




MINERALS PROGRAM INSPECTION REPORT
PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Shot Rock Pit	MINE/PROSPECTING ID#: M-2012-023	MINERAL: Crushed stone material	COUNTY: Las Animas
INSPECTION TYPE: Monitoring	WEATHER: Clear	INSP. DATE: November 28, 2023	INSP. TIME: 01:00
OPERATOR: Tamrock Gravel LLC	OPERATOR REPRESENTATIVE: Brent and Tami Tamburelli	TYPE OF OPERATION: 112c - Construction Regular Operation	
REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: Complete Bond	BOND AMOUNT: \$22,800.00	
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None	
INSPECTOR(S): Amber Gibson	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: December 8, 2023	

The following inspection topics were identified as having Problems or Possible Violations. OPERATORS SHOULD READ THE FOLLOWING PAGES CAREFULLY IN ORDER TO ASSURE COMPLIANCE WITH THE TERMS OF THE PERMIT AND APPLICABLE RULES AND REGULATIONS. If a Possible Violation is indicated, you will be notified under separate cover as to when the Mined Land Reclamation Board will consider possible enforcement action.

INSPECTION TOPIC: Slides & Other Damage

POSSIBLE VIOLATION: Approximately 0.34 acres of land has been affected outside of the approved permit boundary near the approved permit site, in addition to the 0.62 acres near the entrance road to the operation cited in the previous inspection report for the Division's October 24, 2023 inspection. This brings the total off-site disturbance to 0.96 acres. This is a possible violation at this time pursuant to: 1.) C.R.S. 34-32.5-109(1) for failure to first obtain from the board or office a reclamation permit prior to engaging in a new operation. AND/OR 2.) C.R.S. 34-32.5-116(4)(i) for failure to protect areas outside of the affected land from slides or damages occurring during the mining operation.

CORRECTIVE ACTIONS: This possible violation will require a hearing before the Mined Land Reclamation Board. The schedule and other details for the MLRB hearing will be provided under a separate document to be sent via certified mail to the Operator.

CORRECTIVE ACTION DUE DATE: Tentative Hearing Date - 01/17/24

INSPECTION TOPIC: Signs & Markers

PROBLEM: The affected area boundary markers are missing or incorrectly placed. This is a problem for failure to maintain boundary markers around the affected area as required by Section 3.1.12(2) of the rule.

CORRECTIVE ACTIONS: The Operator shall replace the boundary markers in the correct location(s). The

Operator shall provide photos and coordinates as proof to the Division that this has been done by the corrective action date.

CORRECTIVE ACTION DUE DATE: 3/08/24

OBSERVATIONS

The Shot Rock Pit was inspected by Amber Gibson with the Division of Reclamation, Mining and Safety (Division/DRMS) as part of the Division's monitoring inspection program. Brent and Tami Tamburelli (representing the Permittee - Tamrock Gravel LLC) and the landowner for the majority of the permit site, Nicole Tamburelli, were present during the inspection. The site was previously attempted to be inspected by the Division on October 24, 2023 (see previous inspection report dated November 6, 2023).

The site is located about 5 miles north of Cokedale, east of CR 26.5. The Division met the landowner, Dr. Nicole Tamburelli, and the Operator(s) at the red gate located north of CR 26.5. Once through the gate, the landowner unlocked the cattle gate that connects the entrance road (from CR 26.5 on the Operator's property), to the road leading to the entrance to the site (see Map 1). The Operators have completed mining in December 2022 and are entering into final reclamation. During this inspection, the Division made observations of the current disturbance onsite.

This site is a 112c Regular Operations Construction Materials Permit, permitted for 21 acres. The mining commodity at the site is crushed stone material. The post mine land use for this permit is rangeland.

Availability of Records:

On November 7, 2023, the Operator reinstated the business entity acting as the Permittee for this site with the Colorado Secretary of State as a result of the previous inspection's citation. The Division has abated this previous inspection problem.

Acid And Toxic Materials:

The Division did not observe the presence of toxic chemicals onsite. A round basin was observed near the portable office trailer on the west side of the site (see Photo 1 & Map 1). The Operator stated that this acted as a secondary containment structure when fuel was being stored on-site. No fuel storage remained on-site at the time of the inspection.

Backfilling, Grading, and Reclamation Success:

This site had two approved reclamation plans, Option A and Option B. The options were dependent on whether it would be economic to remove the deeper layers of overburden in the north-central portion of the permit. Because the depth was too great to pursue further mining in the north-central portion of the permit, the Operator is pursuing Option B. In Option B, the overburden above the highwall is approved to be sloped to a 3H:1V slope. The highwall is approved to be a maximum of 20 feet high in Option B, with an overall reclaimed slope of 2H:1V. This slope is approved to be constructed by creating a 20 foot wide bench 10 feet below the top of the highwall.

However, during the inspection, the Operator stated that they instead intend to backfill the entire highwall to at least a 3H:1V slope. Onsite, there is backfill and overburden material along the top of the highwall, as well as at the bases (Photos 2-6 & Map 1). The Operator also wants to reduce the slope along the south-side of the permit, by pulling material in from the MSHA berm and overburden material that had been placed on the south slope, back up into the pit area. The Division is in agreement with the Operator, that reducing the slopes at the site further than what was planned will better help to reduce erosion onsite and facilitate re-vegetation. Some material has already been replaced on-site. Where the road from the equipment storage area (Plant Area on mine plan map) leads down into the pit, the ground beneath had been blasted and regraded (see

Photo 7 & Map 1). The Operator stated that they are not ready to seed that area because they plan to re-disturb it and create armored ditches throughout to aid in sediment control.

Financial Warranty:

The Division currently holds a reclamation bond in the amount of \$22,800 for this operation. The Division has evaluated the reclamation liability at the site, and found it to be \$37,270-- a difference of \$14,470 from the bond currently held. The Division's cost estimate is enclosed with this report. **The Operator will have 14 days** from the issuance of this report (until December 22, 2023) to submit any questions on the cost estimate. If no questions are received, the Division may issue a surety increase notice for the difference. The Operator will have 60 days from the date of the notice to submit and obtain acceptance of the increase in financial warranty from the Division in accordance with Rule 4.2.1(2).

Hydrologic Balance and Sediment Control:

No standing water was observed onsite during the inspection. The Operator has ensured that areas where water tends to flow to have been walled off through the use of berms (Photo 8; Map 1), or slowed down by installing armored ditches (Photo 9; Map 1).

Gen. Compliance With Mine Plan:

Mining had begun on the west edge of the permit, and has proceeded to the north and east per the approved mining plan. The overburden above the deposit became too deep in the north and central portions of the permit, and mining in this area was discontinued due to it not being economical to proceed.

A disturbed area near the entrance to the site (Photo 10; Map 1) is shown on the Pre-Mining map as present prior to the issuance of the permit, as a result of a historic operation conducted in the area. This has not been re-disturbed since the permit has been issued. The western portion of the permit had also been disturbed by a previous mine, and consisted of partially reclaimed areas from the previous operation. This area has been re-disturbed as a result of permitted actions.

Roads and Right of Entry:

An updated signed and notarized statement from the landowner, in compliance with the legal right of entry agreement requirements pursuant to Rule 5.1.2(d)(vi) was submitted to the Division on November 14, 2023. This was cited in the previous inspection report as a problem, and has since been considered abated.

During the inspection, the Landowner and Operator briefly discussed the logistics of the entry agreement, and agreed at that time that the Operator will have access through the cattle gate on the Landowner's property to conduct reclamation. The road leading up to the site is a pre-existing road that is also used by oil and gas vehicles in the area. The road has been maintained by the Operators. Additionally, the Operators stated that they had been instructed by MSHA to build safety berms along the perimeter of the road and the affected area within the permit. The Division observed these berms along the entrance road and along the east, south, and west perimeter of the permit area. The construction and maintenance of these berms may have contributed to off-site damage found at the site(see section Slides and Other Damage below).

Revegetation:

Near the entrance to the site, where equipment had been stored during mining, the Division observed a variety of grasses growing through the rubble (Photo 11; Map 1). When asked if the Operators had done some broadcast seeding in this area, they stated that they had, and that they were testing how well the seed would

germinate. At this time, the Operator has not replaced any topsoil or seeded outside of the testing area.

Some Mullein was observed outside of the permit boundary along some slopes. The Division advised the Operator to ensure that it doesn't spread within the permit area. The Operator stated that they already actively control for weeds at the site. Noxious weeds were not observed within the permit boundary at this time.

Slides and Off-site Damage:

The Operator stated that the area leading down from the equipment storage area on the east side of the permit, had been blasted and backfilled. Further cut and fill work will be conducted in this area, and the Operator also plans to install armored ditches to facilitate controlled drainage. However, upon further review of recent Google Earth Pro aerial images, it appears that an approximately 0.11 acre area outside of the permit boundary has been affected. The Operator had excavated this area and it has since backfilled with material. This backfilled area is downslope of the permit boundary (see Map 1 and Figure 1).

Additionally, along the south-west portion of the permit, where the Operator stated that they were required by MSHA to build higher safety berms, approximately 0.23 acres contain material that appears to have slid down-slope and off-site (see Map 1 and Figure 1).

There is **an outstanding Possible Violation citation**, for off-site damage for affecting approximately 0.62 acres near the entrance to the operation located outside of the approved affected land area, cited in the Division's previous report for the October 24, 2023 inspection. In addition to the off-site disturbance cited in the previous report, the Division estimates that approximately 0.34 acres have been affected outside of the permit boundary by slides or damages near the permit boundary. Therefore, the total off-site disturbance of approximately 0.96 acres has been cited as a **possible violation** above. The Division will bring this matter before the MLRB for a hearing for consideration of a possible violation pursuant to C.R.S. 34-32.5-116(4)(i) for failure to protect areas outside of the approved affected land from slides or damages, and/or for failure to first obtain a reclamation permit prior to engaging in a new operation in accordance with C.R.S. 34-32.5-109(1). The schedule and other details for the MLRB hearing will be provided under a separate document to be sent via certified mail to the Operator.

Support Facilities On-site:

A portable office trailer and a few pieces of equipment (a screener, front end loader, and a haul truck) are currently on-site (Photo 1: Map 1). The excavator that will be used for backfilling is at another one of the Operator's projects, but will be transported back for use in reclamation tasks.

Signs and Markers:

A permit sign, posted in compliance with Rule 3.1.12(1), is located at the red entrance gate, north of CR 26.5. The permit sign was photographed and included in the previous inspection report.

The Division used Esri Field Maps to take coordinate points of the affected boundary markers in the field posted during the inspection. The boundary is marked with a combination of white monuments, t-posts, and a fence line (see red icons on Map 1 and associated Photos 17 A-I). The west, east, and south portions of the permit are primarily marked by the white monuments. Beginning on the north-west portion of the permit, and running along the north side to the north-east side of the permit, a fence line marks the boundary. A white marker is also located near a cattle grate in the fence line at the north-east corner of the boundary.

Where the red polygons indicate off-site damage, no permit boundary markers were located in the immediate vicinity. Additionally, the markers on the west side of the permit appear to be located more inland than what is depicted on the Mine Plan map.

The affected area boundary is marked on the north, east, and south-east side of the permit boundary. The markers in the west corner do not appear to follow the affected boundary. The entire 21 acre area of the permit is approved to be affected, with 3.54 acres of it designated as set-backs along the boundary, ranging from 15 to 110 feet in from the boundary. It appears the set backs are marked along the western edge of the boundary, but not the affected/permit boundary itself. This has been **cited above as a problem**. The Operator shall install permit/affected boundary markers along the south and west border of the operation, and provide photographs and coordinates of the markers to the Division by the corrective action date.

Topsoil:

Various topsoil piles were observed throughout the site (Photos 18-21; Map 1). The Operator has posted signs displaying "Topsoil" at the majority of the locations. The Operator stated that they may also screen some of the overburden piles to collect additional growth medium soil if needed. Many of the topsoil and overburden piles contained large woody debris (Photo 18-22; Map 1). Pursuant to Rule 3.1.9(2), woody vegetation shall be removed from or appropriately incorporated into the existing topsoil prior to excavation within the affected areas. The Operator stated that they left the woody debris in the topsoil to act as compost material. The topsoil piles did not display signs of erosion, and appear to be stable at this time.

Conclusion:

This concludes the Division's Inspection Report; a map and a figure displaying topics discussed during the inspection, and a subset of corresponding photographs that were taken during the time of the inspection, are included below. If you need additional information or have any questions, please contact me by email at amber.gibson@state.co.us or by telephone at (720) 836-0967.

Inspection Contact Address

Brent and Tami Tamburelli
Tamrock Gravel LLC
137 East Plum St.
Trinidad, CO 81082

Enclosure: 2023 Reclamation Cost Estimate

CC: Jared Ebert, DRMS
Steve O'Brian, Environment, Inc.
Nicole Tamburelli, Landowner

(AR) RECORDS----- <u>Y</u>	(FN) FINANCIAL WARRANTY----- <u>Y</u>	(RD) ROADS----- <u>Y</u>
(HB) HYDROLOGIC BALANCE----- <u>Y</u>	(BG) BACKFILL & GRADING----- <u>Y</u>	(EX) EXPLOSIVES----- <u>N</u>
(PW) PROCESSING WASTE/TAILING---- <u>N</u>	(SF) PROCESSING FACILITIES----- <u>Y</u>	(TS) TOPSOIL----- <u>Y</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>Y</u>	(FW) FISH & WILDLIFE----- <u>N</u>	(RV) REVEGETATION---- <u>Y</u>
(SM) SIGNS AND MARKERS----- <u>PB</u>	(SP) STORM WATER MGT PLAN---- <u>N</u>	(RS) RECL PLAN/COMP-- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>N</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>Y</u>	(OD) OFF-SITE DAMAGE----- <u>PV</u>	

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

PHOTOGRAPHS



Photo 1: Looking at the western corner of the site. Pictured is equipment, a portable office, and an empty fuel tank barrier tub (arrow).



Photo 2: Looking at the western-most extent of the highwall. Overburden is stockpiled above and below the cut.



Photo 3: Two track road that runs along the top of the highwall. Overburden is stockpiled to the south of the road, and a few topsoil piles are stockpiled to the north along the road.



Photo 4: Looking west along the highwall from the top.



Photo 5: Looking east along the highwall in the pit area.



Photo 6: Looking west along the highwall in the pit area. The maximum height of the highwall is estimated at 17' from field measurements.



Photo 7: Looking east downslope of the internal road.



Photo 8: Looking west at an area along the pit boundary that had accumulated water. The berms in place have helped to control sedimentation and erosion from leaving the site in this area.



Photo 9: Looking east at an armored channel installed to help with sediment control onsite.



Photo 10: Looking west at the 'Old mine' disturbance located in the east corner of the site.



Photo 11: Variety of grasses growing in the test area in the east portion of the site where broadcast seeding had been done.



Photo 12: Looking north across the equipment storage area (Plant Area on Mine Map). Approximately 11 acres of area along the northern boundary of the permit is undisturbed and contains various woody vegetation.



Photo 13-16: Photos 13 and 14 are looking downslope, and Photos 15 and 16 are looking across, the MSHA berms in the south-west portion of the permit. Sliding has occurred downslope of these berms.

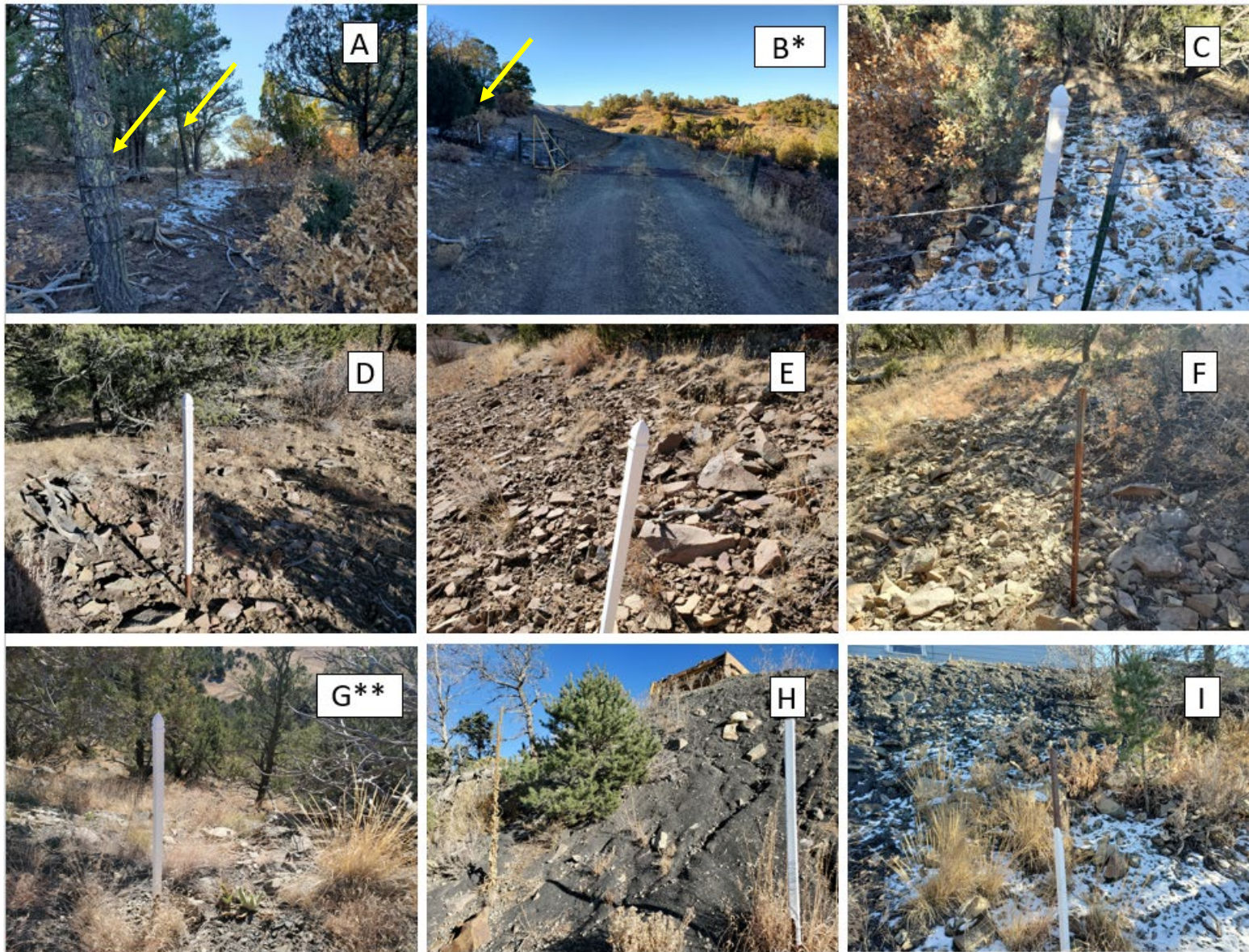


Photo 17 A-I (red icon markers on Map 1): Photos 17 A – I indicate the permit boundary locations observed in the field during the November 2023 inspection.
**Red icon on Map 1 for B indicates the marker's location – not the photo capture location. **Photo for G was taken while streaming a path in Esri Field maps (see purple path on Map 1), an exact point along the line was not saved.*

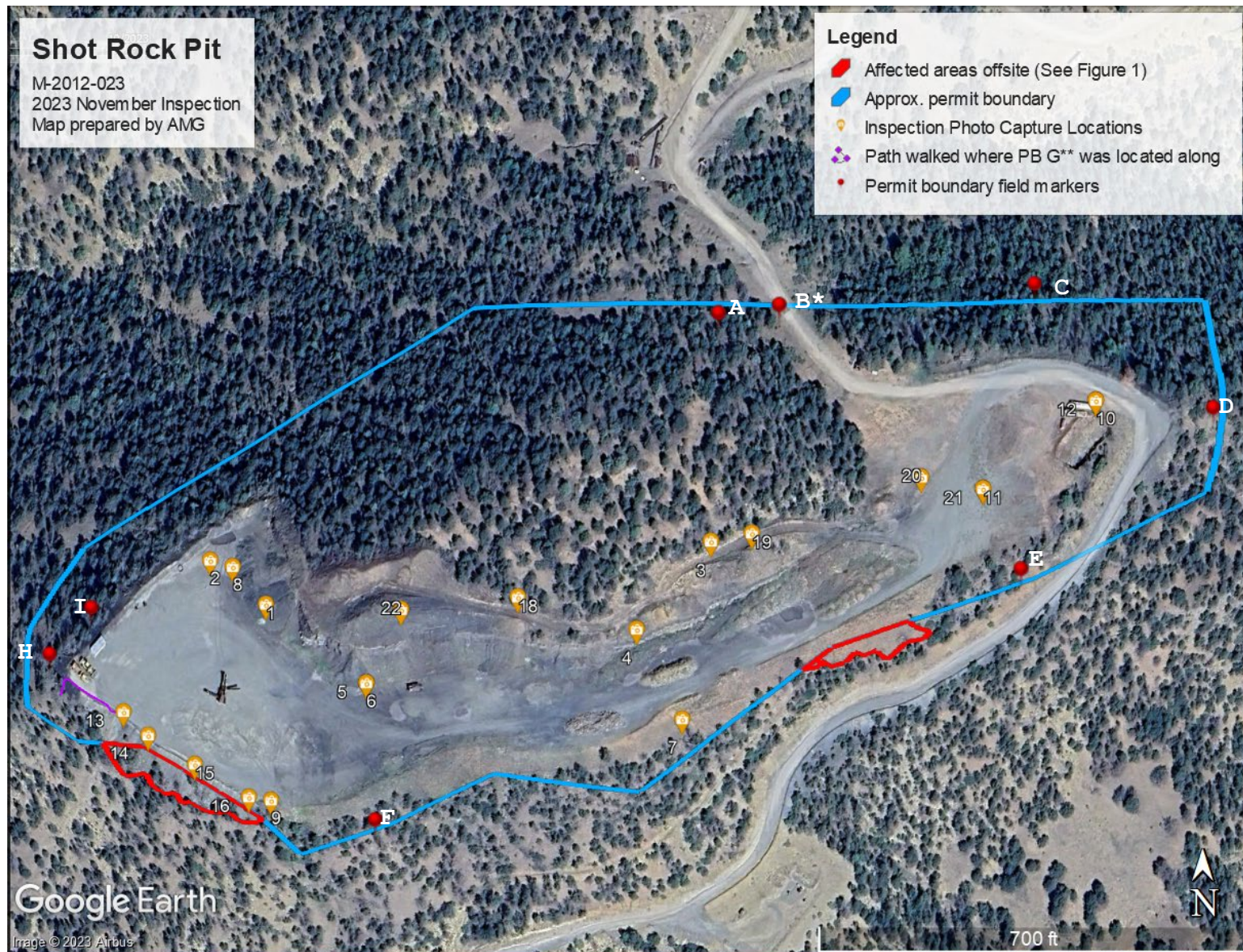


Photos 18-21: Photos 18-20 are topsoil piles that were marked with signs. Photo 21 shows a stockpile that the Operator stated is also topsoil. The piles in Photos 20 and 21 contain large woody material.



Photo 22: Overburden above the highwall containing woody vegetation.

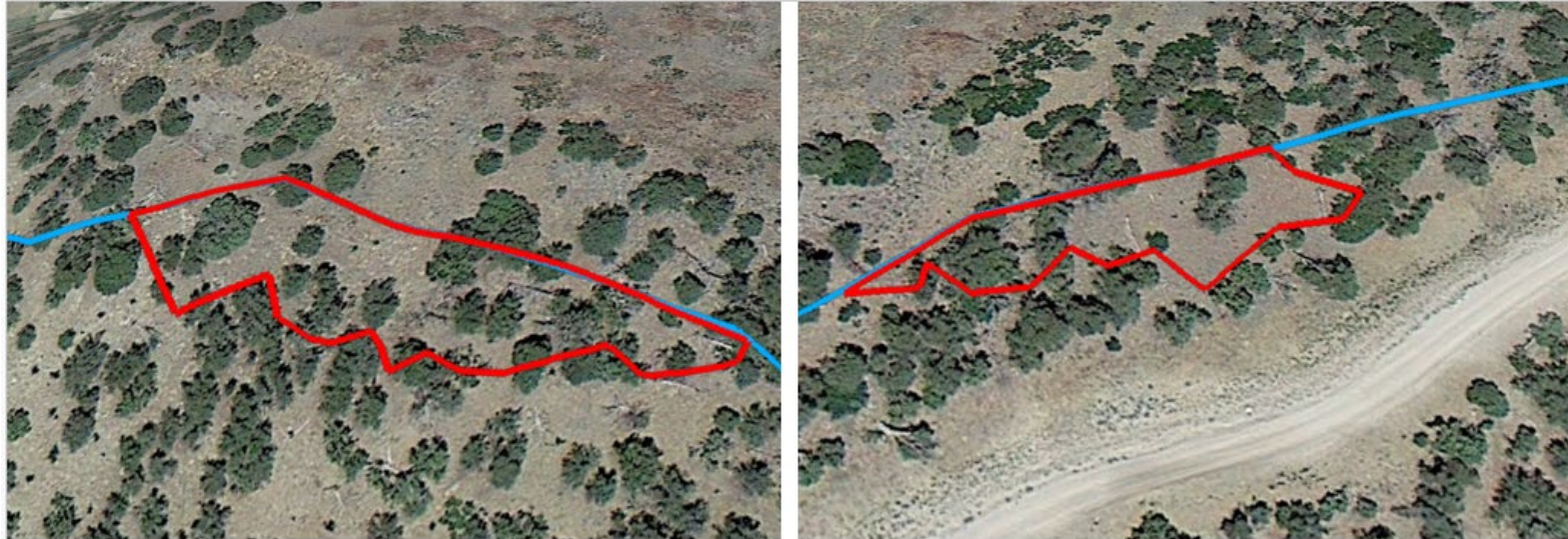
MAPS



Map 1: Map prepared in Google Earth Pro. The aerial imagery sourced for this map was dated October 2023. Photographs in the report correspond to this map. The polygons in Figure 1 below also correspond with this map.

FIGURES

2012



2023



Figure 1: The images on the top row provide a close-up look at the offsite areas in question on Map1 as of May 2012. The images on the bottom represent current on-site conditions within these areas as of October 2023. The area highlighted in the image on the left encompasses an area of approximately 0.23 acres, and the right encompasses approximately 0.11 acres.

COST SUMMARY WORK

Task description: Reclamation Cost Summary for the Shot Rock Pit

Site: Shot Rock Pit Permit Action: 2023 Inspection Permit/Job#: M2012023

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 12/1/2023 County: Las Animas Filename: M023-000
User: AMG

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Cut/fill bank sloping & some back sloping to at least 2H:1V	DOZER	1	2.15	\$957
002	Spread 12" Root Zone material over level areas	DOZER	1	30.30	\$13,466
003	Spread 4" Topsoil over 10 acre disturbance	DOZER	1	2.85	\$1,266
004	Revegetation	REVEGE	1	10.00	\$9,428
005	Mobilization	MOBILIZE	1	3.11	\$3,256
<u>SUBTOTALS:</u>				48.41	\$28,373

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$573
Performance bond:	1.05	Total =	\$298
Job superintendent:	24.21	Total =	\$1,575
Profit:	10.00	Total =	\$2,837

TOTAL O & P = \$5,284

CONTRACT AMOUNT (direct + O & P) = \$33,657

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	<u>\$500</u>	Total =	<u>\$500</u>
Engineering work and/or contract/bid preparation:	<u>4.25</u>	Total =	<u>\$1,430</u>
Reclamation management and/or administration:	<u>5.00</u>		<u>\$1,683</u>

CONTINGENCY: 0.00 Total = \$0

TOTAL INDIRECT COST = \$8,897

TOTAL BOND AMOUNT (direct + indirect) = \$37,270

BULLDOZER WORK

Task description: Cut/fill bank sloping & some back sloping to at least 2H:1V

Site: Shot Rock Pit

Permit Action: 2023 Inspection

Permit/Job#: M2012023

PROJECT IDENTIFICATION

Task #: 001

State: Colorado

Abbreviation: None

Date: 12/1/2023

County: Las Animas

Filename: 1

User: AMG

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU

Horsepower: 310

Blade Type: Semi-Universal

Attachment: 3-shank ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$241.38	NA
Operating Cost/Hour:	\$143.92	100
Ripper own. Cost/Hour:	\$14.11	NA
Ripper op. Cost/Hour:	\$3.73	50
Operator Cost/Hour:	\$41.30	NA
Total unit Cost/Hour:	\$444.44	
Total Fleet Cost/Hour:	\$444.44	

MATERIAL QUANTITIES

Initial Volume: 1,041

Swell factor: 1.000

Loose volume: **1,041** LCY

Source of estimated volume: 930' x 15' (avg) HW

Source of estimated swell
factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet

Unadjusted hourly
production: 1,400.0 LCY/hr

Materials consistency
description: Rock, avg. ripped or blasted 0.7

Average push
gradient: 0 %

Average site altitude: 6,800 feet

Material weight: 2,900 lbs/LCY

Weight description: Decomposed rock - 50% Rock, 50% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.700	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3455

Adjusted unit
production: 483.70 LCY/hr

Adjusted fleet
production: **483.7** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.919/LCY

Total job time: **2.15** Hours

Total job cost: **\$957**

BULLDOZER WORK

Task description: Spread 12" Root Zone material over level areas

Site: Shot Rock Pit

Permit Action: 2023 Inspection

Permit/Job#: M2012023

PROJECT IDENTIFICATION

Task #: 002

State: Colorado

Abbreviation: None

Date: 12/4/2023

County: Las Animas

Filename: 2

User: AMG

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU

Horsepower: 310

Blade Type: Semi-Universal

Attachment: 3-shank ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$241.38	NA
Operating Cost/Hour:	\$143.92	100
Ripper own. Cost/Hour:	\$14.11	NA
Ripper op. Cost/Hour:	\$3.73	50
Operator Cost/Hour:	\$41.30	NA
Total unit Cost/Hour:	\$444.44	
Total Fleet Cost/Hour:	\$444.44	

MATERIAL QUANTITIES

Initial Volume: 6,453

Swell factor: 1.000

Loose volume: **6,453** LCY

Source of estimated volume: ~4 acres of level dstbd area, 12' root zone cover needed

Source of estimated swell
factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet

Unadjusted hourly
production: 491.9 LCY/hr

Materials consistency
description: Partly consolidated stockpile 1.1

Average push
gradient: -15 %

Average site altitude: 6,800 feet

Material weight: 2,900 lbs/LCY

Weight description: Decomposed rock - 50% Rock, 50% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.600	(FND-SF)
Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4330

Adjusted unit
production: 212.99 LCY/hr

Adjusted fleet
production: **212.99** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$2.087/LCY

Total job time: **30.30** Hours

Total job cost: **\$13,466**

BULLDOZER WORK

Task description: Spread 4" Topsoil over 10 acre disturbance

Site: Shot Rock Pit

Permit Action: 2023 Inspection

Permit/Job#: M2012023

PROJECT IDENTIFICATION

Task #: 003

State: Colorado

Abbreviation: None

Date: 12/4/2023

County: Las Animas

Filename: M023-003

User: AMG

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU

Horsepower: 310

Blade Type: Semi-Universal

Attachment: 3-shank ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$241.38	NA
Operating Cost/Hour:	\$143.92	100
Ripper own. Cost/Hour:	\$14.11	NA
Ripper op. Cost/Hour:	\$3.73	50
Operator Cost/Hour:	\$41.30	NA
Total unit Cost/Hour:	\$444.44	
Total Fleet Cost/Hour:	\$444.44	

MATERIAL QUANTITIES

Initial Volume: 1,613

Swell factor: 1.000

Loose volume: **1,613** LCY

Source of estimated volume: ~10 acres of dstbd area, 4" root zone cover needed

Source of estimated swell
factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet

Unadjusted hourly
production: 491.9 LCY/hr

Materials consistency
description: Partly consolidated stockpile 1.1

Average push
gradient: -15 %

Average site altitude: 6,800 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 1.1516

Adjusted unit
production: 566.47 LCY/hr

Adjusted fleet
production: **566.47** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.785/LCY

Total job time: **2.85** Hours

Total job cost: **\$1,266**

REVEGETATION WORK

Task description: Revegetation

Site: Shot Rock Pit

Permit Action: 2023 Inspection

Permit/Job#: M2012023

PROJECT IDENTIFICATION

Task #: 004

State: Colorado

Abbreviation: None

Date: 12/5/2023

County: Las Animas

Filename: M023-004

User: AMG

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
0-20-20, 4-8-12, 10-10-10	6.00	pound	\$0.62	\$3.72
			Total Fertilizer Materials Cost/Acre	\$3.72

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$41.82
Total Fertilizer Application Cost/Acre	\$41.82

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.75	12.24	\$11.98
Little Bluestem - Pastura	1.75	10.45	\$23.60
Sideoats Grama - El Reno	2.25	7.39	\$18.84
Western Wheatgrass - Barton	4.00	10.10	\$28.00
Totals Seed Mix	8.75	40.17	\$82.42

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hay, delivered {MEANS 31 25 14.16 1200}	1.00	TON	\$429.79	\$429.79

Total Mulch Materials Cost/Acre				\$429.79
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Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$74.46
Total Mulch Application Cost/Acre	\$74.46

JOB TIME AND COST

No. of Acres:	10	Cost /Acre:	\$864.21
Estimated Failure Rate:	25%	Cost /Acre*:	\$314.42
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$8,642.10
Reseeding Job Cost:	\$786.05
Total Job Cost:	\$9,428
Job Hours:	10.00

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: Mobilization

Site: Shot Rock Pit

Permit Action: 2023 Inspection

Permit/Job#: M2012023

PROJECT IDENTIFICATION

Task #: 005

State: Colorado

Abbreviation: None

Date: 12/5/2023

County: Las Animas

Filename: M023-005

User: AMG

Agency or organization name: DRMS

EQUIPMENT TRANSPORT RIG COST

Shift basis: 1 per day

Cost Data Source: CRG Data

Truck Tractor Description: GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED, 400 HP (2ND HALF, 2006)

Truck Trailer Description: GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT TRAILER (25T, 50T, AND 100T)

Cost Breakdown:

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	\$20.26	\$36.04	\$47.05
Operating Cost/Hour:	\$39.51	\$76.08	\$82.85
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$82.29	\$158.17	\$175.95

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	53.08	\$255.49	\$175.95	1	\$431.44	\$175.95	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$6.73	\$82.29	2	\$178.04	\$164.58	\$500.00

Subtotals: **\$609.48** **\$340.53** **\$750.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 3/4 T.	\$15.83	1	\$15.83	\$15.83

Subtotals: **\$15.83** **\$15.83**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: TRINIDAD

Total one-way travel distance: 12.50 miles

Average Travel Speed: 45.00 mph

Total Non-Roadable Mob/Demob Cost *	\$3,246.74
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$8.79
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.28	0.28
Return Time (Hours):	0.28	0.28
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.56	0.56

JOB TIME AND COSTTotal job time: 3.11 HoursTotal job cost: \$3,256