COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

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: Robinson Sons Gravel Pit No. 1	**MINE/PROSPECTING ID#:** M-2008-076	**MINERAL:** Sand and gravel and	**COUNTY:** Las Animas
INSPECTION TYPE: Monitoring	**WEATHER:** Clear	**INSP. DATE:** March 26, 2024	**INSP. TIME:** 12:47
OPERATOR: Robinson Sons Inc.	**OPERATOR REPRESENTATIVE:** Daniel Robinson	**TYPE OF OPERATION:** 112c - Construction Regular Operation	
REASON FOR INSPECTION: Normal I&E Program	**BOND CALCULATION TYPE:** Complete Bond	**BOND AMOUNT:** $52,815.00	
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** None	**JOINT INSP. AGENCY:** None	
INSPECTOR(S): Amber M. Gibson	**INSPECTOR'S SIGNATURE:** 	**SIGNATURE DATE:** April 17, 2024	

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: Acid And Toxic Materials
PROBLEM: Improper storage and containment of fuels and/or other hazardous materials was present on site.
CORRECTIVE ACTIONS: All storage tanks, petroleum and any hazardous materials on site for any period of time shall have appropriate secondary containment. The site will also have to comply with all applicable SPCC requirements. Please supply photo documentation that any fuel or hazardous materials containers are stored properly - including applicable secondary containment structures by the corrective action date. Note that secondary containment structures shall consist of an impermeable containment which could contain all contents of the tanks and various containers (when full) plus 10% of the total capacity. The Operator may also provide photo documentation that all containers have been removed from the site on or before the corrective action date.
CORRECTIVE ACTION DUE DATE: 5/20/24

INSPECTION TOPIC: Hydrologic Balance
PROBLEM: Erosion gullies and ruts were observed on-site. This is a problem at this time for failure to protect the affected land from erosion pursuant to C.R.S. 34-32.5-116 (4) (j).
CORRECTIVE ACTIONS: The Operator shall provide photo documentation to the Division verifying erosion gullies and ruts have been repaired, and that the site has have been reconstructed and stabilized to prevent erosion damage by the corrective action date.
CORRECTIVE ACTION DUE DATE: 5/20/24

INSPECTION TOPIC: Gen. Compliance With Mine Plan
PROBLEM: The current mine and reclamation plans and maps need to be updated and clarified pursuant to C.R.S. 34-32.5-112. The Operator must provide sufficient information to describe or identify how the Operator intends to conduct the operation.
CORRECTIVE ACTIONS: The Operator shall submit a Technical Revision, with the required $216 revision fee, to update and clarify the current approved mine plan to reflect existing and proposed activities by the corrective action date.
CORRECTIVE ACTION DUE DATE: 5/20/24

OBSERVATIONS

The Robinson Sons Gravel Pit No.1 was inspected by Amber Gibson with the Division of Reclamation, Mining and Safety (Division/DRMS) as part of the Division's monitoring inspection program. Dan Robinson, representing the Operator (Robinson Sons, Inc.), accompanied me during the inspection. The site was previously inspected on August 30, 2022.

This site is permitted under a 112c Regular Operations Construction Materials permit. As of December 21, 2018, following the approval of Amendment No. 1 (AM1), this site encompasses a total permit area of 180.6 acres. The pre-mining land use for this operation was pastureland, and the post-mining land use is both pastureland and residential. The site is segregated into four distinct mining areas, in addition to a 'reclamation only' area (see Map 1). The commodities mined at this site are sand and gravel. During the inspection, the weather was warm and the sky was clear.

Availability of Records:
The annual report, map, and fee are paid through March 23, 2025. The annual report for the 2023 report year was submitted a day before the inspection. The areas addressed on the annual report map were observed during this inspection (see Maps 2 and 3). There are no outstanding infractions.

Acid and Toxic Materials:
A fuel tank was observed in the equipment lay-down area in Area 1. The tank was not double walled, to the Operator's knowledge, and did not have a form of secondary containment (Photo 1). This has been **cited as a problem above**. The Operator stated that they would place a stock tank underneath the tank to serve as secondary containment. The Operator shall submit a photo of the stock tank around the fuel tank, or other instillation of an approved form of secondary containment, to the Division by the corrective action date.

Financial Warranty:
The Division currently holds a reclamation bond in the amount of $52,815 for this site. The Division has estimated the reclamation liability at the site based on what is currently disturbed and found it to be $75,023--a difference of $22,208 from the bond currently held. The Division's cost estimate is enclosed with this report. **The Operator will have 14 days (until May 1, 2024)**, from the issuance of this report 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 during the inspection. This dry-pit operation is not approved to expose groundwater, nor is it approved to impound water. A hose was observed in Area 1, which the Operator stated is used to pump any standing surface water that has been impounded out of the pit so that it can infiltrate into the ground. The Operator also has earthen berms surrounding disturbed areas (Photo 2) to ensure sediment from the operation stays on-site, and to protect areas off-site from surface water run-off and erosion.

Some rills have formed on the re-vegetated slopes in Area 1 (see photos corresponding with the Reclamation Success section below in Area 1). **This has been cited as a problem above.** The Operator stated that they will

stabilize these areas and may cut horizontal paths along them to help reduce the speed of the run-off over the slopes. The Operator shall submit photo evidence, indicating that the slopes have been stabilized, to the Division by the corrective action date.

Gen. Compliance with Mine Plan:

This operation is active greater than 180 days per year. The Operator stated that the last date of activity was on the Friday prior to the inspection. Map C-2 (the Mining Plan map approved with AM1) depicts the area of affected land that was disturbed at the time of the AM1 application, and the areas that were planned to be mined in the future. A copy of Map C-2 (Map 1), the Operator's annual report map (Map 2), and an inspection map (Map 3), generated using the latest available imagery in ArcGIS online for the site, and are included in this report for reference.

The following bullets outline the mining activities observed in each area during the inspection:

- *Reclamation-Only Area*
    - No recent disturbance was observed within the creek (Photo 3), or the actual designated 'Reclamation-Only Area'. The Operator stated that there has been no activity in the creek since it was reclaimed at least three years ago.
    - The area to the north of the entrance road, and east of the 'Reclamation-Only Area' has been widened (Photos 4-6; Maps 1 & 3). The Operator stated that there had been a drop-off on the north side of the road, so they used their surplus of backfill material on-site to level the area out to make it safer for maneuvering haul trucks. Although the entire permitted area is approved to be affected, there is not currently an approved reclamation plan for this area. **This has been cited as a problem above**. The Operator shall submit a Technical Revision to update the reclamation plan narrative, and the reclamation plan map, to indicate and illustrate how this area will be reclaimed, by the corrective action date.
- *Area 1*
    - Active mining in Area 1 consists of:
        - Two pit areas (south and north) with highwalls (Photos 7-10).
            - The highwalls remaining along the southern border (southern pit area) follow the fence along the south-west corner of the site.
        - A mined out pit floor, currently being used for equipment and stockpile storage (Photos 11-13).
    - A pile of broken-up asphalt was observed in the south-east corner of Area 1 (Photo 14). The Operator stated that this material was salvaged from a bridge demolition. The Division reminds the Operator that they may crush this material and incorporate it with their product, but they are not approved to backfill with this material without an approved Technical Revision to their mining plan that complies with the requirements of Rule 3.1.5(9). The following is a statement from the currently approved plan regarding imported fill:
        - "The Operator/Applicant, in conjunction with the landowners, will use reject/overburden only to fill areas within the MLRB Permit boundary. No inert structural fill is planned for fill at this site. If it becomes necessary to import inert structural fill to accomplish the reclamation of this mine site the operator will provide the Office notice."
    - Mining progression in this area was originally moving west, but now will be moving northward along the western fence.

- *Area 2*
    - Excavating has finished in Area 2. Product stockpiles, and some overburden piles, and a small length of highwall remain (Photos 15-17).
    - The rest of the material in Area 2 is too massive to excavate without blasting, so the exposed highwall will be backfilled and reclaimed.
    - The stockpiled product in this area consists of varying sizes of rip-rap material.
    - A pile of scrap metal and rebar was observed along the east portion of the road into Area 2 (Photo 18). The Operator stated that this was also salvaged from the bridge demolition and is temporarily being stored in Area 2, but will soon be hauled off-site.
- *Area 3*
    - On the Operator's 2023 annual report map (see Map 2 within this report) an area within Area 3 was proposed for mining during 2024. During the inspection, the Division observed a small pit excavated within the area indicated on the map (Photos 19-21). The Operator stated that they may mine deeper within this pit if they can acquire a crusher strong enough to break up the material. If not, they'll haul the material that they have already excavated and use it as more rip-rap product.
    - The Operator also indicated that mining would continue northward within this area. However, the current location of the pit is near the northern border of the designated Area 3 mining area (see Maps 2 and 3 within this report). <u>If the Operator intends</u> to extend mining beyond the boundary of Area 3, <u>the Division will require a Technical Revision to update</u> the mining and reclamation plan narratives and maps to account for these changes.
- *Area 4*
    - The Division observed an approximately 0.3 acre area excavated within Area 4 (Photos 22). The Operator stated that they are not mining within this area, nor do they have any intention to mine within Area 4. The disturbance observed is for the construction of a personal garage on the property. The approved post-mining land use for this operation is both pastureland and residential, therefore the instillation of a residential garage is in compliance with the approved post-mining land-use.
    - The rest of Area 4 appears to be undisturbed (Photo 23).

All 180.60 acres of the permit are approved to be affected. Per the approved plan, the maximum disturbed acreage at any given time, including haul roads and processing areas, is not to exceed 26 acres. The Division estimates that approximately 34.6 acres are currently affected, including approximately 3 acres of road, with at least 6 acres of unreleased reclamation. **This has been included in the problem cited above** for the need of updated mining and reclamation plans via the submittal and approval of a Technical Revision**.** The Operator shall include in the Technical Revision, an updated maximum allowed disturbance at any given time on the site that, at minimum, includes the currently disturbed acreage – by the corrective action date.

<u>Right of Entry:</u>
The Operator is the landowner, and therefore maintains legal right of entry.

<u>Reclamation Success:</u>

- <u>Backfilling, Grading, & Revegetation:</u>
    - *Reclamation-Only Area*
        - The area where mining had been conducted within and along the creek has been reclaimed and vegetation is becoming established.

        - The area north of the entrance road needs to be addressed via a technical revision (see Gen. Compliance with Mine Plan section above).
    - *Area 1*
        - Most of the southern highwall, and the many of the northern slopes have been backfilled, graded, and seeded (Photos 24-26). As stated in the Hydrologic Balance and Sediment Control section above, some rills have formed on these slopes that will need to be addressed.
        - The revegetated slopes have some vegetation established, but will need to be reseeded in the areas that have been eroded.
        - Excavation has finished in the southern portion of Area 1. The Operator intends to reclaim the remaining portion of the southern highwall in the southwest corner of Area 1 the near future.
        - There is plenty of overburden material to be used for backfilling areas throughout the site, stored in Area 1 (Photos 27-31), as well as above the highwalls in Areas 2 and 3.
    - *Area 2*
        - Some equipment is stored along the east side of the access road, as well as straw waddles in preparation for backfilling the remaining highwall, grading the disturbance, and seeding the area this summer (Photo 32).
    - *Area 3*
        - Reclamation has not begun in this area.
    - *Area 4*
        - No mining related disturbance was observed in this area. The disturbance relating to the construction of a personal garage is in compliance with the residential post-mining land use of this area.

Signs and Markers:
A permit sign, posted in compliance with Rule 3.1.12(1) was observed at the entrance to the site (Photo 33). Affected area markers were also observed during the inspection, and appear to be in compliance with Rule 3.1.12(2). Additionally, the gas line is clearly marked in the field, and the operator appears to be maintaining the 30 foot setbacks from the gas lines, and the 10 foot setbacks from the power poles.

Topsoil:
Multiple piles of topsoil were observed onsite. Some topsoil has been recently salvaged with excavation (Photo 34), some had been stabilized but recently used for reclamation (Photo 35), and some was observed in Area 2 in preparation of upcoming reclamation in that area. Additionally, one of the reclaimed slopes to the north of the northern pit in Area 1 also has plenty of topsoil material available if needed (see slope in the background of Photo 9). The topsoil piles appear to be stable at this time.

Conclusion:
This concludes the Division's Inspection Report; a few maps 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

Dan Robinson
Robinson Sons Inc.
1228 East 7th Street
Trinidad, CO 81082

Enclosure: 2024 Reclamation Cost Estimate

CC: Jared Ebert, DRMS

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

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

PHOTOGRAPHS

Photo 1: Fuel tank in Area 1 requiring secondary containment.

Photo 2: Berms surrounding perimeter of the disturbance in Area 2.

Photo 3: Arrows point to the 'Reclamation Only' area within the creek bed. This area has not been re-disturbed since it was reclaimed.

Photo 4: Standing at the north side of the entrance road, looking north-west at the widened embankment on the north-portion of the entrance road.

Photo 5: Looking north across the widened embankment on the north-portion of the entrance road.

Photo 6: Looking east at the widened embankment on the north-portion of the entrance road (circled).

Photo 7: Looking south at the southern-west corner of Area 1. The arrows point to fence posts along the top of the highwalls.

Photo 8: Looking west along the highwalls in the northern border of the northern pit area in Area 1.

Photo 9: Looking north at the northern extent of the north pit in Area 1. The arrow points to a reclaimed slope that consists of more topsoil if needed.

Photo 10: Looking north-west at the start of the highwall on the east side of the northern pit of Area 1.

Photo 11: Looking north-east along the reclaimed slopes, and some of the equipment stored, in Area 1.

Photo 12: Looking east at the processing area in Area 1.

Photo 13: Looking south-east at some product stockpiles stored in the mined out area in Area 1.

Photo 14: A pile of broken up asphalt from a bridge demolition, brought into the pit to be crushed and combined with product.

Photo 15: Looking south-east at the remaining portion of highwall, a graded slope, and some overburden stockpiles in Area 2.

Photo 16: Product stockpile in Area 2 to be hauled to Area 1 soon.

Photo 17: Product in Area 2 to be hauled to Area 1 to be crushed, or to be used as larger rip-rap material.

Photo 18: Facing north-east, looking at a pile of rebar/scrap metal salvaged from a bridge demolition. Pile is being stored until it can be hauled off-site.

Photo 19: Looking north-west into the pit area in Area 3.

Photo 20: Looking west across the pit area in Area 3.

Photo 21: Looking south-west from the northern border of the highwall in Area 3.

Photo 22: Looking north-east into the area cleared for the construction of a garage in Area 4.

Photo 23: Looking north from the northern border of the disturbance in Area 4 at the undisturbed land.

Photo 24: Looking north-east along some reclaimed slopes in Area 1. Some rilling is seen along the slopes that will need to be addressed.

Photo 25: Looking north-west at some reclaimed slopes. Some rilling is seen on the slopes.

Photo 26: Looking west along the north-face of the reclaimed southern highwall.

Photo 27: Overburden piles to be used in reclamation in Area 1 (and a product stockpile in the foreground).

Photo 28: Overburden/backfill material along the south side of the northern pit in Area 1.

Photo 29: Overburden/backfill material located between the south and north pits in Area 1.

Photo 30: Overburden/product stockpiles in Area 1.

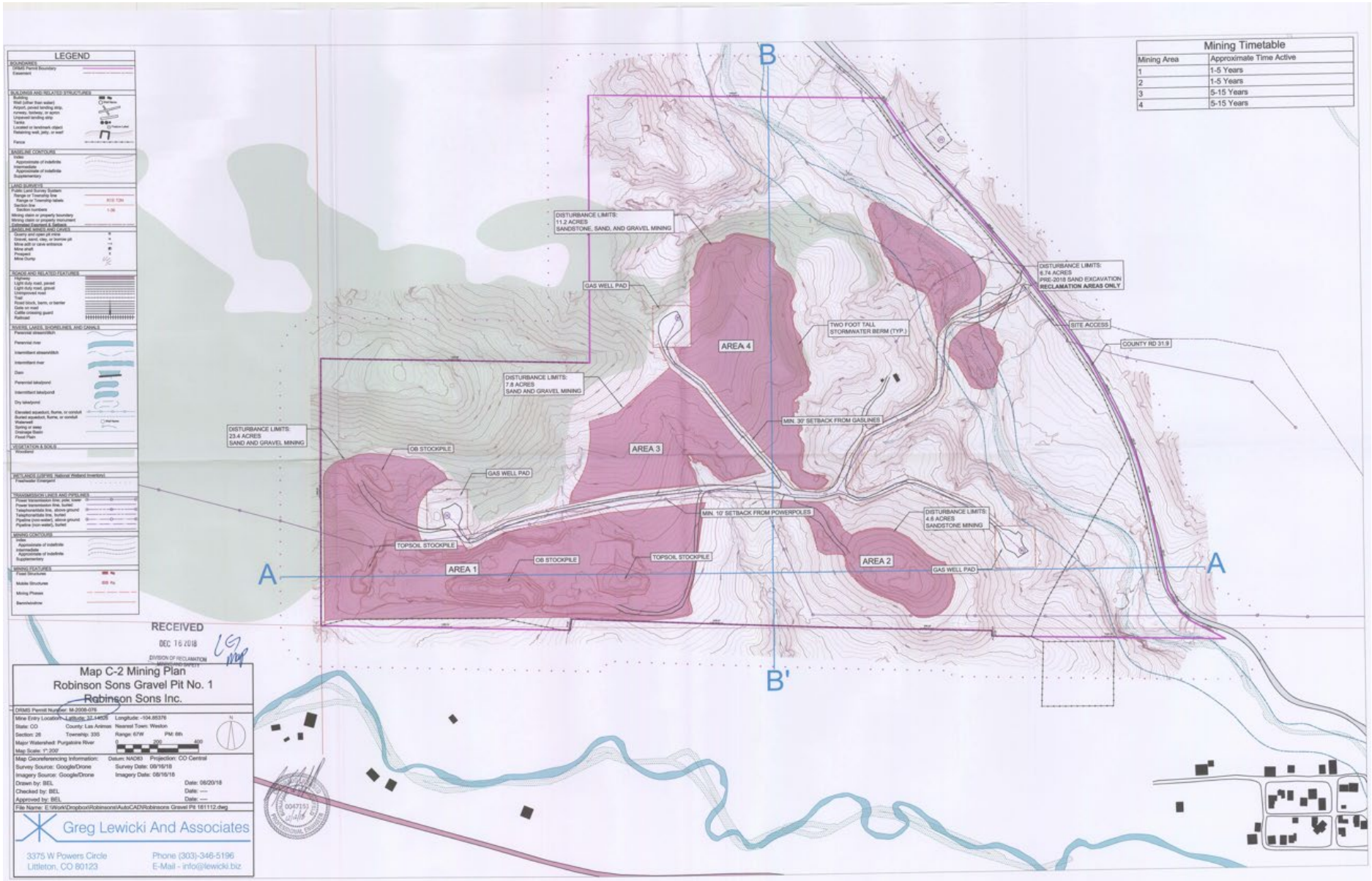
Photo 31: Overburden pile in Area 1 that may be screened for additional product, or used for backfill.

Photo 32: Straw waddles stored along the east side of the entrance into Area 2.

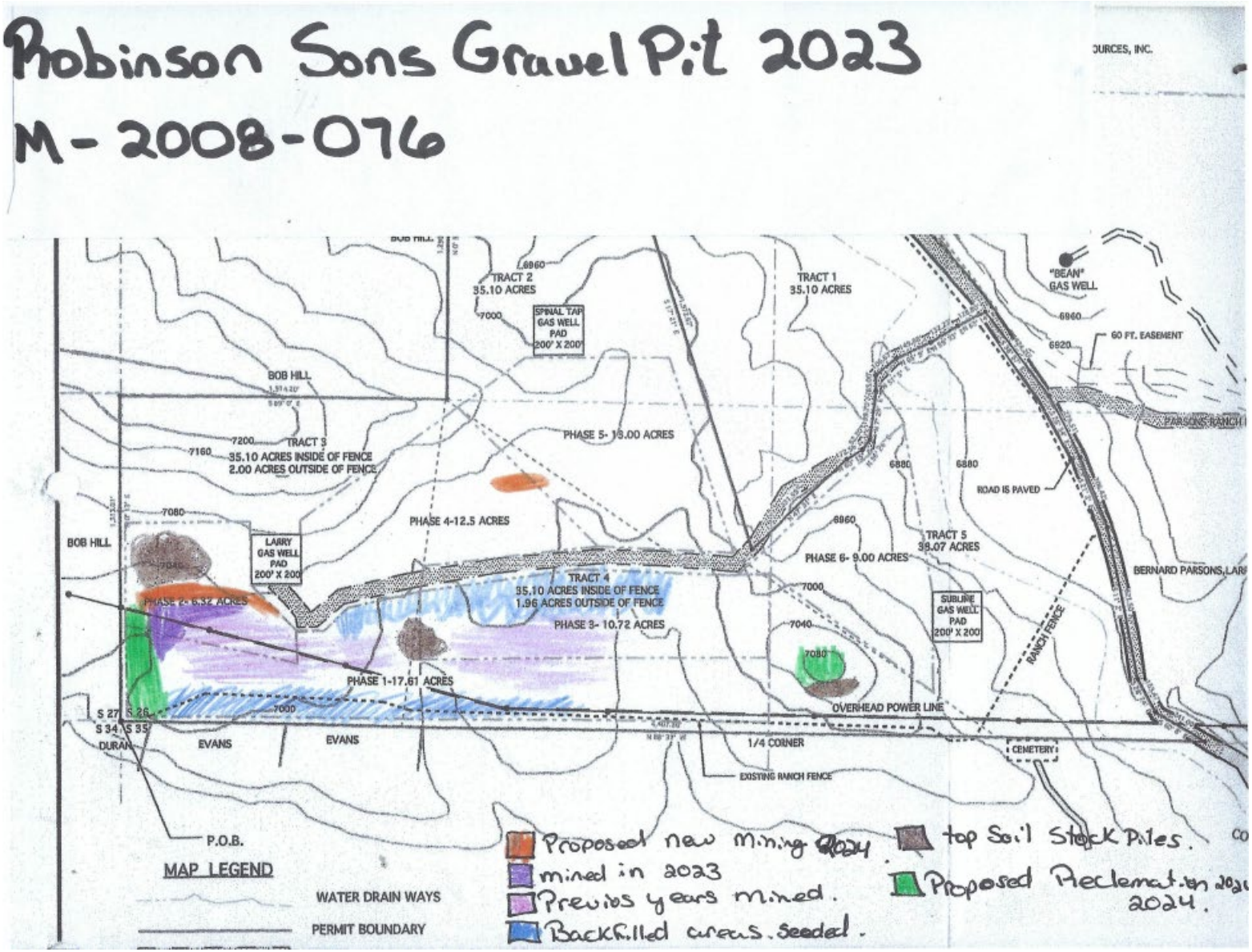
Photo 33: Mine sign posted at the entrance to the site.

Photo 34: Vegetated topsoil pile in Area 1.

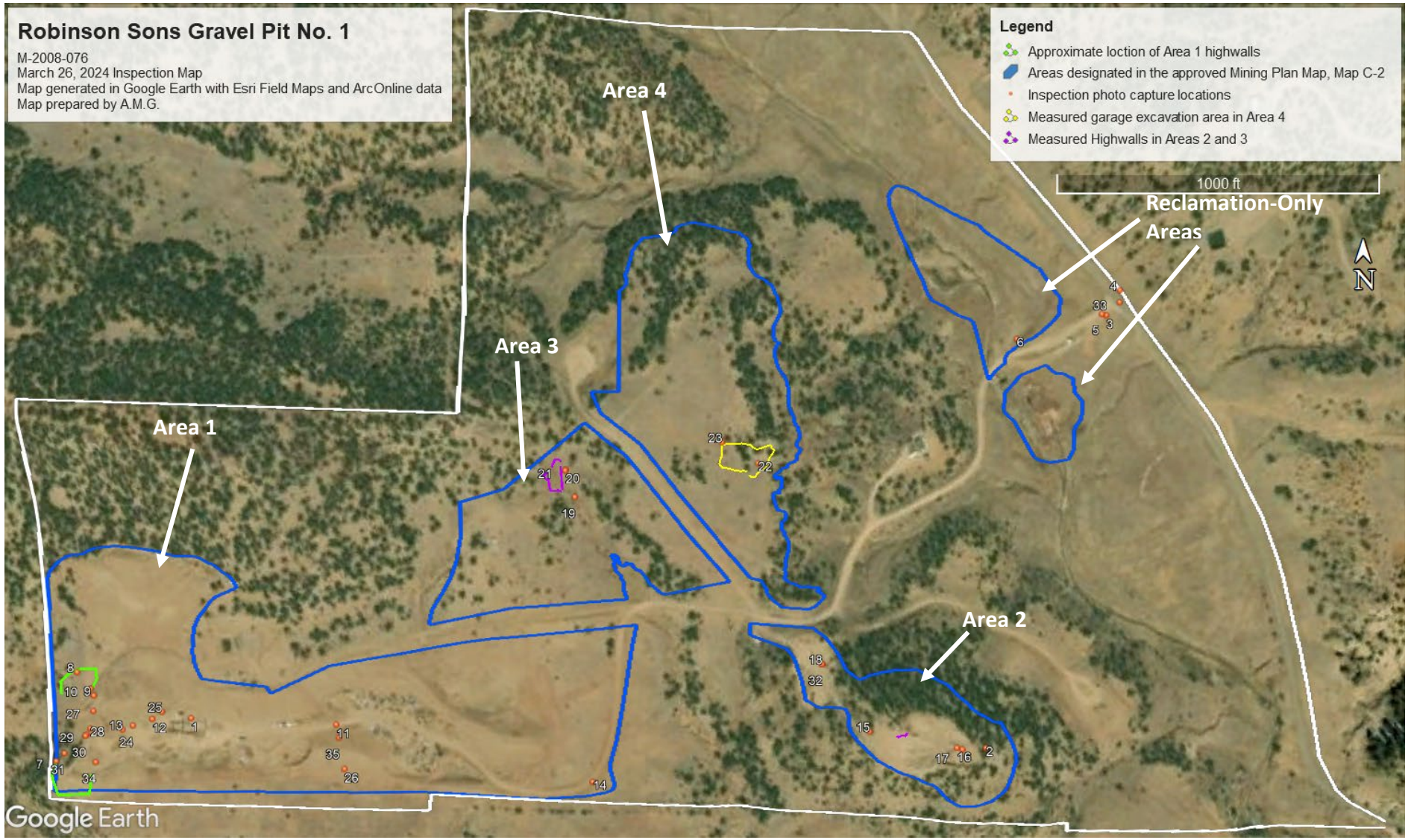
Photo 35: Topsoil pile that has been used recently for some reclamation. The other side is stabilized with vegetation.



Map 1: Copy of the currently approved Mining Plan Map (Map C-2 approved with AM1).



Map 2: 2023 Report year annual report map submitted by the Operator on March 26, 2024. The base map image is from the original 112 application, before the re-configuration of the mining areas into the AM1 Areas (see Map 1 above), but the legend is still representative of the conditions in each area relative to the land.



Map 3: Inspection Map for the March 26, 2024 inspection. The white polygon represents the approximate permit boundary. The Division walked the length of the highwalls in each Area (purple lines) during the inspection. However, the highwall measurements in Area 1 did not save, and thus the Division used aerial imagery, and the photo locations, to estimate the locations and length of the Area 1 highwalls. The garage excavation was also measured during the inspection (yellow lines) using Esri Field Maps. The Figure above was generated using Google Earth Pro, but the aerial imagery is imposed from Esri ArcOnline Imagery base maps, because the image reflects more recent conditions that the most recent available on Google Earth.

COST SUMMARY WORK

Task description: **Reclamation Cost Summary, 2024**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 4/16/2024 County: Las Animas Filename: M076-000
User: AMG

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Cut/fill HW Area 1, North Pit	DOZER	1	0.56	$238
002	Push-up HW Area 1, SW corner Pit	DOZER	1	0.84	$357
003	Cut/fill HW Area 2	DOZER	1	0.02	$7
004	Cut/fill HW Area 3	DOZER	1	0.25	$109
005	Spread 8" of tospoil over 25.6 acres	DOZER	2	9.29	$7,929
006	Revegetate disturbed areas	REVEGE	1	26.00	$28,185
006b	Re-seed seeded areas	REVEGE	1	6.00	$2,541
006c	Weed Control	REVEGE	1	7.50	$5,336
007	Demolition of scale and scale house	DEMOLISH	1	10.00	$5,996
008	Mobilization/Demobilization	MOBILIZE	1	4.99	$7,747
		SUBTOTALS:		**65.45**	**$58,445**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$1,181
Performance bond:	1.05	Total =	$614
Job superintendent:	32.73	Total =	$2,130
Profit:	10.00	Total =	$5,844
		TOTAL O & P =	$9,768
		CONTRACT AMOUNT (direct + O & P) =	$68,214

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.25	Total =	$2,899
Reclamation management and/or administration:	5.00		$3,411
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$16,578
		TOTAL BOND AMOUNT (direct + indirect) =	**$75,023**

BULLDOZER WORK

Task description: **Cut/fill HW Area 1, North Pit**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 4/16/2024 County: Las Animas Filename: M076-001
User: AMG

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$241.38	NA
Operating Cost/Hour:	$143.92	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $426.60
Total Fleet Cost/Hour: **$426.60**

MATERIAL QUANTITIES

Initial Volume: 448
Swell factor: 1.250
Loose volume: **560** LCY

Source of estimated volume: Cut/fill calc, 242' x 15' HW, 1:1 slope
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: Loose stockpile 1.2

Average push gradient: -5 %
Average site altitude: 6,915 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor Source

Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7157

Adjusted unit production: 1,001.98 LCY/hr

Adjusted fleet production: **1001.98** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: $0.426/LCY

Total job time: **0.56** Hours

Total job cost: **$238**

BULLDOZER WORK

Task description: **Push-p HW Area 1, SW corner Pit**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 4/16/2024 County: Las Animas Filename: M076-002
User: AMG

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$241.38	NA
Operating Cost/Hour:	$143.92	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $426.60
Total Fleet Cost/Hour: **$426.60**

MATERIAL QUANTITIES

Initial Volume: 839
Swell factor: 1.000
Loose volume: **839** LCY

Source of estimated volume: Push-up calc, 283' x 8' HW, 1:0.5 slope
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: Loose stockpile 1.2

Average push gradient: -5 %
Average site altitude: 6,915 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7157

Adjusted unit production: 1,001.98 LCY/hr

Adjusted fleet production: **1001.98** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: $0.426/LCY

Total job time: **0.84** Hours

Total job cost: **$357**

BULLDOZER WORK

Task description: **Cut/fill HW Area 2**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #:	003	State:	Colorado	Abbreviation:	None
Date:	4/16/2024	County:	Las Animas	Filename:	M076-003
User:	AMG				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU
Horsepower:	310
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$241.38	NA
Operating Cost/Hour:	$143.92	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $426.60
Total Fleet Cost/Hour: **$426.60**

MATERIAL QUANTITIES

Initial Volume:	14
Swell factor:	1.250
Loose volume:	**18** LCY

Source of estimated volume: Cut/fill calc, 34' x 6' HW, 1:0.5 slope
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: Loose stockpile 1.2

Average push gradient: -5 %
Average site altitude: 6,915 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7157

Adjusted unit production: 1,001.98 LCY/hr

Adjusted fleet production: **1001.98** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: $0.426/LCY

Total job time: **0.02** Hours

Total job cost: **$7**

BULLDOZER WORK

Task description: **Cut/fill HW Area 3**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #:	004	State:	Colorado	Abbreviation:	None
Date:	4/16/2024	County:	Las Animas	Filename:	M076-004
User:	AMG				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU
Horsepower:	310
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$241.38	NA
Operating Cost/Hour:	$143.92	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $426.60
Total Fleet Cost/Hour: **$426.60**

MATERIAL QUANTITIES

Initial Volume:	204
Swell factor:	1.250
Loose volume:	**255** LCY

Source of estimated volume: Cut/fill calc, 268' x 8' HW, 1:0.5 slope
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: Loose stockpile 1.2

Average push gradient: -5 %
Average site altitude: 6,915 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7157

Adjusted unit production: 1,001.98 LCY/hr

Adjusted fleet production: **1001.98** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: $0.426/LCY

Total job time: **0.25** Hours

Total job cost: **$109**

BULLDOZER WORK

Task description: **Spread 8" of topsoil over 25.6 acres**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 4/16/2024 County: Las Animas Filename: M076-005
User: AMG

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$241.38	NA
Operating Cost/Hour:	$143.92	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $426.60
Total Fleet Cost/Hour: **$853.20**

MATERIAL QUANTITIES

Initial Volume: 27,672
Swell factor: 1.000
Loose volume: **27,672** LCY

Source of estimated volume: 31.6 acres dist. not inc. roads, minus 6 seeded
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: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 6,915 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 1.0634

Adjusted unit production: 1,488.76 LCY/hr
Adjusted fleet production: **2977.52** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.287/LCY

Total job time: **9.29** Hours
Total job cost: **$7,929**

REVEGETATION WORK

Task description: **Revegetate disturbed areas**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None
Date: 4/16/2024 County: Las Animas Filename: M076-006
User: AMG

Agency or organization name: DRMS

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$112.82
Total Tilling Cost/Acre	**$112.82**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Native	5.50	16.41	$64.99
Blue Grama - Native	1.50	24.48	$20.59
Sideoats Grama - Vaughn	4.50	14.77	$37.69
Western Wheatgrass - Native	8.00	20.20	$48.00
Totals Seed Mix	19.50	75.87	**$171.27**

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
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$429.79	$429.79
Total Mulch Materials Cost/Acre				**$429.79**

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:	25.6	Cost /Acre:	$1,020.34
Estimated Failure Rate:	20%	Cost /Acre*:	$403.27
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	**$26,120.70**
Reseeding Job Cost:	**$2,064.74**
Total Job Cost:	**$28,185**
Job Hours:	**26.00**

REVEGETATION WORK

Task description: **Re-seed seeded areas**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 006B State: Colorado Abbreviation: None
Date: 4/16/2024 County: Las Animas Filename: M076-006b
User: AMG

Agency or organization name: DRMS

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Native	5.50	16.41	$64.99
Blue Grama - Native	1.50	24.48	$20.59
Sideoats Grama - Vaughn	4.50	14.77	$37.69
Western Wheatgrass - Native	8.00	20.20	$48.00
Totals Seed Mix	19.50	75.87	**$171.27**

Application

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

JOB TIME AND COST

No. of Acres: 6 Cost /Acre: $403.27
Estimated Failure Rate: 5% Cost /Acre*: $403.27
*Selected Replanting Work Items: SEEDING

Initial Job Cost: **$2,419.62**
Reseeding Job Cost: **$120.98**
Total Job Cost: **$2,541**
Job Hours: **6.00**

REVEGETATION WORK

Task description: **Weed Control**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 006C State: Colorado Abbreviation: None
Date: 4/16/2024 County: Las Animas Filename: M076-006c
User: AMG

Agency or organization name: DRMS

TILLING

Description	Cost /Acre
Weed control spraying (MEANS 31 31 16.13 3100)	$338.80
Total Tilling Cost/Acre	**$338.80**

JOB TIME AND COST

No. of Acres: 15 Cost /Acre: $338.80
Estimated Failure Rate: 5% Cost /Acre*: $338.80
*Selected Replanting Work Items: TILLING

Initial Job Cost: **$5,082.00**
Reseeding Job Cost: **$254.10**
Total Job Cost: **$5,336**
Job Hours: **7.50**

DEMOLITION WORK

Task description: **Demolition of scale and scale house**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 007 State: Colorado Abbreviation: None
Date: 4/16/2024 County: Las Animas Filename: M076-007
User: AMG

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 91.50 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Truck Scale Demo	1,100 SF	Floor, concrete, demolition only, average reinforcing - 12 in. thick	1,100.00	SF	$2.40	$2,636.04
Scale House Demo	160 SF x 8 F	Demo. only, small or single buildings (single story) - Wood structures	1,280.00	CF	$0.20	$252.16
Loading and Off-site Disposal	40.7 CY + 47.4 CY+80 CY	Loading and 5 mile haul, salvage allowed - Wood frame structures	168.10	CY	$21.80	$3,664.58

Job Hours: 10.00 **Subtotal (unadjusted): $6,552.78** **Total Cost (adjusted for location): $5,995.79**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization/Demobilization**

Site: **Robinson Sons Gravel Pit No. 1** Permit Action: 2024 Inspection Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 008 State: Colorado Abbreviation: None
Date: 4/16/2024 County: Las Animas Filename: M076-008
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	47.71	$241.38	$158.17	2	$799.10	$316.34	$500.00
Drill/Broadcast Seeder with Tractor	25.00	$6.73	$82.29	2	$178.04	$164.58	$500.00
Power Mulcher (Bowie LD-90)	6.00	$25.94	$82.29	1	$108.23	$82.29	$250.00
Subtotals:					**$1,085.37**	**$563.21**	**$1,250.00**

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.	$116.31	1	$116.31	$116.31
Fuel Tanker, 4x2, 170 HP	$55.39	1	$55.39	$55.39
Water Tanker, 5,000 Gal.	$144.74	1	$144.74	$144.74
Subtotals:			**$316.44**	**$316.44**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	TRINIDAD	
Total one-way travel distance:	23.00	miles
Average Travel Speed:	55.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$7,482.24
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$264.66

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.42	0.42
Return Time (Hours):	0.42	0.42
Loading Time (Hours):	0.83	NA
Unloading Time (Hours):	0.83	NA
Subtotals:	2.50	0.84

JOB TIME AND COST

Total job time:	**4.99**	Hours
Total job cost:	**$7,747**	