



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

January 13, 2025

George Glasier
Pinon Ridge Mining LLC
P O Box 825
31161 Highway 90
Nucla, CO 8142-4000

**Re: Topaz Mine - File No. M-1980-055-HR
Pinon Ridge Mining LLC
Surety Increase (SI-4)
Surety Revision**

Dear George Glasier:

On January 13, 2025 the Division of Reclamation, Mining and Safety increased the current Financial Warranty for this permit to \$162,630.00, in accordance with Rule 4.2.1 of the Rules and Regulations. This is an increase of \$62,737.00.

Regular Surety Increase based on Inspection and inflationary increases.

Please see the November 13, 2024 inspection report for details regarding why this surety increase is required.

On January 13, 2025, the Division ordered amendment of the current Financial Warranty or submittal of a new Financial Warranty reflecting the increase, within 60 days.

Please make arrangements with Sara M. Stevenson-Benn at the Division's Denver office for submittal of the financial warranty. Any other questions regarding completion, execution and/or submittal of financial warranty forms should also be directed to Sara M. Stevenson-Benn by telephone at (303) 866-3567, or by email at Sara.stevenson-benn@state.co.us.

The Permittee for this site may be scheduled for a Formal Board Hearing for possible revocation of the permit if the amount of any increased Financial Warranty has not been provided by March 14, 2025.

Bond Held:	\$99,893.00
Prior Liability:	\$99,893.00



Change in Liability:	\$62,737.00
Revised Liability:	\$162,630.00
Prior Permit Acreage:	1,674.60
Change in Permit Acreage:	0.00
Revised Permit Acreage:	1,674.60
Prior Affected Acreage:	30.00
Change in Affected Acreage:	0.00
Revised Affected Acreage:	30.00

If you have any questions, please contact me by telephone at (303) 919-2997, or by email at Lucas.west@state.co.us.

Sincerely,



Lucas J. West
Environmental Protection Specialist

COST SUMMARY WORK

Task description: Cost Summary

Site: Topaz Mine

Permit Action: 2024 Update

Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 11/27/2024

County: San Miguel

Filename: M055-000

User: LJW

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001a	Demo of Vent Fan T-1	DEMOLISH	1	36.00	\$1,366
001b	Vent Shaft Closure T-1	MINESEAL	1	16.00	\$4,218
002a	Demo of Vent Fan T-4	DEMOLISH	1	36.00	\$1,366
002b	Vent Shaft Closure T-4	MINESEAL	1	16.00	\$4,218
003a	Demo of Vent Fan T-5	DEMOLISH	1	36.00	\$1,366
003b	Vent Shaft Closure T-5	MINESEAL	1	16.00	\$4,218
004	Demolition of structures at portal and pad, onsite disposal	DEMOLISH	1	36.00	\$4,145
005	Install atmospheric bulkhead underground	MINESEAL	1	16.00	\$5,247
006	Portal closure	MINESEAL	1	40.00	\$10,212
007	Recontour Vent Access Roads	DOZER	1	1.56	\$743
008	Rip compaction on vent pad areas	RIPPER	1	2.99	\$1,443
009	Grade vent pad areas	DOZER	1	6.14	\$2,916
010	Revegetate vent pad areas	REVEGE	1	8.00	\$1,472
011	Rip compaction on vent roads	RIPPER	1	3.72	\$1,802
012	Grade vent access roads	DOZER	1	3.13	\$1,485
013	Revegetate vent access roads	REVEGE	1	8.00	\$4,373
014	Grade dump slopes, push up to 2:1	DOZER	2	17.12	\$16,261
015	Grade dump pad, push against cut face	DOZER	2	14.59	\$13,862
016	Rip compaction on waste dump pad and access road	RIPPER	1	11.26	\$5,432
017	Contour portal and cut face, shape pad	DOZER	1	7.67	\$3,643
018	Haul topsoil for placement	LOADER	2	10.60	\$2,309
019	Spread topsoil on contoured waste dump pad	DOZER	1	2.34	\$1,112
020	Close and seal water quality monitoring wells	BOREHOLE	1	30.00	\$584
021	Grade and contour access roads	DOZER	1	2.68	\$1,274
022	Recontour upland diversions and runoff catchments	DOZER	1	0.36	\$169
023	Revegetate waste dump, access road, and SWMPs	REVEGE	1	20.00	\$23,023
024	Haul reclamation equipment to and from site	MOBILIZE	1	7.00	\$4,521
<u>SUBTOTALS:</u>				405.16	\$122,780

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$2,480

Performance bond:	1.05	Total =	<u>\$1,289</u>
Job superintendent:	202.58	Total =	<u>\$16,059</u>
Profit:	10.00	Total =	<u>\$12,278</u>
		TOTAL O & P =	<u>\$32,106</u>
		CONTRACT AMOUNT (direct + O & P) =	<u>\$154,886</u>

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	<u>\$0</u>	Total =	<u>\$0</u>
Engineering work and/or contract/bid preparation:	<u>0.00</u>	Total =	<u>\$0</u>
Reclamation management and/or administration:	<u>5.00</u>		<u>\$7,744</u>

CONTINGENCY:	0.00	Total =	<u>\$0</u>
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TOTAL INDIRECT COST =	<u>\$39,850</u>
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TOTAL BOND AMOUNT (direct + indirect) =	<u>\$162,630</u>
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DEMOLITION WORK

Task description: **Demo of Vent Fan T-1**

Site: **Topaz Mine**

Permit Action: 2024 Update

Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 001A

State: Colorado

Abbreviation: None

Date: 11/27/2024

County: San Miguel

Filename: M055-001a

User: LJW

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 86.60 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Remove Steel Fan/ Diffuser	6x6x4	USER PROVIDED ITEM	5.00	CY	\$50.00	\$250.00
Break Concrete Collar, downshaft disp	12x12x1	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 50 ft. push	144.00	SF	\$2.27	\$326.23
Cut off Casing	6ft Diam x 3	USER PROVIDED ITEM	1.00	EA	\$1,001.70	\$1,001.70

Job Hours: 36.00

Subtotal
(unadjusted): \$1,577.93

Total Cost
(adjusted for
location): \$1,366.49

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Vent Shaft Closure T-1**

Site: **Topaz Mine** Permit Action: 2024 Update Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 001B State: Colorado Abbreviation: None
Date: 11/27/2024 County: San Miguel Filename: M055-001b
User: LJW

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Shaft Closure	6x6x6"	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	216.00	CF	\$19.53	\$4,218.48

Job Hours: 16.00

Total Cost: \$4,218.48

DEMOLITION WORK

Task description: Demo of Vent Fan T-4

Site: Topaz Mine

Permit Action: 2024 Update

Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 002A

State: Colorado

Abbreviation: None

Date: 11/27/2024

County: San Miguel

Filename: M055-002a

User: LJW

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 86.60 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Remove Steel Fan/ Diffuser	6x6x4	USER PROVIDED ITEM	5.00	CY	\$50.00	\$250.00
Break Concrete Collar, downshaft disp	12x12x1	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 50 ft. push	144.00	SF	\$2.27	\$326.23
Cut off Casing	6ft Diam x 3	USER PROVIDED ITEM	1.00	EA	\$1,001.70	\$1,001.70

Job Hours: 36.00

Subtotal
(unadjusted): \$1,577.93

Total Cost
(adjusted for
location): \$1,366.49

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Vent Shaft Closure T-4**

Site: **Topaz Mine** Permit Action: 2024 Update Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 002B State: Colorado Abbreviation: None
Date: 11/27/2024 County: San Miguel Filename: M055-002b
User: LJW

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Shaft Closure	6x6x6"	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	216.00	CF	\$19.53	\$4,218.48

Job Hours: 16.00

Total Cost: \$4,218.48

DEMOLITION WORK

Task description: Demo of Vent Fan T-5

Site: Topaz Mine

Permit Action: 2024 Update

Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 003A

State: Colorado

Abbreviation: None

Date: 11/27/2024

County: San Miguel

Filename: M055-003a

User: LJW

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 86.60 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Remove Steel Fan/ Diffuser	6x6x4	USER PROVIDED ITEM	5.00	CY	\$50.00	\$250.00
Break Concrete Collar, downshaft disp	12x12x1	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 50 ft. push	144.00	SF	\$2.27	\$326.23
Cut off Casing	6ft Diam x 3	USER PROVIDED ITEM	1.00	EA	\$1,001.70	\$1,001.70

Job Hours: 36.00

Subtotal
(unadjusted): \$1,577.93

Total Cost
(adjusted for
location): \$1,366.49

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Vent Shaft Closure T-5**

Site: **Topaz Mine** Permit Action: 2024 Update Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 003B State: Colorado Abbreviation: None
Date: 11/27/2024 County: San Miguel Filename: M055-003b
User: LJW

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Shaft Closure	6x6x6"	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	216.00	CF	\$19.53	\$4,218.48

Job Hours: 16.00

Total Cost: \$4,218.48

DEMOLITION WORK

Task description: Demolition of structures at portal and pad, onsite disposal

Site: Topaz Mine

Permit Action: 2024 Update

Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 004
Date: 11/27/2024
User: LJW

State: Colorado
County: San Miguel

Abbreviation: None
Filename: M055-004

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 89.00 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Shop building	35x20x20	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	14,000.00	CF	\$0.24	\$3,306.80
Shop bldg concrete slab	35x20	Demo. and on-site disposal in existing pit, 4 in. thick - Max. 200 ft. push	700.00	SF	\$0.79	\$554.54
Water tanks with cribbing	10x10x10 ft mass	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	1,000.00	CF	\$0.24	\$236.20
Hydrocarbon storage	10x5x5 ft	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	250.00	CF	\$0.24	\$59.05
Electric switch gear	10x5x5 ft	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	250.00	CF	\$0.24	\$59.05
Receiver tank and piping	10x10x5 ft	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	500.00	CF	\$0.24	\$118.10
Portal shed, steel sets, timbers	10x10x15 ft	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 50 ft. push	1,500.00	CF	\$0.22	\$323.40

Job Hours: 36.00

Subtotal
(unadjusted): \$4,657.14

Total Cost
(adjusted for location): \$4,144.85

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Install atmospheric bulkhead underground**

Site: **Topaz Mine** Permit Action: 2024 Update Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 11/27/2024 County: San Miguel Filename: M055-005
User: LJW

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Underground workings	12x15	Adit closure - bulkhead seal (per opening)	1.00	EA	\$5,246.60	\$5,246.60

Job Hours: **16.00**

Total Cost: **\$5,246.60**

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Portal closure**

Site: **Topaz Mine** Permit Action: **2024 Update** Permit/Job#: **M1980055HR**

PROJECT IDENTIFICATION

Task #: **006** State: **Colorado** Abbreviation: **None**
Date: **11/27/2024** County: **San Miguel** Filename: **M055-006**
User: **LJW**

Agency or organization name: **DRMS**

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Place debris in adit	10x10	Adit closure - backfilling (per cu. yd.)	150.00	CY	\$43.75	\$6,562.50
Earthen backfill, 30 ft.	10x10	Adit closure - backfilling (per opening)	1.00	EA	\$3,649.41	\$3,649.41

Job Hours: **40.00** **Total Cost:** **\$10,211.91**

BULLDOZER WORKTask description: **Recontour Vent Access Roads**Site: **Topaz Mine** Permit Action: **2024 Update** Permit/Job#: **M1980055HR****PROJECT IDENTIFICATION**

Task #: **007** State: **Colorado** Abbreviation: **None**
 Date: **11/27/2024** County: **San Miguel** Filename: **M055-007**
 User: **LJW**

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:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$253.16	NA
Operating Cost/Hour:	\$164.35	100
Ripper own. Cost/Hour:	\$18.79	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.59	NA
Total unit Cost/Hour:	\$474.89	
Total Fleet Cost/Hour:	\$474.89	

MATERIAL QUANTITIES

Initial Volume: **1,110**
 Swell factor: **1.125**
 Loose volume: **1,249 LCY**

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

HOURLY PRODUCTION

Average push distance: **50 feet**
 Unadjusted hourly production: **2,110.5 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **0 %**
 Average site altitude: **7,000 feet**

Material weight: **2,650 lbs/LCY**Weight description: **Decomposed rock - 25% Rock, 75% Earth**

Job Condition Correction Factor
 Operator Skill: **0.750** Source (AVG.)

Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3782

Adjusted unit production: 798.19 LCY/hr

Adjusted fleet production: **798.19** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.595/LCY

Total job time: **1.56** Hours

Total job cost: **\$743**

BULLDOZER RIPPING WORK

Task description: Rip compaction on vent pad areas

Site: Topaz Mine Permit Action: 2024 Update Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 008 State: Colorado Abbreviation: None
Date: 11/27/2024 County: San Miguel Filename: M055-008
User: LJW

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$253.16	NA
Operating Cost/Hour:	\$164.35	100
Ripper Ownership Cost/Hour:	\$15.77	NA
Ripper Operating Cost/Hour:	\$10.35	100
Operator Cost/Hour:	\$38.59	NA
Total Unit Cost/Hour:	\$482.22	
Total Fleet Cost/Hour:	\$482.22	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 1.50 acres Rip Depth (ft): 1.00 Volume: 2,420 BCY or CCY

Source of estimated quantity: Permit maps

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 4.05 feet/pass
Average Ripping Width: 6.08 feet/pass
Average Ripping Length: 100.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 0.604 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.604 Acres/hr
Site Altitude: 7,000 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.50 Acres/hr
Adjusted Hourly Fleet Production: 0.50 Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 2.99 Hours

Unit cost: \$961.784 Per acre Total job cost: \$1,443

BULLDOZER WORKTask description: **Grade vent pad areas**Site: **Topaz Mine** Permit Action: **2024 Update** Permit/Job#: **M1980055HR****PROJECT IDENTIFICATION**

Task #: **009** State: **Colorado** Abbreviation: **None**
Date: **11/27/2024** County: **San Miguel** Filename: **M055-009**
User: **LJW**

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:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$253.16	NA
Operating Cost/Hour:	\$164.35	100
Ripper own. Cost/Hour:	\$18.79	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.59	NA
Total unit Cost/Hour:	\$474.89	
Total Fleet Cost/Hour:	\$474.89	

MATERIAL QUANTITIES

Initial Volume: **4,356**
Swell factor: **1.125**
Loose volume: **4,901 LCY**

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

HOURLY PRODUCTION

Average push distance: **50 feet**
Unadjusted hourly
production: **2,110.5 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push
gradient: **0 %**
Average site altitude: **7,000 feet**

Material weight: **2,650 lbs/LCY**Weight description: **Decomposed rock - 25% Rock, 75% Earth**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)

Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3782

Adjusted unit
production: 798.19 LCY/hr

Adjusted fleet
production: **798.19** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.595/LCY

Total job time: **6.14** Hours

Total job cost: **\$2,916**

REVEGETATION WORKTask description: Revegetate vent pad areasSite: Topaz MinePermit Action: 2024 UpdatePermit/Job#: M1980055HRPROJECT IDENTIFICATIONTask #: 010State: ColoradoAbbreviation: NoneDate: 11/27/2024County: San MiguelFilename: M055-010User: LJWAgency or organization name: DRMSFERTILIZING**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)	\$117.61
Total Tilling Cost/Acre	\$117.61

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	0.96	15.67	\$20.47
Indian Ricegrass - Native	7.42	24.02	\$128.31
Sand Dropseed	0.14	16.71	\$1.82
Bottlebrush Squirreltail	4.08	17.98	\$103.65
Galleta	4.94	18.03	\$273.86
Muttongrass	0.20	4.13	\$9.53
Sagebrush, Mountain or Big	0.20	10.56	\$16.54
Saltbush, Four Wing	0.50	0.69	\$9.94
Winter Fat	0.50	1.27	\$23.36

Totals Seed Mix	18.94	109.07	\$587.48
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Application

Description	Cost /Acre
Broadcast seeding [DMG]	\$272.56
Total Seed Application Cost/Acre	\$272.56

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	1.50	ACRE	\$4.13	\$6.19
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$492.78	\$985.56
Total Mulch Materials Cost/Acre				\$991.75

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$85.37
Weed spray, hand, non-aquatic area, nox. [DMG]	\$209.61
Total Mulch Application Cost/Acre	\$294.98

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: 0.5 Cost /Acre: \$2,264.38
 Estimated Failure Rate: 30% Cost /Acre*: \$2,264.38
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **\$1,132.19**
 Reseeding Job Cost: **\$339.66**
 Total Job Cost: **\$1,472**
 Job Hours: **8.00**

BULLDOZER RIPPING WORK

Task description: Rip compaction on vent roads

Site: Topaz Mine

Permit Action: 2024 Update

Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 011

State: Colorado

Abbreviation: None

Date: 11/27/2024

County: San Miguel

Filename: M055-011

User: LJW

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:	\$253.16	NA
Operating Cost/Hour:	\$164.35	100
Ripper Ownership Cost/Hour:	\$18.79	NA
Ripper Operating Cost/Hour:	\$9.48	100
Operator Cost/Hour:	\$38.59	NA
Total Unit Cost/Hour:	\$484.37	
Total Fleet Cost/Hour:	\$484.37	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA

Bank Volume: NA

BCY NA

Area: 2.75 acres

Rip Depth (ft): 1.00

Volume: 4,437

BCY or CCY

Source of estimated quantity: Permit maps

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>2.63</u>	feet/pass
Average Ripping Width:	<u>7.67</u>	feet/pass
Average Ripping Length:	<u>500.00</u>	feet/pass
Average Dozer Speed:	<u>88.00</u>	feet/minute
Average Maneuver Time:	<u>0.25</u>	minutes/pass
Production per unit area:	<u>0.891</u>	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.891 Acres/hr

Site Altitude: 7,000 feet

Altitude Adj: 1.00 (CAT HB)

Job Efficiency: 0.83 (1 shift/day)

Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.74 Acres/hr

Adjusted Hourly Fleet Production: 0.74 Acres/hr

JOB TIME AND COST

Fleet size: 1

Grader(s)

Total job time: 3.72 Hours

Unit cost: \$655.327

Per acre

Total job cost: \$1,802

BULLDOZER WORKTask description: **Grade vent access roads**Site: **Topaz Mine** Permit Action: **2024 Update** Permit/Job#: **M1980055HR****PROJECT IDENTIFICATION**

Task #: **012** State: **Colorado** Abbreviation: **None**
Date: **11/27/2024** County: **San Miguel** Filename: **M055-012**
User: **LJW**

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:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$253.16	NA
Operating Cost/Hour:	\$164.35	100
Ripper own. Cost/Hour:	\$18.79	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.59	NA
Total unit Cost/Hour:	\$474.89	
Total Fleet Cost/Hour:	\$474.89	

MATERIAL QUANTITIES

Initial Volume: **2,218**
Swell factor: **1.125**
Loose volume: **2,495 LCY**

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

HOURLY PRODUCTION

Average push distance: **50 feet**
Unadjusted hourly
production: **2,110.5 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push
gradient: **0 %**
Average site altitude: **7,000 feet**

Material weight: **2,650 lbs/LCY**Weight description: **Decomposed rock - 25% Rock, 75% Earth**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)

Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3782

Adjusted unit production: 798.19 LCY/hr

Adjusted fleet production: **798.19** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.595/LCY

Total job time: **3.13** Hours

Total job cost: **\$1,485**

REVEGETATION WORKTask description: Revegetate vent access roadsSite: Topaz MinePermit Action: 2024 UpdatePermit/Job#: M1980055HR**PROJECT IDENTIFICATION**Task #: 013State: ColoradoAbbreviation: NoneDate: 11/27/2024County: San MiguelFilename: M055-013User: LJWAgency 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)	\$117.61
Total Tilling Cost/Acre	\$117.61

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	0.96	15.67	\$20.47
Indian Ricegrass - Native	7.42	24.02	\$128.31
Sand Dropseed	0.14	16.71	\$1.82
Bottlebrush Squirreltail	4.08	17.98	\$103.65
Galleta	4.94	18.03	\$273.86
Muttongrass	0.20	4.13	\$9.53
Sagebrush, Mountain or Big	0.20	10.56	\$16.54
Saltbush, Four Wing	0.50	0.69	\$9.94
Winter Fat	0.50	1.27	\$23.36

Totals Seed Mix	18.94	109.07	\$587.48
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Application

Description	Cost /Acre
Broadcast seeding [DMG]	\$272.56
Total Seed Application Cost/Acre	\$272.56

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	2.75	ACRE	\$4.13	\$11.35
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$492.78	\$985.56
Total Mulch Materials Cost/Acre				\$996.91

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$85.37
Weed spray, hand, non-aquatic area, nox. [DMG]	\$209.61
Total Mulch Application Cost/Acre	\$294.98

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:	1.5	Cost /Acre:	\$2,269.54
Estimated Failure Rate:	30%	Cost /Acre*:	\$2,151.93
*Selected Replanting Work Items:	SEEDING,MULCHING		
Initial Job Cost:	\$3,404.31		
Reseeding Job Cost:	\$968.37		
Total Job Cost:	\$4,373		
Job Hours:	8.00		

BULLDOZER WORKTask description: **Grade dump slopes, push up to 2:1**Site: **Topaz Mine** Permit Action: **2024 Update** Permit/Job#: **M1980055HR****PROJECT IDENTIFICATION**

Task #: **014** State: **Colorado** Abbreviation: **None**
Date: **11/27/2024** County: **San Miguel** Filename: **M055-014**
User: **LJW**

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:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$253.16	NA
Operating Cost/Hour:	\$164.35	100
Ripper own. Cost/Hour:	\$18.79	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.59	NA
Total unit Cost/Hour:	\$474.89	
Total Fleet Cost/Hour:	\$949.77	

MATERIAL QUANTITIES

Initial Volume: **7,000**
Swell factor: **1.215**
Loose volume: **8,505 LCY**

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

HOURLY PRODUCTION

Average push distance: **150 feet**
Unadjusted hourly
production: **910.5 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push
gradient: **10 %**
Average site altitude: **5,800 feet**

Material weight: **3,300 lbs/LCY**Weight description: **Decomposed rock - 75% Rock, 25% Earth**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)

Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2728

Adjusted unit
production: 248.38 LCY/hr
Adjusted fleet
production: **496.76 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$1.912/LCY

Total job time: **17.12 Hours**
Total job cost: **\$16,261**

BULLDOZER WORKTask description: Grade dump pad, push against cut faceSite: Topaz Mine Permit Action: 2024 Update Permit/Job#: M1980055HR**PROJECT IDENTIFICATION**

Task #: 015 State: Colorado Abbreviation: None
Date: 11/27/2024 County: San Miguel Filename: M055-015
User: LJW

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:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$253.16</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$164.35</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$18.79</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$38.59</u>	<u>NA</u>
Total unit Cost/Hour:	<u>\$474.89</u>	
Total Fleet Cost/Hour:	<u>\$949.77</u>	

MATERIAL QUANTITIES

Initial Volume: 6,000
Swell factor: 1.215
Loose volume: 7,290 LCY

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

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly
production: 910.5 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push
gradient: 5 %
Average site altitude: 5,800 feet

Material weight: 3,300 lbs/LCYWeight description: Decomposed rock - 75% Rock, 25% Earth

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: <u>0.750</u>	<u>(AVG.)</u>

Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2743

Adjusted unit
production: 249.75 LCY/hr

Adjusted fleet
production: **499.5** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$1.901/LCY

Total job time: **14.59** Hours

Total job cost: **\$13,862**

BULLDOZER RIPPING WORK

Task description: Rip compaction on waste dump pad and access road

Site: Topaz Mine

Permit Action: 2024 Update

Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 016

State: Colorado

Abbreviation: None

Date: 11/27/2024

County: San Miguel

Filename: M055-016

User: LJW

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU

Horsepower: 405

Ripper Attachment: 1-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$253.16	NA
Operating Cost/Hour:	\$164.35	100
Ripper Ownership Cost/Hour:	\$15.77	NA
Ripper Operating Cost/Hour:	\$10.35	100
Operator Cost/Hour:	\$38.59	NA
Total Unit Cost/Hour:	\$482.22	
Total Fleet Cost/Hour:	\$482.22	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA

Bank Volume: NA

BCY NA

Area: 6.60 acres

Rip Depth (ft): 1.00

Volume: 10,648

BCY or CCY

Source of estimated quantity: Permit maps

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>4.05</u>	feet/pass
Average Ripping Width:	<u>6.08</u>	feet/pass
Average Ripping Length:	<u>500.00</u>	feet/pass
Average Dozer Speed:	<u>88.00</u>	feet/minute
Average Maneuver Time:	<u>0.25</u>	minutes/pass
Production per unit area:	<u>0.706</u>	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.706 Acres/hr

Site Altitude: 7,000 feet

Altitude Adj: 1.00 (CAT HB)

Job Efficiency: 0.83 (1 shift/day)

Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.59 Acres/hr

Adjusted Hourly Fleet Production: 0.59 Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 11.26 Hours

Unit cost: \$823.034 Per acre Total job cost: \$5,432

BULLDOZER WORKTask description: **Contour portal and cut face, shape pad**Site: **Topaz Mine** Permit Action: **2024 Update** Permit/Job#: **M1980055HR****PROJECT IDENTIFICATION**

Task #:	<u>017</u>	State:	<u>Colorado</u>	Abbreviation:	<u>None</u>
Date:	<u>11/27/2024</u>	County:	<u>San Miguel</u>	Filename:	<u>M055-017</u>
User:	<u>LJW</u>				

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

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

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$253.16</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$164.35</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$18.79</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$38.59</u>	<u>NA</u>
Total unit Cost/Hour:	<u>\$474.89</u>	
Total Fleet Cost/Hour:	<u>\$474.89</u>	

MATERIAL QUANTITIES

Initial Volume:	<u>3,000</u>
Swell factor:	<u>1.165</u>
Loose volume:	<u>3,495 LCY</u>

Source of estimated volume:	<u>Division of Reclamation, Mining & Safety</u>
Source of estimated swell factor:	<u>Cat Handbook</u>

HOURLY PRODUCTION

Average push distance:	<u>80 feet</u>
Unadjusted hourly production:	<u>1,460.1 LCY/hr</u>

Materials consistency description: Consolidated stockpile 1.0

Average push gradient:	<u>5 %</u>
Average site altitude:	<u>5,800 feet</u>

Material weight: 2,900 lbs/LCYWeight description: Decomposed rock - 50% Rock, 50% Earth

<u>Job Condition Correction Factor</u>		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>

Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3120

Adjusted unit production: 455.55 LCY/hr

Adjusted fleet production: **455.55** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$1.042/LCY

Total job time: **7.67** Hours

Total job cost: **\$3,643**

WHEEL LOADER – LOAD AND CARRY WORKTask description: **Haul topsoil for placement**Site: **Topaz Mine**Permit Action: **2024 Update**Permit/Job#: **M1980055HR****PROJECT IDENTIFICATION**Task #: **018**State: **Colorado**Abbreviation: **None**Date: **11/27/2024**County: **San Miguel**Filename: **M055-018**User: **LJW**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **CAT 950H**Attachment 1: **ROPS Cab**Horsepower: **197**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	\$36.61	NA
Operating Cost/Hour:	\$35.43	100
Operator Cost/Hour:	\$36.85	NA
Total Unit Cost/Hour:	\$108.89	
Total Fleet Cost/Hour:	\$217.79	

MATERIAL QUANTITIESInitial volume: **3,254**

CCY

Swell factor: **1.215**Loose volume: **3,954**

LCY

Source of estimated volume: **Division of Reclamation, Mining & Safety**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION****Loader Cycle Time:**Unadjusted Basic Cycle Time (load, dump,
maneuver):**0.500**

minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Basic Cycle Time:		0.460	minutes

Rolling Resistance – Road ConditionsHaul: **Hard, smooth, stabilized, surfaced, watered, maintained 2.0**Return: **Hard, smooth, stabilized, surfaced, watered, maintained 2.0****Haul and Return Time**

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
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Haul Route:	500	0.00	2.00	2.00	0.3829	(Cat HB)
Return Route:	500	0.00	2.00	2.00	0.3631	(Cat HB)

Total Travel Time: 0.7460 minutesTotal Cycle Time: 1.2060 minutesLoad Bucket Capacity

Rated Capacity:	<u>4.30</u>	LCY (heaped)
Bucket Fill Factor:	<u>1.050</u>	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	<u>4.52</u>	LCY

Job Condition Correction FactorsSite Altitude: 7000 feet

Altitude Adj:	<u>1.00</u>	Source (CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Unadjusted Hourly Unit Production:	<u>224.63</u>	LCY/Hour
Adjusted Hourly Unit Production:	<u>186.45</u>	LCY/Hour
Adjusted Hourly Fleet Production:	<u>372.89</u>	LCY/Hour

JOB TIME AND COSTFleet size: 2 Loader(s) Total job time: 10.60 HoursUnit cost: \$0.584 /LCY Total job cost: \$2,309

BULLDOZER WORKTask description: Spread topsoil on contoured waste dump padSite: Topaz MinePermit Action: 2024 UpdatePermit/Job#: M1980055HR**PROJECT IDENTIFICATION**Task #: 019State: ColoradoAbbreviation: NoneDate: 11/27/2024County: San MiguelFilename: M055-019User: LJWAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$253.16	NA
Operating Cost/Hour:	\$164.35	100
Ripper own. Cost/Hour:	\$18.79	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.59	NA

Total unit Cost/Hour: \$474.89Total Fleet Cost/Hour: \$474.89**MATERIAL QUANTITIES**Initial Volume: 3,954Swell factor: 1.000Loose volume: 3,954 LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 60 feetUnadjusted hourly
production: 1,872.0 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push
gradient: 0 %Average site altitude: 7,000 feetMaterial weight: 1,600 lbs/LCYWeight description: Top Soil**Job Condition Correction Factor**Operator Skill: 0.750Source
(AVG.)

Material consistency:	1.200	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9023

Adjusted unit
production: 1,689.11 LCY/hr

Adjusted fleet
production: **1689.11** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.281/LCY

Total job time: **2.34** Hours

Total job cost: **\$1,112**

BOREHOLE SEALING WORK

Task description: Close and seal water quality monitoring wells

Site: Topaz Mine

Permit Action: 2024 Update

Permit/Job#: M1980055HR

PROJECT IDENTIFICATION

Task #: 020

State: Colorado

Abbreviation: None

Date: 11/27/2024

County: San Miguel

Filename: M055-020

User: LJW

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Shallow GW well, cut off casing	Exposed casing removal - Calculate Circumference in Linear Feet	2	24	4.00	LF	\$3.23	\$12.92
Shallow GW well, remove metal cover	Exposed casing removal - Calculate Circumference in Linear Feet	6	4	4.00	LF	\$3.23	\$12.92
Shallow GW well, backfill bentonite	Bentonite seal - 2 in. (labor, equip, materials)	2	22	1.00	LF	\$8.80	\$8.80
Shallow GW well, cement seal top	Portland cement grout - 2 in. (labor, equip, materials)	2	2	2.00	LF	\$8.57	\$17.14
Ambient well, remove metal cover	Exposed casing removal - Calculate Circumference in Linear Feet	6	4	4.00	LF	\$3.23	\$12.92
Ambient well, cut off casing	Exposed casing removal - Calculate Circumference in Linear Feet	4.5	700	4.00	LF	\$3.23	\$12.92
Ambient well, bentonite thru aquifer	Bentonite seal - 4 in. (labor, equip, materials)	4	100	1.00	LF	\$9.61	\$9.61
Ambient well, mech plug	PVC plug - 4 in. diameter borehole	4	1	1.00	EA	\$36.06	\$36.06
Ambient well, cement seal top	Portland cement grout - 4 in. (labor, equip, materials)	4	4	4.00	LF	\$8.71	\$34.85
Monitoring well (west), remove metal cover	Exposed casing removal - Calculate Circumference in Linear Feet	6	4	4.00	LF	\$3.23	\$12.92
Monitoring well (west), cut off casing	Exposed casing removal - Calculate Circumference in Linear Feet	4.5	700	4.00	LF	\$3.23	\$12.92
Monitoring well (west), bentonite thru aquifer	Bentonite seal - 4 in. (labor, equip, materials)	4	100	1.00	LF	\$9.61	\$9.61
Monitoring well (west), mech plug	PVC plug - 4 in. diameter borehole	4	1	1.00	EA	\$36.06	\$36.06

Monitoring well (west), cement seal top	Portland cement grout - 4 in. (labor, equip, materials)	4	4	4.00	LF	\$8.71	\$34.85
Mon well (south), remove metal cover	Exposed casing removal - Calculate Circumference in Linear Feet	6	4	4.00	LF	\$3.23	\$12.92
Mon well (south), cut off casing	Exposed casing removal - Calculate Circumference in Linear Feet	4.5	700	4.00	LF	\$3.23	\$12.92
Mon well (south), bentonite thru aquifer	Bentonite seal - 4 in. (labor, equip, materials)	4	100	1.00	LF	\$9.61	\$9.61
Mon well (south), mech plug	PVC plug - 4 in. diameter borehole	4	1	1.00	EA	\$36.06	\$36.06
Mon well (south), cement seal top	Portland cement grout - 4 in. (labor, equip, materials)	4	4	4.00	LF	\$8.71	\$34.85
Compliance well (west), remove metal cover	Exposed casing removal - Calculate Circumference in Linear Feet	6	4	4.00	LF	\$3.23	\$12.92
Compliance well (west), cut off casing	Exposed casing removal - Calculate Circumference in Linear Feet	4.5	700	4.00	LF	\$3.23	\$12.92
Compliance well (west), bentonite thru aquifer	Bentonite seal - 4 in. (labor, equip, materials)	4	100	1.00	LF	\$9.61	\$9.61
Compliance well (west), mech plug	PVC plug - 4 in. diameter borehole	4	1	1.00	EA	\$36.06	\$36.06
Compliance well (west), cement seal top	Portland cement grout - 4 in. (labor, equip, materials)	4	4	4.00	LF	\$8.71	\$34.85
Comp well (east), remove metal cover	Exposed casing removal - Calculate Circumference in Linear Feet	6	4	4.00	LF	\$3.23	\$12.92
Comp well (east), cut off casing	Exposed casing removal - Calculate Circumference in Linear Feet	4.5	700	4.00	LF	\$3.23	\$12.92
Comp well (east), bentonite thru aquifer	Bentonite seal - 4 in. (labor, equip, materials)	4	100	1.00	LF	\$9.61	\$9.61
Comp well (east), mech plug	PVC plug - 4 in. diameter borehole	4	1	1.00	EA	\$36.06	\$36.06
Comp well (east), cement seal top	Portland cement grout - 4 in. (labor, equip, materials)	4	4	4.00	LF	\$8.71	\$34.85

Job Hours: 30.00Total Cost: \$584.00

BULLDOZER WORKTask description: **Grade and contour access roads**Site: **Topaz Mine** Permit Action: **2024 Update** Permit/Job#: **M1980055HR****PROJECT IDENTIFICATION**

Task #: **021** State: **Colorado** Abbreviation: **None**
Date: **11/27/2024** County: **San Miguel** Filename: **M055-021**
User: **LJW**

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:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$253.16	NA
Operating Cost/Hour:	\$164.35	100
Ripper own. Cost/Hour:	\$18.79	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.59	NA
Total unit Cost/Hour:	\$474.89	
Total Fleet Cost/Hour:	\$474.89	

MATERIAL QUANTITIES

Initial Volume: **1,500**
Swell factor: **1.090**
Loose volume: **1,635 LCY**

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

HOURLY PRODUCTION

Average push distance: **80 feet**
Unadjusted hourly
production: **1,460.1 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push
gradient: **0 %**
Average site altitude: **5,800 feet**

Material weight: **2,400 lbs/LCY**Weight description: **Clay and gravel - Dry**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)

Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.958	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4174

Adjusted unit
production: 609.45 LCY/hr

Adjusted fleet
production: **609.45** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.779/LCY

Total job time: **2.68** Hours

Total job cost: **\$1,274**

BULLDOZER WORKTask description: **Recontour upland diversions and runoff catchments**Site: **Topaz Mine** Permit Action: 2024 Update Permit/Job#: M1980055HR**PROJECT IDENTIFICATION**

Task #:	<u>022</u>	State:	<u>Colorado</u>	Abbreviation:	<u>None</u>
Date:	<u>11/27/2024</u>	County:	<u>San Miguel</u>	Filename:	<u>M055-022</u>
User:	<u>LJW</u>				

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

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

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$253.16</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$164.35</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$18.79</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$38.59</u>	<u>NA</u>
Total unit Cost/Hour:	<u>\$474.89</u>	
Total Fleet Cost/Hour:	<u>\$474.89</u>	

MATERIAL QUANTITIES

Initial Volume:	<u>250</u>
Swell factor:	<u>1.250</u>
Loose volume:	<u>313 LCY</u>

Source of estimated volume:	<u>Division of Reclamation, Mining & Safety</u>
Source of estimated swell factor:	<u>Cat Handbook</u>

HOURLY PRODUCTION

Average push distance:	<u>50 feet</u>
Unadjusted hourly production:	<u>2,110.5 LCY/hr</u>

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient:	<u>0 %</u>
Average site altitude:	<u>7,000 feet</u>

Material weight: 2,650 lbs/LCYWeight description: Decomposed rock - 25% Rock, 75% Earth

<u>Job Condition Correction Factor</u>		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>

Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4161

Adjusted unit production: 878.18 LCY/hr

Adjusted fleet production: **878.18** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.541/LCY

Total job time: **0.36** Hours

Total job cost: **\$169**

REVEGETATION WORKTask description: Revegetate waste dump, access road, and SWMPsSite: Topaz MinePermit Action: 2024 UpdatePermit/Job#: M1980055HRPROJECT IDENTIFICATIONTask #: 023State: ColoradoAbbreviation: NoneDate: 11/27/2024County: San MiguelFilename: M055-023User: LJWAgency or organization name: DRMSFERTILIZING**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
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	0.96	15.67	\$20.47
Indian Ricegrass - Native	7.42	24.02	\$128.31
Sand Dropseed	0.14	16.71	\$1.82
Bottlebrush Squirreltail	4.08	17.98	\$103.65
Galleta	4.94	18.03	\$273.86
Muttongrass	0.20	4.13	\$9.53
Sagebrush, Mountain or Big	0.20	10.56	\$16.54
Saltbush, Four Wing	0.50	0.69	\$9.94
Winter Fat	0.50	1.27	\$23.36

Totals Seed Mix	18.94	109.07	\$587.48
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Application

Description	Cost /Acre
Broadcast seeding [DMG]	\$272.56
Total Seed Application Cost/Acre	\$272.56

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	8.50	ACRE	\$4.13	\$35.08
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$492.78	\$985.56
Total Mulch Materials Cost/Acre				\$1,020.64

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$85.37
Weed spray, hand, non-aquatic area, nox. [DMG]	\$209.61
Total Mulch Application Cost/Acre	\$294.98

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:	8.14	Cost /Acre:	\$2,175.66
Estimated Failure Rate:	30%	Cost /Acre*:	\$2,175.66
*Selected Replanting Work Items:	SEEDING,MULCHING		
Initial Job Cost:	\$17,709.87		
Reseeding Job Cost:	\$5,312.96		
Total Job Cost:	\$23,023		
Job Hours:	20.00		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Haul reclamation equipment to and from site**Site: **Topaz Mine**Permit Action: **2024 Update**Permit/Job#: **M1980055HR****PROJECT IDENTIFICATION**Task #: **024**State: **Colorado**Abbreviation: **None**Date: **11/27/2024**County: **San Miguel**Filename: **M055-024**User: **LJW**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:	\$10.44	\$22.18	\$23.94
Operating Cost/Hour:	\$26.48	\$54.55	\$55.65
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$59.44	\$122.78	\$125.64

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	\$271.95	\$125.64	1	\$397.59	\$125.64	\$250.00
CAT 924H	12.69	\$26.01	\$59.44	1	\$85.45	\$59.44	\$250.00

Subtotals: **\$483.04** **\$185.08** **\$500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Generic 10-12 cy, 6x4	\$108.12	2	\$216.24	\$216.24
Drill/Broadcast Seeder with Tractor	\$79.16	1	\$79.16	\$79.16
Power Mulcher (Bowie LD-90)	\$58.47	1	\$58.47	\$58.47
Light Duty Pickup, 4x4, 3/4 T.	\$13.77	1	\$13.77	\$13.77

Subtotals: **\$367.64** **\$367.64**

EQUIPMENT HAUL DISTANCE and Time

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

Total Non-Roadable Mob/Demob Cost *	\$3,785.36
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$735.28
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.00	1.00
Return Time (Hours):	1.00	1.00
Loading Time (Hours):	0.75	NA
Unloading Time (Hours):	0.75	NA
Subtotals:	3.50	2.00

JOB TIME AND COST

Total job time: 7.00 Hours

Total job cost: \$4,521