

## COST SUMMARY WORK

Task description: Updated Bond Calc Post Inspection 1-25-18

Site: 15 Road Gravel Pit

Permit Action: 2018-01

Permit/Job#: M2002114

### PROJECT IDENTIFICATION

Task #: ACY

State: Colorado

Abbreviation: None

Date: 2/7/2018

County: Mesa

Filename: M114-ACY

User: ACY

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Drain lakes 3 & 4 for backfilling	PUMPING	1	2,088.95	\$97,137.00
02a	Transport Lake 3 Overburden for Backfilling & Placement	TRUCK1	1	36.56	\$34,817.00
02b	Transport Lake 4 Overburden for Backfilling & Placement	TRUCK1	1	97.48	\$92,846.00
03a	Structure Removal	DEMOLISH	1	8.00	\$3,304.57
04a	Transport Lake 3 Topsoil and Placement	TRUCK1	1	12.68	\$12,081.00
04b	Transport Lake 4 Topsoil and Placement	TRUCK1	1	37.04	\$35,279.00
04c	Transport Topsoil and Placement for Roads and ROW	TRUCK1	1	16.81	\$16,009.00
05a	Rip Compacted Areas	RIPPER	2	25.39	\$10,424.00
06a	Revegetate Dry Rangeland	REVEGE	1	60.00	\$114,347.00
06b	Revegetate Wetland Areas	REVEGE	1	30.00	\$68,132.00
07a	Initial Mobilization	MOBILIZE	1	2.34	\$6,363.00
07b	Secondary Mobilization	MOBILIZE	1	2.34	\$1,474.00
<b><u>SUBTOTALS:</u></b>				<b>2417.59</b>	<b>\$492,214</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$9,942.72

Performance bond: 1.05

Total = \$5,168.25

Job superintendent: 164.32

Total = \$12,003.58

Profit: 10.00

Total = \$49,221.40

TOTAL O & P = \$76,335.95

CONTRACT AMOUNT (direct + O & P) = \$568,549.95

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 500.00

Total = 500.00

Engineering work and/or contract/bid preparation: 4.25

Total = \$24,163.37

Reclamation management and/or administration: 5.00

\$28,427.50

CONTINGENCY: 3.00

Total = \$14,766.42

TOTAL INDIRECT COST = \$144,193.24

**TOTAL BOND AMOUNT (direct + indirect) = \$636,407.24**

## PUMPING WORK

Task description: Drain lakes 3 & 4 for backfilling

Site: 15 Road Gravel Pit

Permit Action: 2018-01

Permit/Job#: M2002114

### PROJECT IDENTIFICATION

Task #: 01A

State: Colorado

Abbreviation: None

Date: 2/7/2018

County: Mesa

Filename: M114-01a

User: ACY

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Submersible pump - 460v, 8 in.	1
Attachment 1:	Suction hose - 6 in. diam., 25 ft.	1
Attachment 2:	Discharge hose - 6 in. D., 25 ft.	2
Labor Unit 1:	Pump operator	1

Horsepower: 95

Shift Basis: 1 per day

Weight: 0.70

(US Tons)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$5.72	NA
Operating Cost/Hour:	\$12.25	100
Operator Cost/Hour:	\$28.53	NA
Total Unit Cost/Hour:	\$46.50	

Total Fleet Cost/Hour: \$46.50

### PUMPING QUANTITIES

Initial Pond Volume:	<u>120,494,724.00</u>		Conversion factor:	<u>1.0000</u>
Final Pond Volume:	<u>120,494,724.00</u>	gallons		
Total Pond Inflow Surface Area:	<u>2,008,116</u>	Sq. ft.	Unit inflow rate in gph/sq. ft.:	<u>0.1758</u>
Total Pond Inflow Volume per Hour:	<u>353,026.79</u>	gallons		

Source of estimated volume: 46.1 ac of ponds pumped 12' down

### PUMPING TIME

Maximum Pump Capacity:	<u>170,000</u>	gph/pump
Estimated Suction Head:	<u>5</u>	feet
Estimated Discharge Head:	<u>25</u>	feet
Total Head:	<u>30</u>	feet
CPB Pump Capacity:	<u>165,600</u>	gph/pump
Site Altitude:	<u>4,470</u>	feet
Adjusted Pumping Capacity:	<u>165,600</u>	gph
Initial Unadjusted Pumping Time:	<u>727.63</u>	hours
Inflow during Initial Pumping:	<u>256,871,171</u>	gallons
Net Unadjusted Pumping Time:	<u>2,278.78</u>	Hours
Altitude Adjustment Factor:	<u>1.0000</u>	(3% rule)
Pump Efficiency Factor:	<u>0.9167</u>	(55 min./hr.)
Total Adjusted Pumping Time:	<u>2,088.96</u>	hours

### JOB TIME AND COST

Total job time: 2,088.96 Hours

Unit cost: \$0.000257 /Gallon

Total job cost: \$97,137

**TRUCK/LOADER TEAM WORK**Task description: **Transport Lake 3 Overburden for Backfilling & Placement**Site: **15 Road Gravel Pit**Permit Action: 2018-01Permit/Job#: M2002114**PROJECT IDENTIFICATION**Task #: 02AState: ColoradoAbbreviation: NoneDate: 2/7/2018County: MesaFilename: M114-02aUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

		Equipment Description
Truck Loader Team -Truck:		Cat 740
-Loader:		CAT 980H
Support Equipment -Load Area:		Cat D8T - 8SU
-Dump Area:		Cat D8T - 8SU
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	15	100	NA	NA
Ownership cost/hour:	\$67.61	\$48.81	\$83.81	\$83.81	NA	NA
Operating cost/hour:	\$53.30	\$52.37	\$9.93	\$66.17	NA	NA
% Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$7.55	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	\$1.44	\$0.00	NA	NA
Operator cost/hour:	\$25.65	\$41.46	\$40.52	\$40.52	NA	NA
Unit Subtotals:	\$146.56	\$142.64	\$135.70	\$190.50	NA	NA
Number of Units:	2	1	1	2	0	0
Group Subtotals:	Work: \$435.76		Support: \$516.70		Maint: \$0.00	

Total work team cost/hour: **\$952.46****MATERIAL QUANTITIES**Initial volume: 22,222

CCY

Swell factor: 1.000Loose volume: **22,222**

LCY

Source of estimated volume: 1500 lft 20' H to 3:1Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 2,700

Pounds/LCY

Description: Sand and clay - LooseRated Payload: 87,000

Pounds

Payload Capacity: 32.22

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: 31.50 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.050	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	<b>7.875</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 4470 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.830</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 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): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(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:		-0.060	minutes
Adjusted Loader Cycle Time:		<b>0.490</b>	minutes
Net Load Time per Truck:		<b>1.570</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.570	Minutes	Adjusted for site altitude:	1.570	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

**Truck Travel (Haul & Return) Time:**  
penetration 8.0

Road Condition: Soft, rutted dirt, no maintenance or water, 4" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	1.00	8.00	9.00	983	1.312

Haul Time: **1.312** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	-1.00	8.00	7.00	2470	0.679

Return Time: **0.679** minutesTotal Truck Cycle Time: **5.161** minutes

## Loading Tool unit

Production 870.97 LCY/Hour      Adjusted for job efficiency: 722.90 LCY/Hour  
Truck Unit Production 366.21 LCY/Hour      Adjusted for job efficiency: 303.95 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)      Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 607.91 LCY/Hour  
Adjusted single truck/loader team production: 607.91 LCY/Hour  
Adjusted multiple truck/loader team production: **607.91** LCY/Hour

**JOB TIME AND COST**

Fleet size: 1 Team(s)      Total job time: **36.56** Hours

Unit cost: \$1.567 /LCY      Total job cost: **\$34,817**

**TRUCK/LOADER TEAM WORK**Task description: **Transport Lake 4 Overburden for Backfilling & Placement**Site: **15 Road Gravel Pit**Permit Action: 2018-01Permit/Job#: M2002114**PROJECT IDENTIFICATION**Task #: 02BState: ColoradoAbbreviation: NoneDate: 2/7/2018County: MesaFilename: M114-02bUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

		Equipment Description
Truck Loader Team -Truck:		Cat 740
-Loader:		CAT 980H
Support Equipment -Load Area:		Cat D8T - 8SU
-Dump Area:		Cat D8T - 8SU
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	15	100	NA	NA
Ownership cost/hour:	\$67.61	\$48.81	\$83.81	\$83.81	NA	NA
Operating cost/hour:	\$53.30	\$52.37	\$9.93	\$66.17	NA	NA
% Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$7.55	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	\$1.44	\$0.00	NA	NA
Operator cost/hour:	\$25.65	\$41.46	\$40.52	\$40.52	NA	NA
Unit Subtotals:	\$146.56	\$142.64	\$135.70	\$190.50	NA	NA
Number of Units:	2	1	1	2	0	0
Group Subtotals:	Work: \$435.76		Support: \$516.70		Maint: \$0.00	

Total work team cost/hour: **\$952.46****MATERIAL QUANTITIES**Initial volume: 59,259

CCY

Swell factor: 1.000Loose volume: **59,259**

LCY

Source of estimated volume: 4000 lft 20' H to 3:1Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 2,700

Pounds/LCY

Description: Sand and clay - LooseRated Payload: 87,000

Pounds

Payload Capacity: 32.22

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.50** LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.050	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	<b>7.875</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 4470 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.830</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 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): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(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:		-0.060	minutes
Adjusted Loader Cycle Time:		<b>0.490</b>	minutes
Net Load Time per Truck:		<b>1.570</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.570	Minutes	Adjusted for site altitude:	1.570	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time:  
penetration 8.0

Road Condition: Soft, rutted dirt, no maintenance or water, 4" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	1.00	8.00	9.00	983	1.312

Haul Time: **1.312** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	-1.00	8.00	7.00	2470	0.679

Return Time: **0.679** minutesTotal Truck Cycle Time: **5.161** minutes

## Loading Tool unit

Production	<u>870.97</u>	LCY/Hour	Adjusted for job efficiency:	<u>722.90</u>	LCY/Hour
Truck Unit Production	<u>366.21</u>	LCY/Hour	Adjusted for job efficiency:	<u>303.95</u>	LCY/Hour

Optimal No. of Trucks:	<u>2</u>	Truck(s)	Selected Number of Trucks:	<u>2</u>	Truck(s)
------------------------	----------	----------	----------------------------	----------	----------

Adjusted hourly truck team production:	<u>607.91</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>607.91</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<b><u>607.91</u></b>	LCY/Hour

**JOB TIME AND COST**

Fleet size:	<u>1</u>	Team(s)	Total job time:	<b><u>97.48</u></b>	Hours
-------------	----------	---------	-----------------	---------------------	-------

Unit cost:	<u>\$1.567</u>	/LCY	Total job cost:	<b><u>\$92,846</u></b>
------------	----------------	------	-----------------	------------------------



## DEMOLITION WORK

Task description: Structure Removal

Site: 15 Road Gravel Pit

Permit Action: 2018-01

Permit/Job#: M2002114

### PROJECT IDENTIFICATION

Task #: 03A

State: Colorado

Abbreviation: None

Date: 2/7/2018

County: Mesa

Filename: M114-03a

User: ACY

Agency or organization name: DRMS

### UNIT COSTS

Location adjustment: 95.50 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Scale	24' x 28'	Loading and 2 mile haul, no salvage - Machine loading	25.00	CY	\$17.70	\$442.50
Office	24' x 28' x 8'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	5,376.00	CF	\$0.19	\$1,042.94
Office Foundation	24' x 28' x 6"	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	672.00	SF	\$0.65	\$438.14
Scale	24' x 28'	Hauling only, per mile, 12-18 CY truck - 30 mph average speed	30.00	MI	\$7.89	\$236.70
Storage Building	30' x 60'	USER PROVIDED ITEM	300.00	-	\$1.00	\$300.00
Fuel Storage	-	USER PROVIDED ITEM	1,000.00	-	\$1.00	\$1,000.00

Job Hours: 8.00

Subtotal  
(unadjusted): \$3,460.28

Total Cost  
(adjusted for location): \$3,304.57

**TRUCK/LOADER TEAM WORK**Task description: **Transport Lake 3 Topsoil and Placement**Site: **15 Road Gravel Pit**Permit Action: 2018-01Permit/Job#: M2002114**PROJECT IDENTIFICATION**Task #: 04AState: ColoradoAbbreviation: NoneDate: 2/7/2018County: MesaFilename: M114-04aUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
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	15	100	NA	NA
Ownership cost/hour:	\$67.61	\$48.81	\$83.81	\$83.81	NA	NA
Operating cost/hour:	\$53.30	\$52.37	\$9.93	\$66.17	NA	NA
%Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$7.55	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	\$1.44	\$0.00	NA	NA
Operator cost/hour:	\$25.65	\$41.46	\$40.52	\$40.52	NA	NA
Unit Subtotals:	\$146.56	\$142.64	\$135.70	\$190.50	NA	NA
Number of Units:	2	1	1	2	0	0
Group Subtotals:	Work: \$435.76		Support: \$516.70		Maint: \$0.00	

Total work team cost/hour: **\$952.46****MATERIAL QUANTITIES**Initial volume: 7,711

CCY

Swell factor: 1.000Loose volume: **7,711**

LCY

Source of estimated volume: 1500 lft x 63' H banks and 5 ac stockpile areaSource 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: 87,000

Pounds

Payload Capacity: 54.38

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.50** LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.050	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	<b>7.875</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 4470 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.830</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 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): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(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:		-0.060	minutes
Adjusted Loader Cycle Time:		<b>0.490</b>	minutes
Net Load Time per Truck:		<b>1.570</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.570	Minutes	Adjusted for site altitude:	1.570	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time:  
penetration 8.0

Road Condition: Soft, rutted dirt, no maintenance or water, 4" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	1.00	8.00	9.00	983	1.312

Haul Time: **1.312** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	-1.00	8.00	7.00	2470	0.679

Return Time: **0.679** minutesTotal Truck Cycle Time: **5.161** minutes

## Loading Tool unit

Production 870.97 LCY/Hour      Adjusted for job efficiency: 722.90 LCY/Hour  
Truck Unit Production 366.21 LCY/Hour      Adjusted for job efficiency: 303.95 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)      Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 607.91 LCY/Hour  
Adjusted single truck/loader team production: 607.91 LCY/Hour  
Adjusted multiple truck/loader team production: **607.91** LCY/Hour

**JOB TIME AND COST**

Fleet size: 1 Team(s)      Total job time: **12.68** Hours

Unit cost: \$1.567 /LCY      Total job cost: **\$12,081**

**TRUCK/LOADER TEAM WORK**Task description: **Transport Lake 4 Topsoil and Placement**Site: **15 Road Gravel Pit**Permit Action: 2018-01Permit/Job#: M2002114**PROJECT IDENTIFICATION**Task #: 04BState: ColoradoAbbreviation: NoneDate: 2/7/2018County: MesaFilename: M114-04bUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
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	15	100	NA	NA
Ownership cost/hour:	\$67.61	\$48.81	\$83.81	\$83.81	NA	NA
Operating cost/hour:	\$53.30	\$52.37	\$9.93	\$66.17	NA	NA
% Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$7.55	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	\$1.44	\$0.00	NA	NA
Operator cost/hour:	\$25.65	\$41.46	\$40.52	\$40.52	NA	NA
Unit Subtotals:	\$146.56	\$142.64	\$135.70	\$190.50	NA	NA
Number of Units:	2	1	1	2	0	0
Group Subtotals:	Work: \$435.76		Support: \$516.70		Maint: \$0.00	

Total work team cost/hour: **\$952.46****MATERIAL QUANTITIES**Initial volume: 22,517

CCY

Swell factor: 1.000Loose volume: **22,517**

LCY

Source of estimated volume: 4000 lft x 63' H banks and 15.15 ac mining storage areaSource 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: 87,000

Pounds

Payload Capacity: 54.38

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.50** LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.050	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	<b>7.875</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 4470 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.830</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 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): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(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:		-0.060	minutes
Adjusted Loader Cycle Time:		<b>0.490</b>	minutes
Net Load Time per Truck:		<b>1.570</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.570	Minutes	Adjusted for site altitude:	1.570	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time:  
penetration 8.0

Road Condition: Soft, rutted dirt, no maintenance or water, 4" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	1.00	8.00	9.00	983	1.312

Haul Time: **1.312** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	-1.00	8.00	7.00	2470	0.679

Return Time: **0.679** minutesTotal Truck Cycle Time: **5.161** minutes

## Loading Tool unit

Production 870.97 LCY/Hour      Adjusted for job efficiency: 722.90 LCY/Hour  
Truck Unit Production 366.21 LCY/Hour      Adjusted for job efficiency: 303.95 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)      Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 607.91 LCY/Hour  
Adjusted single truck/loader team production: 607.91 LCY/Hour  
Adjusted multiple truck/loader team production: **607.91** LCY/Hour

**JOB TIME AND COST**Fleet size: 1 Team(s)      Total job time: **37.04** HoursUnit cost: \$1.567 /LCY      Total job cost: **\$35,279**

**TRUCK/LOADER TEAM WORK**Task description: **Transport Topsoil and Placement for Roads and ROW**Site: **15 Road Gravel Pit**Permit Action: 2018-01Permit/Job#: M2002114**PROJECT IDENTIFICATION**Task #: 04CState: ColoradoAbbreviation: NoneDate: 2/7/2018County: MesaFilename: M114-04cUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
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	15	100	NA	NA
Ownership cost/hour:	\$67.61	\$48.81	\$83.81	\$83.81	NA	NA
Operating cost/hour:	\$53.30	\$52.37	\$9.93	\$66.17	NA	NA
% Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$7.55	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	\$1.44	\$0.00	NA	NA
Operator cost/hour:	\$25.65	\$41.46	\$40.52	\$40.52	NA	NA
Unit Subtotals:	\$146.56	\$142.64	\$135.70	\$190.50	NA	NA
Number of Units:	2	1	1	2	0	0
Group Subtotals:	Work: \$435.76		Support: \$516.70		Maint: \$0.00	

Total work team cost/hour: **\$952.46****MATERIAL QUANTITIES**Initial volume: 10,218

CCY

Swell factor: 1.000Loose volume: **10,218**

LCY

Source of estimated volume: 9.5 ac L-3Source 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: 87,000

Pounds

Payload Capacity: 54.38

LCY



**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.50** LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.050	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	<b>7.875</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 4470 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.830</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 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): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(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:		-0.060	minutes
Adjusted Loader Cycle Time:		<b>0.490</b>	minutes
Net Load Time per Truck:		<b>1.570</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.570	Minutes	Adjusted for site altitude:	1.570	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time:  
penetration 8.0

Road Condition: Soft, rutted dirt, no maintenance or water, 4" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	1.00	8.00	9.00	983	1.312

Haul Time: **1.312** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	-1.00	8.00	7.00	2470	0.679

Return Time: **0.679** minutesTotal Truck Cycle Time: **5.161** minutes

## Loading Tool unit

Production 870.97 LCY/Hour      Adjusted for job efficiency: 722.90 LCY/Hour  
Truck Unit Production 366.21 LCY/Hour      Adjusted for job efficiency: 303.95 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)      Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 607.91 LCY/Hour  
Adjusted single truck/loader team production: 607.91 LCY/Hour  
Adjusted multiple truck/loader team production: **607.91** LCY/Hour

**JOB TIME AND COST**Fleet size: 1 Team(s)      Total job time: **16.81** HoursUnit cost: \$1.567 /LCY      Total job cost: **\$16,009**

## BULLDOZER RIPPING WORK

Task description: Rip Compacted Areas

Site: 15 Road Gravel Pit Permit Action: 2018-01 Permit/Job#: M2002114

### PROJECT IDENTIFICATION

Task #: 05A State: Colorado Abbreviation: None  
Date: 2/7/2018 County: Mesa Filename: M114-05a  
User: ACY

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU Horsepower: 310  
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$83.81	NA
Operating Cost/Hour:	\$66.17	100
Ripper Ownership Cost/Hour:	\$7.55	NA
Ripper Operating Cost/Hour:	\$7.21	100
Operator Cost/Hour:	\$40.52	NA
Total Unit Cost/Hour:	\$205.26	
Total Fleet Cost/Hour:	<b>\$410.52</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 29.65 acres Rip Depth (ft): 2.00 Volume: 95,671 BCY or CCY

Source of estimated quantity: 5 ac stockpiles, 15.15 ac storage area 5, 9.5 ac roads & ROW

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth: 2.56 mph  
Average Ripping Width: 7.08 degrees  
Average Ripping Length: 100.00 feet  
Average Dozer Speed: 88.00 feet  
Average Maneuver Time: 0.25 feet  
Production per unit area: 0.703 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.703 Acres/hr  
Site Altitude: 4,470 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.58 Acres/hr  
Adjusted Hourly Fleet Production: 1.17 Acres/hr

### JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: 25.39 Hours

Unit cost: \$351.566 Per acre Total job cost: \$10,424

**REVEGETATION WORK**Task description: **Revegetate Dry Rangeland**Site: **15 Road Gravel Pit**Permit Action: 2018-01Permit/Job#: M2002114**PROJECT IDENTIFICATION**Task #: 06AState: ColoradoAbbreviation: NoneDate: 2/7/2018County: MesaFilename: M114-06aUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Manure, 43.56 tons/ac.	1.00	acre	\$2,143.93	\$2,143.93
Sodium nitrate, 16-0-0	750.00	pound	\$0.70	\$525.00
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$2,668.93</b>

**Application**

Description	Cost /Acre
Manure, tractor spreader (MEANS 32 91 13.23 4450)	\$60.98
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$144.62
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$205.60</b>

**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)	\$242.00
<b>Total Tilling Cost/Acre</b>	<b>\$348.29</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Sand Dropseed	2.50	298.44	\$27.10
Sandberg Bluegrass - VNS	2.00	42.47	\$16.12
Galleta	2.50	9.13	\$61.75
Globemallow, Scarlet (or copper)	0.50	5.66	\$67.75
Winter Fat	0.25	0.64	\$5.13
Yarrow, Western	0.50	30.40	\$20.90
Kochia, Forage (Prostrate)	0.25	35.11	\$2.25

<b>Totals Seed Mix</b>	8.50	421.84	<b>\$200.99</b>
------------------------	------	--------	-----------------

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

<b>Description</b>	<b>Units / Acre</b>	<b>Unit</b>	<b>Cost / Unit</b>	<b>Cost /Acre</b>
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$2.74	\$2.74
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	\$261.00	\$261.00
<b>Total Mulch Materials Cost/Acre</b>				<b>\$263.74</b>

**Application**

<b>Description</b>	<b>Cost /Acre</b>
Crimping, with tractor {DMG survey data}	\$66.02
Power mulcher (MEANS 32 91 13.16 0350)	\$99.32
Weed spray, truck, non-aquatic areas, ann. [DMG]	\$23.35
<b>Total Mulch Application Cost/Acre</b>	<b>\$188.69</b>

**NURSERY STOCK PLANTING**

<b>Common Name</b>	<b>No / Acre</b>	<b>Type and Size</b>	<b>Planting Cost</b>	<b>Fertilizer Pellet Cost</b>	<b>Cost /Acre</b>
					\$
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$0.00</b>

**JOB TIME AND COST**

No. of Acres:	24.2	Cost /Acre:	\$4,108.24
Estimated Failure Rate:	50%	Cost /Acre*:	\$1,233.71
*Selected Replanting Work Items:	TILLING,SEEDING,MULCHING		
Initial Job Cost:	<b>\$99,419.41</b>		
Reseeding Job Cost:	<b>\$14,927.89</b>		
Total Job Cost:	<b>\$114,347</b>		
Job Hours:	<b>60.00</b>		

**REVEGETATION WORK**Task description: Revegetate Wetland AreasSite: 15 Road Gravel PitPermit Action: 2018-01Permit/Job#: M2002114**PROJECT IDENTIFICATION**Task #: 06BState: ColoradoAbbreviation: NoneDate: 2/7/2018County: MesaFilename: M114-06bUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Manure, 43.56 tons/ac.	1.00	acre	\$2,143.93	\$2,143.93
Sodium nitrate, 16-0-0	750.00	pound	\$0.70	\$525.00
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$2,668.93</b>

**Application**

Description	Cost /Acre
Manure, tractor spreader (MEANS 32 91 13.23 4450)	\$60.98
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$144.62
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$205.60</b>

**TILLING**

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
<b>Total Tilling Cost/Acre</b>	<b>\$106.29</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	1.00	39.03	\$28.32
Orchardgrass - Potomac	0.50	6.20	\$1.52
Elk Sedge	0.10	0.23	\$43.10
Slender Wheatgrass - Native	3.00	10.95	\$8.46
Western Wheatgrass - Arriba	0.10	0.25	\$0.81
Sweetvetch, Utah or Northern	0.50	0.23	\$37.50
Red Top	1.00	114.55	\$8.25
Reedgrass, Canadian (or Blue Joint)	0.20	20.57	\$40.77
Reedgrass, Northern - Native	0.50	51.42	\$67.62

Saltgrass, Inland	1.00	13.86	\$43.53
Snowberry, Western	1.00	1.72	\$63.50
Sumac, Skunkbrush	0.40	0.19	\$8.40
Timothy, Alpine - Native	1.00	29.84	\$24.17
Basin Wildrye - Trailhead	1.50	6.10	\$22.58
Greasewood, Black	1.00	140.45	\$19.00
<b>Totals Seed Mix</b>	<b>12.80</b>	<b>435.59</b>	<b>\$417.51</b>

**Application**

<b>Description</b>	<b>Cost /Acre</b>
Broadcast seeding [DMG]	\$267.22
<b>Total Seed Application Cost/Acre</b>	<b>\$267.22</b>

**MULCHING and MISCELLANEOUS****Materials**

<b>Description</b>	<b>Units / Acre</b>	<b>Unit</b>	<b>Cost / Unit</b>	<b>Cost /Acre</b>
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$2.74	\$2.74
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	\$261.00	\$261.00
<b>Total Mulch Materials Cost/Acre</b>				<b>\$263.74</b>

**Application**

<b>Description</b>	<b>Cost /Acre</b>
Crimping, with tractor {DMG survey data}	\$66.02
Power mulcher (MEANS 32 91 13.16 0350)	\$99.32
Weed spray, truck, aquatic area, annuals [DMG]	\$27.30
<b>Total Mulch Application Cost/Acre</b>	<b>\$192.64</b>

**NURSERY STOCK PLANTING**

<b>Common Name</b>	<b>No / Acre</b>	<b>Type and Size</b>	<b>Planting Cost</b>	<b>Fertilizer Pellet Cost</b>	<b>Cost /Acre</b>
Cottonwood, Plains	22	Container, 2 gallon (MEANS)	\$30.80	\$2.40	\$677.60
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$677.60</b>

**JOB TIME AND COST**

No. of Acres:	13.39	Cost /Acre:	\$4,799.53
Estimated Failure Rate:	15%	Cost /Acre*:	\$1,925.00
*Selected Replanting Work Items:	TILLING,SEEDING,NURSERY,MULC HING		
Initial Job Cost:	\$64,265.71		
Reseeding Job Cost:	\$3,866.36		
Total Job Cost:	\$68,132		
Job Hours:	30.00		

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Initial Mobilization**Site: **15 Road Gravel Pit**Permit Action: **2018-01**Permit/Job#: **M2002114****PROJECT IDENTIFICATION**Task #: **07A**State: **Colorado**Abbreviation: **None**Date: **2/7/2018**County: **Mesa**Filename: **M114-07a**User: **ACY**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:	\$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
Submersible pump - 460v, 8 in.	0.70	\$5.50	\$88.67	1	\$94.17	\$88.67	\$250.00
Cat D8T - 8SU	53.08	\$91.36	\$125.45	2	\$433.62	\$250.90	\$250.00
Cat 740	36.49	\$67.61	\$117.55	1	\$185.16	\$117.55	\$250.00
CAT 980H	33.12	\$48.81	\$117.55	2	\$332.72	\$235.10	\$500.00
Drill/Broadcast Seeder with Tractor	25.00	\$12.22	\$88.67	1	\$100.89	\$88.67	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$7.03	\$88.67	1	\$95.70	\$88.67	\$250.00

Subtotals: **\$1,242.26** **\$869.56** **\$1,750.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	\$47.96	2	\$95.92	\$95.92

Subtotals: **\$95.92** **\$95.92**



**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>FRUITA</u>	
Total one-way travel distance:	<u>3.00</u>	miles
Average Travel Speed:	<u>35.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$6,346.55</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$16.44</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.09</u>	<u>0.09</u>
Return Time (Hours):	<u>0.09</u>	<u>0.09</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.17</u>	<u>0.17</u>

**JOB TIME AND COST**

Total job time:	<u>2.34</u>	Hours
-----------------	-------------	-------

Total job cost:	<u>\$6,363</u>
-----------------	----------------

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Secondary Mobilization**Site: **15 Road Gravel Pit**Permit Action: **2018-01**Permit/Job#: **M2002114****PROJECT IDENTIFICATION**Task #: **07B**State: **Colorado**Abbreviation: **None**Date: **2/7/2018**County: **Mesa**Filename: **M114-07b**User: **ACY**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:	\$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
Drill/Broadcast Seeder with Tractor	25.00	\$12.22	\$88.67	1	\$100.89	\$88.67	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$7.03	\$88.67	1	\$95.70	\$88.67	\$250.00

Subtotals: **\$196.59** **\$177.34** **\$500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	\$47.96	2	\$95.92	\$95.92

Subtotals: **\$95.92** **\$95.92**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>FRUITA</u>	
Total one-way travel distance:	<u>3.00</u>	miles
Average Travel Speed:	<u>35.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$1,457.28</u>
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$16.44</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.09</u>	<u>0.09</u>
Return Time (Hours):	<u>0.09</u>	<u>0.09</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.17</u>	<u>0.17</u>

**JOB TIME AND COST**

Total job time:	<u>2.34</u>	Hours
-----------------	-------------	-------

Total job cost:	<u>\$1,474</u>
-----------------	----------------

M-2002-114

15 Road Pit 2018 Update

- 21a Pumping 1: None  
 2: 21.4ac @ 12' → 46.1ac ~ 120,494,724 gal  
 3: 24.7ac @ 12'
- 22a+b Truck 1: None  
 3: 400 sqft x 1500 lft = 600,000 → 22,222 cy  
 4: 400 sqft x 4000 lft = 1,600,000 → 59,259.2 cy
- 23a Demo Scale 24'x28' Foundation 24'x28'x6"  
 Office 24'x28'x8' Storage Building  
 Fuel Storage
- 24a-c Truck 1: None  
 3: 63 sqft x 1500 lft = 94,500 → 2.16ac x 8" = 2332.8cy  
     + Stockpiles 5ac x 8" = 5,377.78cy  
 4: 63 ft x 4000 lft = 252,000 → 5.78ac x 8" = 6,222 cy  
     + Mining area Storage 15.15ac x 8" = 16,294.7 cy  
 Boards + Row ~ 9.5ac x 8" = 10,217.8cy
- 25a Ripper Heavily compacted areas  
 ↳ 5ac + 15.15ac + 9.5ac = 29.65ac
- 26veg 06a Dry Bangeland, 50% failure, 24.2ac  
 Biosolid (manure) @ 43.56 ton/ac + Biosol (16-0-0) @ 750<sup>lbs</sup>/ac  
 Disc to mix  
 Drill seed w/ 2 ton/ac power mulch + crimp, Weeds dry
- 06b Wetland mix, 15% failure, 15' fringe (1.89ac) +  
 11.5ac Lake 1 = 13.39ac total  
 Biosolid (manure) @ 43.56 ton/ac + Biosol (16-0-0) @ 750 lbs/ac  
 Broadcast, Disk to mix  
 2 ton/ac mulch power + crimp, aquatic weeds spray  
 + Cottonwood transplant ~ 350 total
- 27a+b Mob 1 - 8" Submersible pump 1 - Drill seed  
 2 - 980 Loader 1 - Power mulch  
 1 - 740 Truck 2 - Crew trucks  
 2 - D8 Dozer

## **Revegetation**

The revegetation cost is \$950 per acre for dryland, except that 2 seedings will be used due to the dry nature of the area. A cost of \$1200 is used for wetland areas but these areas do not require a 2<sup>nd</sup> seeding.

Worst case reclamation costs for this scenario are given below:

Task #	Description	Units	Quantity	Cost/unit	Cost
1	Drain Lake 1 to install wetlands	gal	86,282,724	\$0.000338	\$29,164
2	Backfill Overburden for wetland shelves	cy	167,125	\$1.50	\$250,688
3	Drain Pit 3 to do backfilling	gal	34,212,000	\$0.000338	\$11,564
4	Drain Pit 4 to do backfilling	gal	86,282,724	\$0.000338	\$29,164
5	Pits 3 and 4 backfilling	cy	118,325	\$1.55	\$183,404
6	Structure removal				\$12,300
7	Topsoiling	cy	48,374	\$1.40	\$67,724
8	Topsoil Preparation	acres	44.96	\$200.00	\$8,992
9	Wetland Revegetation	acres	15.18	\$1,200.00	\$18,216
10	Dryland Revegetation	acres	29.78	\$1,900.00	\$56,582
11					
12					
Totals					\$667,796
	DRMS Overhead		28%		\$186,983
	Total Bond Required				\$854,778