

## COST SUMMARY WORK

Task description: Reclamation Liability 2012

Site: Yule Marble Quarry

Permit Action: 2012 update-TR-01

Permit/Job#: M1999058

### PROJECT IDENTIFICATION

Task #: 01A

State: Colorado

Abbreviation: None

Date: 5/23/2012

County: Gunnison

Filename: M058-01a

User: GRM

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
02a	backfill utility portal	MINESEAL	1	30.00	\$3,052.00
03a	remove surface structures	DEMOLISH	1	16.00	\$1,672.62
04a	rip disturbed ground	RIPPER	1	3.10	\$490.00
05a	install sediment control structures	POSTMININ G	1	98.20	\$24,944.67
06a	import topsoil	TRUCK1	1	55.43	\$24,067.49
07a	spread topsoil - final grading	DOZER	1	5.90	\$930.63
08a	reveg of site	REVEGE	1	24.00	\$6,361.36
<b><u>SUBTOTALS:</u></b>				<b>232.63</b>	<b>\$ \$61,518.77</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$1,242.68

Performance bond: 1.05

Total = \$645.95

Job superintendent: 116.32

Total = \$6,897.48

Profit: 10.00

Total = \$6,151.88

TOTAL O & P = \$14,937.99

CONTRACT AMOUNT (direct + O & P) = \$76,456.76

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 500.00

Total = 500.00

Engineering work and/or contract/bid preparation: 0.00

Total = \$0.00

Reclamation management and/or administration: 5.00

\$3,822.84

CONTINGENCY: 3.00

Total = \$1,845.56

TOTAL INDIRECT COST = \$21,106.39

**TOTAL BOND AMOUNT (direct + indirect) = \$82,625.00**

## SAFEGUARDING UNDERGROUND OPENINGS

Task description: Backfill utility portal

Site: Yule Marble Quarry

Permit Action: 2012 update-TR-01

Permit/Job#: M1999058

### PROJECT IDENTIFICATION

Task #: 02A

State: Colorado

Abbreviation: None

Date: 5/23/2012

County: Gunnison

Filename: M058-02a

User: GRM

Agency or organization name: DRMS

### UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
utility portal	6 X 6	Adit closure - backfilling (per opening)	1.00	EA	\$1,852.00	\$1,852.00
North, south, #5 portals- fencing	30 X 16	USER PROVIDED ITEM	24.00	ea	\$50.00	\$1,200.00

Job Hours: 30.00

Total Cost: \$3,052.00

## DEMOLITION WORK

Task description: Remove surface structures

Site: Yule Marble Quarry

Permit Action: 2012 update-TR-01

Permit/Job#: M1999058

### PROJECT IDENTIFICATION

Task #: 03A

State: Colorado

Abbreviation: None

Date: 5/23/2012

County: Gunnison

Filename: M058-03a

User: GRM

Agency or organization name: DRMS

### UNIT COSTS

Location adjustment: 91.30 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
various surface structures and debris	1 X 1	Push demolished materials/rubble/debris into pit - Max. 100 ft. push	4,000.00	CY	\$0.46	\$1,832.00

Job Hours: 16.00

Subtotal  
(unadjusted): \$1,832.00

Total Cost  
(adjusted for location): \$1,672.62

## BULLDOZER RIPPING WORK

Task description: Rip disturbed ground

Site: Yule Marble Quarry Permit Action: 2012 update-TR-01 Permit/Job#: M1999058

### PROJECT IDENTIFICATION

Task #: 04A State: Colorado Abbreviation: None  
Date: 5/23/2012 County: Gunnison Filename: M058-04a  
User: GRM

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II Horsepower: 238  
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$43.26</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$75.99</u>	<u>100</u>
Ripper Operating Cost/Hour:	<u>\$0.00</u>	<u>100</u>
Operator Cost/Hour:	<u>\$38.49</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$157.74</u>	
Total Fleet Cost/Hour:	<u>\$157.74</u>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 1.41 acres Rip Depth (ft): 1.00 Volume: 2,275 BCY or CCY

Source of estimated quantity: TR-01

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth:	<u>2.45</u>	<u>mph</u>
Average Ripping Width:	<u>6.50</u>	<u>degrees</u>
Average Ripping Length:	<u>50.00</u>	<u>feet</u>
Average Dozer Speed:	<u>88.00</u>	<u>feet</u>
Average Maneuver Time:	<u>0.25</u>	<u>feet</u>
Production per unit area:	<u>0.547</u>	<u>acres/hour</u>

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production:	<u>0.547</u>	<u>Acres/hr</u>
Site Altitude:	<u>9,600</u>	<u>feet</u>
Altitude Adj:	<u>1.00</u>	<u>(CAT HB)</u>
Job Efficiency:	<u>0.83</u>	<u>(1 shift/day)</u>
Net Correction:	<u>0.83</u>	<u>multiplier</u>

Adjusted Hourly Unit Production: 0.45 Acres/hr  
Adjusted Hourly Fleet Production: 0.45 Acres/hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 3.10 Hours

Unit cost: \$347.350 Per acre Total job cost: \$490.00

## Post-Mining Drainage Channel Construction (Ditches)

Task description: Install sediment control structures

Site: Yule Marble Quarry

Permit Action: 2012 update-TR-01

Permit/Job#: M1999058

### PROJECT IDENTIFICATION

Task #: 05A

State: Colorado

Abbreviation: None

Date: 5/23/2012

County: Gunnison

Filename: M058-05a

User: GRM

Agency or organization name: DRMS

\*User provided Data for installation of sedimentation control structures and erosion matting per TR-01: Task 3, 5, and 6. Exact tasks do not line up however, estimate of hours and costs are balanced.

### Totals:

Geotextile (SY): \$5,359.77

Riprap (CY): \$17,111.57

Excavation (CY): \$2,473.33

### Hours:

Geotextile (SY):  
87.5 SY/HR 27.22

Riprap (CY):  
7.75 CY/HR 51.23

Excavation (CY): 33.75  
CY/HR 19.75

Total Post-Mining Channel Reconstruction hours: 98.21

Hours

Total Post-Mining Channel Reconstruction Cost: \$24,944.67

TRUCK/LOADER TEAM WORKTask description: Import topsoilSite: Yule Marble QuarryPermit Action: 2012 update-TR-01Permit/Job#: M1999058PROJECT IDENTIFICATIONTask #: 06AState: ColoradoAbbreviation: NoneDate: 5/23/2012County: GunnisonFilename: M058-06aUser: GRMAgency or organization name: DRMSHOURLY EQUIPMENT COSTShift basis: 1 per day

		Equipment Description
Truck Loader Team -Truck:		Generic 10-12 cy, 6x4
-Loader:		CAT 966H high lift
Support Equipment -Load Area:		NA
-Dump Area:		NA
Road Maintenance -Motor Grader:		NA
-Water Truck:		NA

<u>Cost Breakdown:</u>	<u>Truck/Loader Team</u>		<u>Support Equipment</u>		<u>Maintenance Equipment</u>	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	NA	NA
Ownership cost/hour:	\$12.32	\$35.16	NA	NA	NA	NA
Operating cost/hour:	\$62.56	\$61.06	NA	NA	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Operator cost/hour:	\$0.00	\$38.49	NA	NA	NA	NA
Unit Subtotals:	\$74.88	\$134.70	NA	NA	NA	NA
Number of Units:	4	1	0	0	0	0
Group Subtotals:	Work: \$434.22		Support: \$0.00		Maint: \$0.00	

Total work team cost/hour: \$434.22MATERIAL QUANTITIESInitial volume: 2,065

CCY

Swell factor: 1.000Loose volume: 2,065

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$12.00Total Cost: \$24,780.00HOURLY PRODUCTIONTruck Capacity:Truck Payload (weight) Basis:Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 35,400

Pounds

Payload Capacity: 22.13

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: 11.00 LCY**Loading Tool Capacity**Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	5.500	LCY

**Job Condition Corrections:**Site Altitude (ft.): 9600 feet

	Truck	Loader	Source
Altitude Adj:	0.970	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)

Net Correction: 0.805 0.830**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 2 passes**Excavators and Front Shovels:**Machine Cycle Time vs. Job Condition Rating: NASelected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

**Cycle Time Elements (min.):**Load: NA Maneuver: NA Dump: 0.100Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders -0.04	-0.040	(Cat HB)
Operation:	Inconsistent operation 0.04	0.040	(Cat HB)
Dump Target:	Fragile target 0.05	0.050	(Cat HB)
Net Cycle Time Adjustment:		0.070	minutes
Adjusted Loader Cycle Time:		0.570	minutes
Net Load Time per Truck:		0.670	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.515	Minutes
Truck Load Time:	0.670	Minutes	Adjusted for site altitude:	0.670	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.928	Minutes

**Truck Travel (Haul & Return) Time:**  
penetration 4.0Road Condition: Rutted dirt, little maintenance, no water, 1" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	52800.00	30.00	4.00	34.00		

Haul Time: 0.000 minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	52800.00	-30.00	4.00	-26.00	960	56.701

Return Time: 56.701 minutesTotal Truck Cycle Time: 58.814 minutes

## Loading Tool unit

Production 556.74 LCY/Hour      Adjusted for job efficiency: 462.10 LCY/HourTruck Unit Production 11.22 LCY/Hour      Adjusted for job efficiency: 9.31 LCY/HourOptimal No. of Trucks: 50 Truck(s)      Selected Number of Trucks: 4 Truck(s)Adjusted hourly truck team production: 37.26 LCY/HourAdjusted single truck/loader team production: 37.26 LCY/HourAdjusted multiple truck/loader team production: 37.26 LCY/Hour**JOB TIME AND COST**Fleet size: 1 Team(s)      Total job time: 55.43 HoursUnit cost: \$11.655 /LCY      Total job cost: \$24,067.49



**BULLDOZER WORK**Task description: Spread topsoil - final gradingSite: Yule Marble QuarryPermit Action: 2012 update-TR-01Permit/Job#: M1999058**PROJECT IDENTIFICATION**Task #: 07AState: ColoradoAbbreviation: NoneDate: 5/23/2012County: GunnisonFilename: M058-07aUser: GRMAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D7R DS XR Series IIHorsepower: 238Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$43.26	NA
Operating Cost/Hour:	\$75.99	100
Ripper op. Cost/Hour:	\$0.00	100
Operator Cost/Hour:	\$38.49	NA

Total unit Cost/Hour: \$0.00Total Fleet Cost/Hour: \$157.74**MATERIAL QUANTITIES**Initial Volume: 2,065Swell factor: 1.000Loose volume: 2,065 LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 75 feetUnadjusted hourly production: 854.1 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: 20 %Average site altitude: 9,600 feetMaterial weight: 1,600 lbs/LCYWeight description: Top Soil**Job Condition Correction Factor**

		<u>Source</u>
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:	0.700	(FND-MF)
Push gradient:	0.545	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4098

Adjusted unit production: 350.01 LCY/hr

Adjusted fleet production: **350.01** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.451/LCY

Total job time: **5.90** Hours

Total job cost: **\$930.63**

REVEGETATION WORKTask description: Reveg of siteSite: Yule Marble QuarryPermit Action: 2012 update-TR-01Permit/Job#: M1999058PROJECT IDENTIFICATIONTask #: 08AState: ColoradoAbbreviation: NoneDate: 5/23/2012County: GunnisonFilename: M058-08aUser: GRMAgency or organization name: DRMSSEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Paloma	2.00	6.47	\$17.06
Bluebunch Wheatgrass - Secar	4.00	12.86	\$26.80
Bottlebrush Squirreltail	4.00	17.63	\$97.32
Alfalfa - Vernal	1.00	4.82	\$2.75
Yellow Sweet Clover - Madrid	2.00	11.94	\$5.00
Streambank Wheatgrass - Sodar	4.00	13.04	\$16.48
Western Wheatgrass - Arriba	4.00	10.10	\$14.40
Rabbitbrush, Rubber	1.00	14.90	\$35.83
Saltbush, Four Wing	3.00	4.13	\$31.50
<b>Totals Seed Mix</b>	<b>25.00</b>	<b>95.89</b>	<b>\$247.14</b>

Application

Description	Cost /Acre
Hydro seeding (MEANS 32 92 19.14 0200)	\$799.33
<b>Total Seed Application Cost/Acre</b>	<b>\$799.33</b>

MULCHING and MISCELLANEOUSMaterials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hydromulch tackifier, <15 ac. {Materials Only}	2.20	ACRE	\$150.28	\$330.62
<b>Total Mulch Materials Cost/Acre</b>				<b>\$330.62</b>

Application

Description	Cost /Acre
Hydromulching (MEANS 32 92 19.14 0200)	\$799.33
<b>Total Mulch Application Cost/Acre</b>	<b>\$799.33</b>

**NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
Fir, Douglas	15	Small potted, 4.00 inch diameter (MEANS)	\$1.55	\$2.40	\$23.25
Aspen	15	Small potted, 4.00 inch diameter (MEANS)	\$1.55	\$2.40	\$23.25
Cinquefoil, Shrubby	5	Tubling, 10 cu. in. container {(MEANS)}	\$1.45	\$2.40	\$7.25
Pine, Bristlecone	15	Small potted, 4.00 inch diameter (MEANS)	\$1.55	\$2.40	\$23.25
Currant, Squaw or Wax	5	Tubling, 10 cu. in. container {(MEANS)}	\$1.45	\$0.00	\$7.25
Holly-grape (or Oregon-grape)	5	Tubling, 10 cu. in. container {(MEANS)}	\$1.77	\$0.00	\$8.85
Spruce, Blue	15	Small potted, 4.00 inch diameter (MEANS)	\$1.55	\$0.00	\$23.25
Rose, Wood's	5	Tubling, 10 cu. in. container {(MEANS)}	\$1.45	\$0.00	\$7.25
Snowberry, Mountain	5	Tubling, 10 cu. in. container {(MEANS)}	\$2.64	\$0.00	\$13.20
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$136.80</b>

**JOB TIME AND COST**

No. of Acres: 2.2 Cost /Acre: \$2,313.22  
 Estimated Failure Rate: 25% Cost /Acre\*: \$2,313.22  
 \*Selected Replanting Work Items: SEEDING,NURSERY,MULCHING

Initial Job Cost: \$5,089.08  
 Reseeding Job Cost: \$1,272.27  
 Total Job Cost: \$6,361.36  
 Job Hours: 24.00