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

12 January 2024

Micheal Golliher
3401 Universal Dr
Rapid City, SD

Re: Pete Lien & Sons, Inc; Mining Permit M-1977-002 HR; Munroe Gypsum; Technical Revision Request to formalize Affected Areas and increase the Total Disturbed Area at any one time.

Dear Mr. Golliher,

Regarding the request for Technical Revision (TR3) of the Munroe Gypsum Quarry, permit number M-1977-002HR, the Division of Reclamation, Mining, and Safety (the Division or DRMS) received on 3 November 2023, the initial response to the adequacy review was received on 3 January 2024. There are a few items remaining that require further clarification prior to making a decision. Below are the remaining items shown as the initial issue as stated by the Division, your initial response, and the Divisions response; note that some of the issues listed are new and were not on the previous adequacy review. Please review the issues and provide the requested information to the Division.

Rule 6.4.3 –EXHIBIT C - Pre-Mining and Mining Plan Maps of Affected lands:

1. In accordance with the Rule 6.4.3(d) the Mining Plan Map must include "the total area to be involved in the operation, including the are to be mined and the area of affected lands." The map provided includes an area that is categorized as "Current Released Area" that has not been released according to the Division's records. Please correct the category of the affected land on the map.

2. Division records show that on 15 December 2022 a Technical Revision (TR-2) included the addition of 39 drillholes within the permit boundary was approved. Please include these drill holes on the map.

Rule 6.4.4 – Mining Plan:

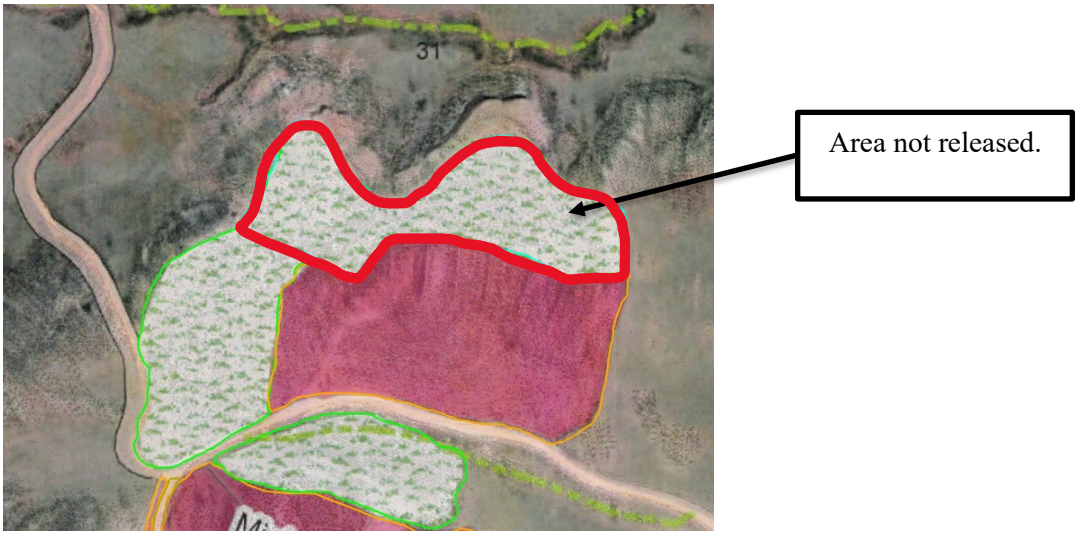
3. Revise Exhibit D to include the following information, in accordance with Rule 6.4.4(e):
    a. Clearly outline how mining will progress in phases/sequence in the areas shown on the Exhibit C – Pre-mining and Mining Plan Map. Include a timetable narrative that reflects what is provided on the map into the written plan of Exhibit D, to include estimated periods of time for the various stages/phases; per sub-subparagraph (i) and (iii).
    Permittee response: Mining phases have been added to Exhibit C. Because of the inherent inconsistency of the gypsum beds in this area, and future demand, it is not possible to provide definitive periods of time for each phase or stage. We believe that each mining phase will be active for 1-4 years.
    Division response: A phase or stage schedule for Area B of the affected lands is required in Exhibit D – Mining Plan and reflected in Exhibit C – Pre-Mining and Mining Plan Map.
4. Revise Exhibit D in accordance with Rule 6.4.4(j) to provide the dimensions of the "existing ranch road" and of the "spur roads" that will be built in addition to any improvements that will be made to the existing road because of mining operations.
    Permittee response: Exhibit D has been amended to include a description of the "ranch" and "spur" roads. In Exhibit D, the permittee states "If the landowner would like for it to remain, it will, otherwise reclamation of the additional width of the road and the Spur Section is included in the reclamation calculation."
    Division response: In the case of the landowner wanting the widened "ranch" road or the "spur" roads, permittee needs to commit to obtain and submit to the Division a copy of a written agreement with the landowner to leave the widened "ranch" road and/or the "spur" roads un-reclaimed. Please commit to providing a copy of this agreement to the Division prior to requesting a release of the affected land associated with the road widening and update Exhibit D to include this commitment.
5. Revise Exhibit D to include information about the 39 drill holes approved in TR-2. Information should include:
    a. Approximate timetable, the size, depth, and locations, per subparagraph (e).

Rule 6.4.5 – Exhibit E – Reclamation Plan:

6. In Exhibit E – Reclamation Plan, permittee states "A revised reclamation sequence is shown as part of the TR-3, Exhibit H submittal." Make a correction to this statement to refer to the Exhibit F submittal.
7. Revise Exhibit E to include reclamation plan of the 39 drillholes approved in TR-2 in accordance with Rule 6.4.5(2) which states a "Reclamation plan shall be required on all the affected land."

Rule 6.4.6 – Exhibit F – Reclamation Plan Map:

8. Revise map to show topography with sufficient contour lines and the rate of slope of all reclaimed areas in accordance with Rule 6.4.5(a).
   Permittee response: Topographic lines and areas with proposed reclamation slopes have been added.
   Division response: Rule 6.4.6(a) states the following is expected on the Reclamation Plan Map: "The expected physical appearance of the area of the affected land, correlated to the proposed mining and reclamation timetables. The map must show proposed topography of the area with contour lines of sufficient detail to portray the direction and rate of slope of all reclaimed lands…" Provide contour lines of the approximate topography of the affected lands after reclamation is complete.
9. The map provided includes an area that is categorized as "Current Released Area" that has not been released according to the Division's records. Please correct the category of the affected land on the map.



Rule 6.4.12 - Exhibit L – Reclamation Costs:

10. Provide an updated reclamation cost estimate, in accordance with Rule 6.4.12, reflecting the proposed revision to the mining and reclamation plan with an increase of the maximum disturbed land to 15 acres. Be advised, your estimate must include all the currently non-bond released affected land ~~(see item #4 above).~~
    Permittee response: Two reclamation cost estimates based on Wyoming DEQ guidelines and resources have been included as attachments. One showing an estimate for the current level of disturbance and another for the proposed level of disturbance.
    Bond Calculation Report – Munroe Gypsum Quarry Permit #M-1977-002 HR (TR-03)

Summary of Bond Estimate	Volume/Area Estimate	Units	Cost per Production	Units	Cost For Task
Reclamation Task					
Highwall Reduction					

Blasting Highwall	11,111	CY	$ 0.859	$/CY	$ 9,544	
Reducing Highwall	9,444	CY	$ 0.17	$/CY	$ 1,577	
Rip pit floor	15.0	Acres	$ 789.71	$/acre	$ 11,846	
Rough/Final Grade	19.3	Acres	$ 65.02	$/acre	$ 1,254	
Topsoil application	10,358	CY	$ 0.61	$/CY	$ 6,269	4" Topsoil
Revegetation	19.3	Acres	$ 550.00	$/acre***	$ 10,604	
Seeding costs (30% Revegetation)	9.26	Acres	$ 550.00	$/acre	$ 5,092	
Demolition						
Subtotal					$ 46,186.00	
Contingency				38%	$ 17,551.00	
Total Bond					$ 63,736.49	

Division response: With the information provided by the permittee and including the 39 drill holes added to the operation with TR-2, the Division's reclamation cost estimate is attached to this document.

The decision date is scheduled for 17 January 2024, if more time is required to address the issues listed, please file an extension for a decision date with the Division before then. If you have any questions, feel free to reach out to me at jocelyn.carter@state.co.us or at (720) 666-1065.

Sincerely,

Jocelyn Carter
Environmental Protection Specialist

Ec: Jared Ebert, DRMS

Enclosure: DRMS CIRCES Cost Estimate

COST SUMMARY WORK

Task description: **TR-3, 15 acres**

Site: **Munroe Gypsum Quarry** Permit Action: 2023TR03 Permit/Job#: M1977002HR

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 1/11/2024 County: Larimer Filename: M002-000
User: JLC

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Highwall blasting	BLASTING	1	49.85	$44,950
002	Reducing highwall	DOZER	2	16.99	$15,766
003	Ripping pit floor	RIPPER	2	10.56	$9,894
004	Rough grading	SITEMAINTENANCE	1	0.00	$937
005	Topsoil application	SCRAPER1	1	13.16	$25,253
006	Reveg backfilled and pit area	REVEGE	1	9.00	$17,656
007	39 holes, 3 ft betonite per hole	BOREHOLE	1	14.00	$1,021
008	Mobilize equipment to site	MOBILIZE	1	8.50	$23,933
		SUBTOTALS:		**122.06**	**$139,410**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$2,816
Performance bond:	1.05	Total =	$1,464
Job superintendent:	61.03	Total =	$3,972
Profit:	10.00	Total =	$13,941
		TOTAL O & P =	$22,193
		CONTRACT AMOUNT (direct + O & P) =	$161,603

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.25	Total =	$6,868
Reclamation management and/or administration:	5.00		$8,080
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$37,641
		TOTAL BOND AMOUNT (direct + indirect) =	**$177,051**

SURFACE BLASTING WORK

Task description: **Highwall blasting**

Site: **Munroe Gypsum Quarry** Permit Action: 2023TR03 Permit/Job#: M1977002HR

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 1/11/2024 County: Larimer Filename: 2023TR03
User: JLC

Agency or organization name: DRMS

BLAST AREA DIMENSIONS

	QUANTITY	UNIT
Blast Area Configuration:	Wedge-shaped mass (highwall reduction using balanced cut/fill)	
Blasting Method Description:	Conventional surface blast (fragmentation only)	
Highwall or Bench Face Angle:	0.50	h:1v
Regraded Slope Angle:	3.00	h:1v
Highwall or Bench Length:	500	feet
Highwall or Bench Width:	88	feet
Highwall or Bench Height:	70.0	feet
Depth to Base of Cut at Highwall:	29.2	feet

BLAST AREA VOLUMES

	QUANTITY	UNIT
Total Volume of Dimensional Mass to be Shot:	19,737	cubic yards
Blast Volume to Subdrill Grade and Blast Pattern Lines:	20,891	cubic yards
Blast Volume to Finish Grade and Blast Pattern Lines:	16,199	cubic yards
Remaining Volume Required to be Re-Shot or Ripped:	3,538	cubic yards

BLAST AREA DESIGN

	QUANTITY	UNIT
Recommended Blasthole Diameter:	4.293	inches
Selected Blasthole Diameter:	7.000	inches
Subdrilling Allowance:	4.5	feet
Blasthole Depth:	21.3	feet
Density of Rock:	Average Density Rock (ANFO Basis)	rock density
Burden to Charge Diameter Ratio:	25	times diameter
Burden:	15.0	feet
Spacing to Burden Ratio:	1.5	times burden
Spacing:	23.0	feet
Cubic Yards of Rock per Blasthole:	248.71	cubic yards
Powder Factor Description:	Medium	rock strength
Powder Factor:	0.575	pounds/cu. yd.
Density of Blasting Agent:	0.85	grams/cc
Quantity of Explosives per Blasthole:	143.01	POUNDS
Height of Powder Column:	10.08	feet
Height of Stemming per Blasthole:	11.25	feet
Stemming to Burden Ratio:	0.75	times burden
Quantity of Stemming per Blasthole:	0.1114	cubic yards
Number of Rows:	4	rows
Number of Blastholes per Row:	21	holes per row
Total Number of Blastholes:	84	holes
Total Length of all Blastholes:	1,792	feet

BLASTING MATERIALS QUANTITIES

	QUANTITY	UNIT
Total Quantity of Stemming Required:	9.35	cubic yards
Total Quantity of Explosives Required:	12,013	pounds
Total Quantity of det. cord/fuse/wire Required:	4,162	linear feet
Quantity of Blasting Caps per Blasthole:	1	cap(s)
Total Quantity of Blasting Caps Required:	84	caps
Quantity of Primers per Blasthole:	0	primer(s)
Total Quantity of Primers Required:	0	primers
Quantity of Delays per Blasthole:	1	delay(s)
Total Quantity of Delays Required:	88	delays

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Description
Drilling Equipment - Drill:	SCHRAMM T450WS
-Drill Pad Preparation:	Cat D9T - 9SU
Misc. Drill Support Equipment:	NA
Misc. Explosives Support Equipment:	NA
Explosives Delivery –Bulk Truck:	Fuel Tanker, 6x4, 210 HP
-Cap Truck:	NA

Cost Breakdown:	Drilling Equipment	Drill Pad Preparation	Misc. Drill Support	Misc. Expl. Support	Explosives Delivery Bulk Truck	Cap Truck
	Drilling	Dozer			MiscTruck	
%Utilization-machine:	100	20	NA	NA	20	NA
Ownership cost/hour:	$288.33	$238.76	NA	NA	$16.65	NA
Operating cost/hour:	$233.90	$32.46	NA	NA	$7.52	NA
%Utilization-ripper:	NA	10	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$18.32	NA	NA	$0.00	NA
Ripper op. cost/hour:	NA	$0.90	NA	NA	$0.00	NA
Operator cost/hour:	$70.24	$40.04	NA	NA	$70.24	NA
Unit Subtotals:	$592.47	$330.47	$0.00	$0.00	$94.41	$0.00
Number of Units:	1	1	0	0	1	0
Group Subtotals:	$592.47	$330.47	$0.00	$0.00	$94.41	$0.00

Total work team cost/hour: **$1,017.35**

MATERIALS COST

	Description	Unit	Unit Cost	Quantity	Total Cost
Blasting Agent:	Bulk ANFO nom. density (7,900-15,000 fps)	Pound	$0.718	12012.535	$8,625.00
Primers or Boosters:	Cast primer, 0.3 lb (electric or non-electric system)	Each	$2.540	0.000	$0.00
Blasting Caps:	Non-electric cap, inst. (non-electric systems)	Each	$6.400	84.000	$537.60
Det. Cord, fuse, or wire:	NO DET. CORD/FUSE/WIRE REQUIRED	NA	$0.000	4162.400	$0.00
Delays:	MS connectors (non-electric systems)	Each	$8.690	88.000	$764.72
Miscellaneous:	NO MISCELLANEOUS MATERIALS REQUIRED	NA	$0.000	0.000	$0.00
Drill bits:	Bit life = 1,750	Linear feet	$1,825.64	1.024	$1,869.46

Total Materials Cost: **$11,796.78**

DRILLING AND EXPLOSIVES PREPARATION TIME

Total Drilling Length:	1,792	linear feet
Unadjusted Drilling Rate:	82.00	feet/hour
Drilling Time:	34.33	hours

Job Condition Corrections:

Site Altitude:	6,100	feet
Altitude Adjustment:	0.95	(DRMS est.)
Job Efficiency Factor:	0.67	(CH. Exc. HB)
Adjusted Drilling Rate:	**52.19**	feet/hour
Explosives Prep. Time:	15.52	hours

JOB TIME AND COST

Total Job Time: **49.86** Hours

Unit cost: $2.152 per cu. yd. Total Job Cost: **$44,950**

BULLDOZER WORK

Task description: **Reducing highwall**

Site: **Munroe Gypsum Quarry** Permit Action: 2023TR03 Permit/Job#: M1977002HR

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 1/11/2024 County: Larimer Filename: M002-002
User: JLC

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$238.76	NA
Operating Cost/Hour:	$162.29	100
Ripper own. Cost/Hour:	$18.32	NA
Ripper op. Cost/Hour:	$4.49	50
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $463.90
Total Fleet Cost/Hour: **$927.79**

MATERIAL QUANTITIES

Initial Volume: 27,569
Swell factor: 1.165
Loose volume: **32,118** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 105 feet
Unadjusted hourly production: 1,205.7 LCY/hr

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

Average push gradient: -20 %
Average site altitude: 6,000 feet

Material weight: 2,100 lbs/LCY

Weight description: Shale

Job Condition Correction Factor		Source
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	0.700	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7838

Adjusted unit production: 945.03 LCY/hr
Adjusted fleet production: **1890.06** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.491/LCY

Total job time: **16.99** Hours
Total job cost: **$15,766**

BULLDOZER RIPPING WORK

Task description: **Ripping pit floor**

Site: **Munroe Gypsum Quarry** Permit Action: 2023TR03 Permit/Job#: M1977002HR

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 1/11/2024 County: Larimer Filename: M002-003
User: JLC

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$238.76	NA
Operating Cost/Hour:	$162.29	100
Ripper Ownership Cost/Hour:	$18.32	NA
Ripper Operating Cost/Hour:	$8.98	100
Operator Cost/Hour:	$40.04	NA
Total Unit Cost/Hour:	$468.39	

Total Fleet Cost/Hour: **$936.77**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 15.00 acres Rip Depth (ft): 1.00 Volume: 24,200 BCY or CCY

Source of estimated quantity: Depth calculated based on values provided in cost estimation

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	254.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.856	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.856 Acres/hr

Site Altitude:	6,000	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.71 Acres/hr
Adjusted Hourly Fleet Production: **1.42** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **10.56** Hours

Unit cost: $659.574 Per acre Total job cost: **$9,894**

SITE MAINTENANCE

Task description: **Rough grading**

Site: **Munroe Gypsum Quarry** Permit Action: 2023TR03 Permit/Job#: M1977002HR

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
Date: 1/12/2024 County: Larimer Filename: M002-004
User: JLC

Agency or organization name: DRMS

UNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Grading	7.00	Cat D9T - 9SU	2.00	EA	$468.39	$936.78

Job Hours: 0.00 **Total Cost: $936.78**

SCRAPER TEAM WORK

Task description: **Topsoil application**

Site: **Munroe Gypsum Quarry** Permit Action: 2023TR03 Permit/Job#: M1977002HR

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 1/12/2024 County: Larimer Filename: M002-005
User: JLC

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-Dozer:	Cat D9T - 9SU
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 7,000 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	55	NA	NA	30	25
Ownership cost/hour:	$255.23	$238.76	NA	NA	$149.33	$86.29
Operating cost/hour:	$280.59	$89.26	NA	NA	$27.84	$28.44
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$18.32	NA	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	NA	$0.00	$0.00
Operator cost/hour:	$47.07	$40.04	NA	NA	$46.87	$28.23
Unit Subtotals:	$582.89	$386.37	NA	NA	$224.04	$142.96
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work:	$1,552.15	Support:	$0.00	Maint:	$367.00

Total work team cost/hour: **$1,919.15**

MATERIAL QUANTITIES

Initial volume: 10,358 CCY Swell factor: 1.215
Loose volume: **12,585** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 1,600 lbs/LCY
Material description: Top Soil
Rated Payload: 81,600 pounds
Payload Capacity: 51.00 LCY

Scraper Bowl (volume) Basis:

Struck Volume: 24.00 LCY
Heaped Volume: 34.00 LCY
Average Volume: 29.00 LCY
Adjusted Capacity: **29.00** LCY

Cycle Time:

Scraper Loading Time: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6000 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Travel Time:

Road Condition: Hard, smooth, stabilized, surfaced, watered, maintained 2.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	210.00	15.00	2.00	17.00	542	0.39
2	790.00	0.00	2.00	2.00	2939	0.44

Haul Time: **0.83** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	790.00	0.00	2.00	2.00	2960	0.40
2	210.00	-15.00	2.00	-13.00	1628	0.19

Return Time: **0.59** minutes

Total Scraper team cycle time: **3.02** minutes
Adjusted for job conditions: 956.42 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 956.42 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **956.42** LCY/Hour

Unadjusted unit production/hour: 1,152.32 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **13.16** Hours

Unit cost: $2.007 /LCY Total job cost: **$25,253**

REVEGETATION WORK

Task description: **Reveg backfilled and pit area**

Site: **Munroe Gypsum Quarry** Permit Action: 2023TR03 Permit/Job#: M1977002HR

PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None
Date: 1/12/2024 County: Larimer Filename: M002-006
User: JLC

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
			Total Fertilizer Materials Cost/Acre	**$0.00**

Application

Description	Cost /Acre
	$
Total Fertilizer Application Cost/Acre	**$0.00**

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
Blue Grama - Hachita	0.25	4.08	$3.99
Indian Ricegrass - Native	1.60	5.18	$10.40
Little Bluestem - Native	0.88	5.22	$11.87
Oats - Ajay	4.50	1.34	$1.49
Mahogany, Mountain	0.25	0.34	$9.20
Western Wheatgrass - Arriba	2.00	5.05	$13.00
Totals Seed Mix	9.48	21.21	**$49.95**

Application

Description	Cost /Acre
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

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**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$74.46
Power mulcher (MEANS 32 91 13.16 0350)	$147.67
Total Mulch Application Cost/Acre	**$222.13**

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					$
Totals Nursery Stock Cost / Acre					**$0.00**

JOB TIME AND COST

No. of Acres: 15
Estimated Failure Rate: 30%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,081.91
Cost /Acre*: $317.17

Initial Job Cost: **$16,228.65**
Reseeding Job Cost: **$1,427.27**
Total Job Cost: **$17,656**
Job Hours: **9.00**

BOREHOLE SEALING WORK

Task description: **39 holes, 3 ft betonite per hole**

Site: **Munroe Gypsum Quarry** Permit Action: 2023TR03 Permit/Job#: M1977002HR

PROJECT IDENTIFICATION

Task #: 007 State: Colorado Abbreviation: None
Date: 1/12/2024 County: Larimer Filename: M002-007
User: JLC

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Fill 117 LF with betonite	Bentonite seal - 4 in. (labor, equip, materials)	4	117	117.00	LF	$6.11	$714.99
Backfill with cuttings	General laborer - Colorado (total incl. fringes, empl. burden)	NA	NA	13.00	HR	$23.53	$305.89

Job Hours: **14.00** **Total Cost**: **$1,021.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilize equipment to site**

Site: **Munroe Gypsum Quarry** Permit Action: 2023TR03 Permit/Job#: M1977002HR

PROJECT IDENTIFICATION

Task #: 008 State: Colorado Abbreviation: None
Date: 1/12/2024 County: Larimer Filename: M002-008
User: JLC

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 D9T - 9SU	66.13	$257.08	$175.95	2	$866.06	$351.90	$250.00
Cat 637G w/push-pull	59.59	$255.23	$175.95	2	$862.36	$351.90	$250.00
CAT 14M	23.57	$149.33	$82.29	1	$231.62	$82.29	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$6.73	$82.29	2	$178.04	$164.58	$250.00
Power Mulcher (Bowie LD-90)	6.00	$25.94	$82.29	1	$108.23	$82.29	$250.00
SCHRAMM T450WS	0.00	$288.33	$82.29	1	$370.62	$82.29	$250.00
Subtotals:			**$2,616.93**		**$1,115.25**		**$1,500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	$27.44	1	$27.44	$27.44
Fuel Tanker, 6x4, 210 HP	$93.16	2	$186.32	$186.32
Water Tanker, 7,000 Gal.	$238.97	1	$238.97	$238.97

Subtotals:	**$452.73**	**$452.73**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	FORT COLLINS	
Total one-way travel distance:	25.00	miles
Average Travel Speed:	40.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$23,366.81
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$565.91

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.63	0.63
Return Time (Hours):	0.63	0.63
Loading Time (Hours):	1.50	NA
Unloading Time (Hours):	1.50	NA
Subtotals:	4.25	1.25

JOB TIME AND COST

Total job time:	**8.50**	Hours
Total job cost:	**$23,933**	