



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

1313 Sherman Street, Room 215  
Denver, CO 80203

## **Memo to File**

**Date:** March 7, 2018

**To:** Whom it May Concern

**From:** Lucas West, DRMS

**RE:** Canyon Sand and Gravel; DRMS File No. M-1988-057; Memo to File

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To Whom it May Concern,

The Enclosed reclamation cost estimate worksheets are based on the site conditions observed during the August 6, 2019 Inspection. No increase was issued to the Operator.

Sincerely,  
DRMS Minerals Staff



## COST SUMMARY WORK

Task description: Cost Summary

Site: Canyon Sand & Gravel

Permit Action: 2019 Update

Permit/Job#: M1988057

### PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 8/23/2019

County: Archuleta

Filename: M057-000

User: LJW

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Load, carry and place Topsoil. .5 Acre 6" deep	LOADER	1	2.33	\$237
002	Revegetate .5 acre of Affected Lands	REVEGE	1	8.00	\$202
003	Haul Reclamation Equipment to and from job	MOBILIZE	1	2.31	\$1,382
<b><u>SUBTOTALS:</u></b>				<b>12.64</b>	<b>\$1,821</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 2.02  
Performance bond: 1.05  
Job superintendent: 0.00  
Profit: 10.00

Total = \$37

Total = \$19

Total = \$0

Total = \$182

TOTAL O & P = \$238

CONTRACT AMOUNT (direct + O & P) = \$2,059

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$0  
Engineering work and/or contract/bid preparation: 0.00  
Reclamation management and/or administration: 0.00

Total = \$0

Total = \$0

\$0

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$238

**TOTAL BOND AMOUNT (direct + indirect) = \$2,059**

**WHEEL LOADER – LOAD AND CARRY WORK**Task description: Load, carry and place Topsoil. .5 Acre 6" deepSite: Canyon Sand & GravelPermit Action: 2019 UpdatePermit/Job#: M1988057**PROJECT IDENTIFICATION**Task #: 001State: ColoradoAbbreviation: NoneDate: 8/23/2019County: ArchuletaFilename: M057-001User: LJWAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: CAT 450EAttachment 1: ROPS CabHorsepower: 101Shift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	\$29.73	NA
Operating Cost/Hour:	\$31.22	100
Operator Cost/Hour:	\$40.65	NA
Total Unit Cost/Hour:	\$101.60	
Total Fleet Cost/Hour:	\$101.60	

**MATERIAL QUANTITIES**Initial volume: 403

CCY

Swell factor: 1.000Loose volume: 403

LCY

Source of estimated volume: (.5 Ac)(43560 sf/ac)(.5' deep) / 27= 403 CYSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Loader Cycle Time:**Unadjusted Basic Cycle Time (load, dump,  
maneuver):

0.475

minutes

Cycle Time Factors		Factor (min.)	Source
Material:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high or less 0.01	0.010	(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:		-0.070	minutes
Adjusted Basic Cycle Time:		0.405	minutes

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

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	50	0.00	2.00	2.00	0.0247	(Cat HB)
Return Route:	50	0.00	2.00	2.00	0.0247	(Cat HB)

Total Travel Time: 0.0493 minutes  
Total Cycle Time: 0.4543 minutes

Load Bucket Capacity

Rated Capacity: 1.50 LCY (heaped)  
Bucket Fill Factor: 1.050 Other - moist loam (100-110%) 1.050  
Adjusted Capacity: 1.58 LCY

Job Condition Correction FactorsSite Altitude: 7300 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: 208.01 LCY/Hour  
Adjusted Hourly Unit Production: 172.65 LCY/Hour  
Adjusted Hourly Fleet Production: 172.65 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: 2.33 Hours  
Unit cost: \$0.588 /LCY Total job cost: \$237

REVEGETATION WORKTask description: Revegetate .5 acre of Affected LandsSite: Canyon Sand & GravelPermit Action: 2019 UpdatePermit/Job#: M1988057PROJECT IDENTIFICATIONTask #: 002State: ColoradoAbbreviation: NoneDate: 8/23/2019County: ArchuletaFilename: M057-002User: LJWAgency or organization name: DRMSFERTILIZINGMaterials

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
Smooth Brome - Manchar	4.00	13.31	\$13.30
White Dutch Clover - VNS	0.50	9.76	\$2.85
Timothy - Climax	0.50	14.35	\$0.80
<b>Totals Seed Mix</b>	<b>5.00</b>	<b>37.42</b>	<b>\$16.95</b>

Application

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

<b>Total Seed Application Cost/Acre</b>	<b>\$232.00</b>
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**MULCHING and MISCELLANEOUS****Materials**

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

**Application**

Description	Cost /Acre
	\$
<b>Total Mulch Application Cost/Acre</b>	<b>\$0.00</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:	0.5	Cost /Acre:	\$350.88
Estimated Failure Rate:	15%	Cost /Acre*:	\$350.88
*Selected Replanting Work Items:	TILLING,SEEDING		
Initial Job Cost:	\$175.44		
Reseeding Job Cost:	\$26.32		
Total Job Cost:	\$202		
Job Hours:	8.00		

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: Hual Reclamation Equipment to and from jobSite: Canyon Sand & GravelPermit Action: 2019 UpdatePermit/Job#: M1988057**PROJECT IDENTIFICATION**Task #: 003State: ColoradoAbbreviation: NoneDate: 8/23/2019County: ArchuletaFilename: M057-003User: LJWAgency 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
CAT 450E	9.80	\$29.73	\$67.39	1	\$97.12	\$67.39	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$18.15	\$67.39	1	\$85.54	\$67.39	\$250.00

Subtotals: **\$182.66** **\$134.78** **\$500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
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Subtotals: **\$0.00** **\$0.00**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>PAGOSA SPRINGS</u>	
Total one-way travel distance:	<u>15.00</u>	miles
Average Travel Speed:	<u>35.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$1,381.69</u>
* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$0.00</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.43</u>	<u>0.43</u>
Return Time (Hours):	<u>0.43</u>	<u>0.43</u>
Loading Time (Hours):	<u>0.15</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.15</u>	<u>NA</u>
Subtotals:	<u>1.16</u>	<u>0.86</u>

**JOB TIME AND COST**

Total job time:	<u>2.31</u>	Hours
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Total job cost:	<u>\$1,382</u>
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