

COST SUMMARY WORK

Task description: Reclamation Cost Estimate

Site: Kichelmann One

Permit Action: 2019-04-02

Permit/Job#: M2019007

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 4/2/2019

County: Montrose

Filename: M007-000

User: DMC

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Backfill/Grade Dig Areas	LOADER	1	8.99	\$830
02a	Distribute topsoil	LOADER	1	12.09	\$1,116
03a	Revegetate Affected Area	REVEGE	1	2.00	\$4,487
04a	Mobilize reclamation crew/equipment	MOBILIZE	1	3.14	\$849
<u>SUBTOTALS:</u>				26.22	\$7,282

INDIRECT COSTS

OVERHEAD AND PROFIT:

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

Total = \$147

Total = \$76

Total = \$0

Total = \$728

TOTAL O & P = \$952

CONTRACT AMOUNT (direct + O & P) = \$8,234

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

\$412

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$1,363

TOTAL BOND AMOUNT (direct + indirect) = \$8,645

WHEEL LOADER – LOAD AND CARRY WORKTask description: **Backfill/Grade Dig Areas**Site: **Kichelmann one**Permit Action: **2019-04-02**Permit/Job#: **M2019007****PROJECT IDENTIFICATION**

Task #: **01A** State: **Colorado** Abbreviation: **None**
 Date: **4/2/2019** County: **Montrose** Filename: **M007-01a**
 User: **DMC**

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

Basic Machine: **CAT 450E**
 Attachment 1: **ROPS Cab**

Horsepower: **101**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$24.67	NA
Operating Cost/Hour:	\$26.68	100
Operator Cost/Hour:	\$40.90	NA
Total Unit Cost/Hour:	\$92.25	
Total Fleet Cost/Hour:	\$92.25	

MATERIAL QUANTITIES

Initial volume: **1,000** CCY Swell factor: **1.000**
 Loose volume: **1,000** LCY

Source of estimated volume: **Division of Reclamation, Mining & Safety**
 Source 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:	Mixed material 0.02	0.020	(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:		-0.010	minutes
Adjusted Basic Cycle Time:		0.465	minutes

Rolling Resistance – Road Conditions

Haul: **Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0**
 Return: **Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0**

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
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Haul Route:	100	0.00	8.00	8.00	0.0951	(Cat HB)
Return Route:	100	0.00	8.00	8.00	0.0951	(Cat HB)

Total Travel Time: 0.1902 minutes
Total Cycle Time: 0.6552 minutes

Load Bucket Capacity

Rated Capacity: 1.50 LCY (heaped)
Bucket Fill Factor: 0.975 Loose material - mixed moist aggregates (95-100%) 0.975
Adjusted Capacity: 1.46 LCY

Job Condition Correction Factors

Site Altitude: 5800 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: 133.93 LCY/Hour
Adjusted Hourly Unit Production: 111.16 LCY/Hour
Adjusted Hourly Fleet Production: 111.16 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: 9.00 Hours
Unit cost: \$0.830 /LCY Total job cost: \$830

WHEEL LOADER – LOAD AND CARRY WORKTask description: **Distribute topsoil**Site: **Kichelmann one**Permit Action: **2019-04-02**Permit/Job#: **M2019007****PROJECT IDENTIFICATION**Task #: **02A**State: **Colorado**Abbreviation: **None**Date: **4/2/2019**County: **Montrose**Filename: **M007-02a**User: **DMC**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **CAT 450E**Attachment 1: **ROPS Cab**Horsepower: **101**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	\$24.67	NA
Operating Cost/Hour:	\$26.68	100
Operator Cost/Hour:	\$40.90	NA
Total Unit Cost/Hour:	\$92.25	
Total Fleet Cost/Hour:	\$92.25	

MATERIAL QUANTITIESInitial volume: **1,345**

CCY

Swell factor: **1.000**Loose volume: **1,345**

LCY

Source of estimated volume: **Division of Reclamation, Mining & Safety**Source 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:	Material up to 1/8" diameter 0.02	0.020	(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:		-0.010	minutes
Adjusted Basic Cycle Time:		0.465	minutes

Rolling Resistance – Road ConditionsHaul: **Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0**Return: **Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0****Haul and Return Time**

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
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Haul Route:	100	0.00	8.00	8.00	0.0951	(Cat HB)
Return Route:	100	0.00	8.00	8.00	0.0951	(Cat HB)

Total Travel Time: 0.1902 minutes
Total Cycle Time: **0.6552** minutes

Load Bucket Capacity

Rated Capacity: 1.50 LCY (heaped)
Bucket Fill Factor: 0.975 Loose material - mixed moist aggregates (95-100%) 0.975
Adjusted Capacity: **1.46** LCY

Job Condition Correction Factors

Site Altitude: 5800 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: 133.93 LCY/Hour
Adjusted Hourly Unit Production: 111.16 LCY/Hour
Adjusted Hourly Fleet Production: **111.16** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: **12.10** Hours
Unit cost: \$0.830 /LCY Total job cost: **\$1,116**

REVEGETATION WORKTask description: Revegetate Affected AreaSite: Kichelmann onePermit Action: 2019-04-02Permit/Job#: M2019007**PROJECT IDENTIFICATION**Task #: 03AState: ColoradoAbbreviation: NoneDate: 4/2/2019County: MontroseFilename: M007-03aUser: DMCAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Fertilizer Materials Cost/Acre				\$0.00

Application

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

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$92.77
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
Total Tilling Cost/Acre	\$286.37

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.70	11.98	\$25.90
Galleta	4.38	15.99	\$110.77
Needle and Thread	6.06	16.00	\$257.55
Western Wheatgrass - Native	5.52	13.94	\$39.58
Globemallow, Scarlet (or copper)	0.50	5.66	\$69.38
Basin Wildrye - Trailhead	6.06	24.62	\$93.38
Totals Seed Mix	26.22	88.19	\$596.56

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
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Total Mulch Application Cost/Acre	\$68.78

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:	<u>2</u>	Cost /Acre:	<u>\$1,794.93</u>
Estimated Failure Rate:	<u>25%</u>	Cost /Acre*:	<u>\$1,794.93</u>
*Selected Replanting Work Items:	<u>TILLING, SEEDING, MULCHING</u>		
Initial Job Cost:	<u>\$3,589.86</u>		
Reseeding Job Cost:	<u>\$897.47</u>		
Total Job Cost:	<u>\$4,487</u>		
Job Hours:	<u>2.00</u>		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilize reclamation crew/equipment**Site: **Kichelmann one**Permit Action: 2019-04-02Permit/Job#: M2019007**PROJECT IDENTIFICATION**Task #: 04AState: ColoradoAbbreviation: NoneDate: 4/2/2019County: MontroseFilename: M007-04aUser: DMCAgency 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:	\$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 450E	9.80	\$24.67	\$88.67	1	\$113.34	\$88.67	\$250.00
Subtotals:					\$113.34	\$88.67	\$250.00

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.	\$12.23	1	\$12.23	\$12.23
Subtotals:			\$12.23	\$12.23

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	NUCLA	
Total one-way travel distance:	10.00	miles
Average Travel Speed:	35.00	mph

Total Non-Roadable Mob/Demob Cost *	\$842.11
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$6.99
'** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.29	0.29
Return Time (Hours):	0.29	0.29
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.57	0.57

JOB TIME AND COST

Total job time:	3.14	Hours
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Total job cost:	\$849
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