

COST SUMMARY WORK

Task description: Initial FW Estimate

Site: Birdseye Pit

Permit Action: 2019-09-09

Permit/Job#: M2019034

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 9/9/2019

County: Lake

Filename: M034-000

User: DMC

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Remove truck scale	DEMOLISH	1	8.00	\$3,000
02a	Haul topsoil for 15 acre disturbance	TRUCK1	1	181.46	\$47,390
03a	Spread topsoil	DOZER	1	20.12	\$4,574
04a	Revegetate 15 acres	REVEGE	1	15.00	\$28,758
05a	Riprap slope in Pit 4	EXCAVATE	1	14.68	\$1,689
06a	Mobilize reclamation crew/equipment	MOBILIZE	1	2.62	\$4,238
<u>SUBTOTALS:</u>				241.88	\$89,649

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$1,811

Performance bond: 1.05

Total = \$941

Job superintendent: 120.94

Total = \$8,392

Profit: 10.00

Total = \$8,965

TOTAL O & P = \$20,109

CONTRACT AMOUNT (direct + O & P) = \$109,758

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

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

Total = \$500

Engineering work and/or contract/bid preparation: 0.00

Total = \$0

Reclamation management and/or administration: 5.00

\$5,488

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$26,097

TOTAL BOND AMOUNT (direct + indirect) = \$115,746

DEMOLITION WORK

Task description: Remove truck scale

Site: Birdseye Pit

Permit Action: 2019-09-09

Permit/Job#: M2019034

PROJECT IDENTIFICATION

Task #: 01A

State: Colorado

Abbreviation: None

Date: 9/9/2019

County: Lake

Filename: M034-01a

User: DMC

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 100.00 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Truck Scale	NA	USER PROVIDED ITEM	1.00	1	\$3,000.00	\$3,000.00

Job Hours: 8.00

Subtotal
(unadjusted): \$3,000.00

Total Cost
(adjusted for location): \$3,000.00

TRUCK/LOADER TEAM WORKTask description: **Haul topsoil for 15 acre disturbance**Site: **Birdseye Pit**Permit Action: 2019-09-09Permit/Job#: M2019034**PROJECT IDENTIFICATION**Task #: 02AState: ColoradoAbbreviation: NoneDate: 9/9/2019County: LakeFilename: M034-02aUser: DMCAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 8-10 cy, 6x4
-Loader:	CAT 972H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	NA	NA
Ownership cost/hour:	\$16.33	\$46.54	NA	NA	NA	NA
Operating cost/hour:	\$42.75	\$55.81	NA	NA	NA	NA
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Operator cost/hour:	\$0.00	\$40.65	NA	NA	NA	NA
Unit Subtotals:	\$59.08	\$143.00	NA	NA	NA	NA
Number of Units:	2	1	0	0	0	0
Group Subtotals:	Work: \$261.16		Support: \$0.00		Maint: \$0.00	

Total work team cost/hour: **\$261.16****MATERIAL QUANTITIES**Initial volume: 24,200

CCY

Swell factor: 1.000Loose volume: **24,200**

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 27,280

Pounds

Payload Capacity: 17.05 LCY

Truck Bed (volume) Basis:

Struck Volume: 8.00 LCY
 Heaped Volume: 10.00 LCY
 Average Volume: 9.00 LCY
 Adjusted Volume: 10.00 LCY

Final Truck Volume Based on Number of Loader Passes: 5.46 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	<u>5.600</u>	LCY (heaped)
Bucket Fill Factor:	<u>0.975</u>	Loose material - mixed moist aggregates (95-100%) 0.975
Adjusted Capacity:	<u>5.460</u>	LCY

Job Condition Corrections:

Site Altitude (ft.): 10200 feet

	Truck	Loader	Source
Altitude Adj:	0.890	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.739	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill
 Truck: 1 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA
 Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.525 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:	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:		-0.050	minutes
Adjusted Loader Cycle Time:		0.475	minutes
Net Load Time per Truck:		0.100	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.50</u>	Minutes	Adjusted for site altitude:	<u>0.562</u>	Minutes
Truck Load Time:	<u>0.100</u>	Minutes	Adjusted for site altitude:	<u>0.100</u>	Minutes
Truck Maneuver and Dump Time:	<u>0.80</u>	Minutes	Adjusted for site altitude:	<u>0.899</u>	Minutes

Truck Travel (Haul & Return) Time:
penetration 5.0

Road Condition: Rutted dirt, little maintenance, no water, 2" tire

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3000.00	0.00	5.00	5.00	2218	1.422

Haul Time: **1.422** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3000.00	0.00	5.00	5.00	2814	1.095

Return Time: **1.095** minutesTotal Truck Cycle Time: **4.078** minutes

Loading Tool unit
 Production 495.02 LCY/Hour Adjusted for job efficiency: 410.86 LCY/Hour
 Truck Unit Production 80.34 LCY/Hour Adjusted for job efficiency: 66.68 LCY/Hour
 Optimal No. of Trucks: 6 Truck(s) Selected Number of Trucks: 2 Truck(s)
 Adjusted hourly truck team production: 133.36 LCY/Hour
 Adjusted single truck/loader team production: 133.36 LCY/Hour
 Adjusted multiple truck/loader team production: **133.36** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **181.46** HoursUnit cost: \$1.958 /LCY Total job cost: **\$47,390**

BULLDOZER WORKTask description: Spread topsoilSite: Birdseye PitPermit Action: 2019-09-09Permit/Job#: M2019034**PROJECT IDENTIFICATION**Task #: 03AState: ColoradoAbbreviation: NoneDate: 9/9/2019County: LakeFilename: M034-03aUser: DMCAgency 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:	<u>\$103.86</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$82.26</u>	<u>100</u>
Ripper own.		
Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.24</u>	<u>NA</u>
Total unit Cost/Hour:	<u>\$227.36</u>	
Total Fleet Cost/Hour:	<u>\$227.36</u>	

MATERIAL QUANTITIES

Initial Volume: 24,200
 Swell factor: 1.000
 Loose volume: 24,200 LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
 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: Loose stockpile 1.2

Average push gradient: 0 %
 Average site altitude: 10,200 feet

Material weight: 1,600 lbs/LCYWeight description: Top SoilJob Condition Correction FactorSource

Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(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:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit
production: 1,203.02 LCY/hr

Adjusted fleet
production: **1203.02** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.189/LCY

Total job time: **20.12** Hours

Total job cost: **\$4,574**

REVEGETATION WORKTask description: Revegetate 15 acresSite: Birdseye PitPermit Action: 2019-09-09Permit/Job#: M2019034**PROJECT IDENTIFICATION**Task #: 04AState: ColoradoAbbreviation: NoneDate: 9/9/2019County: LakeFilename: M034-04aUser: 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
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$101.93
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
Total Tilling Cost/Acre	\$295.53

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Baltic Rush	0.30	84.30	\$84.30
Big Bluegrass - Sherman	0.80	16.53	\$6.78
Blue Wildrye - Arlington or Elkton	2.00	6.89	\$13.32
Mountain Brome - Bromar	3.00	4.82	\$11.40
Sandberg Bluegrass - VNS	0.80	16.99	\$6.72
Nebraska Sedge	0.50	10.47	\$83.25
Rocky Mountain Fescue	0.80	12.86	\$5.80
Slender Wheatgrass - San Luis	3.00	10.95	\$12.75
Streambank Wheatgrass - Sodar	3.00	9.78	\$17.10

Tufted Hairgrass	0.80	45.91	\$8.82
Totals Seed Mix	15.00	219.50	\$250.24

Application

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

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$295.00	\$590.00
Total Mulch Materials Cost/Acre				\$590.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$70.17
Power mulcher (MEANS 32 91 13.16 0350)	\$95.83
Total Mulch Application Cost/Acre	\$166.00

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: 15 Cost /Acre: \$1,533.77
 Estimated Failure Rate: 25% Cost /Acre*: \$1,533.77
 *Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MU
LCHING

Initial Job Cost: \$23,006.55
 Reseeding Job Cost: \$5,751.64
 Total Job Cost: \$28,758
 Job Hours: 15.00

HYDRAULIC EXCAVATOR WORK

Task description: Riprap slope in Pit 4

Site: Birdseye Pit

Permit Action: 2019-09-09

Permit/Job#: M2019034

PROJECT IDENTIFICATION

Task #: 05A

State: Colorado

Abbreviation: None

Date: 9/9/2019

County: Lake

Filename: M034-05a

User: DMC

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 320D L 9'-6" Stick

Attachment 1: ROPS Cab

Horsepower: 148

Weight (MT): 21.55

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$37.31	NA
Operating Cost/Hour:	\$40.45	100
Operator Cost/Hour:	\$37.27	NA
Total Unit Cost/Hour:	\$115.02	
Total Fleet Cost/Hour:	\$115.02	

MATERIAL QUANTITIES

Initial volume: 2,962

CCY

Swell factor: 1.000

Loose volume: 2,962

LCY

Source of estimated volume: Division of Reclamation, Mining & Safety

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: AVERAGE

Secondary Job Condition within Basic Description: AVERAGE

Cycle Time Value: 0.284 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 1.54 LCY (heaped)

Bucket Fill Factor: 0.900 Rock - Poorly Blasted (85%-95%) 0.900

Adjusted Capacity: 1.39 LCY

Job Condition Correction Factors

Site Altitude: 10200 feet

Altitude Adj:	0.83	Source (CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.69	multiplier

Unadjusted Hourly Unit Production: 292.82 LCY/Hour

Adjusted Hourly Unit Production: 201.72 LCY/Hour

Adjusted Hourly Fleet Production: 201.72 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: 14.68 Hours

Unit cost: \$0.570 /LCY Total job cost: \$1,689

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilize reclamation crew/equipment**Site: **Birdseye Pit**Permit Action: 2019-09-09Permit/Job#: M2019034**PROJECT IDENTIFICATION**Task #: 06AState: ColoradoAbbreviation: NoneDate: 9/9/2019County: LakeFilename: M034-06aUser: 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:	\$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 D8T - 8SU	47.71	\$103.86	\$123.81	1	\$227.67	\$123.81	\$250.00
CAT 972H	28.00	\$46.54	\$123.81	1	\$170.35	\$123.81	\$250.00
Cat 320D L 9'-6" Stick	23.70	\$37.31	\$67.39	1	\$104.70	\$67.39	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$18.15	\$67.39	1	\$85.54	\$67.39	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$9.74	\$67.39	1	\$77.13	\$67.39	\$250.00

Subtotals: **\$665.39** **\$449.79** **\$1,250.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Generic 8-10 cy, 6x4	\$90.95	2	\$181.90	\$181.90
Light Duty Pickup, 4x4, 3/4 T.	\$12.96	1	\$12.96	\$12.96

Subtotals: **\$194.86** **\$194.86**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	LEADVILLE	
Total one-way travel distance:	7.00	miles
Average Travel Speed:	45.00	mph

Total Non-Roadable Mob/Demob Cost *	\$4,177.72
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$60.62
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.16	0.16
Return Time (Hours):	0.16	0.16
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.31	0.31

JOB TIME AND COST

Total job time:	2.62	Hours
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Total job cost:	\$4,238
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