



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

August 27, 2019

Mike Anson  
Moffat Limestone Company  
P.O. Box 363  
Craig, CO 81626

**RE: Juniper Quarry, Permit No. M-1982-141, Reclamation Costs Update and Notice of Surety Increase (SI-2)**

Dear Mr. Anson:

In an effort to ensure the Financial Warranty for the above referenced site adequately reflects the actual current costs of fulfilling the requirements of the approved reclamation plan, the Colorado Division of Reclamation, Mining and Safety (Division) has updated the reclamation cost estimate (copy enclosed).

Division calculations estimate the cost to reclaim the above referenced site to be \$186,313. This is an increase of \$31,908 over the \$154,405 currently held by the Division. This estimate is based on conditions observed during the July 17, 2019 inspection. ***Therefore, pursuant to Section 34-32.5-117(4) of the Colorado Land Reclamation Act, adequate Financial Warranty must be submitted to the Division within 60 days of the mailing date of this letter.*** The additional amount needs to be accepted prior to **Monday, October 28, 2019**. Please review the enclosed figures as soon as possible and contact our office if any calculation errors are noted.

Please make arrangements with Gabriel Benvenuti at the Division of Reclamation, Mining and Safety Denver Office, phone no. 303.866.3567, ext. 8148 for submittal of the financial warranty. Any questions regarding completion, execution and/or submittal of financial warranty forms should also be directed to Gabriel Benvenuti.

If you require additional information, or have questions or concerns, please feel free to contact me. Amy Yeldell at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203. Direct contact can be made by phone at 303-866-3567 Ext 8183 or via email at amy.yeldell@state.co.us



8/27/2019

Sincerely,

A handwritten signature in blue ink that reads "Amy Yeldell". The signature is written in a cursive, flowing style.

**Amy Yeldell**

Environmental Protection Specialist

Ec:

Travis Marshall, Senior EPS, Grand Junction DRMS

Jennifer Maiolo, Little Snake Field Office BLM COC-48936

## COST SUMMARY WORK

Task description: Post inspection update 7-17-19

Site: Juniper Quarry

Permit Action: 2019-07

Permit/Job#: M1982141

### PROJECT IDENTIFICATION

Task #: ACY

State: Colorado

Abbreviation: None

Date: 8/27/2019

County: Moffat

Filename: M141-ACY

User: ACY

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Removal of mining equipment and debris	DEMOLISH	1	8.00	\$2,955
02a	AM-1 Highwall Reduction	BLASTING	1	30.72	\$12,452
03a	AM-1 highwall reduction (grading) and overburden replacement	DOZER	2	4.27	\$2,431
04a	AM-1 Rip process area and access road	RIPPER	2	2.08	\$1,216
05a	AM-1 Distribute topsoil	LOADER	2	9.63	\$2,755
06a	AM-1 Spread topsoil	DOZER	2	2.83	\$1,521
07a	AM-1 Revegetation	REVEGE	1	24.00	\$15,071
08a	CN-1 Highwall Reduction	DOZER	2	62.37	\$35,517
08b	CN-1 Highwall Reduction	BLASTING	1	30.72	\$12,452
09a	CN-1 Rip compacted areas	RIPPER	2	4.31	\$2,516
10a	CN-1 Distribute topsoil	LOADER	2	37.63	\$10,763
11a	CN-1 Spread topsoil	DOZER	2	5.66	\$3,042
12a	CN-1 Revegetation	REVEGE	1	40.00	\$30,141
13a	Initial Mobilization	MOBILIZE	1	4.66	\$7,717
13b	Secondary Mobilization	MOBILIZE	1	4.66	\$977
<b><u>SUBTOTALS:</u></b>				<b>271.54</b>	<b>\$141,526</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 2.02  
Performance bond: 1.05  
Job superintendent: 135.77  
Profit: 10.00

Total = \$2,859  
Total = \$1,486  
Total = \$9,421  
Total = \$14,153

TOTAL O & P = \$27,919

CONTRACT AMOUNT (direct + O & P) = \$169,445

## LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	<u>\$500</u>	Total =	<u>\$500</u>
Engineering work and/or contract/bid preparation:	<u>4.25</u>	Total =	<u>\$7,201</u>
Reclamation management and/or administration:	<u>5.41</u>		<u>\$9,167</u>

CONTINGENCY:	0.00	Total =	<u>\$0</u>
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TOTAL INDIRECT COST =	<u>\$44,787</u>
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<b>TOTAL BOND AMOUNT (direct + indirect) =</b>	<b><u>\$186,313</u></b>
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## DEMOLITION WORK

Task description: Removal of mining equipment and debris

Site: Juniper Quarry

Permit Action: 2019-07

Permit/Job#: M1982141

### PROJECT IDENTIFICATION

Task #: 01A

State: Colorado

Abbreviation: None

Date: 8/27/2019

County: Moffat

Filename: M141-01a

User: ACY

Agency or organization name: DRMS

### UNIT COSTS

Location adjustment: 90.70 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
AM-1 Trailer	8'W x 10'H x 20'L	Loading and 5 mile haul, salvage allowed - Steel frame structures	59.30	CY	\$10.55	\$625.62
CN-1 Trailers x 3	Appox. 150 CY	Loading and 5 mile haul, salvage allowed - Steel frame structures	150.00	CY	\$10.55	\$1,582.50
CN-1 Fuel Tank	10,000 gal	Haul tank to certified salvage dump - 9,000 to 12,000 gal. tank	1.00	EA	\$1,050.00	\$1,050.00

Job Hours: 8.00

Subtotal  
(unadjusted): \$3,258.12

Total Cost  
(adjusted for  
location): \$2,955.11

**SURFACE BLASTING WORK**Task description: **AM-1 Highwall Reduction**Site: **Juniper Quarry**Permit Action: **2019-07**Permit/Job#: **M1982141****PROJECT IDENTIFICATION**Task #: **02A**State: **Colorado**Abbreviation: **None**Date: **8/27/2019**County: **Moffat**Filename: **M141-02a**User: **ACY**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:	0.00	h:lv
Regraded Slope Angle:	1.50	h:lv
Highwall or Bench Length:	300	feet
Highwall or Bench Width:	30	feet
Highwall or Bench Height:	50.0	feet
Depth to Base of Cut at Highwall:	20.0	feet

**BLAST AREA VOLUMES**

	QUANTITY	UNIT
Total Volume of Dimensional Mass to be Shot:	3,333	cubic yards
Blast Volume to Subdrill Grade and Blast Pattern Lines:	3,603	cubic yards
Blast Volume to Finish Grade and Blast Pattern Lines:	2,963	cubic yards
Remaining Volume Required to be Re-Shot or Ripped:	370	cubic yards

**BLAST AREA DESIGN**

	QUANTITY	UNIT
Recommended Blasthole Diameter:	2.940	inches
Selected Blasthole Diameter:	4.000	inches
Subdrilling Allowance:	2.4	feet
Blasthole Depth:	11.7	feet
Density of Rock:	Average Density Rock (ANFO Basis)	rock density
Burden to Charge Diameter Ratio:	25	times diameter
Burden:	8.0	feet
Spacing to Burden Ratio:	1.3	times burden
Spacing:	10.0	feet
Cubic Yards of Rock per Blasthole:	41.48	cubic yards
Powder Factor Description:	High	rock strength
Powder Factor:	1.000	pounds/cu. yd.
Density of Blasting Agent:	1.10	grams/cc
Quantity of Explosives per Blasthole:	41.48	POUNDS
Height of Powder Column:	6.92	feet
Height of Stemming per Blasthole:	4.81	feet
Stemming to Burden Ratio:	0.60	times burden
Quantity of Stemming per Blasthole:	0.0156	cubic yards
Number of Rows:	3	rows
Number of Blastholes per Row:	30	holes per row
Total Number of Blastholes:	90	holes
Total Length of all Blastholes:	1,056	feet

**BLASTING MATERIALS QUANTITIES**

	QUANTITY	UNIT
Total Quantity of Stemming Required:	1.40	cubic yards
Total Quantity of Explosives Required:	3,733	pounds
Total Quantity of det. cord/fuse/wire Required:	2,178	linear feet
Quantity of Blasting Caps per Blasthole:	1	cap(s)
Total Quantity of Blasting Caps Required:	90	caps
Quantity of Primers per Blasthole:	1	primer(s)
Total Quantity of Primers Required:	90	primers
Quantity of Delays per Blasthole:	1	delay(s)
Total Quantity of Delays Required:	93	delays

**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Description
Drilling Equipment - Drill:	ATLAS COPCO ROC D7-11,4.0 in.
-Drill Pad Preparation:	Cat D8T - 8SU
Misc. Drill Support Equipment:	NA
Misc. Explosives Support Equipment:	NA
Explosives Delivery -Bulk Truck:	NA
-Cap Truck:	NA

<b><u>Cost Breakdown:</u></b>	Drilling Equipment	Drill Pad Preparation	Misc. Drill Support	Misc. Expl. Support	Explosives Delivery	
	Drilling	Dozer			Bulk Truck	Cap Truck
%Utilization-machine:	100	100	NA	NA	NA	NA
Ownership cost/hour:	\$70.87	\$103.86	NA	NA	NA	NA
Operating cost/hour:	\$69.01	\$82.26	NA	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Operator cost/hour:	\$0.00	\$41.24	NA	NA	NA	NA
Unit Subtotals:	\$139.88	\$227.36	\$0.00	\$0.00	\$0.00	\$0.00
Number of Units:	1	1	0	0	0	0
Group Subtotals:	\$139.88	\$227.36	\$0.00	\$0.00	\$0.00	\$0.00

Total work team cost/hour: **\$367.24****MATERIALS COST**

	Description	Unit	Unit Cost	Quantity	Total Cost
Blasting Agent:	Bulk ANFO high density ( 7,900-15,000 fps )	Pound	\$0.650	3733.333	\$2,426.67
Primers or Boosters:	Aluminized ANFO booster (electric or non-electric system)	Bag	\$14.800	90.000	\$1,332.00
Blasting Caps:	Electric cap, inst. (electric systems)	Each	\$20.000	90.000	\$1,800.00
Det. Cord, fuse, or wire:	Blasting wire, 12-14 gage (electric systems)	Linear foot	\$0.288	2178.000	\$627.26
Delays:	NO DELAY MATERIALS REQUIRED	NA	\$0.000	93.000	\$0.00
Miscellaneous:	Expl. magazine - agent (rental basis - meet MSHA req.)	Day	\$6.653	0.000	\$0.00

Drill bits:	Bit life = 1,400	Linear feet	\$1,095.19	0.754	\$826.09
<b>Total Materials Cost:</b>					<b>\$7,012.02</b>

**DRILLING AND EXPLOSIVES PREPARATION TIME**

Total Drilling Length:	1,056	linear feet
Unadjusted Drilling Rate:	112.00	feet/hour
Drilling Time:	14.81	hours

**Job Condition Corrections:**

Site Altitude:	6,600	feet
Altitude Adjustment:	0.95	(DRMS est.)
Job Efficiency Factor:	0.67	(CH. Exc. HB)
Adjusted Drilling Rate:	<b>71.29</b>	feet/hour
Explosives Prep. Time:	15.91	hours

**JOB TIME AND COST**

		Total Job Time:	<b>30.72</b>	Hours
Unit cost:	\$3.456	per cu. yd.	Total Job Cost:	<b>\$12,452</b>



**BULLDOZER WORK**Task description: AM-1 highwall reduction (grading) and overburden replacementSite: Juniper QuarryPermit Action: 2019-07Permit/Job#: M1982141**PROJECT IDENTIFICATION**Task #: 03AState: ColoradoAbbreviation: NoneDate: 8/27/2019County: MoffatFilename: M141-03aUser: ACYAgency 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:	\$121.49	NA
Operating Cost/Hour:	\$105.84	100
Ripper own. Cost/Hour:	\$13.94	NA
Ripper op. Cost/Hour:	\$2.24	25
Operator Cost/Hour:	\$41.24	NA

Total unit Cost/Hour: \$284.74Total Fleet Cost/Hour: **\$569.48****MATERIAL QUANTITIES**Initial Volume: 6,000Swell factor: 1.695Loose volume: **10,169 LCY**Source of estimated volume: 3:1 overburden on benches, backfill highwall, stockpilesSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 0 feetUnadjusted hourly production: 2,110.5 LCY/hrMaterials consistency description: Rock, well ripped or blasted 0.8Average push gradient: -30 %Average site altitude: 6,600 feetMaterial weight: 2,600 lbs/LCYWeight description: Limestone - Broken**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(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:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.885	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5645

Adjusted unit production: 1,191.38 LCY/hr

Adjusted fleet production: **2382.76** LCY/hr

### **JOB TIME AND COST**

Fleet size: 2 Dozer(s)

Unit cost: \$0.239/LCY

Total job time: **4.27** Hours

Total job cost: **\$2,431**

## BULLDOZER RIPPING WORK

Task description: AM-1 Rip process area and access road

Site: Juniper Quarry

Permit Action: 2019-07

Permit/Job#: M1982141

### PROJECT IDENTIFICATION

Task #: 04A

State: Colorado

Abbreviation: None

Date: 8/27/2019

County: Moffat

Filename: M141-04a

User: ACY

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU  
Ripper Attachment: 3-Shank Ripper

Horsepower: 405

Shift Basis: 1 per day

Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$121.49	NA
Operating Cost/Hour:	\$105.84	100
Ripper Ownership Cost/Hour:	\$13.94	NA
Ripper Operating Cost/Hour:	\$8.96	100
Operator Cost/Hour:	\$41.24	NA
Total Unit Cost/Hour:	\$291.46	
Total Fleet Cost/Hour:	<b>\$582.92</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 3.00 acres Rip Depth (ft): 2.00 Volume: 9,680 BCY or CCY

Source of estimated quantity: Field Estimates

### 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: 300.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.866 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.866 Acres/hr  
Site Altitude: 6,600 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.72 Acres/hr

Adjusted Hourly Fleet Production: 1.44 Acres/hr

### JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: 2.09 Hours

Unit cost: \$405.410 Per acre Total job cost: \$1,216

**WHEEL LOADER – LOAD AND CARRY WORK**Task description: AM-1 Distribute topsoilSite: Juniper QuarryPermit Action: 2019-07Permit/Job#: M1982141**PROJECT IDENTIFICATION**Task #: 05AState: ColoradoAbbreviation: NoneDate: 8/27/2019County: MoffatFilename: M141-05aUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: CAT 972HAttachment 1: ROPS CabHorsepower: 287Shift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	\$46.54	NA
Operating Cost/Hour:	\$55.81	100
Operator Cost/Hour:	\$40.65	NA
Total Unit Cost/Hour:	\$143.00	
Total Fleet Cost/Hour:	\$286.00	

**MATERIAL QUANTITIES**Initial volume: 6,050

CCY

Swell factor: 1.000Loose volume: 6,050

LCY

Source of estimated volume: 15 ac @3" depthSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high or less 0.01	0.010	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(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:		-0.010	minutes
Adjusted Basic Cycle Time:		0.515	minutes

**Rolling Resistance – Road Conditions**Haul: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0Return: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0**Haul and Return Time**

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	200	0.00	5.00	5.00	0.1844	(Cat HB)
Return Route:	200	0.00	5.00	5.00	0.1664	(Cat HB)

Total Travel Time: 0.3508 minutes  
 Total Cycle Time: **0.8658** minutes

Load Bucket Capacity

Rated Capacity: 5.60 LCY (heaped)  
 Bucket Fill Factor: 0.975 Loose material - uniform aggregates to 1/8" (95-100%) 0.975  
 Adjusted Capacity: **5.46** LCY

Job Condition Correction Factors

Site Altitude: 6600 feet

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

Unadjusted Hourly Unit Production: 378.36 LCY/Hour  
 Adjusted Hourly Unit Production: 314.04 LCY/Hour  
 Adjusted Hourly Fleet Production: **628.08** LCY/Hour

**JOB TIME AND COST**

Fleet size: 2 Loader(s) Total job time: **9.63** Hours  
 Unit cost: \$0.455 /LCY Total job cost: **\$2,755**

**BULLDOZER WORK**Task description: AM-1 Spread topsoilSite: Juniper QuarryPermit Action: 2019-07Permit/Job#: M1982141**PROJECT IDENTIFICATION**Task #: 06AState: ColoradoAbbreviation: NoneDate: 8/27/2019County: MoffatFilename: M141-06aUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$121.49	NA
Operating Cost/Hour:	\$105.84	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.24	NA

Total unit Cost/Hour: \$268.57Total Fleet Cost/Hour: \$537.13**MATERIAL QUANTITIES**Initial Volume: 6,050Swell factor: 1.000Loose volume: 6,050 LCYSource of estimated volume: Task 05aSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 100 feetUnadjusted hourly production: 1,243.2 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: 0 %Average site altitude: 6,600 feetMaterial weight: 1,600 lbs/LCYWeight description: Top Soil**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(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:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 1,068.28 LCY/hr

Adjusted fleet production: **2136.56** LCY/hr

### **JOB TIME AND COST**

Fleet size: 2 Dozer(s)

Unit cost: \$0.251/LCY

Total job time: **2.83** Hours

Total job cost: **\$1,521**

**REVEGETATION WORK**Task description: AM-1 RevegetationSite: Juniper QuarryPermit Action: 2019-07Permit/Job#: M1982141**PROJECT IDENTIFICATION**Task #: 07AState: ColoradoAbbreviation: NoneDate: 8/27/2019County: MoffatFilename: M141-07aUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$101.93
<b>Total Tilling Cost/Acre</b>	<b>\$101.93</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Nespar	6.00	19.42	\$53.25
Sandberg Bluegrass - VNS	3.00	63.71	\$25.20
Thickspike Wheatgrass - Critana	5.50	19.44	\$37.81
Western Wheatgrass - Arriba	8.00	20.20	\$52.00
Prairie Junegrass	7.50	398.66	\$195.00
<b>Totals Seed Mix</b>	<b>30.00</b>	<b>521.43</b>	<b>\$363.26</b>

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$4.16	\$4.16
<b>Total Mulch Materials Cost/Acre</b>				<b>\$4.16</b>

**Application**

Description	Cost /Acre
Weed spray, truck, non-aquatic area, nox. [DMG]	\$71.50
<b>Total Mulch Application Cost/Acre</b>	<b>\$71.50</b>

**NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$0.00</b>

**JOB TIME AND COST**

No. of Acres: 15 Cost /Acre: \$772.85  
 Estimated Failure Rate: 30% Cost /Acre\*: \$772.85  
 \*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: \$11,592.75  
 Reseeding Job Cost: \$3,477.83  
 Total Job Cost: \$15,071  
 Job Hours: 24.00

**BULLDOZER WORK**Task description: **CN-1 Highwall Reduction**Site: **Juniper Quarry**Permit Action: **2019-07**Permit/Job#: **M1982141****PROJECT IDENTIFICATION**Task #: **08A**State: **Colorado**Abbreviation: **None**Date: **8/27/2019**County: **Moffat**Filename: **M141-08a**User: **ACY**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:	\$121.49	NA
Operating Cost/Hour:	\$105.84	100
Ripper own. Cost/Hour:	\$13.94	NA
Ripper op. Cost/Hour:	\$2.24	25
Operator Cost/Hour:	\$41.24	NA

Total unit Cost/Hour: **\$284.74**Total Fleet Cost/Hour: **\$569.48****MATERIAL QUANTITIES**Initial Volume: **45,321**Swell factor: **1.345**Loose volume: **60,957 LCY**Source of estimated volume: **See attached**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **100 feet**Unadjusted hourly production: **1,243.2 LCY/hr**Materials consistency description: **Rock, well ripped or blasted 0.8**Average push gradient: **-5 %**Average site altitude: **6,600 feet**Material weight: **2,600 lbs/LCY**Weight description: **Limestone - Broken****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(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:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.885	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3931

Adjusted unit production: 488.70 LCY/hr

Adjusted fleet production: **977.4** LCY/hr

### **JOB TIME AND COST**

Fleet size: 2 Dozer(s)



Unit cost: \$0.583/LCY

Total job time: **62.37** Hours

Total job cost: **\$35,517**

## Highwall reduction - cut and fill

Upper Bench #2

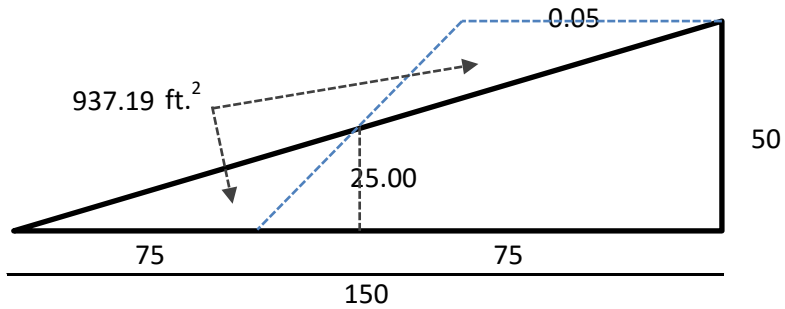
Highwall Height (ft.)	50.0	
Length of Highwall (lft.)	100	
 Initial Slope	0.0	H:1V
 Desired Slope	3	H:1V

Volume of material to be moved (ft.<sup>3</sup>) **93,719**

Volume of material to be moved (yd.<sup>3</sup>) **3,471**



All dimensions measured in feet

Drawing not to scale

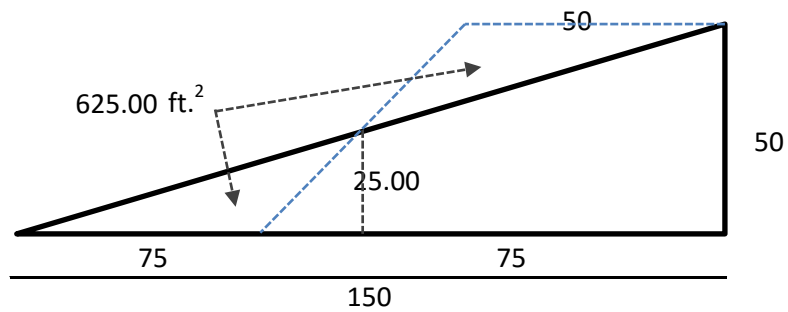


## Highwall reduction - cut and fill

Upper Bench #1



Highwall Height (ft.)	50.0
Length of Highwall (lft.)	900
 Initial Slope	1.0 H:1V
 Desired Slope	3 H:1V
Volume of material to be moved (ft. <sup>3</sup> )	<b>562,500</b>
Volume of material to be moved (yd. <sup>3</sup> )	<b>20,833</b>

All dimensions measured in feet  
Drawing not to scale

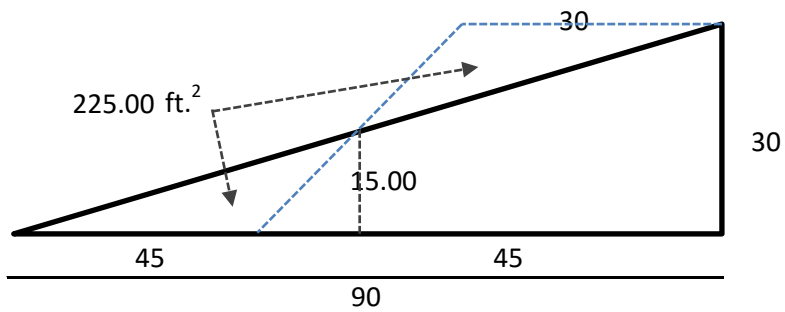


## Highwall reduction - cut and fill

Middle Bench

Highwall Height (ft.)	30.0
Length of Highwall (lft.)	500
 Initial Slope	1.0 H:1V
 Desired Slope	3 H:1V
Volume of material to be moved (ft. <sup>3</sup> )	<b>112,500</b>
Volume of material to be moved (yd. <sup>3</sup> )	<b>4,167</b>

All dimensions measured in feet  
Drawing not to scale



Highwall reduction - backfill

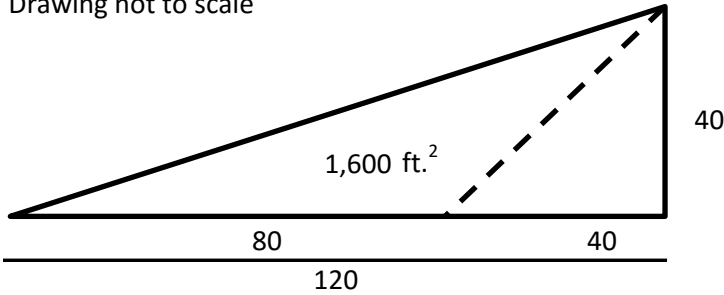
Lower Bench #2

Highwall Height (ft.)	40.00	
Length of Highwall (lft.)	200.00	
- - - - Initial Slope	1.00	H:1V
———— Desired Slope	3.00	H:1V

Volume of material to be moved (ft.<sup>3</sup>)    **320,000**

Volume of material to be moved (yd.<sup>3</sup>)    **11,852**

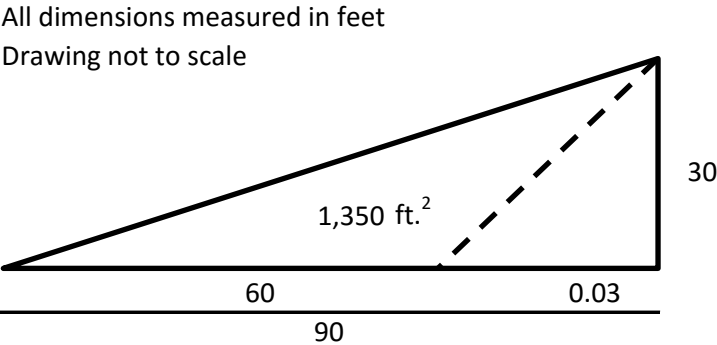
All dimensions measured in feet  
Drawing not to scale



Highwall reduction - backfill

Lower Bench #1

Highwall Height (ft.)	30.00	
Length of Highwall (lft.)	100.00	
- - - - Initial Slope	0.00	H:1V
———— Desired Slope	3.00	H:1V
Volume of material to be moved (ft. <sup>3</sup> )	134,955	
Volume of material to be moved (yd. <sup>3</sup> )	4,998	





**SURFACE BLASTING WORK**Task description: **CN-1 Highwall Reduction**Site: **Juniper Quarry**Permit Action: **2019-07**Permit/Job#: **M1982141****PROJECT IDENTIFICATION**Task #: **08B**State: **Colorado**Abbreviation: **None**Date: **8/27/2019**County: **Moffat**Filename: **M141-08b**User: **ACY**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:	0.00	h:lv
Regraded Slope Angle:	1.50	h:lv
Highwall or Bench Length:	300	feet
Highwall or Bench Width:	30	feet
Highwall or Bench Height:	50.0	feet
Depth to Base of Cut at Highwall:	20.0	feet

**BLAST AREA VOLUMES**

	QUANTITY	UNIT
Total Volume of Dimensional Mass to be Shot:	3,333	cubic yards
Blast Volume to Subdrill Grade and Blast Pattern Lines:	3,603	cubic yards
Blast Volume to Finish Grade and Blast Pattern Lines:	2,963	cubic yards
Remaining Volume Required to be Re-Shot or Ripped:	370	cubic yards

**BLAST AREA DESIGN**

	QUANTITY	UNIT
Recommended Blasthole Diameter:	2.940	inches
Selected Blasthole Diameter:	4.000	inches
Subdrilling Allowance:	2.4	feet
Blasthole Depth:	11.7	feet
Density of Rock:	Average Density Rock (ANFO Basis)	rock density
Burden to Charge Diameter Ratio:	25	times diameter
Burden:	8.0	feet
Spacing to Burden Ratio:	1.3	times burden
Spacing:	10.0	feet
Cubic Yards of Rock per Blasthole:	41.48	cubic yards
Powder Factor Description:	High	rock strength
Powder Factor:	1.000	pounds/cu. yd.
Density of Blasting Agent:	1.10	grams/cc
Quantity of Explosives per Blasthole:	41.48	POUNDS
Height of Powder Column:	6.92	feet
Height of Stemming per Blasthole:	4.81	feet
Stemming to Burden Ratio:	0.60	times burden
Quantity of Stemming per Blasthole:	0.0156	cubic yards
Number of Rows:	3	rows
Number of Blastholes per Row:	30	holes per row
Total Number of Blastholes:	90	holes
Total Length of all Blastholes:	1,056	feet

**BLASTING MATERIALS QUANTITIES**

	QUANTITY	UNIT
Total Quantity of Stemming Required:	1.40	cubic yards
Total Quantity of Explosives Required:	3,733	pounds
Total Quantity of det. cord/fuse/wire Required:	2,178	linear feet
Quantity of Blasting Caps per Blasthole:	1	cap(s)
Total Quantity of Blasting Caps Required:	90	caps
Quantity of Primers per Blasthole:	1	primer(s)
Total Quantity of Primers Required:	90	primers
Quantity of Delays per Blasthole:	1	delay(s)
Total Quantity of Delays Required:	93	delays

**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Description
Drilling Equipment - Drill:	ATLAS COPCO ROC D7-11,4.0 in.
-Drill Pad Preparation:	Cat D8T - 8SU
Misc. Drill Support Equipment:	NA
Misc. Explosives Support Equipment:	NA
Explosives Delivery -Bulk Truck:	NA
-Cap Truck:	NA

<b><u>Cost Breakdown:</u></b>	Drilling Equipment	Drill Pad Preparation	Misc. Drill Support	Misc. Expl. Support	Explosives Delivery	
	Drilling	Dozer			Bulk Truck	Cap Truck
%Utilization-machine:	100	100	NA	NA	NA	NA
Ownership cost/hour:	\$70.87	\$103.86	NA	NA	NA	NA
Operating cost/hour:	\$69.01	\$82.26	NA	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Operator cost/hour:	\$0.00	\$41.24	NA	NA	NA	NA
Unit Subtotals:	\$139.88	\$227.36	\$0.00	\$0.00	\$0.00	\$0.00
Number of Units:	1	1	0	0	0	0
Group Subtotals:	\$139.88	\$227.36	\$0.00	\$0.00	\$0.00	\$0.00

Total work team cost/hour: **\$367.24****MATERIALS COST**

	Description	Unit	Unit Cost	Quantity	Total Cost
Blasting Agent:	Bulk ANFO high density ( 7,900-15,000 fps )	Pound	\$0.650	3733.333	\$2,426.67
Primers or Boosters:	Aluminized ANFO booster (electric or non-electric system)	Bag	\$14.800	90.000	\$1,332.00
Blasting Caps:	Electric cap, inst. (electric systems)	Each	\$20.000	90.000	\$1,800.00
Det. Cord, fuse, or wire:	Blasting wire, 12-14 gage (electric systems)	Linear foot	\$0.288	2178.000	\$627.26
Delays:	NO DELAY MATERIALS REQUIRED	NA	\$0.000	93.000	\$0.00
Miscellaneous:	Expl. magazine - agent (rental basis - meet MSHA req.)	Day	\$6.653	0.000	\$0.00

Drill bits:	Bit life = 1,400	Linear feet	\$1,095.19	0.754	\$826.09
<b>Total Materials Cost:</b>					<b>\$7,012.02</b>

**DRILLING AND EXPLOSIVES PREPARATION TIME**

Total Drilling Length:	1,056	linear feet
Unadjusted Drilling Rate:	112.00	feet/hour
Drilling Time:	14.81	hours

**Job Condition Corrections:**

Site Altitude:	6,600	feet
Altitude Adjustment:	0.95	(DRMS est.)
Job Efficiency Factor:	0.67	(CH. Exc. HB)
Adjusted Drilling Rate:	<b>71.29</b>	feet/hour
Explosives Prep. Time:	15.91	hours

**JOB TIME AND COST**

		Total Job Time:	<b>30.72</b>	Hours
Unit cost:	\$3.456	per cu. yd.	Total Job Cost:	<b>\$12,452</b>

## BULLDOZER RIPPING WORK

Task description: CN-1 Rip compacted areas

Site: Juniper Quarry

Permit Action: 2019-07

Permit/Job#: M1982141

### PROJECT IDENTIFICATION

Task #: 09A

State: Colorado

Abbreviation: None

Date: 8/27/2019

County: Moffat

Filename: M141-09a

User: ACY

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU  
Ripper Attachment: 3-Shank Ripper

Horsepower: 405

Shift Basis: 1 per day

Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$121.49	NA
Operating Cost/Hour:	\$105.84	100
Ripper Ownership Cost/Hour:	\$13.94	NA
Ripper Operating Cost/Hour:	\$8.96	100
Operator Cost/Hour:	\$41.24	NA
Total Unit Cost/Hour:	\$291.46	
Total Fleet Cost/Hour:	<b>\$582.92</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 6.00 acres Rip Depth (ft): 2.00 Volume: 19,360 BCY or CCY

Source of estimated quantity: Staff estimates

### 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: 200.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.838 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr  
Site Altitude: 6,600 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr

Adjusted Hourly Fleet Production: 1.39 Acres/hr

### JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: 4.32 Hours

Unit cost: \$419.259 Per acre Total job cost: \$2,516

**WHEEL LOADER – LOAD AND CARRY WORK**Task description: **CN-1 Distribute topsoil**Site: **Juniper Quarry**Permit Action: **2019-07**Permit/Job#: **M1982141****PROJECT IDENTIFICATION**Task #: **10A**State: **Colorado**Abbreviation: **None**Date: **8/27/2019**County: **Moffat**Filename: **M141-10a**User: **ACY**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **CAT 972H**Attachment 1: **ROPS Cab**Horsepower: **287**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	\$46.54	NA
Operating Cost/Hour:	\$55.81	100
Operator Cost/Hour:	\$40.65	NA
Total Unit Cost/Hour:	\$143.00	
Total Fleet Cost/Hour:	\$286.00	

**MATERIAL QUANTITIES**Initial volume: **12,100**

CCY

Swell factor: **1.215**Loose volume: **14,702**

LCY

Source of estimated volume: **30 ac @ 3" depth**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): **0.525** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high or less 0.01	0.010	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(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:		-0.010	minutes
Adjusted Basic Cycle Time:		0.515	minutes

**Rolling Resistance – Road Conditions**Haul: **Rutted dirt, little maintenance, no water, 2" tire penetration 5.0**Return: **Rutted dirt, little maintenance, no water, 2" tire penetration 5.0****Haul and Return Time**

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	500	0.00	5.00	5.00	0.4611	(Cat HB)
Return Route:	500	0.00	5.00	5.00	0.4160	(Cat HB)

Total Travel Time: 0.8771 minutes  
 Total Cycle Time: 1.3921 minutes

Load Bucket Capacity

Rated Capacity: 5.60 LCY (heaped)  
 Bucket Fill Factor: 0.975 Loose material - uniform aggregates to 1/8" (95-100%) 0.975  
 Adjusted Capacity: 5.46 LCY

Job Condition Correction Factors

Site Altitude: 6600 feet

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

Unadjusted Hourly Unit Production: 235.33 LCY/Hour  
 Adjusted Hourly Unit Production: 195.32 LCY/Hour  
 Adjusted Hourly Fleet Production: 390.65 LCY/Hour

JOB TIME AND COST

Fleet size: 2 Loader(s) Total job time: 37.63 Hours  
 Unit cost: \$0.732 /LCY Total job cost: \$10,763

**BULLDOZER WORK**Task description: CN-1 Spread topsoilSite: Juniper QuarryPermit Action: 2019-07Permit/Job#: M1982141**PROJECT IDENTIFICATION**Task #: 11AState: ColoradoAbbreviation: NoneDate: 8/27/2019County: MoffatFilename: M141-11aUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$121.49	NA
Operating Cost/Hour:	\$105.84	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.24	NA

Total unit Cost/Hour: \$268.57Total Fleet Cost/Hour: \$537.13**MATERIAL QUANTITIES**Initial Volume: 12,100Swell factor: 1.000Loose volume: 12,100 LCYSource of estimated volume: Task 10aSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 100 feetUnadjusted hourly production: 1,243.2 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: 0 %Average site altitude: 6,600 feetMaterial weight: 1,600 lbs/LCYWeight description: Top Soil**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(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:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 1,068.28 LCY/hr

Adjusted fleet production: **2136.56** LCY/hr

### **JOB TIME AND COST**

Fleet size: 2 Dozer(s)

Unit cost: \$0.251/LCY

Total job time: **5.66** Hours

Total job cost: **\$3,042**



**REVEGETATION WORK**Task description: CN-1 RevegetationSite: Juniper QuarryPermit Action: 2019-07Permit/Job#: M1982141**PROJECT IDENTIFICATION**Task #: 12AState: ColoradoAbbreviation: NoneDate: 8/27/2019County: MoffatFilename: M141-12aUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$101.93
<b>Total Tilling Cost/Acre</b>	<b>\$101.93</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Nespar	6.00	19.42	\$53.25
Sandberg Bluegrass - VNS	3.00	63.71	\$25.20
Thickspike Wheatgrass - Critana	5.50	19.44	\$37.81
Western Wheatgrass - Arriba	8.00	20.20	\$52.00
Prairie Junegrass	7.50	398.66	\$195.00
<b>Totals Seed Mix</b>	<b>30.00</b>	<b>521.43</b>	<b>\$363.26</b>

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$4.16	\$4.16
<b>Total Mulch Materials Cost/Acre</b>				<b>\$4.16</b>

**Application**

Description	Cost /Acre
Weed spray, truck, non-aquatic area, nox. [DMG]	\$71.50
<b>Total Mulch Application Cost/Acre</b>	<b>\$71.50</b>

**NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$0.00</b>

**JOB TIME AND COST**

No. of Acres: 30 Cost /Acre: \$772.85  
 Estimated Failure Rate: 30% Cost /Acre\*: \$772.85  
 \*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: \$23,185.50  
 Reseeding Job Cost: \$6,955.65  
 Total Job Cost: \$30,141  
 Job Hours: 40.00

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Initial Mobilization**Site: **Juniper Quarry**Permit Action: **2019-07**Permit/Job#: **M1982141****PROJECT IDENTIFICATION**Task #: **13A**State: **Colorado**Abbreviation: **None**Date: **8/27/2019**County: **Moffat**Filename: **M141-13a**User: **ACY**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:**

<b>Available Rig Capacities</b>	<b>0-25 Tons</b>	<b>26-50 Tons</b>	<b>51+ Tons</b>
Ownership Cost/Hour:	\$17.20	\$29.63	\$38.69
Operating Cost/Hour:	\$26.56	\$47.02	\$55.69
Operator Cost/Hour:	\$23.63	\$23.63	\$23.63
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$67.39	\$123.81	\$141.54

**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	\$135.43	\$141.54	2	\$553.94	\$283.08	\$500.00
CAT 972H	28.00	\$46.54	\$123.81	2	\$340.70	\$247.62	\$500.00
ATLAS COPCO ROC D7-11,4.0 in.	0.00	\$70.87	\$67.39	1	\$138.26	\$67.39	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$18.15	\$67.39	1	\$85.54	\$67.39	\$250.00

Subtotals: **\$1,118.44** **\$665.48** **\$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	\$76.23	1	\$76.23	\$76.23

Subtotals: **\$76.23** **\$76.23**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region: CRAIG, CO  
 Total one-way travel distance: 30.00 miles  
 Average Travel Speed: 45.00 mph

Total Non-Roadable Mob/Demob Cost \* \$7,615.44  
 \* two round trips with haul rig:  
 Total Roadable Mob/Demob Cost \*\* \$101.64  
 \*\* one round trip, no haul rig:

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.67</u>	<u>0.67</u>
Return Time (Hours):	<u>0.67</u>	<u>0.67</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>2.33</u>	<u>1.33</u>

**JOB TIME AND COST**

Total job time: 4.67 Hours

Total job cost: \$7,717

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: Secondary MobilizationSite: Juniper QuarryPermit Action: 2019-07Permit/Job#: M1982141**PROJECT IDENTIFICATION**Task #: 13BState: ColoradoAbbreviation: NoneDate: 8/27/2019County: MoffatFilename: M141-13bUser: ACYAgency or organization name: DRMS**EQUIPMENT TRANSPORT RIG COST**Shift basis: 1 per dayCost Data Source: CRG DataTruck 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:**

<b>Available Rig Capacities</b>	<b>0-25 Tons</b>	<b>26-50 Tons</b>	<b>51+ Tons</b>
Ownership Cost/Hour:	\$17.20	\$29.63	\$38.69
Operating Cost/Hour:	\$26.56	\$47.02	\$55.69
Operator Cost/Hour:	\$23.63	\$23.63	\$23.63
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$67.39	\$123.81	\$141.54

**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
Drill/Broadcast Seeder with Tractor	25.00	\$18.15	\$67.39	1	\$85.54	\$67.39	\$250.00

Subtotals: **\$85.54** **\$67.39** **\$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, 1 T. Crew	\$76.23	1	\$76.23	\$76.23

Subtotals: **\$76.23** **\$76.23**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region: CRAIG, CO  
 Total one-way travel distance: 30.00 miles  
 Average Travel Speed: 45.00 mph

Total Non-Roadable Mob/Demob Cost \* \$874.99  
 \*\* two round trips with haul rig:  
 Total Roadable Mob/Demob Cost \*\* \$101.64  
 \*\* one round trip, no haul rig:

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.67</u>	<u>0.67</u>
Return Time (Hours):	<u>0.67</u>	<u>0.67</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>2.33</u>	<u>1.33</u>

**JOB TIME AND COST**

Total job time: 4.67 Hours

Total job cost: \$977