COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, Colorado 80203

September 27, 2016

Andre LaRoche
Transit Mix Concrete Co.
444 E. Costilla St.
Colorado Springs, CO 80903

RE: Hitch Rack Ranch Quarry, File No. M-2016-010, 112c Reclamation Permit Application, Revised Financial Warranty Amount

Mr. LaRoche:

The Division of Reclamation, Mining and Safety (Division) has revised the financial warranty amount required for the proposed Hitch Rack Ranch Quarry operation, File No. M-2016-010. The revised amount reflects the clarifications that were made to Exhibits C, F, G, and L of the permit application in the adequacy review response submitted via email on September 26, 2016.

The Division has calculated the cost of reclamation through full development of mining phase three, totaling $3,857,842.00. Please review the enclosed cost summary work utilized by the Division to calculate the cost of reclamation.

If you have any questions or comments, you may contact me by telephone at 303-866-3567, ext. 8129, or by email at amy.eschberger@state.co.us.

Sincerely,

Amy Eschberger

Amy Eschberger
Environmental Protection Specialist

Enclosure: 1) The Division's revised cost summary work for required financial warranty, totaling $3,857,842.00

ec w/enclosures: Paul Kos, Norwest Corporation
Tony Waldron, DRMS
Wally Erickson, DRMS
Peter Hays, DRMS
Tim Cazier, DRMS

COST SUMMARY WORK

Task description: **Cost Summary**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 8/18/2016 County: El Paso Filename: M010-000
User: AME

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Demolition of structures (applicant estimate)	NA	0	80.00	$991,617.00
002B	Load/Haul/Grade Subsoil F1 to N Pit Highwall Benches	TRUCK1	1	85.32	$88,537.00
003B	Load/Haul/Grade Topsoil TS1 to N Pit Highwall Benches	TRUCK1	1	41.06	$42,609.00
004B	Load/Haul/Grade Subsoil F1 to N Pit Floor + Haul Rds + Plant	TRUCK1	1	291.87	$302,881.00
005B	Load/Haul/Grade Topsoil TS1 to N Pit Floor + Haul Rds +Plant	TRUCK1	1	171.74	$178,218.00
006	Grade culvert areas to orig contours - access rd	DOZER	2	205.51	$87,271.00
006B	Load/Haul/Grade Subsoil F1 to Access Rd + E Crossing	TRUCK1	1	400.46	$415,566.00
007	Spread Topsoil Berms on Access Rd + E Crossing	DOZER	2	29.82	$12,662.00
007B	Backfill culvert area - F1 stockpile	DOZER	2	175.27	$74,426.00
008	Grade F1 Stockpile Area to 3H:1V	DOZER	2	252.69	$107,302.00
009B	Load/Haul/Grade Topsoil TS1 to F1 Stockpile Area	TRUCK1	1	29.54	$30,650.00
010	Revegetation of 156.18 ac - Grasses	REVEGE	1	468.00	$444,818.00
011	Revegetation of 37 ac - Mixed Conifer Slopes	REVEGE	1	111.00	$4,773.00
012	Revegetation of 60.61 ac - Mixed Conifer Pit Floor,Plant,Rds	REVEGE	1	180.00	$7,037.00
013	Revegetation of 16.45 ac - Mountain Shrubland Slopes	REVEGE	1	49.00	$14,923.00
014	Revegetation of 21.69 ac - Mountain Shrubland Access Rd	REVEGE	1	65.00	$29,367.00
015	Revegetation of 1.02 ac - Riparian E Crossing LTC	REVEGE	1	3.00	$1,928.00
016	Revegetation of 0.76 ac - Riparian W Crossing LTC	REVEGE	1	1.00	$1,005.00
017	Revegetation - Planting Materials	DEMOLISH	1	0.00	$30,979.91
018B	Mobilization/Demobilization	MOBILIZE	1	39.20	$140,040.00
		SUBTOTALS:		**2679.48**	**$3,006,610**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02 Total = $60,733.52
Performance bond: 1.05 Total = $31,569.41

Job superintendent:	1,339.74	Total =	$99,783.84
Profit:	10.00	Total =	$300,661.00
		TOTAL O & P =	$492,747.77
		CONTRACT AMOUNT (direct + O & P) =	$3,499,357.77

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	5.23	Total =	$183,016.41
Reclamation management and/or administration:	5.00		$174,967.89
CONTINGENCY:	0.00	Total =	$0.00
		TOTAL INDIRECT COST =	$851,232.07
		TOTAL BOND AMOUNT (direct + indirect) =	**$3,857,842.07**

TRUCK/LOADER TEAM WORK

Task description: **Load/Haul/Grade Subsoil F1 to N Pit Highwall Benches**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 002B State: Colorado Abbreviation: None
Date: 8/22/2016 County: El Paso Filename: M010-002B
User: AME

Agency 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:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	100	50
Ownership cost/hour:	$65.15	$53.90	NA	$82.01	$79.03	$11.19
Operating cost/hour:	$63.46	$63.95	NA	$79.23	$69.17	$15.64
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$25.46	$40.86	NA	$39.87	$40.67	$0.00
Unit Subtotals:	$154.07	$158.71	NA	$201.11	$188.87	$26.83
Number of Units:	3	1	0	1	1	1
Group Subtotals:	Work:	$620.92	Support:	$201.11	Maint:	$215.70

Total work team cost/hour: **$1,037.73**

MATERIAL QUANTITIES

Initial volume: 26,539 CCY Swell factor: 1.060
Loose volume: **28,131** LCY

Source of estimated volume: 16.45 ac x 1 ft depth subsoil
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,900 Pounds/LCY
Description: Sand and gravel - Dry
Rated Payload: 87,000 Pounds
Payload Capacity: 30.00 LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	30.00	LCY

Final Truck Volume Based on Number of Loader Passes: **27.75** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.925	Loose material - 1/8" to 3/8" (90 - 95%) 0.925
Adjusted Capacity:	**6.938**	LCY

Job Condition Corrections: Site Altitude (ft.): 7200 feet

	Truck	Loader	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.797**	**0.830**	

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:	Material 1/8" to 3/4" diameter -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:	-0.100	minutes
	Adjusted Loader Cycle Time:	**0.450**	minutes
	Net Load Time per Truck:	**1.450**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.450	Minutes	Adjusted for site altitude:	1.450	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4500.00	13.00	3.00	16.00	585	7.752

Haul Time: **7.752** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4500.00	-13.00	3.00	-10.00	2721	1.705

Return Time: **1.705** minutes
Total Truck Cycle Time: **12.574** minutes

Loading Tool unit Production 802.41 LCY/Hour Adjusted for job efficiency: 666.00 LCY/Hour
Truck Unit Production 132.42 LCY/Hour Adjusted for job efficiency: 109.91 LCY/Hour

Optimal No. of Trucks: 6 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 329.72 LCY/Hour
Adjusted single truck/loader team production: 329.72 LCY/Hour
Adjusted multiple truck/loader team production: **329.72** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **85.32** Hours

Unit cost: $3.147 /LCY Total job cost: **$88,537**

TRUCK/LOADER TEAM WORK

Task description: **Load/Haul/Grade Topsoil TS1 to N Pit Highwall Benches**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 003B State: Colorado Abbreviation: None
Date: 8/22/2016 County: El Paso Filename: M010-003B
User: AME

Agency 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:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	100	50
Ownership cost/hour:	$65.15	$53.90	NA	$82.01	$79.03	$11.19
Operating cost/hour:	$63.46	$63.95	NA	$79.23	$69.17	$15.64
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$25.46	$40.86	NA	$39.87	$40.67	$0.00
Unit Subtotals:	$154.07	$158.71	NA	$201.11	$188.87	$26.83
Number of Units:	3	1	0	1	1	1
Group Subtotals:	Work:	$620.92	Support:	$201.11	Maint:	$215.70

Total work team cost/hour: **$1,037.73**

MATERIAL QUANTITIES

Initial volume: 13,270 CCY Swell factor: 1.215
Loose volume: **16,123** LCY

Source of estimated volume: 16.45 ac x 6 in depth topsoil
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 1,600 Pounds/LCY
Description: Top Soil
Rated 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: **24.75** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**8.250**	LCY

Job Condition Corrections: Site Altitude (ft.): 7200 feet

	Truck	Loader	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.797**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 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:	Material 1/8" to 3/4" diameter -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:	-0.100	minutes
	Adjusted Loader Cycle Time:	**0.450**	minutes
	Net Load Time per Truck:	**1.000**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.000	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3200.00	13.00	3.00	16.00	585	5.530

Haul Time: **5.530** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3200.00	-13.00	3.00	-10.00	2721	1.220

Return Time: **1.220** minutes
Total Truck Cycle Time: **9.417** minutes

Loading Tool unit Production 913.85 LCY/Hour Adjusted for job efficiency: 758.49 LCY/Hour

Truck Unit Production 157.70 LCY/Hour Adjusted for job efficiency: 130.89 LCY/Hour

Optimal No. of Trucks: 6 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 392.67 LCY/Hour
Adjusted single truck/loader team production: 392.67 LCY/Hour
Adjusted multiple truck/loader team production: **392.67** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **41.06** Hours

Unit cost: $2.643 /LCY Total job cost: **$42,609**

TRUCK/LOADER TEAM WORK

Task description: **Load/Haul/Grade Subsoil F1 to N Pit Floor + Haul Rds + Plant**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 004B State: Colorado Abbreviation: None
Date: 8/22/2016 County: El Paso Filename: M010-004B
User: AME

Agency 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:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	100	50
Ownership cost/hour:	$65.15	$53.90	NA	$82.01	$79.03	$11.19
Operating cost/hour:	$63.46	$63.95	NA	$79.23	$69.17	$15.64
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$25.46	$40.86	NA	$39.87	$40.67	$0.00
Unit Subtotals:	$154.07	$158.71	NA	$201.11	$188.87	$26.83
Number of Units:	3	1	0	1	1	1
Group Subtotals:	Work:	$620.92	Support:	$201.11	Maint:	$215.70

Total work team cost/hour: **$1,037.73**

MATERIAL QUANTITIES

Initial volume: 99,010 CCY Swell factor: 1.060
Loose volume: **104,951** LCY

Source of estimated volume: Total 61.37 ac x 1 ft depth subsoil
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,900 Pounds/LCY
Description: Sand and gravel - Dry
Rated Payload: 87,000 Pounds
Payload Capacity: 30.00 LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	30.00	LCY

Final Truck Volume Based on Number of Loader Passes: **27.75** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.925	Loose material - 1/8" to 3/8" (90 - 95%) 0.925
Adjusted Capacity:	**6.938**	LCY

Job Condition Corrections: Site Altitude (ft.): 7200 feet

	Truck	Loader	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.797**	**0.830**	

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:	Material 1/8" to 3/4" diameter -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:	-0.100	minutes
	Adjusted Loader Cycle Time:	**0.450**	minutes
	Net Load Time per Truck:	**1.450**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.450	Minutes	Adjusted for site altitude:	1.450	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4000.00	13.00	3.00	16.00	585	6.897

Haul Time: **6.897** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4000.00	-13.00	3.00	-10.00	2721	1.516

Return Time: **1.516** minutes
Total Truck Cycle Time: **11.530** minutes

Loading Tool unit Production 802.41 LCY/Hour Adjusted for job efficiency: 666.00 LCY/Hour

Truck Unit Production 144.41 LCY/Hour Adjusted for job efficiency: 119.86 LCY/Hour

Optimal No. of Trucks: 6 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 359.58 LCY/Hour
Adjusted single truck/loader team production: 359.58 LCY/Hour
Adjusted multiple truck/loader team production: **359.58** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **291.87** Hours

Unit cost: $2.886 /LCY Total job cost: **$302,881**

TRUCK/LOADER TEAM WORK

Task description: **Load/Haul/Grade Topsoil TS1 to N Pit Floor + Haul Rds +Plant**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 005B State: Colorado Abbreviation: None
Date: 8/22/2016 County: El Paso Filename: M010-005B
User: AME

Agency 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:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	100	50
Ownership cost/hour:	$65.15	$53.90	NA	$82.01	$79.03	$11.19
Operating cost/hour:	$63.46	$63.95	NA	$79.23	$69.17	$15.64
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$25.46	$40.86	NA	$39.87	$40.67	$0.00
Unit Subtotals:	$154.07	$158.71	NA	$201.11	$188.87	$26.83
Number of Units:	3	1	0	1	1	1
Group Subtotals:	Work:	$620.92	Support:	$201.11	Maint:	$215.70

Total work team cost/hour: **$1,037.73**

MATERIAL QUANTITIES

Initial volume: 49,505 CCY Swell factor: 1.215
Loose volume: **60,149** LCY

Source of estimated volume: 61.37 ac x 6 in depth topsoil
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 1,600 Pounds/LCY
Description: Top Soil
Rated 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: **24.75** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**8.250**	LCY

Job Condition Corrections: Site Altitude (ft.): 7200 feet

	Truck	Loader	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.797**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 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:	Material 1/8" to 3/4" diameter -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:	-0.100	minutes
	Adjusted Loader Cycle Time:	**0.450**	minutes
	Net Load Time per Truck:	**1.000**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.000	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3750.00	13.00	3.00	16.00	585	6.470

Haul Time: **6.470** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3750.00	-13.00	3.00	-10.00	2721	1.421

Return Time: **1.421** minutes
Total Truck Cycle Time: **10.558** minutes

Loading Tool unit Production 913.85 LCY/Hour Adjusted for job efficiency: 758.49 LCY/Hour

Truck Unit Production 140.66 LCY/Hour Adjusted for job efficiency: 116.74 LCY/Hour

Optimal No. of Trucks: 6 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 350.23 LCY/Hour
Adjusted single truck/loader team production: 350.23 LCY/Hour
Adjusted multiple truck/loader team production: **350.23** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **171.74** Hours

Unit cost: $2.963 /LCY Total job cost: **$178,218**

BULLDOZER WORK

Task description: **Grade culvert areas to orig contours - access rd**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None
Date: 9/27/2016 County: El Paso Filename: M010-006
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$82.01	NA
Operating Cost/Hour:	$79.23	100
Ripper own. Cost/Hour:	$8.40	NA
Ripper op. Cost/Hour:	$2.81	50
Operator Cost/Hour:	$39.87	NA

Total unit Cost/Hour: $212.32
Total Fleet Cost/Hour: **$424.65**

MATERIAL QUANTITIES

Initial Volume: 150,495
Swell factor: 1.250
Loose volume: **188,119** LCY

Source of estimated volume: Exhibit L, Rec: 9/26/16
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 852.6 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %
Average site altitude: 7,200 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)

Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5368

Adjusted unit production: 457.68 LCY/hr
Adjusted fleet production: **915.36** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.464/LCY

Total job time: **205.51** Hours
Total job cost: **$87,271**

TRUCK/LOADER TEAM WORK

Task description: **Load/Haul/Grade Subsoil F1 to Access Rd + E Crossing**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 006B State: Colorado Abbreviation: None
Date: 8/22/2016 County: El Paso Filename: M010-006B
User: AME

Agency 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:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	100	50
Ownership cost/hour:	$65.15	$53.90	NA	$82.01	$79.03	$11.19
Operating cost/hour:	$63.46	$63.95	NA	$79.23	$69.17	$15.64
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$25.46	$40.86	NA	$39.87	$40.67	$0.00
Unit Subtotals:	$154.07	$158.71	NA	$201.11	$188.87	$26.83
Number of Units:	3	1	0	1	1	1
Group Subtotals:	Work:	$620.92	Support:	$201.11	Maint:	$215.70

Total work team cost/hour: **$1,037.73**

MATERIAL QUANTITIES

Initial volume: 66,744 CCY Swell factor: 1.060
Loose volume: **70,749** LCY

Source of estimated volume: Total 41.37 ac x 1 ft depth subsoil
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,900 Pounds/LCY
Description: Sand and gravel - Dry
Rated Payload: 87,000 Pounds
Payload Capacity: 30.00 LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	30.00	LCY

Final Truck Volume Based on Number of Loader Passes: **27.75** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.925	Loose material - 1/8" to 3/8" (90 - 95%) 0.925
Adjusted Capacity:	**6.938**	LCY

Job Condition Corrections: Site Altitude (ft.): 7200 feet

	Truck	Loader	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.797**	**0.830**	

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:	Material 1/8" to 3/4" diameter -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:	-0.100	minutes
	Adjusted Loader Cycle Time:	**0.450**	minutes
	Net Load Time per Truck:	**1.450**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.450	Minutes	Adjusted for site altitude:	1.450	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	12000.00	10.00	3.00	13.00	708	17.012

Haul Time: **17.012** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	12000.00	-10.00	3.00	-7.00	3706	3.338

Return Time: **3.338** minutes
Total Truck Cycle Time: **23.467** minutes

Loading Tool unit Production 802.41 LCY/Hour Adjusted for job efficiency: 666.00 LCY/Hour

Truck Unit Production 70.95 LCY/Hour Adjusted for job efficiency: 58.89 LCY/Hour

Optimal No. of Trucks: 11 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 176.67 LCY/Hour
Adjusted single truck/loader team production: 176.67 LCY/Hour
Adjusted multiple truck/loader team production: **176.67** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **400.46** Hours

Unit cost: $5.874 /LCY Total job cost: **$415,566**

BULLDOZER WORK

Task description: **Spread Topsoil Berms on Access Rd + E Crossing**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 007 State: Colorado Abbreviation: None
Date: 8/18/2016 County: El Paso Filename: M010-007
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$82.01	NA
Operating Cost/Hour:	$79.23	100
Ripper own. Cost/Hour:	$8.40	NA
Ripper op. Cost/Hour:	$2.81	50
Operator Cost/Hour:	$39.87	NA

Total unit Cost/Hour: $212.32
Total Fleet Cost/Hour: **$424.65**

MATERIAL QUANTITIES

Initial Volume: 16,900
Swell factor: 1.215
Loose volume: **20,534** LCY

Source of estimated volume: 41.37 ac x 6 in depth topsoil
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 300 feet
Unadjusted hourly production: 291.4 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 0 %
Average site altitude: 7,200 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	1.000	(EXCL.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)

Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 1.1816

Adjusted unit production: 344.32 LCY/hr
Adjusted fleet production: **688.64** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.617/LCY

Total job time: **29.82** Hours
Total job cost: **$12,662**

BULLDOZER WORK

Task description: **Backfill culvert area - F1 stockpile**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #:	007B	State:	Colorado	Abbreviation:	None
Date:	9/27/2016	County:	El Paso	Filename:	M010-007B
User:	AME				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU
Horsepower:	310
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$82.01	NA
Operating Cost/Hour:	$79.23	100
Ripper own. Cost/Hour:	$8.40	NA
Ripper op. Cost/Hour:	$2.81	50
Operator Cost/Hour:	$39.87	NA

Total unit Cost/Hour: $212.32
Total Fleet Cost/Hour: **$424.65**

MATERIAL QUANTITIES

Initial Volume:	52,507
Swell factor:	1.060
Loose volume:	**55,657** LCY

Source of estimated volume: Exhibit L, Rec: 9/26/16
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 300 feet
Unadjusted hourly production: 291.4 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: -5 %
Average site altitude: 7,200 feet

Material weight: 2,900 lbs/LCY

Weight description: Sand and gravel - Dry

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)

Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5449

Adjusted unit production: 158.78 LCY/hr
Adjusted fleet production: **317.56** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $1.337/LCY

Total job time: **175.27** Hours
Total job cost: **$74,426**

BULLDOZER WORK

Task description: **Grade F1 Stockpile Area to 3H:1V**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 008 State: Colorado Abbreviation: None
Date: 8/18/2016 County: El Paso Filename: M010-008
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$82.01	NA
Operating Cost/Hour:	$79.23	100
Ripper own. Cost/Hour:	$8.40	NA
Ripper op. Cost/Hour:	$2.81	50
Operator Cost/Hour:	$39.87	NA

Total unit Cost/Hour: $212.32
Total Fleet Cost/Hour: **$424.65**

MATERIAL QUANTITIES

Initial Volume: 145,833
Swell factor: 1.060
Loose volume: **154,583** LCY

Source of estimated volume: (100' H x 700' L) x 3 benches @ 1.38H:1V
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 300 feet
Unadjusted hourly production: 291.4 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: -15 %
Average site altitude: 7,200 feet

Material weight: 2,900 lbs/LCY

Weight description: Sand and gravel - Dry

Job Condition Correction Factor		Source
Operator Skill:	1.000	(EXCL.)
Material consistency:	1.000	(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:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 1.0497

Adjusted unit production: 305.88 LCY/hr
Adjusted fleet production: **611.76** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.694/LCY

Total job time: **252.69** Hours
Total job cost: **$107,302**

TRUCK/LOADER TEAM WORK

Task description: **Load/Haul/Grade Topsoil TS1 to F1 Stockpile Area**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 009B State: Colorado Abbreviation: None
Date: 8/22/2016 County: El Paso Filename: M010-009B
User: AME

Agency 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:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	100	50
Ownership cost/hour:	$65.15	$53.90	NA	$82.01	$79.03	$11.19
Operating cost/hour:	$63.46	$63.95	NA	$79.23	$69.17	$15.64
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$25.46	$40.86	NA	$39.87	$40.67	$0.00
Unit Subtotals:	$154.07	$158.71	NA	$201.11	$188.87	$26.83
Number of Units:	3	1	0	1	1	1
Group Subtotals:	Work:	$620.92	Support:	$201.11	Maint:	$215.70

Total work team cost/hour: **$1,037.73**

MATERIAL QUANTITIES

Initial volume: 16,900 CCY Swell factor: 1.215
Loose volume: **20,534** LCY

Source of estimated volume: 20.95 ac x 6 in depth topsoil
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 1,600 Pounds/LCY
Description: Top Soil
Rated 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: **24.75** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**8.250**	LCY

Job Condition Corrections: Site Altitude (ft.): 7200 feet

	Truck	Loader	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.797**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 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:	Material 1/8" to 3/4" 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:	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:	-0.090	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**1.020**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.020	Minutes	Adjusted for site altitude:	1.020	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	10.00	3.00	13.00	708	2.182

Haul Time: **2.182** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	-10.00	3.00	-7.00	3706	0.450

Return Time: **0.450** minutes
Total Truck Cycle Time: **5.319** minutes

Loading Tool unit Production 902.74 LCY/Hour Adjusted for job efficiency: 749.27 LCY/Hour

Truck Unit Production 279.21 LCY/Hour Adjusted for job efficiency: 231.74 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 695.22 LCY/Hour
Adjusted single truck/loader team production: 695.22 LCY/Hour
Adjusted multiple truck/loader team production: **695.22** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **29.54** Hours

Unit cost: $1.493 /LCY Total job cost: **$30,650**

REVEGETATION WORK

Task description: **Revegetation of 156.18 ac - Grasses**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 010 State: Colorado Abbreviation: None
Date: 8/19/2016 County: El Paso Filename: M010-010
User: AME

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	121.00	pound	$0.37	$44.77
Triple superphosphate, 0-46-0	87.00	pound	$0.51	$44.37
			Total Fertilizer Materials Cost/Acre	**$89.14**

Application

Description	Cost /Acre
Hydro spreader (MEANS 32 01 90.13 0180)	$44.43
Total Fertilizer Application Cost/Acre	**$44.43**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$107.59
Weed control spraying (MEANS 31 31 16.13 3100)	$242.00
Total Tilling Cost/Acre	**$349.59**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	5.00	81.61	$53.35
Big Bluestem - Native	5.00	14.92	$49.15
Indian Ricegrass - Native	5.00	16.18	$33.75
Little Bluestem - Native	5.00	29.84	$71.55
Sideoats Grama - Butte	5.00	16.41	$55.80
Sheep Fescue - Bighorn	5.00	78.05	$15.35
Slender Wheatgrass - Native	5.00	18.25	$11.25
Thickspike Wheatgrass - Critana	5.00	17.68	$25.90
Western Wheatgrass - Arriba	5.00	12.63	$18.45

Penstemon, Rocky Mountain	1.00	15.67	$33.78
Bluebunch Wheatgrass - Goldar	5.00	16.07	$27.55
Totals Seed Mix	51.00	317.33	**$395.88**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$936.54
Total Seed Application Cost/Acre	**$936.54**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
			$	$
Total Mulch Materials Cost/Acre				**$0.00**

Application

Description	**Cost /Acre**
Weed spray, hand, aquatic area, nox. [DMG]	$183.16
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$366.32**

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: 156.18
Estimated Failure Rate: 50%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $2,181.90
Cost /Acre*: $1,332.42

Initial Job Cost: **$340,769.14**
Reseeding Job Cost: **$104,048.68**
Total Job Cost: **$444,818**
Job Hours: **468.00**

REVEGETATION WORK

Task description: **Revegetation of 37 ac - Mixed Conifer Slopes**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 011 State: Colorado Abbreviation: None
Date: 8/19/2016 County: El Paso Filename: M010-011
User: AME

Agency 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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			$
Totals Seed Mix	0.00	0.00	**$0.00**

Application

Description	Cost /Acre
	$

Total Seed Application Cost/Acre	**$0.00**

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
Fir, Douglas	36.55	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$74.56
Pine, Ponderosa	6.45	Bare root seedling, 11-16 inch ht. (MEANS)	$4.44	$2.40	$28.64
Totals Nursery Stock Cost / Acre					**$103.20**

JOB TIME AND COST

No. of Acres: 37
Estimated Failure Rate: 25%
*Selected Replanting Work Items: NURSERY

Cost /Acre: $103.20
Cost /Acre*: $103.20

Initial Job Cost: **$3,818.40**
Reseeding Job Cost: **$954.60**
Total Job Cost: **$4,773**
Job Hours: **111.00**

REVEGETATION WORK

Task description: **Revegetation of 60.61 ac - Mixed Conifer Pit Floor,Plant,Rds**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 012 State: Colorado Abbreviation: None
Date: 8/19/2016 County: El Paso Filename: M010-012
User: AME

Agency 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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			$
Totals Seed Mix	0.00	0.00	**$0.00**

Application

Description	Cost /Acre
	$

Total Seed Application Cost/Acre	**$0.00**

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
Fir, Douglas	8.6	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$17.54
Pine, Ponderosa	30.1	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$61.40
Oak, Gambel's	2.15	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$4.39
Sumac, Skunkbrush	2.15	Bare root seedling, 11-16 inch ht. (MEANS)	$4.44	$2.40	$9.55
Totals Nursery Stock Cost / Acre					**$92.88**

JOB TIME AND COST

No. of Acres: 60.61
Estimated Failure Rate: 25%
*Selected Replanting Work Items: NURSERY

Cost /Acre: $92.88
Cost /Acre*: $92.88

Initial Job Cost: **$5,629.46**
Reseeding Job Cost: **$1,407.36**
Total Job Cost: **$7,037**
Job Hours: **180.00**

REVEGETATION WORK

Task description: **Revegetation of 16.45 ac - Mountain Shrubland Slopes**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 013 State: Colorado Abbreviation: None
Date: 8/19/2016 County: El Paso Filename: M010-013
User: AME

Agency 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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			$
Totals Seed Mix	0.00	0.00	**$0.00**

Application

Description	Cost /Acre
	$

Total Seed Application Cost/Acre	**$0.00**

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
Pine, Pinyon	16.8	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$34.27
Juniper, Common	16.8	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$34.27
Mahogany, Mountain	33.6	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$68.54
Oak, Gambel's	252	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$514.08
Sumac, Skunkbrush	16.8	Bare root seedling, 11-16 inch ht. (MEANS)	$4.44	$2.40	$74.59
				Totals Nursery Stock Cost / Acre	**$725.76**

JOB TIME AND COST

No. of Acres: 16.45
Estimated Failure Rate: 25%
*Selected Replanting Work Items: NURSERY

Cost /Acre: $725.76
Cost /Acre*: $725.76

Initial Job Cost: **$11,938.75**
Reseeding Job Cost: **$2,984.69**
Total Job Cost: **$14,923**
Job Hours: **49.00**

REVEGETATION WORK

Task description: **Revegetation of 21.69 ac - Mountain Shrubland Access Rd**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 014 State: Colorado Abbreviation: None
Date: 8/19/2016 County: El Paso Filename: M010-014
User: AME

Agency 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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			$
Totals Seed Mix	0.00	0.00	**$0.00**

Application

Description	Cost /Acre
	$

Total Seed Application Cost/Acre	**$0.00**

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
Mahogany, Mountain	50.4	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$102.82
Oak, Gambel's	268.8	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$548.35
Rose, Wood's	10	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$20.40
Sagebrush, Fringed	90	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$183.60
Sagebrush, Louisiana	90	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$183.60
Sumac, Skunkbrush	10	Bare root seedling, 11-16 inch ht. (MEANS)	$4.44	$2.40	$44.40
				Totals Nursery Stock Cost / Acre	**$1,083.17**

JOB TIME AND COST

No. of Acres: 21.69
Estimated Failure Rate: 25%
*Selected Replanting Work Items: NURSERY

Cost /Acre: $1,083.17
Cost /Acre*: $1,083.17

Initial Job Cost: **$23,493.96**
Reseeding Job Cost: **$5,873.49**
Total Job Cost: **$29,367**
Job Hours: **65.00**

REVEGETATION WORK

Task description: **Revegetation of 1.02 ac - Riparian E Crossing LTC**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 015 State: Colorado Abbreviation: None
Date: 8/19/2016 County: El Paso Filename: M010-015
User: AME

Agency 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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			$
Totals Seed Mix	0.00	0.00	**$0.00**

Application

Description	Cost /Acre
	$

Total Seed Application Cost/Acre	**$0.00**

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
Cottonwood, Narrowleaf	35	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$71.40
Willow, Sandbar	87.5	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$178.50
Rose, Wood's	227.5	Bare root seedling, 11-16 inch ht. (MEANS)	$4.44	$2.40	$1,010.10
Totals Nursery Stock Cost / Acre					**$1,260.00**

JOB TIME AND COST

No. of Acres: 1.02
Estimated Failure Rate: 50%
*Selected Replanting Work Items: NURSERY

Cost /Acre: $1,260.00
Cost /Acre*: $1,260.00

Initial Job Cost: **$1,285.20**
Reseeding Job Cost: **$642.60**
Total Job Cost: **$1,928**
Job Hours: **3.00**

REVEGETATION WORK

Task description: **Revegetation of 0.76 ac - Riparian W Crossing LTC**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 016 State: Colorado Abbreviation: None
Date: 8/19/2016 County: El Paso Filename: M010-016
User: AME

Agency 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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			$
Totals Seed Mix	0.00	0.00	**$0.00**

Application

Description	Cost /Acre
	$

Total Seed Application Cost/Acre	**$0.00**

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
Fir, Douglas	70	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$142.80
Cottonwood, Narrowleaf	140	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$285.60
Pine, Ponderosa	70	Bare root seedling, 11-16 inch ht. (MEANS)	$2.04	$2.40	$142.80
Willow, Sandbar	70	Bare root seedling, 11-16 inch ht. (MEANS)	$4.44	$2.40	$310.80
Totals Nursery Stock Cost / Acre					**$882.00**

JOB TIME AND COST

No. of Acres: 0.76
Estimated Failure Rate: 50%
*Selected Replanting Work Items: NURSERY

Cost /Acre: $882.00
Cost /Acre*: $882.00

Initial Job Cost: **$670.32**
Reseeding Job Cost: **$335.16**
Total Job Cost: **$1,005**
Job Hours: **1.00**

DEMOLITION WORK

Task description: **Revegetation - Planting Materials**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 017 State: Colorado Abbreviation: None
Date: 8/19/2016 County: El Paso Filename: M010-017
User: AME

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 93.10 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
18" protection basket w 3' x 3' weed barrier	NA	USER PROVIDED ITEM	17,635.00	NA	$1.25	$22,043.75
Transportation, 2 Laborers	NA	Light Duty Pickup, 4x4, 1 T. Crew	140.00	EA	$80.23	$11,232.20

Job Hours: 0.00 **Subtotal (unadjusted): $33,275.95** **Total Cost (adjusted for location): $30,979.91**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization/Demobilization**

Site: **Hitch Rack Ranch Quarry** Permit Action: 112c Permit App 2016 Permit/Job#: M2016010

PROJECT IDENTIFICATION

Task #: 018B State: Colorado Abbreviation: None
Date: 8/22/2016 County: El Paso Filename: M010-018B
User: AME

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	53.08	$90.41	$125.45	6	$1,295.16	$752.70	$750.00
CAT 16M	28.73	$79.03	$117.55	2	$393.16	$235.10	$250.00
CAT 980H	33.12	$53.90	$117.55	2	$342.90	$235.10	$250.00
Cat 740	36.49	$65.15	$117.55	6	$1,096.20	$705.30	$1,500.00
Hydroseeder with Tractor	28.00	$51.65	$117.55	2	$338.40	$235.10	$250.00
Subtotals:					**$3,465.82**	**$2,163.30**	**$3,000.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 3,500 Gal.	$42.46	2	$84.92	$84.92
Light Duty Pickup, 4x4, 1 T. Crew	$80.23	1	$80.23	$80.23
Subtotals:			**$165.15**	**$165.15**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	COLORADO SPRINGS	
Total one-way travel distance:	20.00	miles
Average Travel Speed:	25.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$139,776.11
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$264.24

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.80	0.80
Return Time (Hours):	0.80	0.80
Loading Time (Hours):	9.00	NA
Unloading Time (Hours):	9.00	NA
Subtotals:	19.60	1.60

JOB TIME AND COST

Total job time:	**39.20**	Hours
Total job cost:	**$140,040**	