

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 <a href="may.eschberger@state.co.us">amy.eschberger@state.co.us</a>.

Sincerely,

Amy Eschberger

any Exchberger

**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 #:000State:ColoradoAbbreviation:NoneDate:8/18/2016County:El PasoFilename: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
800	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
		SUBTO	<u>)TALS:</u>	2679.48	\$3,006,610

# **INDIRECT COSTS**

### OVERHEAD AND PROFIT:

Liability insurance: 2.02 Total =  $\begin{array}{c} 560,733.52 \\ \hline Performance bond: 1.05 & Total = \\ \hline \end{array}$ 

TOTAL O & P =  $\frac{$300,001.00}{$492,747.77}$ 

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

\$0.00

\$0.00

\$0.00

\$26.83

\$215.70

1

### TRUCK/LOADER TEAM WORK

Task description:	Load/H	aul/Grade Subso	oil F1 to N Pit Hig	ghwall Benches			
Site: Hitch Rack Ran	nch Quarry	Permit Acti	on: 112c Permit	App 2016	Permit/Job#:	M2016010	
PROJECT IDE	NTIFICATION	<u>I</u>					
Task #: 002 F Date: 8/22 User: AMI	/2016	State: Color County: El Pas		Ab		None M010-002B	
Agency o	or organization nar	ne: DRMS					
HOURLY EQU	IPMENT COS	<u>r</u>		Shift bas	is: 1 per day		
			Equipment Descri	ption			
	Truck Loader Tea		Cat 740				
Cum	port Equipment -I		CAT 980H NA				
Sup			Cat D8T - 8SU				
Road N	Maintenance –Mot		T 16M			<del></del>	
			ter Tanker, 3,500	Gal.			
Cost Breakdown: Truck/Loader Team Support Equipment Main				Mainte	nance Equipment		
	Truck	Loader	Load Area	Dump Area	Motor Grade	er Water Truck	
%Utilization-machine:	100	100	NA	100	10	00 50	
Ownership cost/hour:	\$65.15	\$53.90	NA	\$82.01	\$79.0	03 \$11.19	
Operating cost/hour: \$63.46 \$6			NA	\$79.23	\$69.1	17 \$15.64	
%Utilization-riper:	NA	0	NA	NA	N	IA NA	

NA

NA

NA

NA

Support:

0

\$0.00

\$0.00

\$39.87

\$201.11

\$201.11

1

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

### **MATERIAL QUANTITIES**

Initial volume: 26,539 CCY Swell factor: 1.060

\$0.00

\$0.00

\$40.86

1

\$158.71

\$620.92

Loose volume: **28,131** LCY

NA

NA

3

\$25.46

\$154.07

Work:

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

HOURI W BRODUCTION

# **HOURLY PRODUCTION**

# **Truck Capacity:**

Ripper own. cost/hour:

Ripper op. cost/hour:

Operator cost/hour:

Unit Subtotals:

Number of Units:

Group Subtotals:

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

\$0.00

\$0.00

\$40.67

1

\$188.87

Maint:

Truck Maneuver and Dump Time:

Truck Bed (volume) Bas	is:					
Struck Volume		LCY				
Heaped Volume	31.40	LCY				
Average Volume	27.80	LCY				
Adjusted Volume	30.00	LCY				
F	Final Truck Volume	Based on Number o	f Loader Passes:	27.75	LCY	
Loading Tool Capacity			-			
Loading 1001 Capacity			Duals	ot Sizo Closer N	í A	
Datad Canacity	7.500	I CV (baamad)	Duck	et Size Class: N	ÍA	_
Rated Capacity Bucket Fill Facto		LCY (heaped)	- 1/8" to 3/8" (90	05%) 0.025		_
Adjusted Capacity		LCY	- 1/8 10 3/8 (90	- 93%) 0.923		_
Aujusteu Capacit	y. <u> </u>	LCI				
Job Condition Correcti	ons:	S	ite Altitude (ft.): 7	200 feet		
	Truck	Loader	Source			
Altitude Adj:	0.960	1.000	(CAT HB)	)		
Job Efficiency:	0.830	0.830	(CAT HB)			
j				<u> </u>		
Net Correction:	0.797	0.830				
<b>Loading Tool Cycle Ti</b>	me: Numbe	r of Loading Tool Pa	sses Required to F	Fill Truck:	4 ;	passes
Excavators and Front Sh	novels:					
		Dad'arra NIA				
Machine Cycle Tir	ne vs. Job Condition lue within this Bas					
		<u> </u>				
Track Loade	ers – Material Desc	ription:				
Cycle Time Elements (m	nin.):					
Load: NA	N	Ianeuver: NA		Dump: 0.100	)	
				T .		
Wheel and Track Load	ers - Unadjusted B	asic Loader Cycle Ti	me (load, dump, m	naneuver): 0	.550 min	utes
Cycle Time Factor	ors			Factor (min.)	Source	
Materi		' to 3/4" diameter -0.	02	-0.020	(Cat HB)	_
Stockpi		dozer piled 10 ft. hig		0.000	(Cat HB)	_
Truck Ownersh	ip: Common ow	nership of trucks and	loaders -0.04	-0.040	(Cat HB)	<del>_</del>
Operation	on: Constant ope	eration -0.04		-0.040	(Cat HB)	
Dump Targ	et: Nominal targ			0.000	(Cat HB)	<u> </u>
		•	ne Adjustment: _	-0.100	minutes	
			er Cycle Time:	0.450	minutes	
		Net Load T	ime per Truck: _	1.450	minutes	
Truck Cycle Time:						
Truck Exchange T	Time: 0.60	Minutes	Adjusted t	for site altitude:	0.625	Minutes
Truck Load T	Time: 1.450	Minutes	Adjusted t	for site altitude:	1.450	Minutes

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

Minutes

1.00

1.042

Minutes

Adjusted for site altitude:

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:

Ttotal II Ito	ate.					
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:
Adjusted single truck/loader team production:
Adjusted multiple 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/H	aul/Grade Top	osoil TS1	to N Pit H	lighwall Benche	s		
Site: Hitch Rack Ran	ch Quarry	Permit A	ction: 1	12c Permit	App 2016	Permit/Job#:	M2016010	
PROJECT IDEN	NTIFICATION	I						
Task #: 003B Date: 8/22/ User: AME	2016	State: Col	orado Paso		A		None M010-003B	
Agency or	organization nar	me: DRMS						
HOURLY EQUI	PMENT COST	<u>r</u>			Shift ba	sis: <u>1 per day</u>		
	Equipment Description							
Truck Loader Team -Truck: Cat 740 -Loader: CAT 980H								
Supr	oort Equipment -L		JA 1 980H JA					
Бирг			Cat D8T - 8	8SU				
Road Maintenance – Motor Grader			CAT 16M					
	-Water Truck			xer, 3,500	Gal.			
Cost Breakdown:	Truck/Los	ader Team		Support 1	Equipment	Mainte	nance Equipi	nent
	Truck	Loader	Load		Dump Area	Motor Grade		
%Utilization-machine:	100	100	0	NA	100	10	00	50
Ownership cost/hour:	\$65.15	\$53.90	0	NA	\$82.01	\$79.0	)3	\$11.19
Operating cost/hour:	\$63.46	\$63.93	5	NA	\$79.23	\$69.1	17	\$15.64
%Utilization-riper:	NA	(	0	NA	NA	N.	A	NA
Ripper own. cost/hour:	NA	\$0.00	0	NA	\$0.00	\$0.0	00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	0	NA	\$0.00	\$0.0	00	\$0.00
Operator cost/hour:	\$25.46	\$40.80	6	NA	\$39.87	\$40.6	57	\$0.00
Unit Subtotals:	\$154.07	\$158.7	1	NA	\$201.11	\$188.8	37	\$26.83
Number of Units:	3		1	0	1		1	1
Group Subtotals:	Work:	\$620.92		Support:	\$201.11	Main	nt: \$215.70	)
Total work team co		73						
Initial volume		CO	~v	S112011	factor: 1.215			
Loose volume				Swell	1actor. 1.213			
	ource of estimated e of estimated swe Material Purch	l volume: 16 ell factor: Ca ase Cost: \$0	2.45 ac x 6 at Handboo 2.00	in depth to	opsoil			

# **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	s:					
Struck Volume:	24.20	LCY				
Heaped Volume:	31.40	LCY				
Average Volume:	27.80	LCY				
Adjusted Volume:	31.40	LCY				
Fi	nal Truck Volum	ne Based on Number o	f Loader Passes:	24.75	LCY	
<b>Loading Tool Capacity</b>						
			Bucke	et Size Class: N	A	
Rated Capacity:	7.500	LCY (heaped)				_
Bucket Fill Factor:		Other - rock/dia	rt mixtures (100-	120%) 1.100		_
Adjusted Capacity:	8.250	LCY	`	,		_
Job Condition Correctio	ons:	S	ite Altitude (ft.): 72	<u>200</u> 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				
<b>Loading Tool Cycle Tin</b>	ne: Numb	er of Loading Tool Pa	sses Required to F	ill Truck:	3 1	passes
Excavators and Front Sho	ovels:					
Machine Cycle Tim	e vs. Job Conditi	on Rating: NA				
•	ue within this Ba					
Track Loader	s – Material Desc	cription:				
Cycle Time Elements (mi						
Load: NA		Maneuver: NA		Dump: 0.100	)	
	<u></u>			F	<u></u>	
Wheel and Track Loade	rs - Unadjusted I	Basic Loader Cycle Ti	me (load, dump, m	aneuver): 0	.550 min	utes
Cycle Time Factor	rs			Factor (min.)	Source	
Materia	1: Material 1/8	3" to 3/4" diameter -0.	02	-0.020	(Cat HB)	<u> </u>
Stockpile		r dozer piled 10 ft. hig	gh and up 0.00	0.000	(Cat HB)	_
Truck Ownership		wnership of trucks and	l loaders -0.04	-0.040	(Cat HB)	_
Operation		eration -0.04		-0.040	(Cat HB)	_
Dump Targe	t: Nominal tar			0.000	(Cat HB)	_
		•	ne Adjustment:	-0.100	minutes	
		3	ler Cycle Time:	0.450	minutes	
		Net Load I	ime per Truck:	1.000	minutes	
Truck Cycle Time:						
Truck Exchange Ti	me: 0.60	Minutes	Adjusted f	for site altitude:	0.625	Minute
Truck Load Ti	me: 1.000	Minutes	Adjusted f	for site altitude:	1.000	Minute

es Truck Maneuver and Dump Time: Adjusted for site altitude: 1.00 Minutes 1.042 Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Tiddi Rodic.							
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:

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:
Adjusted single truck/loader team production:
Adjusted multiple 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/H	aul/Grade Subso	il F1 to N Pit Flo	or + Haul Rds +	Plant		
Site: Hitch Rack Rar	nch Quarry	Permit Action	on: 112c Permit	App 2016	Permit/Job#:	M2016010	
PROJECT IDE	NTIFICATION	<u>I</u>					
Task #: 004B	3	State: Colora	ado	Ab	breviation: N	None	
Date: 8/22/	/2016	County: El Pas	0		Filename: N	M010-004B	
User: AME	<u> </u>						
Agency o	r organization nar	ne: DRMS					
HOURLY EQUIPMENT COST  Shift basis: 1 per day							
-			Equipment Descri	ption			
•	Truck Loader Tea						
			Г 980Н				
Supp	port Equipment -L		D8T - 8SU				
Pond N	ים- Maintenance –Mot		<u>D81 - 850</u> Г 16М				
Roau IV			ter Tanker, 3,500	Gal			
	****	uci iiuck. "	ter runker, 3,300	Gui.			
Cost Breakdown:	Truck/Loa	ader Team	Support l	Equipment	Mainten	ance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grade	r Water Truck	
%Utilization-machine:	100	100	NA	100	100	50	
Ownership cost/hour:	\$65.15	\$53.90	NA	\$82.01	\$79.03	3 \$11.19	
Operating cost/hour:	\$63.46	\$63.95	NA	\$79.23	\$69.1	7 \$15.64	
%Utilization-riper:	NA	0	NA	NA	N/	NA NA	
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00	

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**

**CCY** Initial volume: Swell factor: 1.060

LCY Loose volume: 104,951

> Source of estimated volume: Total 61.37 ac x 1 ft depth subsoil

Source of estimated swell factor: Cat Handbook

> \$0.00 Material Purchase Cost:

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				
		201				
Fina	l Truck Volume	e Based on Number of	of Loader Passes:	27.75	LCY	
Loading Tool Capacity						
			Buck	et Size Class: N	A	_
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	<u>:</u>	S	ite Altitude (ft.): 72	200 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				
		l				
<b>Loading Tool Cycle Time:</b>	Numbe	er of Loading Tool Pa	asses Required to F	ill Truck:	I	passes
Excavators and Front Shove	-	er of Loading Tool Pa	asses Required to F	ill Truck:	41	passes
-	e <u>ls:</u> vs. Job Conditic	on Rating: NA	asses Required to F	ill Truck:	<u>4</u> I	passes
Excavators and Front Shove Machine Cycle Time v Selected Value	els: vs. Job Condition within this Bas	on Rating: NA NA NA	asses Required to F	ill Truck:	4 I	passes
Excavators and Front Shove Machine Cycle Time v Selected Value Track Loaders -	els:  vs. Job Condition  within this Base  Material Description	on Rating: NA NA NA	asses Required to F	ill Truck:	4	passes
Excavators and Front Shove Machine Cycle Time v Selected Value Track Loaders -	els:  ys. Job Condition within this Base Material Description:	on Rating: NA NA NA	asses Required to F	Dump: 0.100		passes
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders -  Cycle Time Elements (min.)  Load: NA	els:  ys. Job Condition within this Base Material Description:	on Rating: NA ic Rating: NA ic Pating: NA ic	·	Dump: 0.100	)	
Excavators and Front Shove  Machine Cycle Time of Selected Value  Track Loaders  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders	els:  ys. Job Condition within this Base Material Description:	on Rating: NA ic Rating: NA ic Pating: NA ic	·	Dump: 0.100 aneuver): 0.	)	
Excavators and Front Shove Machine Cycle Time v Selected Value Track Loaders - Cycle Time Elements (min.) Load: NA Wheel and Track Loaders Cycle Time Factors	els:  vs. Job Condition within this Base Material Descript  :  M Unadjusted Base	on Rating: NA ic Rating: NA ription: NA  Maneuver: NA asic Loader Cycle Ti	me (load, dump, m	Dump: 0.100 aneuver): 0. Factor (min.)		
Excavators and Front Shove  Machine Cycle Time of Selected Value  Track Loaders -  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders  Cycle Time Factors  Material:	els:  vs. Job Condition within this Base Material Description:  Unadjusted B. Material 1/8'	on Rating: NA ic Rating: NA ription: NA  Maneuver: NA asic Loader Cycle Ti	me (load, dump, m	Dump: 0.100 aneuver): 0.	.550 minu Source (Cat HB)	
Excavators and Front Shove Machine Cycle Time v Selected Value Track Loaders - Cycle Time Elements (min.) Load: NA Wheel and Track Loaders Cycle Time Factors	els:  ys. Job Condition within this Base Material Description:  - Unadjusted Base Material 1/83 Conveyor or	on Rating: NA ic Rating: NA ription: NA  Maneuver: NA asic Loader Cycle Ti	me (load, dump, m	Dump: 0.100 aneuver): 0. Factor (min.) -0.020		
Excavators and Front Shove  Machine Cycle Time of Selected Value  Track Loaders  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders  Cycle Time Factors  Material:  Stockpile:	els:  ys. Job Condition within this Base Material Description:  - Unadjusted Base Material 1/83 Conveyor or	on Rating: NA ic Rating: NA ription: NA  Maneuver: NA asic Loader Cycle Ti to 3/4" diameter -0. dozer piled 10 ft. hig	me (load, dump, m	Dump: 0.100 aneuver): 0. Factor (min.) -0.020 0.000	.550 minu Source (Cat HB) (Cat HB)	
Excavators and Front Shove  Machine Cycle Time of Selected Value  Track Loaders  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:	els:  ys. Job Condition within this Base Material Description:  Unadjusted Base Material 1/8' Conveyor or Common ow	on Rating: NA ic Rating: NA ription: NA  Maneuver: NA asic Loader Cycle Ti to 3/4" diameter -0. dozer piled 10 ft. hig mership of trucks and eration -0.04	me (load, dump, m	Dump: 0.100 aneuver): 0. Factor (min.) -0.020 0.000 -0.040	Source (Cat HB) (Cat HB) (Cat HB)	
Excavators and Front Shove  Machine Cycle Time of Selected Value  Track Loaders  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:	els:  ys. Job Condition within this Base Material Description:  Unadjusted Base Material 1/83 Conveyor or Common ow Constant ope	on Rating: NA ic Ration: NA ic	me (load, dump, m	Dump: 0.100 aneuver): 0. Factor (min.) -0.020 0.000 -0.040 -0.040	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB)	
Excavators and Front Shove  Machine Cycle Time of Selected Value  Track Loaders  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:	els:  ys. Job Condition within this Base Material Description:  Unadjusted Base Material 1/83 Conveyor or Common ow Constant ope	on Rating: NA ic Rating: NA ription: NA  Maneuver: NA asic Loader Cycle Ti to 3/4" diameter -0. dozer piled 10 ft. hig mership of trucks and ration -0.04 get 0.00  Net Cycle Tii Adjusted Load	me (load, dump, m .02 gh and up 0.00 d loaders -0.04 me Adjustment:	Dump: 0.100 aneuver): 0. Factor (min.) -0.020 0.000 -0.040 -0.040 0.000	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB)	
Excavators and Front Shove  Machine Cycle Time of Selected Value  Track Loaders  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:	els:  ys. Job Condition within this Base Material Description:  Unadjusted Base Material 1/83 Conveyor or Common ow Constant ope	on Rating: NA ic Rating: NA ription: NA  Maneuver: NA asic Loader Cycle Ti to 3/4" diameter -0. dozer piled 10 ft. hig mership of trucks and ration -0.04 get 0.00  Net Cycle Tii Adjusted Load	me (load, dump, m .02 gh and up 0.00 d loaders -0.04 me Adjustment:	Dump: 0.100 aneuver): 0. Factor (min.) -0.020 0.000 -0.040 -0.040 0.000 -0.100	Source (Cat HB) minutes	
Excavators and Front Shove  Machine Cycle Time of Selected Value  Track Loaders -  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:  Dump Target:	els:  ys. Job Condition within this Base Material Description:  Unadjusted Base Material 1/83 Conveyor or Common ow Constant ope	on Rating: NA ic Rating: NA ription: NA  Maneuver: NA asic Loader Cycle Ti to 3/4" diameter -0. dozer piled 10 ft. hig mership of trucks and ration -0.04 get 0.00  Net Cycle Tii Adjusted Load	me (load, dump, m .02 gh and up 0.00 d loaders -0.04 me Adjustment:	Dump: 0.100  aneuver): 0.  Factor (min.)  -0.020  0.000  -0.040  0.000  -0.100  0.450	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes	
Excavators and Front Shove  Machine Cycle Time of Selected Value  Track Loaders  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:	els:  vs. Job Condition within this Base Material Description  Unadjusted Base Material 1/8' Conveyor or Common ow Constant ope Nominal targ	on Rating: NA ic Rating: NA ription: NA  Maneuver: NA asic Loader Cycle Ti to 3/4" diameter -0. dozer piled 10 ft. hig mership of trucks and ration -0.04 get 0.00  Net Cycle Tii Adjusted Load	me (load, dump, m .02 gh and up 0.00 d loaders -0.04 me Adjustment: der Cycle Time:	Dump: 0.100  aneuver): 0.  Factor (min.)  -0.020  0.000  -0.040  0.000  -0.100  0.450	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes	utes
Excavators and Front Shove Machine Cycle Time of Selected Value Track Loaders - Cycle Time Elements (min.) Load: NA Wheel and Track Loaders Cycle Time Factors Material: Stockpile: Truck Ownership: Operation: Dump Target:  Truck Cycle Time:	els:  vs. Job Condition within this Base Material Description  Unadjusted Base Material 1/83 Conveyor or Common ow Constant ope Nominal targ	on Rating: NA ic Rating: NA ription: NA  Maneuver: NA asic Loader Cycle Ti to 3/4" diameter -0. dozer piled 10 ft. hig mership of trucks and ration -0.04 get 0.00  Net Cycle Ti Adjusted Load Net Load T	me (load, dump, m .02 gh and up 0.00 d loaders -0.04 me Adjustment: der Cycle Time: Fime per Truck:	Dump: 0.100  aneuver): 0.  Factor (min.)  -0.020  0.000  -0.040  0.000  -0.100  0.450  1.450	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes minutes	utes — — —

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

Page 3 of 3

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

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

Loading Tool unit

Production Truck Unit Production

Truck Unit Production

144.41 LCY/Hour Adjusted for job efficiency: 666.00 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

Site: Hitch Rack Ran	ch Quarry	Permit Actio	on: 112c Permit	App 2016	Permit/Job#:	M2016010	)
PROJECT IDEN	TIFICATION	<u>I</u>					
Task #:005B		State: Colora	ıdo	At	breviation:	None	
Date: 8/22/2 User: AME	2016	County: El Pas	0		Filename:	M010-005I	3
	organization nar	me: DRMS					
Agency of	organization nai	me. DKMS					_
<b>HOURLY EQUI</b>	PMENT COS	<u>T</u>		Shift bas	sis: <u>1 per day</u>		
		I	Equipment Descri	ption			
Т	Truck Loader Tea			1			<del></del>
		-Loader: CAT	Г 980Н				_
Supp	ort Equipment -I						
		L	D8T - 8SU				_
Road M	aintenance – Mot		Γ 16M	<u> </u>			_
	-W	ater Truck: Wat	er Tanker, 3,500	Gal.			<del>_</del>
Cost Breakdown:	Truck/Lo	ader Team	Support 1	Equipment	Mainte	enance Equi	nment
COST BY WING WIN	Truck	Loader	Load Area	Dump Area	Motor Grad		Truck
%Utilization-machine:	100	100	NA	100	1	.00	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	N	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

Support:

\$201.11

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

### **MATERIAL QUANTITIES**

**CCY** Initial volume: Swell factor: 1.215

LCY Loose volume: 60,149

Work:

Source of estimated volume: 61.37 ac x 6 in depth topsoil

Source of estimated swell factor: Cat Handbook

> \$0.00 Material Purchase Cost:

\$620.92

Total Cost: \$0.00

# **HOURLY PRODUCTION**

# **Truck Capacity:**

Group Subtotals:

Truck Payload (weight) Basis:

Material weight: 1,600 Pounds/LCY Description:

Top Soil Rated Payload: 87,000 Pounds Payload Capacity: 54.38 LCY

Maint:

\$215.70

Truck Bed (volume) Basis Struck Volume:	24.20	LCY					
Heaped Volume:	31.40	- LCY					
Average Volume:	27.80	LCY					
Adjusted Volume:	31.40	LCY					
Tajasta varante.	511.10						
Fir	al Truck Volu	ime Based o	n Number of	Loader Passes:	24.75	LCY	
Loading Tool Capacity							
				Buck	tet Size Class: N	ĪΑ	
Rated Capacity:	7.500		Y (heaped)				_
Bucket Fill Factor:	1.100			t mixtures (100-	-120%) 1.100		_
Adjusted Capacity:	8.250	LC	Y				
Job Condition Correction	ns:		Sit	te Altitude (ft.): 7	200 feet		
	Truck	I	oader	Source	<del></del>		
Altitude Adj:	0.960		1.000	(CAT HB	)		
Job Efficiency:	0.830		0.830	(CAT HB	,		
Net Correction:	0.797		0.830				
T 1' TO 1 CO 1 TO							
<b>Loading Tool Cycle Tim</b>	<u>e:</u> Nur	nber of Load	ling Tool Pas	sses Required to I	Fill Truck:	3 1	passes
Excavators and Front Sho	<u> </u>	nber of Load	ling Tool Pas	sses Required to I	Fill Truck:	3 1	passes
-	vels: vs. Job Cond	ition Rating:	: <u>NA</u>	sses Required to I	Fill Truck:	3 1	passes
Excavators and Front Sho Machine Cycle Time Selected Valu	vels: vs. Job Conde within this I	ition Rating: Basic Rating:	: <u>NA</u>	sses Required to I	Fill Truck:	3	passes
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders	vels:  vs. Job Cond within this I  Material Do	ition Rating: Basic Rating:	: <u>NA</u>	sses Required to I	Fill Truck:	3 1	passes
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders	vels:  vs. Job Cond within this I  Material Do	ition Rating: Basic Rating:	: NA NA	sses Required to I	Fill Truck:		passes
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min	vels: vs. Job Cond within this I Material Do	ition Rating: Basic Rating: escription:  Maneuver	: NA NA NA		Dump: 0.100		
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader	vels:  vs. Job Cond within this I  Material Do  :):  - Unadjusted	ition Rating: Basic Rating: escription:  Maneuver	: NA NA NA		Dump: 0.100	) .550 min	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min	vels:  vs. Job Cond within this I  Material Do  :):  s - Unadjusted	ition Rating: Basic Rating: escription:  Maneuver: Basic Load	: NA NA NA	ne (load, dump, n	Dump: 0.100	)	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (mir  Load: NA  Wheel and Track Loader  Cycle Time Factor	vels:  vs. Job Cond e within this I  Material De  .):  s - Unadjusted Material	ition Rating: Basic Rating: escription:  Maneuver: Basic Load	: NA : NA : NA diameter -0.0	ne (load, dump, n	Dump: 0.100 naneuver): 0 Factor (min.)	) .550 min   Source	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factor  Material	vels:  vs. Job Cond within this I  Material Do  :  s - Unadjusted Material Conveyor	ition Rating: Basic Rating: escription:  Maneuver: Basic Load 1/8" to 3/4" of or dozer pil	: NA : NA : NA diameter -0.0 ed 10 ft. higl	ne (load, dump, n	Dump: 0.100 naneuver): 0 Factor (min.) -0.020	) min   Source   (Cat HB)	
Excavators and Front Sho  Machine Cycle Time Selected Value Track Loaders  Cycle Time Elements (minor Load: NA  Wheel and Track Loader Cycle Time Factor Material Stockpile	vels:  vs. Job Cond within this I  Material Do  :  s - Unadjusted Material Conveyor Common	ition Rating: Basic Rating: escription:  Maneuver: Basic Load 1/8" to 3/4" of or dozer pil	: NA : NA  : NA  diameter -0.0 ed 10 ft. high	ne (load, dump, n	Dump: 0.100 naneuver): 0 Factor (min.) -0.020 0.000	Source (Cat HB) (Cat HB)	
Excavators and Front Sho  Machine Cycle Time Selected Value Track Loaders Cycle Time Elements (minor Load: NA  Wheel and Track Loader Cycle Time Factor Material Stockpile Truck Ownership	vels:  vs. Job Cond e within this I  Material De  .):  s - Unadjusted  Material  Conveyor Common Constant	ition Rating: Basic Rating: escription:  Maneuver: I Basic Load  1/8" to 3/4" of or dozer pil ownership of operation -0.  target 0.00	: NA : NA : NA  diameter -0.0 ed 10 ft. high ftrucks and .04	ne (load, dump, n )2 h and up 0.00 loaders -0.04	Dump: 0.100 naneuver): 0 Factor (min.) -0.020 0.000 -0.040 -0.040 0.000	Source (Cat HB) (Cat HB) (Cat HB)	
Excavators and Front Sho  Machine Cycle Time Selected Value Track Loaders Cycle Time Elements (min Load: NA  Wheel and Track Loader Cycle Time Factor Material Stockpile Truck Ownership Operation	vels:  vs. Job Cond e within this I  Material De  .):  s - Unadjusted  Material  Conveyor Common Constant	ition Rating: Basic Rating: escription:  Maneuver: Basic Load  1/8" to 3/4" of or dozer pil ownership of operation -0. Earget 0.00	: NA : NA : NA  : NA  diameter -0.0 ed 10 ft. high ftrucks and .04 et Cycle Time	ne (load, dump, n 02 h and up 0.00 loaders -0.04	Dump: 0.100 naneuver): 0 Factor (min.) -0.020 0.000 -0.040 -0.040 0.000 -0.100	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes	
Excavators and Front Sho  Machine Cycle Time Selected Value Track Loaders Cycle Time Elements (min Load: NA  Wheel and Track Loader Cycle Time Factor Material Stockpile Truck Ownership Operation	vels:  vs. Job Cond e within this I  Material De  .):  s - Unadjusted  Material  Conveyor Common Constant	ition Rating: Basic Rating: escription:  Maneuver: Basic Load  1/8" to 3/4" of or dozer pil ownership of operation -0. Earget 0.00	: NA : NA : NA  : NA diameter -0.0 ed 10 ft. high ftrucks and .04 et Cycle Time ljusted Loade	ne (load, dump, n )2 h and up 0.00 loaders -0.04 ne Adjustment:	Dump: 0.100 naneuver): 0 Factor (min.) -0.020 0.000 -0.040 -0.040 0.000 -0.100 0.450	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes	
Excavators and Front Sho  Machine Cycle Time Selected Value Track Loaders Cycle Time Elements (min Load: NA  Wheel and Track Loader Cycle Time Factor Material Stockpile Truck Ownership Operation	vels:  vs. Job Cond e within this I  Material De  .):  s - Unadjusted  Material  Conveyor Common Constant	ition Rating: Basic Rating: escription:  Maneuver: Basic Load  1/8" to 3/4" of or dozer pil ownership of operation -0. Earget 0.00	: NA : NA : NA  : NA diameter -0.0 ed 10 ft. high ftrucks and .04 et Cycle Time ljusted Loade	ne (load, dump, n 02 h and up 0.00 loaders -0.04	Dump: 0.100 naneuver): 0 Factor (min.) -0.020 0.000 -0.040 -0.040 0.000 -0.100	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factor  Material  Stockpile  Truck Ownership  Operation  Dump Target	vels:  vs. Job Cond e within this I  Material De  .):  s - Unadjusted  Material  Conveyor Common Constant	ition Rating: Basic Rating: escription:  Maneuver: Basic Load  1/8" to 3/4" of or dozer pil ownership of operation -0. Earget 0.00	: NA : NA : NA  : NA diameter -0.0 ed 10 ft. high ftrucks and .04 et Cycle Time ljusted Loade	ne (load, dump, n )2 h and up 0.00 loaders -0.04 ne Adjustment:	Dump: 0.100 naneuver): 0 Factor (min.) -0.020 0.000 -0.040 -0.040 0.000 -0.100 0.450	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes	
Excavators and Front Sho  Machine Cycle Time Selected Value Track Loaders Cycle Time Elements (min Load: NA  Wheel and Track Loader Cycle Time Factor Material Stockpile Truck Ownership Operation	vels:  vs. Job Conde within this I  Material Do  :  s - Unadjusted  :	ition Rating: Basic Rating: Basic Rating: Maneuver: Basic Load  1/8" to 3/4" of or dozer pill ownership of operation -0. Earget 0.00  No. Ad	: NA	ne (load, dump, n )2 h and up 0.00 loaders -0.04 ne Adjustment: er Cycle Time: ime per Truck:	Dump: 0.100 naneuver): 0 Factor (min.) -0.020 0.000 -0.040 -0.040 0.000 -0.100 0.450	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes	
Excavators and Front Sho  Machine Cycle Time Selected Valu Track Loaders Cycle Time Elements (min Load: NA  Wheel and Track Loader Cycle Time Factor Material Stockpile Truck Ownership Operation Dump Target	vels:  vs. Job Conde within this I  Material De  .):  s - Unadjusted Conveyor Common Constant Nominal	ition Rating: Basic Rating: escription:  Maneuver: I Basic Load  1/8" to 3/4" of or dozer pill ownership of operation -0. Earget 0.00  No. Add  Minuter of the control of t	: NA : NA : NA  : NA  diameter -0.0 ed 10 ft. high ftrucks and .04 et Cycle Time lijusted Loader Net Load Time tes	ne (load, dump, ne)  h and up 0.00 loaders -0.04  ne Adjustment: er Cycle Time: ime per Truck:  Adjusted	Dump: 0.100 naneuver): 0 Factor (min.) -0.020 0.000 -0.040 -0.040 0.000 -0.100 0.450 1.000	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes minutes	utes — — — —

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

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

Return Route:

Seg # Haul Distance Grade (%) Roll. Res Total Res Velocity Travel

Time

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:
Adjusted single truck/loader team production:
Adjusted multiple 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 ar	eas to orig c	ontours - access rd		
: Hitch Rack Ranch Quar	<u>rry</u> Per	mit Action:	112c Permit App 2016	Permit/Job#:	M2016010
PROJECT IDENTIFIC	<u>ATION</u>				
Task #: 006	State:	Colorado		Abbreviation:	None
Date: 9/27/2016	County:	El Paso		Filename:	M010-006
User: AME				-	
Agency or organization	ation name: DI	RMS			
HOURLY EQUIPMEN	T COST				
Basic Machine: _ Cat D	8T - 8SU		<u></u>		
Horsepower: 310			<u> </u>		
J1	Universal				
	nk ripper				
Shift Basis: 1 per o					
Data Source: (CRG	)		<del></del> ;		
Cost Breakdown:					
			<u>Utilization %</u>		
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		
				<del></del>	
Total unit Cost/Hour:	\$212.32				
Total Fleet Cost/Hour:	\$424.65				
MATERIAL QUANTIT	<u> TIES</u>				
Initial Volume: 150,495	5				
Swell factor: $\frac{130,195}{1.250}$	<u></u>				
Loose volume: 188,119	9 LCY				
Source of estimated volume		, Rec: 9/26/1	6		
Source of estimated swell fa	ctor: Cat Hand	lbook			
HOURLY PRODUCTION	ON				
	<u>511</u>				
Average push distance:	100 feet				
Unadjusted hourly production	on: 852.6 LCY	/hr			
Materials consistency descri	ption: Compa	cted fill or e	nbankment 0.9		
<u> </u>	-5 % 7,200 feet				
Average site attitude:	1,200 1661	<del></del>			
Material weight:	2,650 lbs/LCY			=	
Weight description:	Decomposed rock	- 25% Rock,	75% Earth		
Job Condition Correction Fa	actor		Source		
Operator Ski		.750	(AVG.)		
Material consistence		900	(CAT HB))		
Dozing metho		.100	(50% SL)		
Visibili		.000	(AVG.)		
, 1510111	-, ·		(11, 0.)		

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

\$0.00

\$26.83

\$215.70

1

### TRUCK/LOADER TEAM WORK

Task description:	_Load/H	aul/Grade Subso	il F1 to Access R	d + E Crossing					
Site: Hitch Rack Ran	nch Quarry	Permit Action	on: 112c Permit	App 2016	Permit/Job#: M	2016010			
PROJECT IDE	NTIFICATION	[							
Task #: 006I	3	State: Colora	ado	Ab	breviation: No:	ne			
Date: 8/22	/2016	County: El Pas	0		Filename: M0	10-006B			
User: AMI	Ξ								
Agency o	or organization nar	ne: DRMS							
HOURLY EQUIPMENT COST  Shift basis: 1 per day									
		]	Equipment Descri	ption					
	Truck Loader Tea	m -Truck: Cat	740	_					
			Г 980Н						
Sup	port Equipment -L								
		1	D8T - 8SU						
Road N	Maintenance – Mot		Γ 16M ter Tanker, 3,500	Cal					
-	- vv a	iter fruck: wat	ter Tallker, 5,500	Gai.					
Cost Breakdown:	Truck/Loa	ader Team	Support l	Equipment	Maintenan	ce 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			

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

### **MATERIAL QUANTITIES**

Initial volume: 66,744 CCY Swell factor: 1.060

\$40.86

1

\$158.71

\$620.92

Loose volume: **70,749** LCY

\$25.46

Work:

3

\$154.07

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:**

Operator cost/hour:

Unit Subtotals:

Number of Units:

Group Subtotals:

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

\$40.67

\$188.87

Maint:

1

\$39.87

\$201.11

\$201.11

1

NA

NA

Support:

0

Truck Bed (volume) Basis Struck Volume:	24.20	LCY				
Heaped Volume:	31.40	LCY				
Average Volume:	27.80	LCY				
Adjusted Volume:	30.00	LCY				
riajusted volume.	30.00	LC I				
Fin	al Truck Volum	e Based on Number o	f Loader Passes:	27.75	LCY	
Loading Tool Capacity						
			Buck	et Size Class: N	A	
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 Correction	ns:	Si	ite Altitude (ft.): 7	200 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				
	00.2.	0,000				
<b>Loading Tool Cycle Tim</b>	e: Numbe	er of Loading Tool Pa	sses Required to F	Fill Truck:	4 1	passes
<b>Loading Tool Cycle Tim</b> Excavators and Front Sho	<del></del>	er of Loading Tool Pa	sses Required to F	Fill Truck:	<u>4</u> 1	passes
Excavators and Front Sho Machine Cycle Time	vels:	on Rating: NA	sses Required to F	Fill Truck:	4 1	passes
Excavators and Front Sho  Machine Cycle Time Selected Valu	vels:  vs. Job Condition  within this Bas	on Rating: NA NA NA	sses Required to F	Fill Truck:		passes
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders	vels:  vs. Job Condition  within this Base  Material Desc	on Rating: NA NA NA	sses Required to F	Fill Truck:	<u>4</u> 1	passes
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders	vels:  vs. Job Condition  within this Base  Material Desc  .):	on Rating: NA NA NA	sses Required to F	Fill Truck:		passes
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA	vels:  vs. Job Condition within this Base  Material Desc  .):	on Rating: NA	·	Dump: 0.100	<u> </u>	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader	vels:  vs. Job Condition within this Base  Material Desc  .):  I  s - Unadjusted B	on Rating: NA	·	Dump: 0.100 naneuver): 0.		
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factors	vels:  vs. Job Condition within this Base  Material Desc  .):  s - Unadjusted B	on Rating: NA sic Rating: NA ription: NA Maneuver: NA rasic Loader Cycle Tir	me (load, dump, m	Dump: 0.100 naneuver): 0. Factor (min.)	.550 min	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factors  Material	vels:  vs. Job Condition within this Base  Material Desc  i):  S - Unadjusted B  Material 1/8	on Rating: NA sic Rating: NA ription:  Maneuver: NA sasic Loader Cycle Time to 3/4" diameter -0.	me (load, dump, m	Dump: 0.100 naneuver): 0. Factor (min.) -0.020	.550 min   Source   (Cat HB)	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factors  Material  Stockpile	vels: vs. Job Condition within this Base — Material Desc .):  s - Unadjusted B  Material 1/8 Conveyor on	on Rating: NA sic Rating: NA ription:  Maneuver: NA rasic Loader Cycle Ting to 3/4" diameter -0.0 redozer piled 10 ft. hig	me (load, dump, m	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.000	.550 mino Source (Cat HB) (Cat HB)	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factors  Material  Stockpile  Truck Ownership	vels: vs. Job Condition within this Base — Material Desc .):  s - Unadjusted B  Material 1/8 Conveyor on Common ow	on Rating: NA sic Rating: NA ription:  Maneuver: NA rasic Loader Cycle Ting to 3/4" diameter -0.4 dozer piled 10 ft. hig whership of trucks and	me (load, dump, m	Dump: 0.100 naneuver): 0. Factor (min.) -0.020	Source   (Cat HB)   (Cat HB)   (Cat HB)	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factors  Material  Stockpile	vels: vs. Job Condition within this Base — Material Desc .):  S - Unadjusted B  Material 1/8 Conveyor on Common ov Constant ope	on Rating: NA sic Rating: NA ription:  Maneuver: NA rasic Loader Cycle Ting to 3/4" diameter -0.0 redozer piled 10 ft. hig wership of trucks and eration -0.04	me (load, dump, m	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.000 -0.040	.550 mino Source (Cat HB) (Cat HB)	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factors  Material Stockpile  Truck Ownership Operation	vels: vs. Job Condition within this Base — Material Desc .):  S - Unadjusted B  Material 1/8 Conveyor on Common ov Constant ope	on Rating: NA sic Rating: NA ription: NA ription: NA rasic Loader Cycle Time to 3/4" diameter -0.0 dozer piled 10 ft. hig vinership of trucks and reation -0.04 get 0.00	me (load, dump, m	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.000 -0.040 -0.040	Source   (Cat HB)   (Cat HB)	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factors  Material Stockpile  Truck Ownership Operation	vels: vs. Job Condition within this Base — Material Desc .):  S - Unadjusted B  Material 1/8 Conveyor on Common ov Constant ope	on Rating: NA sic Rating: NA ription:  Maneuver: NA rasic Loader Cycle Tine to 3/4" diameter -0.0 redozer piled 10 ft. hig vnership of trucks and eration -0.04 get 0.00  Net Cycle Tine	me (load, dump, m 02 th and up 0.00 l loaders -0.04	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.000 -0.040 -0.040 0.000	Source   (Cat HB)   (Cat HB)	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factors  Material Stockpile  Truck Ownership Operation	vels: vs. Job Condition within this Base — Material Desc .):  S - Unadjusted B  Material 1/8 Conveyor on Common ov Constant ope	on Rating: NA sic Rating: NA ription: NA  Maneuver: NA  asic Loader Cycle Tine to 3/4" diameter -0. dozer piled 10 ft. hig whership of trucks and eration -0.04 get 0.00  Net Cycle Tine Adjusted Load	me (load, dump, m 02 th and up 0.00 l loaders -0.04	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.000 -0.040 -0.040 0.000 -0.100	Source   (Cat HB)   (Cat HB)   (Cat HB)   (Cat HB)   (Cat HB)   (Cat HB)   minutes	
Excavators and Front Sho  Machine Cycle Time Selected Valu  Track Loaders  Cycle Time Elements (min  Load: NA  Wheel and Track Loader  Cycle Time Factors  Material Stockpile  Truck Ownership Operation	vels: vs. Job Condition within this Base — Material Desc .):  S - Unadjusted B  Material 1/8 Conveyor on Common ov Constant ope	on Rating: NA sic Rating: NA ription: NA  Maneuver: NA  asic Loader Cycle Tine to 3/4" diameter -0. dozer piled 10 ft. hig whership of trucks and eration -0.04 get 0.00  Net Cycle Tine Adjusted Load	me (load, dump, m 02 th and up 0.00 l loaders -0.04 me Adjustment: ler Cycle Time:	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.000 -0.040 0.000 -0.100 0.450	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes	
Excavators and Front Sho  Machine Cycle Time Selected Valu Track Loaders Cycle Time Elements (min Load: NA  Wheel and Track Loader Cycle Time Factors Material Stockpile Truck Ownership Operation Dump Target	vels:  vs. Job Condition within this Base — Material Desc .):  S - Unadjusted B  Material 1/8 Conveyor on Common ow Constant ope Nominal tar;	on Rating: NA sic Rating: NA ription: NA  Maneuver: NA  asic Loader Cycle Tine to 3/4" diameter -0. dozer piled 10 ft. hig whership of trucks and eration -0.04 get 0.00  Net Cycle Tine Adjusted Load	me (load, dump, m 02 th and up 0.00 l loaders -0.04 me Adjustment: ler Cycle Time:	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.000 -0.040 0.000 -0.100 0.450	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes	
Excavators and Front Sho  Machine Cycle Time Selected Valu Track Loaders Cycle Time Elements (min Load: NA  Wheel and Track Loader Cycle Time Factors Material Stockpile Truck Ownership Operation Dump Target	vels:  vs. Job Condition within this Base — Material Desc .):  S - Unadjusted B  Material 1/8 Conveyor or Common ov Constant ope Nominal tar;	on Rating: NA sic Rating: NA ription: NA  Maneuver: NA  asic Loader Cycle Tine to 3/4" diameter -0. dozer piled 10 ft. hig whership of trucks and eration -0.04 get 0.00  Net Cycle Tine Adjusted Load Net Load T	me (load, dump, m  02 th and up 0.00 l loaders -0.04  me Adjustment: ler Cycle Time: Time per Truck:  Adjusted to	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.000 -0.040 0.000 -0.100 0.450 1.450	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes minutes	utes — — —

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

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

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

Loading Tool unit

Production<br/>Truck Unit Production802.41<br/>70.95LCY/HourAdjusted for job efficiency:666.00<br/>666.00LCY/HourAdjusted for job efficiency:58.89LCY/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 Ac	cess Rd + E Crossing		
: Hitch Rack Ranc	h Quarry	Permit Action:	112c Permit App 2016	Permit/Job#:	M2016010
PROJECT IDEN	<b>FIFICATION</b>	<u>1</u>			
Task #: 007 Date: 8/18/20 User: AME	016	State: Colorado County: El Paso		Abbreviation: Filename:	None M010-007
Agency or o	organization na	me: DRMS			
HOURLY EQUIP	MENT COS	<u>r</u>			
Basic Machine:	Cat D8T - 8SU	J	<u></u>		
Horsepower:	310				
Blade Type:	Semi-Universa		<u> </u>		
Attachment:	3-shank ripper	•			
Shift Basis:	1 per day				
Data Source:	(CRG)		_		
Cost Breakdown:					
			<u>Utilization %</u>		
Ownership Cost/Ho		\$82.01	NA	<u></u>	
Operating Cost/Ho		\$79.23	100		
Ripper own. Cost/Ho		\$8.40	NA To		
Ripper op. Cost/Ho		\$2.81	50		
Operator Cost/Ho	our:	\$39.87	NA		
Total unit Cost/Hour	\$212.32				
Total Fleet Cost/Hou					
	16,900 1.215				
	20,534 LCY				
Loose volume.	20,33 <b>4</b> LC1				
Source of estimated source of estimated s		41.37 ac x 6 in depth t Cat Handbook	opsoil 		
HOURLY PROD	<u>UCTION</u>				
Average push distand Unadjusted hourly pr		00 feet 01.4 LCY/hr			
Materials consistency	description:	Consolidated stockp	pile 1.0		
Average push gradier Average site altitude:		et			
Material weight:	_1,600 lbs	s/LCY		-	
Weight description:	Top Soil				
Job Condition Correct			Source		
	ator Skill:	1.000	(EXCL.)		
Material con		1.000	(CAT HB)		
	g method:	1.100	(50% SL)		
•	Jisihility:	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**

Hitch Rack Ranch Quarry	Perr	nit Action:	112c Permit App 2016	Permit/Job#:	M2016010
PROJECT IDENTIFICATI	<u>ON</u>				
Task #: 007B	State:	Colorado		Abbreviation:	None
Date: 9/27/2016	County:	El Paso		Filename:	M010-007B
User: AME				_	
Agency or organization	name: DR	MS			
HOURLY EQUIPMENT CO	<u>OST</u>				
Basic Machine: Cat D8T -	8SU				
Horsepower: 310					
Blade Type: Semi-Univ	ersal		<u> </u>		
Attachment: 3-shank rip	per				
Shift Basis: 1 per day					
Data Source: (CRG)					
Cost Breakdown:					
<del></del> -			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		
	22				
Total unit Cost/Hour: \$212.					
Total Fleet Cost/Hour: \$424	.05				
MATERIAL OLIANTITIES					
MATERIAL QUANTITIES	:				
Initial Volume: 52,507					
Swell factor: 1.060					
Loose volume: 55,657 LCY	•				
Source of estimated volume:	Exhibit I	, Rec: 9/26/1	16		
Source of estimated volume.  Source of estimated swell factor:		,	10		
source of estimated swell factor.	<u>Cut Hund</u>	OOOR			
HOURLY PRODUCTION					
Average push distance:	300 feet				
Unadjusted hourly production:	291.4 LCY/	hr			
Materials consistency description	n: Consoli	dated stock	pile 1.0		
, ,					
Average push gradient:5 %	) feet				
Average push gradient:  Average site altitude:  -5 % 7,200	) feet ) lbs/LCY			_	
Average push gradient: -5 % 7,200  Material weight: 2,900		Dry			
Average push gradient:5 % Average site altitude:7,200  Material weight:2,900  Weight description:Sand	) lbs/LCY	Ory	Source	_	
Average push gradient:5 % Average site altitude:7,200  Material weight:2,900  Weight description:Sand	lbs/LCY and gravel - l	Dry 750	Source (AVG.)		
Average push gradient: -5 % Average site altitude: 7,200  Material weight: 2,900  Weight description: Sand  Job Condition Correction Factor	and gravel - 1				
Average push gradient: -5 % Average site altitude: 7,200  Material weight: 2,900  Weight description: Sand  Job Condition Correction Factor Operator Skill:	and gravel - l 0.	750	(AVG.)		

0.830

(1 SHIFT/DAY)

Job efficiency:

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: Total job cost: 175.27 Hours \$74,426

# **BULLDOZER WORK**

Task description:	Grade F	1 Stockpile Area to 3	3H:1V		
: Hitch Rack Ranch	Quarry	Permit Action:	112c Permit App 2016	Permit/Job#:	M2016010
PROJECT IDENT	IFICATION				
Task #: 008		State: Colorado		Abbreviation:	None
Date: 8/18/201	16	County: El Paso		Filename:	M010-008
User: AME		<u> </u>		<del>-</del>	
Agency or or	ganization nar	ne: DRMS			
HOURLY EQUIPM	MENT COST	<u>r</u>			
Basic Machine:	Cat D8T - 8SU				
Horsepower:	310		<del>_</del>		
	Semi-Universa	1	<del>_</del>		
Attachment:	3-shank ripper		<del>_</del>		
	l per day				
	(CRG)		_		
Cost Breakdown:	•		_		
COSt DIEAKUOWII.			<u>Utilization %</u>		
Ownership Cost/Hou	r·	\$82.01	NA		
Operating Cost/Hou		\$79.23	100		
Ripper own. Cost/Hou		\$8.40	NA	<del></del>	
Ripper op. Cost/Hou		\$2.81	50	<del></del>	
Operator Cost/Hou		\$39.87		<del></del>	
Operator Cost/Hou	1	\$39.07	NA	<del>_</del>	
Total unit Cost/Hour:	\$212.32				
Total Fleet Cost/Hour:	\$424.65				
Swell factor: 1	45,833 .060				
Loose volume: 1	54,583 LCY				
Source of estimated vo Source of estimated sv	_	(100' H x 700' L) x 3 Cat Handbook	benches @ 1.38H:1V		
HOURLY PRODU	<b>CTION</b>				
Average push distance		0 feet			
Unadjusted hourly pro	duction: 29	1.4 LCY/hr			
Materials consistency	description:	Consolidated stockp	pile 1.0		
Average push gradient Average site altitude:	: -15 % 7,200 fee	t			
Material weight:	2,900 lbs	/LCY		-	
Weight description:	Sand and	gravel - Dry			
Job Condition Correct			Source		
	or Skill:	1.000	(EXCL.)		
Material cons		1.000	(CAT HB)		
Dozing		1.200	(SLOT)		
V	isibility:	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 TS	Topsoil TS1 to F1 Stockpile Area				
Site:	Site: Hitch Rack Ranch Quarry Permit			nit Action:	112c Permit App 2016	Permit/Job#:	M2016010	
]	PROJECT	IDENTIFICAT	ΓΙΟΝ					
	Task #:	009B	State:	Colorado		Abbreviation:	None	
	Date:	8/22/2016	County:	El Paso		Filename:	M010-009B	
	User:	AME				<del>-</del>		
<u>]</u>		ency or organization			Shift	ft basis: 1 per day		
		Truck Load	er Team -Truck:	Cat 740				
			-Loader:	CAT 980	OH			
		Support Equipm	ent -Load Area:	NA				
			-Dump Area:	Cat D8T	' - 8SU			
	Road Maintenance – Motor Grader:				M			
			-Water Truck:	Water Ta	anker, 3,500 Gal.			
<u> </u>	Cost Break	down: True	ck/Loader Team		Support Equipment	Maint	enance Equipment	

<b>Cost Breakdown:</b>	Truck/Loa	ader Team	Support l	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 I	LCY				
Heaped Volume:		LCY				
Average Volume:		LCY				
Adjusted Volume:		LCY				
rajusted volume.	31.10					
Final	Truck Volume	Based on Number o	f Loader Passes:	24.75	LCY	
Loading Tool Capacity						
		1	Buck	et Size Class: N	A	_
Rated Capacity:	7.500	LCY (heaped)				_
Bucket Fill Factor:	1.100		t mixtures (100-	120%) 1.100		_
Adjusted Capacity:	8.250	LCY				
Job Condition Corrections	<u>:</u>	S	ite Altitude (ft.): 72	200 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 Times	Number	of Loading Tool Do	ssas Daguirad to E	SII Tenole	2	200000
Loading Tool Cycle Time:		of Loading Tool Pa	sses Required to F	fill Truck:	3 p	passes
Excavators and Front Shove	<u>ls:</u>	C	sses Required to F	ill Truck:	<u>3</u> p	oasses
Excavators and Front Shove Machine Cycle Time v	<u>ls:</u>	Rating: NA	sses Required to F	ill Truck:	<u>3</u> p	passes
Excavators and Front Shove Machine Cycle Time v	ls: s. Job Condition within this Basic	Rating: NA NA NA	sses Required to F	ill Truck:		oasses
Excavators and Front Shove  Machine Cycle Time v  Selected Value  Track Loaders –	ls: s. Job Condition within this Basic Material Descri	Rating: NA NA NA	sses Required to F	Fill Truck:		oasses
Excavators and Front Shove  Machine Cycle Time v  Selected Value  Track Loaders –	ls: s. Job Condition within this Basic Material Descri	Rating: NA NA NA	sses Required to F	Fill Truck:		oasses
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)  Load: NA	ls: s. Job Condition within this Basic Material Descri	Rating: NA NA NA Potion: NA		Dump: 0.100		
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)	ls: s. Job Condition within this Basic Material Descri	Rating: NA NA NA Potion: NA		Dump: 0.100		
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders	ls:  s. Job Condition within this Basic Material Descri  Material Descri  Material Descri	Rating: NA NA NA Potion: NA	me (load, dump, m	Dump: 0.100 naneuver): 0.		
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders –  Cycle Time Factors	Is: s. Job Condition within this Basic Material Descri  Material Descri  Unadjusted Basic	Rating: NA	me (load, dump, m	Dump: 0.100 naneuver): 0. Factor (min.)	.550 minu Source	
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders  Cycle Time Factors  Material:	s. Job Condition within this Basic Material Descri    Material Descri   Unadjusted Basic  Material 1/8"  Conveyor or description	Rating: NA	me (load, dump, m	Dump: 0.100 naneuver): 0. Factor (min.) -0.020	.550 minu Source (Cat HB)	
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders –  Cycle Time Factors  Material:  Stockpile:	s. Job Condition within this Basic Material Descri    Material Descri   Unadjusted Basic  Material 1/8"  Conveyor or description	Rating: NA Rating: NA Rating: NA Prion:  Anneuver: NA Sic Loader Cycle Tinto 3/4" diameter -0. Rozer piled 10 ft. highership of trucks and	me (load, dump, m	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.010	550 minu Source (Cat HB) (Cat HB)	
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:	s. Job Condition within this Basic Material Descri  Material Descri  Unadjusted Basic Material 1/8" Conveyor or d Common own	Rating: NA Prion: NA  Paneuver: NA  Sic Loader Cycle Tip  to 3/4" diameter -0.  lozer piled 10 ft. hig ership of trucks and ation -0.04	me (load, dump, m	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.010 -0.040	550 minu Source (Cat HB) (Cat HB) (Cat HB)	
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders –  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:	s. Job Condition within this Basic Material Description Material Description Material 1/8"  Conveyor or description Common own Constant oper	Rating: NA Rating: NA Rating: NA Prion:  Prior: NA Rating: NA Prior: NA Rating: NA Prior: NA Rating: NA Rating	me (load, dump, m 02 th or less 0.01 loaders -0.04	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.010 -0.040 -0.040	550 minu Source (Cat HB) (Cat HB) (Cat HB) (Cat HB)	
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders –  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:	s. Job Condition within this Basic Material Description Material Description Material 1/8"  Conveyor or description Common own Constant oper	Rating: NA Rating: NA Rating: NA Prion:  Prior: NA Rating: NA Prior: NA Rating: NA Prior: NA Rating: NA Rating	me (load, dump, m 02 th or less 0.01 loaders -0.04	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.010 -0.040 -0.040 0.000	550 minu Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB)	utes 
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders –  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:	s. Job Condition within this Basic Material Description Material Description Material 1/8"  Conveyor or description Common own Constant oper	a Rating: NA Rating: NA Rating: NA Prion:  Anneuver: NA Sic Loader Cycle Tine to 3/4" diameter -0. Alozer piled 10 ft. high ership of trucks and atton -0.04 et 0.00  Net Cycle Tine Adjusted Load	me (load, dump, m 02 th or less 0.01 loaders -0.04	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.010 -0.040 -0.040 0.000 -0.090	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes	
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders -  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders -  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:  Dump Target:	s. Job Condition within this Basic Material Description Material Description Material 1/8"  Conveyor or description Common own Constant oper	a Rating: NA Rating: NA Rating: NA Prion:  Anneuver: NA Sic Loader Cycle Tine to 3/4" diameter -0. Alozer piled 10 ft. high ership of trucks and atton -0.04 et 0.00  Net Cycle Tine Adjusted Load	me (load, dump, m 02 th or less 0.01 loaders -0.04 me Adjustment: er Cycle Time:	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.010 -0.040 -0.040 0.000 -0.090 0.460	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes	
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders –  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders –  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:	s. Job Condition within this Basic Material Description Material Description Material 1/8"  Cunadjusted Basic Material 1/8"  Conveyor or description Common own Constant open Nominal targe	a Rating: NA Rating: NA Rating: NA Prion:  Anneuver: NA Sic Loader Cycle Tine to 3/4" diameter -0. Alozer piled 10 ft. high ership of trucks and atton -0.04 et 0.00  Net Cycle Tine Adjusted Load	me (load, dump, m 02 th or less 0.01 loaders -0.04 me Adjustment: er Cycle Time:	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.010 -0.040 -0.040 0.000 -0.090 0.460	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes	
Excavators and Front Shove  Machine Cycle Time v Selected Value  Track Loaders -  Cycle Time Elements (min.)  Load: NA  Wheel and Track Loaders -  Cycle Time Factors  Material:  Stockpile:  Truck Ownership:  Operation:  Dump Target:  Truck Cycle Time:	s. Job Condition within this Basic Material Description.  Material Description.  Unadjusted Basic Material 1/8" Conveyor or description.  Common own Constant open Nominal targe.	a Rating: NA Rating: NA Rating: NA Ption:  In NA Ption: NA  Sic Loader Cycle Tine Ration -0.4 Ration -0.04 Ra	me (load, dump, m  02 th or less 0.01 loaders -0.04  me Adjustment: er Cycle Time: Time per Truck:  Adjusted f	Dump: 0.100 naneuver): 0. Factor (min.) -0.020 0.010 -0.040 -0.040 0.000 -0.090 0.460 1.020	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes minutes minutes	utes — — —

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

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:

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:
Adjusted single truck/loader team production:
Adjusted multiple truck/loader team production:

695.22
LCY/Hour
695.22
LCY/Hour
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 #:010State:ColoradoAbbreviation:NoneDate:8/19/2016County:El PasoFilename: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 A	pplication 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
	<b>Total Tilling Cost/Acre</b>	\$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/A	cre \$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
	<b>Total Mulch Application Cost/Acre</b>	\$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
 Cost /Acre:
 \$2,181.90

 Estimated Failure Rate:
 50%
 Cost /Acre\*:
 \$1,332.42

\*Selected Replanting Work Items: SEEDING

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 3	7 ac - Mixed Conife	r Slopes			
e: Hitch Rack Ranch Q	uarry Pern	mit Action: 112c Pe	ermit App	2016	Permit/Job#	: <u>M2016010</u>
PROJECT IDENTIFI	CATION					
Task #: 011 Date: 8/19/2016 User: AME	State:	Colorado El Paso		Ab		None M010-011
Agency or organ	nization name: DRM	MS				
<u>FERTILIZING</u>						
Materials						
Description		Units / Acre	Unit	Cos	t / Unit	Cost /Acre
				\$		\$
				Tot	tal Fertilizer Materials Cost/Acre	\$0.00
					COSHACIE	φυ.υυ
Application						
Description						Cost /Acre
						\$
		Total F	ertilizer A	Applicatio	n Cost/Acre	\$0.00
<u> FILLING</u>						
Description						Cost /Acre
						\$
			T	otal Tillin	g Cost/Acre	\$0.00
SEEDING						
Seed Mix				Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
						\$
		Totals See	ed 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	40.00
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	36.5 5	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
	\$103.20				

### **JOB TIME AND COST**

No. of Acres: 37 Cost /Acre: \$103.20
Estimated Failure Rate: 25% Cost /Acre\*: \$103.20
\*Selected Replanting Work Items: NURSERY

Initial Job Cost: \$3,818.40

Reseeding Job Cost: \$954.60

Total Job Cost: Job Hours: 111.00

# **REVEGETATION WORK**

Task description: Revegetation o	f 60.61 ac - Mixed C	onifer Pit F	loor,Plan	t,Rds	
e: Hitch Rack Ranch Quarry	ermit Action: 112c	Permit App	2016	Permit/Job#	: <u>M2016010</u>
PROJECT IDENTIFICATION					
Task #: 012 State:			Ab		None
Date: 8/19/2016 County:	El Paso		_	Filename:	M010-012
User: <u>AME</u>					
Agency or organization name:	DRMS				
<u>FERTILIZING</u>					
Materials					
Description	Units /	Unit	Cos	t / Unit	Cost /Acre
Description	Acre	Unit		t / Cint	
			\$		\$
			Tot	tal Fertilizer	
				Materials	
				Cost/Acre	\$0.00
Application					
Description					Cost /Acre
					\$
	Total	Fertilizer A	Applicatio	n Cost/Acre	\$0.00
<u> </u>					
Description					Cost /Acre
					\$
					Ψ
		Т	otal Tillin	g Cost/Acre	\$0.00
					φυ.υυ
<u>SEEDING</u>					
			Rate –	g 1	G 444
Seed Mix			PLS	Seeds per SO	Cost /Acre
			LBS / Acre	per SQ. FT	
			11016		
					\$
	Totals S	Seed Mix	0.00	0.00	\$0.00
Application				_ I	
Description					Cost /Acre
* * * * * * * * * * * * * * * * * * *					
					\$

Î		
	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
		\$
To	tol Mulch Application Cost/Agra	40.00
10	tal 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 Stoc	ek Cost / Acre	\$92.88

# **JOB TIME AND COST**

 No. of Acres:
 60.61
 Cost /Acre:
 \$92.88

 Estimated Failure Rate:
 25%
 Cost /Acre\*:
 \$92.88

\*Selected Replanting Work Items: NURSERY

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 1	16.45 ac - Mountair	Shrublan	nd Slopes		
: Hitch Rack Ranch Qua	<b>rry</b> Per	mit Action: 112c	Permit App	2016	Permit/Job#	: <u>M2016010</u>
PROJECT IDENTIFICA	ATION					
Task #: 013 Date: 8/19/2016 User: AME	State: County:	Colorado El Paso		Ab		None M010-013
Agency or organiza	ntion name: DR	MS				
FERTILIZING						
Materials						T
Description		Units / Acre	Unit	Cos	t / Unit	Cost /Acre
				\$		\$
				Tot	al Fertilizer Materials Cost/Acre	\$0.00
Application						T
Description						Cost /Acre
						\$
		Total	Fertilizer <i>1</i>	Applicatio	n Cost/Acre	\$0.00
<u> </u>						
Description						Cost /Acre
						\$
			Т	otal Tillin	g Cost/Acre	\$0.00
<b>SEEDING</b>						
Seed Mix				Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
						\$
		Totals S	eed 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
		,	Nursary Stag	ek Cost / Acre	\$725.76

### JOB TIME AND COST

 No. of Acres:
 16.45
 Cost /Acre:
 \$725.76

 Estimated Failure Rate:
 25%
 Cost /Acre\*:
 \$725.76

\*Selected Replanting Work Items: NURSERY

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: Rev	vegetation of 2	1.69 ac - Mountai	in Shrubla	nd Access 1	Rd	
Hitch Rack Ranch Quarry	Perr	nit Action: 112c	Permit Ap	p 2016	Permit/Job#	: <u>M2016010</u>
PROJECT IDENTIFICATI	ON					
Task #: 014	State:	Colorado		۸h	breviation:	None
Date: 8/19/2016	County:	El Paso				M010-014
User: AME						
Agency or organization	n name: DRM	MS				
FERTILIZING						
Materials						
		Units /		~		~
Description		Acre	Unit	Cos	t / Unit	Cost /Acre
				\$		\$
				Tot	al Fertilizer	
					Materials	Φ0.00
					Cost/Acre	\$0.00
T*						
application						
Description						Cost /Acre
						\$
		Total	l Fertilizer	Applicatio	n Cost/Acre	\$0.00
TILLING						
Description						Cost /Acre
						\$
			,	Total Tillin	g Cost/Acre	\$0.00
EEDING						
				Rate –		
Seed Mix				PLS	Seeds per SQ.	Cost /Acre
				LBS / Acre	FT FQ.	
				12020		¢
						\$
		Totals 3	Seed Mix	0.00	0.00	\$0.00
Application				<u>I</u>		7000
Description						Cost /Acre
						\$

Î		
	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 Stoc	ek Cost / Acre	\$1.083.17

# **JOB TIME AND COST**

No. of Acres:	21.69	Cost /Acre:	\$1,083.17
Estimated Failure Rate:	25%	Cost /Acre*:	\$1,083.17
	ATTEMPT		

\*Selected Replanting Work Items: NURSERY
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		
e: Hitch Rack Ranch Q	uarry Perm	nit Action: 112c F	ermit App	2016	Permit/Job#	: <u>M2016010</u>
PROJECT IDENTIFI	CATION					
Task #: 015 Date: 8/19/2016 User: AME	State:	Colorado El Paso		Ab		None M010-015
Agency or organ	nization name: DRM	MS				
<u>FERTILIZING</u>						
Materials						
Description		Units / Acre	Unit	Cos	t / Unit	Cost /Acre
				\$		\$
				Tot	tal Fertilizer Materials Cost/Acre	\$0.00
					CUSHACIE	φυ.υυ
Application						
Description						Cost /Acre
						\$
		Total I	Fertilizer A	Applicatio	n Cost/Acre	\$0.00
<u>TILLING</u>						
Description						Cost /Acre
						\$
			Т	otal Tillin	g Cost/Acre	\$0.00
SEEDING						
Seed Mix				Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
						\$
		Totals Se	ed 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/Ac	<b>W</b> O
Total Mulch Application Cost/Ac	re \$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
	\$1,260.00				

# **JOB TIME AND COST**

No. of Acres: 1.02 Cost / Acre: \$1,260.00

Estimated Failure Rate: 50% Cost /Acre\*: \$1,260.00

\*Selected Replanting Work Items: NURSERY

Initial Job Cost: \$1,285.20

Reseeding Job Cost: \$642.60

Total Job Cost: \$1,928

Job Hours: 3.00

# **REVEGETATION WORK**

Task description: Rev	egetation of 0.	.76 ac - Riparian V	V Crossin	g LTC		
e: _Hitch Rack Ranch Quarry	Pern	nit Action: 112c	Permit App	p 2016	Permit/Job#	: <u>M2016010</u>
PROJECT IDENTIFICATI	ON					
Task #: 016 Date: 8/19/2016 User: AME	State:	Colorado El Paso		Ab		None M010-016
Agency or organization	n name: DRN	MS				
FERTILIZING						
Materials		TT:4~ /				
Description		Units / Acre	Unit	Cos	t / Unit	Cost /Acre
				\$		\$
				Tot	al Fertilizer Materials Cost/Acre	\$0.00
Application						
Description						Cost /Acre
						\$
		Total	Fertilizer	Applicatio	n Cost/Acre	\$0.00
<u> </u>						
Description						Cost /Acre
						\$
			7	Γotal Tillin	g Cost/Acre	\$0.00
SEEDING						
Seed Mix				Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
						\$
		Totals S	eed Mix	0.00	0.00	\$0.00
Application						T
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/Ac	ma
Total Mulch Application Cost/Ac	re \$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
 Cost / Acre:
 \$882.00

 Estimated Failure Rate:
 50%
 Cost / Acre\*:
 \$882.00

\*Selected Replanting Work Items: NURSERY

Initial Job Cost: \$670.32

Reseeding Job Cost: \$335.16

Total Job Cost: \$1,005

1.00

# **DEMOLITION WORK**

Task description: Revegetation - Planting Materials						
Site: Hitch Rack Ranch Quarry Permit Action: 112c Permit App 2016 Permit/Job#: M2016010				M2016010		
PROJECT IDENTIFICATION						
Task #: 017	St	ate: Colorado		Abbreviati	on: Non	e
Date: 8/19/2016	Cour	nty: El Paso		Filena	me: M01	10-017
User: AME			<u>.</u>		·	
Agency	or organization name	e: DRMS				
<u>UNIT COSTS</u> <u>Location adjustment: 93.10 %</u>						
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
Total Cost Subtotal (adjusted for Job Hours: 0.00 (unadjusted): \$33,275.95 location): \$30,979.91						
Job Hours:	0.00	(unadjusted): \$33	,275.95	le	ocation): _	\$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 #:018BState:ColoradoAbbreviation:NoneDate:8/22/2016County:El PasoFilename: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	Weight/	Owner ship	Haul Rig	Fleet	Haul Trip	Return Trip	DOT Permit
Description	Unit	Cost/hr/ unit	Cost/hr/uni	Size	Cost/hr/	Cost/hr/ fleet	Cost/ fleet
	(TONS)		t		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	28.00	\$51.65	\$117.55	2	\$338.40	\$235.10	\$250.00
Tractor							

Subtotals: \$3,465.82 \$2,163.30 \$3,000.00

### **ROADABLE EQUIPMENT:**

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

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:
 Total Roadable Mob/Demob Cost \*\*
 \*\* one round trip, no haul rig:

\$264.24

#### **Transportation Cycle Time:**

	Non-	
	Roadable	Roadable
	Equipment	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 cost: 39.20 Hours

Total job cost: \$140,040