

COST SUMMARY WORK

Task description: Cost Summary of Reclamation Tasks

Site: Antero Gravel

Permit Action: 2021 Bond Calculation

Permit/Job#: M2000088

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 7/16/2021

County: Park

Filename: M088-000

User: ERR

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Site Grading	DOZER	1	4.53	\$1,071
002	Replace Topsoil	LOADER	1	59.03	\$10,394
004	Revegetate 15 acres	REVEGE	1	7.50	\$15,874
005	Mob/Demob of Reclamation Equipment	MOBILIZE	1	6.70	\$5,469
<u>SUBTOTALS:</u>				77.76	\$32,808

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$663

Performance bond: 1.05

Total = \$344

Job superintendent: 0.00

Total = \$0

Profit: 10.00

Total = \$3,281

TOTAL O & P = \$4,288

CONTRACT AMOUNT (direct + O & P) = \$37,096

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$0

Total = \$0

Engineering work and/or contract/bid preparation: 0.00

Total = \$0

Reclamation management and/or administration: 5.00

\$1,855

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$6,143

TOTAL (direct + indirect) = \$38,951

TOTAL BOND AMOUNT (rounded) = \$39,000

BULLDOZER WORKTask description: Site GradingSite: Antero Gravel Permit Action: 2021 Bond Calculation Permit/Job#: M2000088**PROJECT IDENTIFICATION**

Task #: 001 State: Colorado Abbreviation: None
 Date: 7/16/2021 County: Park Filename: M088-001
 User: ERR

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:	\$97.46	NA
Operating Cost/Hour:	\$97.63	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$236.39
 Total Fleet Cost/Hour: \$236.39

MATERIAL QUANTITIES

Initial Volume: 2,000
 Swell factor: 1.125
 Loose volume: 2,250 LCY

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

HOURLY PRODUCTION

Average push distance: 100 feet
 Unadjusted hourly production: 852.6 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: -10 %
 Average site altitude: 9,000 feet

Material weight: 2,650 lbs/LCYWeight description: Decomposed rock - 25% Rock, 75% Earth**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5825

Adjusted unit production: 496.64 LCY/hr

Adjusted fleet production: **496.64** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.476/LCY

Total job time: **4.53** Hours

Total job cost: **\$1,071**

WHEEL LOADER – LOAD AND CARRY WORKTask description: Replace TopsoilSite: Antero Gravel Permit Action: 2021 Bond Calculation Permit/Job#: M2000088**PROJECT IDENTIFICATION**

Task #: 002 State: Colorado Abbreviation: None
 Date: 7/16/2021 County: Park Filename: M088-002
 User: ERR

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

Basic Machine: CAT 980H Horsepower: 315
 Attachment 1: ROPS Cab Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$67.72	NA
Operating Cost/Hour:	\$67.62	100
Operator Cost/Hour:	\$40.71	NA
Total Unit Cost/Hour:	\$176.05	
Total Fleet Cost/Hour:	\$176.05	

MATERIAL QUANTITIES

Initial volume: 12,100 CCY Swell factor: 1.000
 Loose volume: 12,100 LCY

Source of estimated volume: 6" on 15 Acres
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTIONLoader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material 3/4" to 6" diameter 0.00	0.000	(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:		-0.030	minutes
Adjusted Basic Cycle Time:		0.520	minutes

Rolling Resistance – Road Conditions

Haul: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0
 Return: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	800	0.00	4.00	4.00	0.6531	(Cat HB)
Return Route:	800	0.00	4.00	4.00	0.6037	(Cat HB)

Total Travel Time: 1.2568 minutes
 Total Cycle Time: 1.7768 minutes

Load Bucket Capacity

Rated Capacity: 7.50 LCY (heaped)
 Bucket Fill Factor: 0.975 Loose material - uniform aggregates to 1/8" (95-100%) 0.975
 Adjusted Capacity: 7.31 LCY

Job Condition Correction Factors

Site Altitude: 9000 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: 246.93 LCY/Hour
 Adjusted Hourly Unit Production: 204.95 LCY/Hour
 Adjusted Hourly Fleet Production: 204.95 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: 59.04 Hours
 Unit cost: \$0.859 /LCY Total job cost: \$10,394

REVEGETATION WORKTask description: Revegetate 15 acresSite: Antero GravelPermit Action: 2021 Bond CalculationPermit/Job#: M2000088**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 7/16/2021County: ParkFilename: M088-004User: ERRAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	51.51	pound	\$0.36	\$18.54
Triple superphosphate, 0-46-0	36.90	pound	\$0.46	\$16.97
			Total Fertilizer Materials Cost/Acre	\$35.52

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$38.77
Total Fertilizer Application Cost/Acre	\$38.77

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$114.56
Total Tilling Cost/Acre	\$114.56

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Mountain Brome - Bromar	7.50	12.05	\$28.50
Sheep Fescue - Covar	3.00	46.83	\$18.30
Western Wheatgrass - Rosanna	8.00	20.20	\$46.00
Canada Bluegrass - Reubens	1.50	86.09	\$9.75
Totals Seed Mix	20.00	165.17	\$102.55

Application

Description	Cost /Acre
-------------	------------

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

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hay, delivered {MEANS 31 25 14.16 1200}	1.00	TON	\$307.02	\$307.02
Total Mulch Materials Cost/Acre				\$307.02

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$71.57
Total Mulch Application Cost/Acre	\$71.57

NURSERY STOCK PLANTING

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

JOB TIME AND COST

No. of Acres:	15	Cost /Acre:	\$937.21
Estimated Failure Rate:	25%	Cost /Acre*:	\$484.33
*Selected Replanting Work Items:	TILLING,SEEDING		
Initial Job Cost:	\$14,058.15		
Reseeding Job Cost:	\$1,816.24		
Total Job Cost:	\$15,874		
Job Hours:	7.50		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mob/Demob of Reclamation Equipment**Site: **Antero Gravel**Permit Action: **2021 Bond Calculation**Permit/Job#: **M2000088****PROJECT IDENTIFICATION**Task #: **005**State: **Colorado**Abbreviation: **None**Date: **7/16/2021**County: **Park**Filename: **M088-005**User: **ERR**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:	\$21.28	\$37.94	\$47.67
Operating Cost/Hour:	\$26.55	\$50.48	\$56.21
Operator Cost/Hour:	\$20.54	\$20.54	\$20.54
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$68.37	\$132.49	\$147.95

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 980H	33.12	\$67.72	\$132.49	1	\$200.21	\$132.49	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$7.98	\$68.37	1	\$76.35	\$68.37	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$14.98	\$68.37	1	\$83.35	\$68.37	\$250.00
Cat D8T - 8SU	47.71	\$97.46	\$132.49	1	\$229.95	\$132.49	\$250.00

Subtotals: **\$589.86** **\$401.72** **\$1,000.00****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	\$28.25	1	\$28.25	\$28.25

Subtotals: **\$28.25** **\$28.25**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>COLORADO SPRINGS</u>	
Total one-way travel distance:	<u>84.00</u>	miles
Average Travel Speed:	<u>55.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$5,382.74</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$86.29</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>1.53</u>	<u>1.53</u>
Return Time (Hours):	<u>1.53</u>	<u>1.53</u>
Loading Time (Hours):	<u>0.15</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.15</u>	<u>NA</u>
Subtotals:	<u>3.35</u>	<u>3.05</u>

JOB TIME AND COST

Total job time:	<u>6.71</u>	Hours
-----------------	-------------	-------

Total job cost:	<u>\$5,469</u>
-----------------	----------------