



July 21, 2023

Nathan/ Jason Rinderle
Upland Gravel, LLC
3202 Springfield Rd
Grand Junction, CO 81503

RE: Upland Gravel Pit, Permit No. M-2001-088, Proposed Surety Increase (SI-2)

Dear Mr. Rinderle:

This reclamation cost update was in response to the site inspection conducted on July 5, 2023. It is Division policy to periodically update its costs to ensure that the Financial Warranty adequately, reflects the actual current cost of fulfilling the requirements of the approved reclamation plan.

The bond was last recalculated in 2014 and no increases have occurred since the permit issuance. Below is a table summarizing input values that have been updated based on site conditions. This table does not account for price changes resulting from inflation or other RS Means cost changes. Bond calculations are based on a combination of field observations and worst case scenario based on the approved reclamation plan.

General Assumptions:

- 15 ac affected, 2.1 ac reclaimed, 11 ac of overburden replaces on pit floor
- All slopes go to a 3H: 1V or less. Mostly cut/fill, minimal backfill necessary
- 2 ft overburden replacement and 1 foot topsoil replacement. Stockpiles are located in NW corner
- Drill seed, Disk 6", mulch w/ 2 ton/ac of straw, weed treatment of Halogeton
- Overall seeding amount higher than 2D area depicted on map due to sloping
- Currently hold, \$61,304. In a corporate surety. Last bond revision 2014.

Task	Form Used	Description
01a	Dozer	Grade perimeter highwalls to 3H:1V or less, approx. 20,000 BCY 1600LF, of 1H: 1V @ 28' H, mostly cut/fill, 125 ft push avg
02a	Scraper	Transport overburden 6,453 CCY ~2 ac 24"D avg 600 ft away,



		11 ac complete to date
02b	Dozer	Grade transported overburden 7,195 LCY
03a	Dozer	Create sediment structure in Unit 1 ~750 CCY 30' x 330' x 2'
04a	Ripper	Rip pit floor 13ac
05a	Scraper	Transport topsoil 20,490 CY 3.6 ac of slope + 9.1 ac pit floor @12", 400 ft avg dist -2.1 ac already reclaimed
05b	Dozer	Grade transported Topsoil 23,051 LCY Avg Push 50 ft
06a	Reveg	Reveg 12.7 ac
07a	Mob	Initial Mobilization
07b	Mob	Initial Mobilization

Per policy I wanted to send this out for review prior to issuance. Please look it over and let me know if there are errors or concerns. As noted you may also wish to revise your reclamation plan. If no response is received by **Friday, September 22, 2023** then I'll issue SI-2 the following Monday as is. SI-2 will result in a total required bond amount of **\$186,264**, which is an increase of \$124,960 over the \$61,304 currently held.

Please feel free to contact me with any further questions. Amy Yeldell at the Division of Reclamation, Mining and Safety, Rm 215, 1001 E 62nd Ave, Denver CO 80216. Direct contact can be made by phone at 303-866-3567 Ext 8183 or via email at amy.yeldell@state.co.us

Sincerely,



Amy Yeldell
Environmental Protection Specialist

COST SUMMARY WORK

Task description: _____

Site: Upland Gravel

Permit Action: 07-2023

Permit/Job#: M2001088

PROJECT IDENTIFICATION

Task #: ACY

State: Colorado

Abbreviation: None

Date: 7/21/2023

County: Mesa

Filename: M088-ACY

User: ACY

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Grade Highwalls	DOZER	2	28.80	\$24,501
02a	Transport overburden	SCRAPER1	1	8.81	\$14,070
02b	Grade Transported Overburden	DOZER	2	5.75	\$4,890
03a	Create sediment structure	DOZER	2	0.97	\$821
04a	Decompact pit floor	RIPPER	2	11.13	\$9,951
05a	Transport topsoil	SCRAPER1	1	26.40	\$42,138
05b	Grade Transported Topsoil	DOZER	2	15.27	\$12,993
06a	Revegetate affected area	REVEGE	1	24.00	\$29,086
07a	Initial Mobilization	MOBILIZE	1	3.00	\$6,624
07b	Secondary Mobilization	MOBILIZE	1	3.00	\$1,648
<u>SUBTOTALS:</u>				127.13	\$146,722

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02
Performance bond: 1.05
Job superintendent: 63.57
Profit: 10.00

Total = \$2,964

Total = \$1,541

Total = \$4,137

Total = \$14,672

TOTAL O & P = \$23,313

CONTRACT AMOUNT (direct + O & P) = \$170,035

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$500

Total = \$500

Engineering work and/or contract/bid preparation: 4.25

Total = \$7,227

Reclamation management and/or administration: 5.00

\$8,502

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$39,542

TOTAL BOND AMOUNT (direct + indirect) = \$186,264

BULLDOZER WORKTask description: **Grade Highwalls**Site: **Upland Gravel** Permit Action: **07-2023** Permit/Job#: **M2001088****PROJECT IDENTIFICATION**

Task #: **01A** State: **Colorado** Abbreviation: **None**
 Date: **7/21/2023** County: **Mesa** Filename: **M088-01a**
 User: **ACY**

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

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

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$241.38	NA
Operating Cost/Hour:	\$143.92	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.04	NA

Total unit Cost/Hour: **\$425.34**
 Total Fleet Cost/Hour: **\$850.67**

MATERIAL QUANTITIES

Initial Volume: **20,000**
 Swell factor: **1.230**
 Loose volume: **24,600 LCY**

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

HOURLY PRODUCTION

Average push distance: **125 feet**
 Unadjusted hourly production: **726.3 LCY/hr**

Materials consistency description: **Compacted fill or embankment 0.9**

Average push gradient: **-20 %**
 Average site altitude: **4,800 feet**

Material weight: **2,500 lbs/LCY**Weight description: **Clay - Dry****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(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:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.920	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5880

Adjusted unit production: 427.06 LCY/hr

Adjusted fleet production: **854.12 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.996/LCY

Total job time: **28.80** Hours

Total job cost: **\$24,501**

SCRAPER TEAM WORKTask description: **Transport overburden**Site: **Upland Gravel**Permit Action: 07-2023Permit/Job#: M2001088**PROJECT IDENTIFICATION**Task #: 02AState: ColoradoAbbreviation: NoneDate: 7/21/2023County: MesaFilename: M088-02aUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 627G w/push-pull
-Dozer:	Cat D8T - 8SU
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	NA	NA
Ownership cost/hour:	\$249.04	\$241.38	NA	NA	NA	NA
Operating cost/hour:	\$289.36	\$143.92	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:	\$47.07	\$40.04	NA	NA	NA	NA
Unit Subtotals:	\$585.47	\$425.34	NA	NA	NA	NA
Number of Units:	2	1	0	0	0	0
Group Subtotals:	Work:	\$1,596.28	Support:	\$0.00	Maint:	\$0.00

Total work team cost/hour: **\$1,596.28****MATERIAL QUANTITIES**Initial volume: 6,453

CCY

Swell factor: 1.115Loose volume: **7,195**

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,500 lbs/LCY</u>	Struck Volume:	<u>15.70</u>	LCY
Material description:	<u>Clay - Dry</u>	Heaped Volume:	<u>22.00</u>	LCY
Rated Payload:	<u>52,800 pounds</u>	Average Volume:	<u>18.85</u>	LCY
Payload Capacity:	<u>21.12 LCY</u>	Adjusted Capacity:	<u>18.85</u>	LCY

Cycle Time:Scraper Loading Time: 0.90 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 4800 feet

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

Travel Time:Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	0.00	4.00	4.00	2665	0.46

Haul Time: 0.46 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	0.00	4.00	4.00	2849	0.34

Return Time: 0.34 minutesTotal Scraper team cycle time: 2.30 minutesAdjusted for job conditions: 816.29 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 816.29 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 816.29 LCY/HourUnadjusted unit production/hour: 983.48 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 8.81 HoursUnit cost: \$1.956 /LCYTotal job cost: \$14,070

BULLDOZER WORKTask description: **Grade Transported Overburden**Site: **Upland Gravel**Permit Action: **07-2023**Permit/Job#: **M2001088****PROJECT IDENTIFICATION**Task #: **02B**State: **Colorado**Abbreviation: **None**Date: **7/21/2023**County: **Mesa**Filename: **M088-02b**User: **ACY**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$241.38	NA
Operating Cost/Hour:	\$143.92	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.04	NA

Total unit Cost/Hour: **\$425.34**Total Fleet Cost/Hour: **\$850.67****MATERIAL QUANTITIES**Initial Volume: **7,195**Swell factor: **1.230**Loose volume: **8,850 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: **1,400.0 LCY/hr**Materials consistency description: **Loose stockpile 1.2**Average push gradient: **0 %**Average site altitude: **4,800 feet**Material weight: **2,500 lbs/LCY**Weight description: **Clay - Dry****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:	0.920	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5498

Adjusted unit production: 769.72 LCY/hr

Adjusted fleet production: **1539.44** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.553/LCY

Total job time: **5.75** Hours

Total job cost: **\$4,890**

MOTOR GRADER WORK

Task description: Ripping Pit Floor

Site: Upland Gravel Pit No. 3

Permit Action: 07-2023

Permit/Job#: M2005077

PROJECT IDENTIFICATION

Task #: 02B

State: Colorado

Abbreviation: None

Date: 7/17/2023

County: Mesa

Filename: M077-02b

User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 14M

Horsepower: 259

Ripper Attachment: Multi-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$149.33	NA
Operating Cost/Hour:	\$92.79	100
Ripper Ownership Cost/Hour:	\$5.83	NA
Ripper Operating Cost/Hour:	\$4.02	100
Operator Cost/Hour:	\$46.87	NA
Total Unit Cost/Hour:	\$298.84	
Total Fleet Cost/Hour:	\$298.84	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 10.30 acres

Source of estimated acreage: Phase 1, 2 and 4 bottoms ~10.3 ac

HOURLY PRODUCTION

Average Grader Speed:	<u>1.50</u>	mph
Selected Application:	<u>Ripping (0-3 mph) - 1.50</u>	
Selected Blade Angle:	<u>-1</u>	degrees
Effective Blade Length:	<u>0.00</u>	feet
Width of blade overlap per pass:	<u>2.00</u>	feet
Net grading or ripping width per pass:	<u>8.50</u>	feet
Unadjusted Hourly Unit Production:	<u>1.5455</u>	acres/hour

Job Condition Correction Factors

Site Altitude: 5000 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.85</u>	(1sh/d, mod.)
Net Correction:	<u>0.8500</u>	multiplier

Adjusted Hourly Unit Production: 1.3136 acres/Hour

Adjusted Hourly Fleet Production: **1.3136** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **7.84** Hours

Unit cost: \$227.49 per acre Total job cost: **\$2,343**

BULLDOZER WORKTask description: Create sediment structure Site: Upland Gravel Permit Action: 07-2023 Permit/Job#: M2001088 **PROJECT IDENTIFICATION**

Task #: 03A State: Colorado Abbreviation: None
 Date: 7/21/2023 County: Mesa Filename: M088-03a
 User: ACY

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

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

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u> \$241.38 </u>	<u> NA </u>
Operating Cost/Hour:	<u> \$143.92 </u>	<u> 100 </u>
Ripper own. Cost/Hour:	<u> \$0.00 </u>	<u> NA </u>
Ripper op. Cost/Hour:	<u> \$0.00 </u>	<u> 0 </u>
Operator Cost/Hour:	<u> \$40.04 </u>	<u> NA </u>

Total unit Cost/Hour: \$425.34
 Total Fleet Cost/Hour: **\$850.67**

MATERIAL QUANTITIES

Initial Volume: 750
 Swell factor: 1.115
 Loose volume: **836** 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: 1,400.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
 Average site altitude: 4,800 feet

Material weight: 2,500 lbs/LCY Weight description: Clay - Dry **Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u> 0.750 </u>	<u> (AVG.) </u>
Material consistency:	<u> 0.900 </u>	<u> (CAT HB)) </u>
Dozing method:	<u> 1.000 </u>	<u> (GEN.) </u>
Visibility:	<u> 1.000 </u>	<u> (AVG.) </u>

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.600	(FND-SF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.920	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3093

Adjusted unit production: 433.02 LCY/hr

Adjusted fleet production: **866.04** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.982/LCY

Total job time: **0.97** Hours

Total job cost: **\$821**

BULLDOZER RIPPING WORK

Task description: Decompact pit floor

Site: Upland Gravel Permit Action: 07-2023 Permit/Job#: M2001088

PROJECT IDENTIFICATION

Task #: 04A State: Colorado Abbreviation: None
Date: 7/21/2023 County: Mesa Filename: M088-04a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU Horsepower: 310
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$241.38	NA
Operating Cost/Hour:	\$143.92	100
Ripper Ownership Cost/Hour:	\$14.11	NA
Ripper Operating Cost/Hour:	\$7.45	100
Operator Cost/Hour:	\$40.04	NA
Total Unit Cost/Hour:	\$446.90	
Total Fleet Cost/Hour:	\$893.79	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 13.00 acres Rip Depth (ft): 2.00 Volume: 41,947 BCY or CCY

Source of estimated quantity: Staff estimates

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.56 feet/pass
Average Ripping Width: 7.08 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: 0.703 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.703 Acres/hr
Site Altitude: 4,800 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.58 Acres/hr
Adjusted Hourly Fleet Production: **1.17** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **11.13** Hours

Unit cost: \$765.443 Per acre Total job cost: **\$9,951**

SCRAPER TEAM WORKTask description: Transport topsoilSite: Upland GravelPermit Action: 07-2023Permit/Job#: M2001088**PROJECT IDENTIFICATION**Task #: 05AState: ColoradoAbbreviation: NoneDate: 7/21/2023County: MesaFilename: M088-05aUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 627G w/push-pull
-Dozer:	Cat D8T - 8SU
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	NA	NA
Ownership cost/hour:	\$249.04	\$241.38	NA	NA	NA	NA
Operating cost/hour:	\$289.36	\$143.92	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:	\$47.07	\$40.04	NA	NA	NA	NA
Unit Subtotals:	\$585.47	\$425.34	NA	NA	NA	NA
Number of Units:	2	1	0	0	0	0
Group Subtotals:	Work:	\$1,596.28	Support:	\$0.00	Maint:	\$0.00

Total work team cost/hour: \$1,596.28**MATERIAL QUANTITIES**Initial volume: 20,490

CCY

Swell factor: 1.125Loose volume: 23,051

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,550 lbs/LCY</u>	Struck Volume:	<u>15.70</u>	LCY
Material description:	<u>Earth - Dry packed</u>	Heaped Volume:	<u>22.00</u>	LCY
Rated Payload:	<u>52,800 pounds</u>	Average Volume:	<u>18.85</u>	LCY
Payload Capacity:	<u>20.71 LCY</u>	Adjusted Capacity:	<u>18.85</u>	LCY

Cycle Time:Scraper Loading Time: 0.90 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 4800 feet

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

Travel Time:Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	0.00	4.00	4.00	2665	0.38

Haul Time: 0.38 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	0.00	4.00	4.00	2849	0.27

Return Time: 0.27 minutesTotal Scraper team cycle time: 2.15 minutesAdjusted for job conditions: 873.24 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 873.24 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 873.24 LCY/HourUnadjusted unit production/hour: 1,052.09 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 26.40 HoursUnit cost: \$1.828 /LCYTotal job cost: \$42,138

BULLDOZER WORKTask description: **Grade Transported Topsoil**Site: **Upland Gravel**Permit Action: **07-2023**Permit/Job#: **M2001088****PROJECT IDENTIFICATION**Task #: **05B**State: **Colorado**Abbreviation: **None**Date: **7/21/2023**County: **Mesa**Filename: **M088-05b**User: **ACY**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$241.38	NA
Operating Cost/Hour:	\$143.92	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.04	NA

Total unit Cost/Hour: **\$425.34**Total Fleet Cost/Hour: **\$850.67****MATERIAL QUANTITIES**Initial Volume: **23,051**Swell factor: **1.000**Loose volume: **23,051 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: **1,400.0 LCY/hr**Materials consistency description: **Loose stockpile 1.2**Average push gradient: **0 %**Average site altitude: **4,800 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****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:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5390

Adjusted unit production: 754.60 LCY/hr

Adjusted fleet production: **1509.2 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.564/LCY

Total job time: **15.27 Hours**

Total job cost: **\$12,993**

REVEGETATION WORKTask description: Revegetate affected areaSite: Upland GravelPermit Action: 07-2023Permit/Job#: M2001088**PROJECT IDENTIFICATION**Task #: 06AState: ColoradoAbbreviation: NoneDate: 7/21/2023County: MesaFilename: M088-06aUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
10-34-0, 18-46-0, 5-10-5	100.00	pound	\$0.50	\$49.67
			Total Fertilizer Materials Cost/Acre	\$49.67

Application

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

TILLING

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

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Paloma	2.00	6.47	\$22.25
Crested Wheatgrass - Ephraim	1.60	7.35	\$6.92
Sand Dropseed	0.05	5.97	\$0.49
Pubescent Wheatgrass - Luna	3.00	6.20	\$10.20
Galleta	2.70	9.86	\$60.35
Saltbush, Four Wing	3.00	4.13	\$37.50
Saltbush, Shadscale	3.00	4.48	\$30.00
Totals Seed Mix	15.35	44.45	\$167.70

Application

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

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hay, delivered {MEANS 31 25 14.16 1200}	1.50	TON	\$429.79	\$644.68
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$4.01	\$4.01
Herbicide - Plateau @ 1.0 pt/ac	1.00	ACRE	\$19.79	\$19.79
Total Mulch Materials Cost/Acre				\$668.48

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$74.46
Power mulcher (MEANS 32 91 13.16 0350)	\$147.67
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
Total Mulch Application Cost/Acre	\$284.85

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: 12.7 Cost /Acre: \$1,557.34
 Estimated Failure Rate: 50% Cost /Acre*: \$1,465.85
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: \$19,778.22
 Reseeding Job Cost: \$9,308.15
 Total Job Cost: \$29,086
 Job Hours: 24.00

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Initial Mobilization**Site: **Upland Gravel**Permit Action: **07-2023**Permit/Job#: **M2001088****PROJECT IDENTIFICATION**Task #: **07A**State: **Colorado**Abbreviation: **None**Date: **7/21/2023**County: **Mesa**Filename: **M088-07a**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:**

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

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	53.08	\$255.49	\$175.95	2	\$862.88	\$351.90	\$500.00
Cat 627G w/push-pull	43.48	\$249.04	\$158.17	1	\$407.21	\$158.17	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$6.73	\$82.29	1	\$89.02	\$82.29	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$25.94	\$82.29	1	\$108.23	\$82.29	\$250.00

Subtotals: **\$1,467.34** **\$674.65** **\$1,250.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Flatbed Truck, 4x2, 30K GVW	\$92.68	1	\$92.68	\$92.68
Light Duty Pickup, 4x4, 3/4 T.	\$72.29	2	\$144.58	\$144.58

Subtotals: **\$237.26** **\$237.26**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>GRAND JUNCTION</u>	
Total one-way travel distance:	<u>10.00</u>	miles
Average Travel Speed:	<u>40.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$6,505.68</u>
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 ** two round trips with haul rig:

Total Roadable Mob/Demob Cost **	<u>\$118.63</u>
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 ** one round trip, no haul rig:

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.25</u>	<u>0.25</u>
Return Time (Hours):	<u>0.25</u>	<u>0.25</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.50</u>	<u>0.50</u>

JOB TIME AND COST

Total job time:	<u>3.00</u>	Hours
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Total job cost:	<u>\$6,624</u>
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EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: Secondary MobilizationSite: Upland GravelPermit Action: 07-2023Permit/Job#: M2001088**PROJECT IDENTIFICATION**Task #: 07BState: ColoradoAbbreviation: NoneDate: 7/21/2023County: MesaFilename: M088-07bUser: 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:**

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

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Drill/Broadcast Seeder with Tractor	25.00	\$6.73	\$82.29	1	\$89.02	\$82.29	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$25.94	\$82.29	1	\$108.23	\$82.29	\$250.00
Subtotals:					\$197.25	\$164.58	\$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, 3/4 T.	\$72.29	2	\$144.58	\$144.58
Subtotals:			\$144.58	\$144.58

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>GRAND JUNCTION</u>	
Total one-way travel distance:	<u>10.00</u>	miles
Average Travel Speed:	<u>40.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$1,575.42</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$72.29</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.25</u>	<u>0.25</u>
Return Time (Hours):	<u>0.25</u>	<u>0.25</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.50</u>	<u>0.50</u>

JOB TIME AND COST

Total job time:	<u>3.00</u>	Hours
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Total job cost:	<u>\$1,648</u>
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