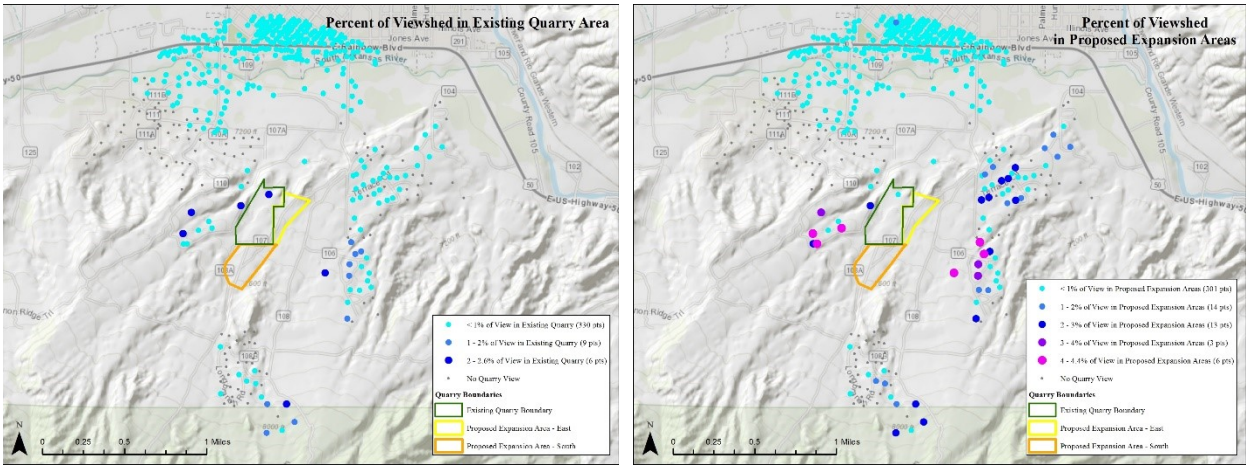


Figure 7 - Maps displaying sample locations symbolized by percent of overall viewshed within the existing quarry area (left) and the proposed expansion areas (right).

Figure 8 below is an example of symbolizing sample locations by the percent of the existing quarry area on the left (mean 6%) and the proposed expansion areas on the right (mean 10%) that are potentially visible from each sample location.

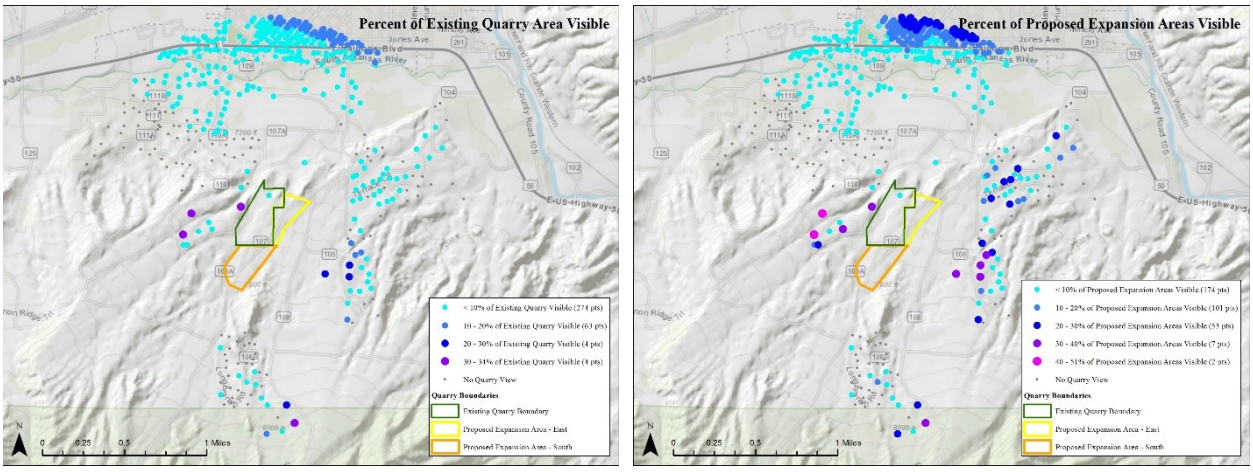


Figure 8 - Maps displaying sample locations symbolized by percent of existing quarry area visible (left) and percent of proposed expansion area potentially visible (right).

Maps such as those above are useful and effective for displaying the outputs of the iterative viewshed analysis process by providing the viewer with an easy to interpret representation of the potential visual impacts that could result from the proposed quarry expansion. Displaying the maps side by side and symbolizing the percent of each sample location's overall viewshed that is within the quarry areas using the same graduated colors scale also allows the map viewer to see where geographic shifts in potential impacts may occur and where the potential increase in shifts may be most significant.

Figure 9 below applies the comparison methods from Figures 7 and 8 to display an isolated view of sample locations that have no previous view of the existing quarry and have potential views of the proposed expansion areas, symbolized by the percent of the overall viewshed that is within the proposed expansion areas on the left (mean 0.4%), and the percent the proposed expansion areas on the right (mean 3%) that are potentially visible from each sample location.

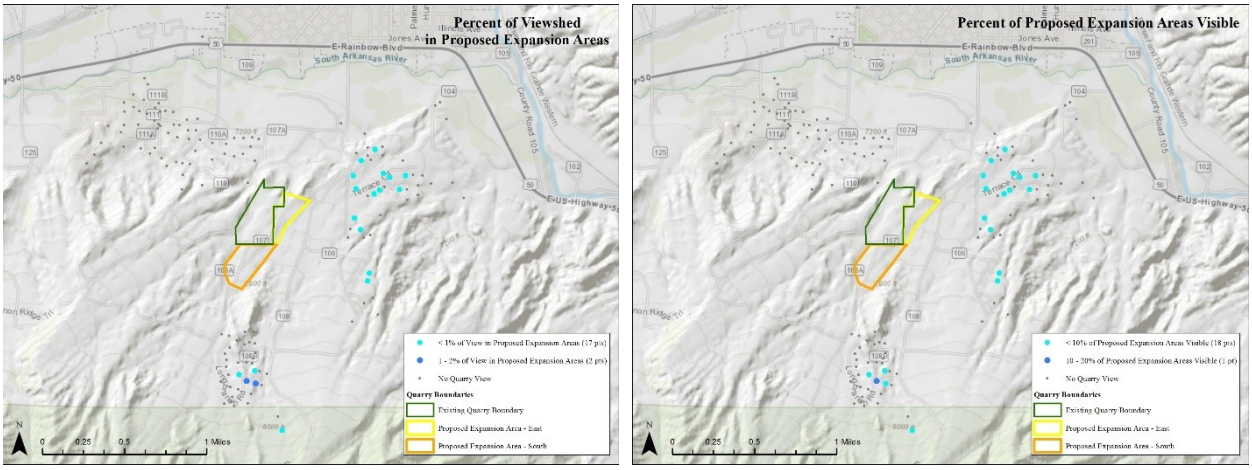


Figure 9 - Maps displaying 19 sample locations with no view of the existing quarry that have a potential view of the proposed expansion areas; the percent of their total view within the proposed expansion areas (left); and the percent of the proposed expansion areas that are potentially visible (right).

Ground Truthing Analysis Results

The Contrast Rating system is based on Visual Resource Management (VRM) objectives. For the area surrounding the proposed mine expansion, the VRM objective is to manage to a Class II. The objective of the Class II objective is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. Five Key Observation Points (KOPs) were selected and visited by BLM resource specialists to ground truth the results of the viewshed analysis. Ground truthing allowed for observation of visual obstructions by actual on-the-ground features such as buildings, trees, large signs, and billboards, and provided a more complete understanding of the views near the proposed expansion areas. The full results of the ground truthing analysis are contained in the Contrast Rating Forms completed for the KOPs. Four extra points were also visited and photographed during the ground truthing analysis.

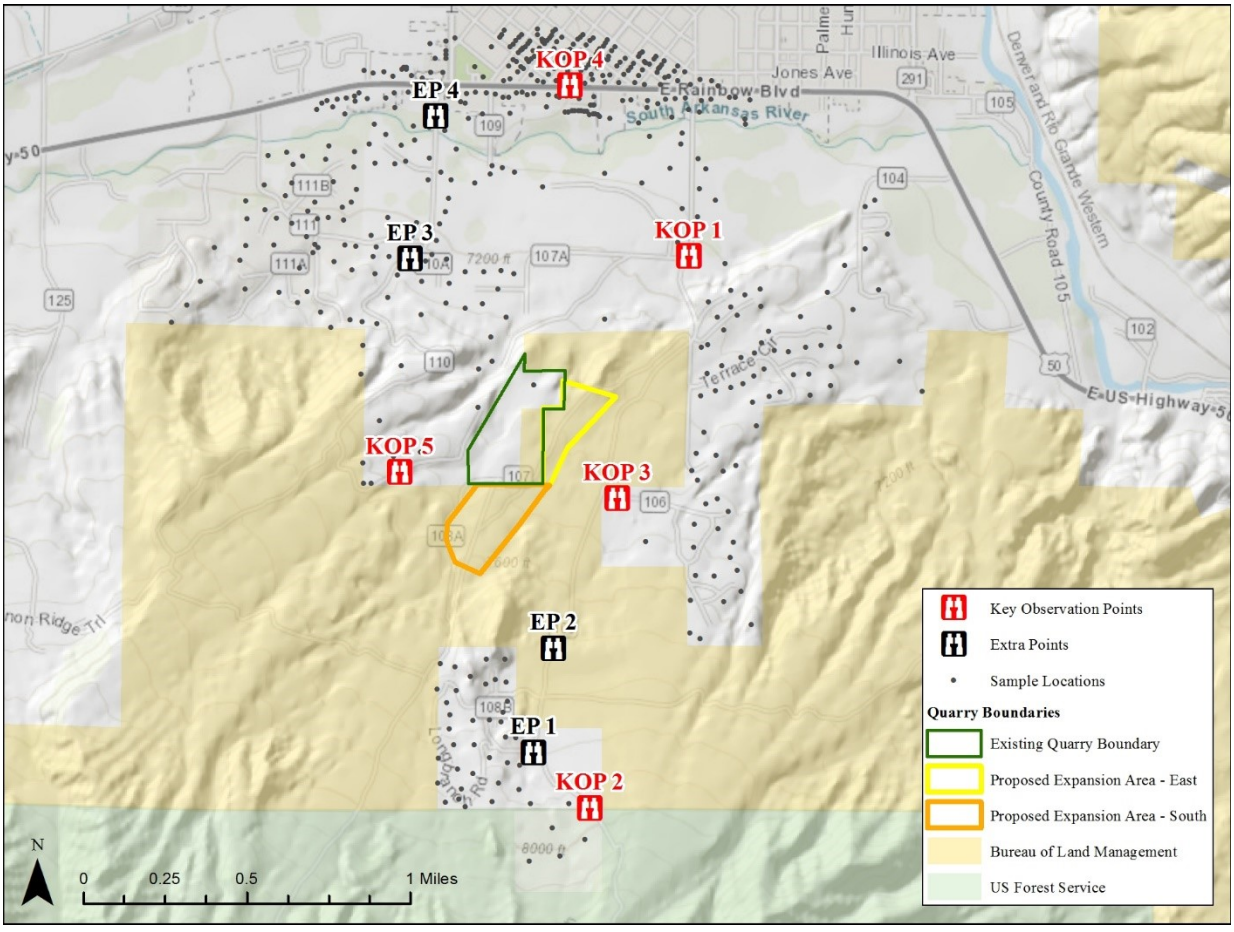


Figure 9 – Map of the locations of the Key Observation Points (KOP) and extra points (EP) used in the ground truthing analysis.

The full results of the ground truthing analysis are contained in the Contrast Rating Forms completed for the KOPs. Four extra points were also visited and photographed during the ground truthing analysis. Four of the five KOPs were analyzed and found to meet the Class II VRM objective due to the thick vegetation cover, location of the expansion within a drainage and the small percentage of change in comparison to the overall viewshed. A casual observer's view would not be centered on the proposed mine expansion. KOP 5 was the only point where residents in the area have a direct view overlooking the mine footprint. From this point, the south expansion would extend into a deep 100-foot drainage with the high point of a foreground ridge hiding most of the expansion. The amount of change in contrast to the current mine was determined to be weak. From KOP 5, the east expansion area would add disturbance to the view of the current size of the mine and was also found to add a weak amount of contrast as opposed to its current view.

Appendix F. Public Comment Table