

COST SUMMARY WORK

Task description: Cost Summary

Site: Priola Pit

Permit Action: SR02

Permit/Job#: M2007087

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 4/25/2019

County: Adams

Filename: M087-000

User: JLE

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Slope reduction from 2H:1V to 3H:1V,	DOZER	1	0.40	\$82
002	Haul topsoil	LOADER	1	48.67	\$4,703
002a	Spread Topsoil	DOZER	1	7.93	\$1,644
003	Grade affected area	GRADER	1	6.89	\$737
004	Revegetation of the Affected Land	REVEGE	1	12.12	\$13,737
005	Mobilization and Demobilization of Equipment	MOBILIZE	1	2.30	\$2,524
<u>SUBTOTALS:</u>				78.31	\$23,427

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$473

Performance bond: 1.05

Total = \$246

Job superintendent: 39.16

Total = \$2,860

Profit: 10.00

Total = \$2,343

TOTAL O & P = \$5,922

CONTRACT AMOUNT (direct + O & P) = \$29,349

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

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

Total = \$500

Engineering work and/or contract/bid preparation: 8.59

Total = \$2,521

Reclamation management and/or administration: 5.00

\$1,467

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$10,411

TOTAL BOND AMOUNT (direct + indirect) = \$33,838

BULLDOZER WORK

Task description: Slope reduction from 2H:1V to 3H:1V,

Site: Priola Pit

Permit Action: SR02

Permit/Job#: M2007087

PROJECT IDENTIFICATION

Task #: 001

State: Colorado

Abbreviation: None

Date: 4/25/2019

County: Adams

Filename: M087-001

User: JLE

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:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.23	NA
Total unit Cost/Hour:	\$207.20	
Total Fleet Cost/Hour:	\$207.20	

MATERIAL QUANTITIES

Initial Volume: 320

Swell factor: 1.115

Loose volume: **357 LCY**

Source of estimated volume: 430 feet, north slope and northwest slope, 17 feet high

Source of estimated swell
factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 90 feet

Unadjusted hourly
production: 918.4 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push
gradient: -15 %

Average site altitude: 5,100 feet

Material weight: 2,100 lbs/LCY

Weight description: Earth - Loam

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9784

Adjusted unit
production: 898.56 LCY/hr

Adjusted fleet
production: **898.56** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.231/LCY

Total job time: **0.40** Hours

Total job cost: **\$82**

WHEEL LOADER – LOAD AND CARRY WORK

Task description: Haul topsoil

Site: Priola Pit

Permit Action: SR02

Permit/Job#: M2007087

PROJECT IDENTIFICATION

Task #: 002

State: Colorado

Abbreviation: None

Date: 4/25/2019

County: Adams

Filename: M087-002

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 962H

Attachment 1: ROPS Cab

Horsepower: 209

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$28.76	NA
Operating Cost/Hour:	\$31.74	100
Operator Cost/Hour:	\$36.13	NA
Total Unit Cost/Hour:	\$96.62	
Total Fleet Cost/Hour:	\$96.62	

MATERIAL QUANTITIES

Initial volume: 8,591

CCY

Swell factor: 1.000

Loose volume: 8,591

LCY

Source of estimated volume: 10.65 Acres at 6"

Source 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:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(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:		-0.040	minutes
Adjusted Basic Cycle Time:		0.460	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
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Haul Route:	500	0.00	4.00	4.00	0.4213	(Cat HB)
Return Route:	500	0.00	4.00	4.00	0.3926	(Cat HB)

Total Travel Time: 0.8140 minutes
Total Cycle Time: 1.2740 minutes

Load Bucket Capacity

Rated Capacity: 4.30 LCY (heaped)
Bucket Fill Factor: 1.050 Other - moist loam (100-110%) 1.050
Adjusted Capacity: 4.52 LCY

Job Condition Correction Factors

Site Altitude: 5100 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: 212.64 LCY/Hour
Adjusted Hourly Unit Production: 176.49 LCY/Hour
Adjusted Hourly Fleet Production: 176.49 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: 48.68 Hours
Unit cost: \$0.547 /LCY Total job cost: \$4,703

BULLDOZER WORK

Task description: Spread Topsoil

Site: Priola Pit

Permit Action: SR02

Permit/Job#: M2007087

PROJECT IDENTIFICATION

Task #: 002A

State: Colorado

Abbreviation: None

Date: 4/25/2019

County: Adams

Filename: M087-002a

User: JLE

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:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.23	NA
Total unit Cost/Hour:	\$207.20	
Total Fleet Cost/Hour:	\$207.20	

MATERIAL QUANTITIES

Initial Volume: 8,591

Swell factor: 1.000

Loose volume: **8,591** LCY

Source of estimated volume: 10.65 Acres at 6"

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: 5,100 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
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: 0.7734

Adjusted unit
production: 1,082.76 LCY/hr

Adjusted fleet
production: **1082.76** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.191/LCY

Total job time: **7.93** Hours

Total job cost: **\$1,644**

MOTOR GRADER WORK

Task description: Grade affected area

Site: Priola Pit Permit Action: SR02 Permit/Job#: M2007087

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 4/25/2019 County: Adams Filename: M087-003
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 12M Horsepower: 158
Ripper Attachment: _____ Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$30.73</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$30.60</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$0.00</u>	
Operator Cost/Hour:	<u>\$45.64</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$106.97</u>	
Total Fleet Cost/Hour:	<u>\$106.97</u>	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 10.65 acres

Source of estimated acreage: Applicant

HOURLY PRODUCTION

Average Grader Speed: 1.50 mph
Selected Application: Finish grading (0-2.5 mph) - 1.5
Selected Blade Angle: 0 degrees
Effective Blade Length: 12.00 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 10.00 feet
Unadjusted Hourly Unit Production: 1.8182 acres/hour

Job Condition Correction Factors

Site Altitude: 5100 feet

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

Adjusted Hourly Unit Production: 1.5455 acres/Hour
Adjusted Hourly Fleet Production: 1.5455 acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 6.89 Hours
Unit cost: \$69.22 per acre Total job cost: \$737

REVEGETATION WORK

Task description: Revegetation of the Affected Land

Site: Priola Pit

Permit Action: SR02

Permit/Job#: M2007087

PROJECT IDENTIFICATION

Task #: 004

State: Colorado

Abbreviation: None

Date: 4/25/2019

County: Adams

Filename: M087-004

User: JLE

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
0-20-20, 4-8-12, 10-10-10	200.00	pound	\$0.21	\$42.00
			Total Fertilizer Materials Cost/Acre	\$42.00

Application

Description	Cost /Acre
Push rotary spreader (MEANS 32 01 90.13 0110)	\$99.32
Total Fertilizer Application Cost/Acre	\$99.32

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
Total Tilling Cost/Acre	\$299.89

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	1.12	18.28	\$16.63
Buffalograss - Native/Plains	6.26	6.04	\$75.87
Little Bluestem - Native	1.12	6.69	\$18.07
Sideoats Grama - Vaughn	2.26	7.42	\$23.14
Intermediate Wheatgrass - Oahe	2.76	5.89	\$10.85
Oats - Walken	2.50	0.75	\$0.85
Slender Wheatgrass - Native	2.96	10.80	\$8.52
Thickspike Wheatgrass - Critana	18.00	63.64	\$105.66
Western Wheatgrass - Native	3.76	9.49	\$26.96
Totals Seed Mix	40.74	129.00	\$286.55

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
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

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:	12.12	Cost /Acre:	\$994.98
Estimated Failure Rate:	25%	Cost /Acre*:	\$553.77
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$12,059.16
Reseeding Job Cost:	\$1,677.92
Total Job Cost:	\$13,737
Job Hours:	12.12

EQUIPMENT MOBILIZATION/DEMobilIZATION

Task description: Mobilization and Demobilization of Equipment

Site: Priola Pit

Permit Action: SR02

Permit/Job#: M2007087

PROJECT IDENTIFICATION

Task #: 005

State: Colorado

Abbreviation: None

Date: 4/25/2019

County: Adams

Filename: M087-005

User: JLE

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:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

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	47.71	\$93.62	\$117.55	1	\$211.17	\$117.55	\$250.00
CAT 962H	20.95	\$28.76	\$88.67	1	\$117.43	\$88.67	\$250.00
CAT 12M	16.01	\$30.73	\$88.67	1	\$119.40	\$88.67	\$250.00

Subtotals: **\$448.00** **\$294.89** **\$750.00**

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.	\$40.58	1	\$40.58	\$40.58
Fuel Tanker, 6x4, 210 HP	\$64.10	1	\$64.10	\$64.10

Subtotals: **\$104.68** **\$104.68**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>COMMERCE CITY</u>	
Total one-way travel distance:	<u>3.40</u>	miles
Average Travel Speed:	<u>45.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$2,508.26</u>
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$15.82</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.08	0.08
Return Time (Hours):	0.08	0.08
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.15	0.15

JOB TIME AND COST

Total job time:	<u>2.30</u>	Hours
Total job cost:	<u>\$2,524</u>	