

## COST SUMMARY WORK

Task description: \_\_\_\_\_

Site: Farm Road Source

Permit Action: New permit

Permit/Job#: M2019033

### PROJECT IDENTIFICATION

Task #: 001

State: Colorado

Abbreviation: None

Date: 8/28/2019

County: Montrose

Filename: M033-001

User: SJM

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
002	knockdown highwall	DOZER	1	5.13	\$1,282
003	final grading3:1	GRADER	1	5.42	\$1,029
004	grading pit floor side slopes	GRADER	1	5.42	\$1,029
005	rip pit floor	RIPPER	1	8.41	\$2,103
006	mob-demob	MOBILIZE	1	0.68	\$2,373
007	remove stockpiles	LOADER	1	28.19	\$2,871
008	material haul off site	MISCTRUK	1	40.00	\$3,494
<b><u>SUBTOTALS:</u></b>				<b>93.25</b>	<b>\$14,181</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 0.00

Total = \$0

Performance bond: 1.05

Total = \$149

Job superintendent: 0.00

Total = \$0

Profit: 10.00

Total = \$1,418

TOTAL O & P = \$1,567

CONTRACT AMOUNT (direct + O & P) = \$15,748

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

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

Total = \$500

Engineering work and/or contract/bid preparation: 10.00

Total = \$1,575

Reclamation management and/or administration: 7.10

\$1,118

CONTINGENCY: 3.00

Total = \$425

TOTAL INDIRECT COST = \$5,185

**TOTAL BOND AMOUNT (direct + indirect) = \$19,366**

## COST SUMMARY WORK

Task description: Direct costs

Site: Farm Road Source

Permit Action: New permit

Permit/Job#: M2019033

### PROJECT IDENTIFICATION

Task #: 001

State: Colorado

Abbreviation: None

Date: 8/28/2019

County: Montrose

Filename: M033-001

User: SJM

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

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002	knockdown highwall	DOZER	1	5.13	\$1,282
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<b><u>SUBTOTALS:</u></b>				<b>93.25</b>	<b>\$14,181</b>

**BULLDOZER WORK**Task description: Knockdown highwallSite: Farm Road SourcePermit Action: New permitPermit/Job#: M2019033**PROJECT IDENTIFICATION**Task #: 002State: ColoradoAbbreviation: NoneDate: 8/28/2019County: MontroseFilename: M033-002User: SJMAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: 1-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$103.86	NA
Operating Cost/Hour:	\$82.26	100
Ripper own. Cost/Hour:	\$13.90	NA
Ripper op. Cost/Hour:	\$8.74	100
Operator Cost/Hour:	\$41.24	NA

Total unit Cost/Hour: \$249.99Total Fleet Cost/Hour: \$249.99**MATERIAL QUANTITIES**Initial Volume: 2,000Swell factor: 1.000Loose volume: 2,000 LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 60 feetUnadjusted hourly production: 1,246.9 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 10 %Average site altitude: 5,000 feetMaterial weight: 2,850 lbs/LCYWeight description: Gravel - Dry (1/4" - 2" diam.)**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
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:	0.807	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3127

Adjusted unit production: 389.91 LCY/hr  
Adjusted fleet production: 389.91 LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)  
Unit cost: \$0.641/LCY

Total job time: 5.13 Hours  
Total job cost: \$1,282

## MOTOR GRADER WORK

Task description: Final grading3:1

Site: Farm Road Source

Permit Action: New permit

Permit/Job#: M2019033

### PROJECT IDENTIFICATION

Task #: 003

State: Colorado

Abbreviation: None

Date: 8/28/2019

County: Montrose

Filename: M033-003

User: SJM

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: CAT 16M

Ripper Attachment: Multi-Shank Ripper

Horsepower: 297

Shift Basis: 1 per day

Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$82.71	NA
Operating Cost/Hour:	\$70.09	100
Ripper Ownership Cost/Hour:	\$4.44	NA
Ripper Operating Cost/Hour:	\$3.92	100
Operator Cost/Hour:	\$28.52	NA
Total Unit Cost/Hour:	\$189.67	
Total Fleet Cost/Hour:	\$189.67	

### MATERIAL QUANTITIES

Total Area to be graded or ripped: 9.98 acres

Source of estimated acreage: Rec plan

### HOURLY PRODUCTION

Average Grader Speed:	1.50	mph
Selected Application:	Finish grading (0-2.5 mph) - 1.5	
Selected Blade Angle:	30	degrees
Effective Blade Length:	13.90	feet
Width of blade overlap per pass:	2.00	feet
Net grading or ripping width per pass:	11.90	feet
Unadjusted Hourly Unit Production:	2.1636	acres/hour

#### Job Condition Correction Factors

Site Altitude: 5000 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.85	(2sh/d, fav.)
Net Correction:	0.8500	multiplier

Adjusted Hourly Unit Production: 1.8391 acres/Hour

Adjusted Hourly Fleet Production: 1.8391 acres/Hour

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 5.43 Hours

Unit cost: \$103.13 per acre Total job cost: \$1,029

## MOTOR GRADER WORK

Task description: Grading pit floor side slopes

Site: Farm Road Source

Permit Action: New permit

Permit/Job#: M2019033

### PROJECT IDENTIFICATION

Task #: 004

State: Colorado

Abbreviation: None

Date: 8/28/2019

County: Montrose

Filename: M033-004

User: SJM

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: CAT 16M

Horsepower: 297

Ripper Attachment: Multi-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$82.71	NA
Operating Cost/Hour:	\$70.09	100
Ripper Ownership Cost/Hour:	\$4.44	NA
Ripper Operating Cost/Hour:	\$3.92	100
Operator Cost/Hour:	\$28.52	NA
Total Unit Cost/Hour:	\$189.67	
Total Fleet Cost/Hour:	<b>\$189.67</b>	

### MATERIAL QUANTITIES

Total Area to be graded or ripped: 9.98 acres

Source of estimated acreage: Rec plan

### HOURLY PRODUCTION

Average Grader Speed:	<u>1.50</u>	mph
Selected Application:	<u>Finish grading (0-2.5 mph) - 1.5</u>	
Selected Blade Angle:	<u>30</u>	degrees
Effective Blade Length:	<u>13.90</u>	feet
Width of blade overlap per pass:	<u>2.00</u>	feet
Net grading or ripping width per pass:	<u>11.90</u>	feet
Unadjusted Hourly Unit Production:	<u>2.1636</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>	(2sh/d, fav.)
Net Correction:	<u>0.8500</u>	multiplier

Adjusted Hourly Unit Production: 1.8391 acres/Hour

Adjusted Hourly Fleet Production: 1.8391 acres/Hour

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 5.43 Hours

Unit cost: \$103.13 per acre Total job cost: \$1,029

## BULLDOZER RIPPING WORK

Task description: Rip pit floor

Site: Farm Road Source Permit Action: New permit Permit/Job#: M2019033

### PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None  
Date: 8/28/2019 County: Montrose Filename: M033-005  
User: SJM

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

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

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$103.86	NA
Operating Cost/Hour:	\$82.26	100
Ripper Ownership Cost/Hour:	\$13.90	NA
Ripper Operating Cost/Hour:	\$8.74	100
Operator Cost/Hour:	\$41.24	NA
Total Unit Cost/Hour:	\$249.99	
Total Fleet Cost/Hour:	\$249.99	

### MATERIAL QUANTITIES

Selected estimating method: Seismic

#### Alternate Methods:

Seismic: 12,000 BCY Bank Volume: 12,000 BCY Midrange  
Area: NA acres Rip Depth (ft): NA Volume: NA BCY or CCY

Source of estimated quantity: Rec plan

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: 1 feet/second

#### Area:

Average Ripping Depth: NA feet/pass  
Average Ripping Width: NA feet/pass  
Average Ripping Length: NA feet/pass  
Average Dozer Speed: NA feet/minute  
Average Maneuver Time: NA minutes/pass  
Production per unit area: NA acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1,718.40 Cu. yds./hr  
Site Altitude: 5,000 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 1,426.27 Cu. yds./hr  
Adjusted Hourly Fleet Production: 1,426.27 Cu. yds./hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 8.41 Hours

Unit cost: \$0.175 Per cu. yd. Total job cost: \$2,103

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Mob-demob**Site: **Farm Road Source**Permit Action: **New permit**Permit/Job#: **M2019033****PROJECT IDENTIFICATION**Task #: **006**State: **Colorado**Abbreviation: **None**Date: **8/28/2019**County: **Montrose**Filename: **M033-006**User: **SJM**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/uni t	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
CAT 16M	28.73	\$87.15	\$123.81	1	\$210.96	\$123.81	\$250.00
Cat D8T - 8SU	53.08	\$114.29	\$141.54	1	\$255.83	\$141.54	\$250.00
CAT 950H	20.13	\$27.37	\$67.39	1	\$94.76	\$67.39	\$250.00
Cat 730	25.19	\$58.61	\$67.39	1	\$126.00	\$67.39	\$250.00

Subtotals: **\$687.55** **\$400.13** **\$1,000.00****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>MONTROSE</u>	
Total one-way travel distance:	<u>6.00</u>	miles
Average Travel Speed:	<u>35.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$2,372.92</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>0.17</u>	<u>0.17</u>
Return Time (Hours):	<u>0.17</u>	<u>0.17</u>
Loading Time (Hours):	<u>0.00</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.00</u>	<u>NA</u>
Subtotals:	<u>0.34</u>	<u>0.34</u>

**JOB TIME AND COST**

Total job time:	<u>0.69</u>	Hours
Total job cost:	<u>\$2,373</u>	

**WHEEL LOADER – LOAD AND CARRY WORK**Task description: Remove stockpilesSite: Farm Road SourcePermit Action: New permitPermit/Job#: M2019033**PROJECT IDENTIFICATION**Task #: 007State: ColoradoAbbreviation: NoneDate: 8/28/2019County: MontroseFilename: M033-007User: SJMAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: CAT 950HHorsepower: 197Attachment 1: ROPS CabShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	\$27.37	NA
Operating Cost/Hour:	\$33.82	100
Operator Cost/Hour:	\$40.65	NA
Total Unit Cost/Hour:	\$101.84	
Total Fleet Cost/Hour:	\$101.84	

**MATERIAL QUANTITIES**Initial volume: 10,000

CCY

Swell factor: 1.000Loose volume: 10,000

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource 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:	Material 1/8" to 3/4" diameter -0.02	-0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Independently owned trucks 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:		0.000	minutes
Adjusted Basic Cycle Time:		0.500	minutes

**Rolling Resistance – Road Conditions**Haul: Very hard, smooth, asphalt or concrete, no tire penetration 1.2Return: Very hard, smooth, asphalt or concrete, no tire penetration 1.2**Haul and Return Time**

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	20	0.00	1.20	1.20	0.0144	(Cat HB)
Return Route:	20	0.00	1.20	1.20	0.0139	(Cat HB)

Total Travel Time: 0.0282 minutes  
 Total Cycle Time: 0.5282 minutes

Load Bucket Capacity

Rated Capacity: 4.30 LCY (heaped)  
 Bucket Fill Factor: 0.875 Loose material - 1/2" to 3/4" (85 - 90%) 0.875  
 Adjusted Capacity: 3.76 LCY

Job Condition Correction FactorsSite Altitude: 5000 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: 427.37 LCY/Hour  
 Adjusted Hourly Unit Production: 354.72 LCY/Hour  
 Adjusted Hourly Fleet Production: 354.72 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: 28.19 Hours  
 Unit cost: \$0.287 /LCY Total job cost: \$2,871

## MISCELLANEOUS TRUCK WORK

Task description: Material haul off site

Site: Farm Road Source

Permit Action: New permit

Permit/Job#: M2019033

### PROJECT IDENTIFICATION

Task #: 008

State: Colorado

Abbreviation: None

Date: 8/28/2019

County: Montrose

Filename: M033-008

User: SJM

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Make and Model: Truck Tractor, 6x4, 50K GVW

Horsepower: 310

Attachment 1: \_\_\_\_\_

Shift Basis: 1 per day

Attachment 2: \_\_\_\_\_

Weight: 9.50

Labor Unit 1: Flatbed Driver - 2+ rear axles

(US Tons)

Labor Unit 2: \_\_\_\_\_

### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$19.45</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$39.66</u>	<u>100</u>
Operator Cost/Hour:	<u>\$28.26</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$87.36</u>	
Total Fleet Cost/Hour:	<u>\$87.36</u>	

### JOB TIME AND COST

Fleet size: 1 Truck(s)

Total job time: 40.00 Hours

Unit cost: \$87.36 /Hour

Total job cost: \$3,494