



COLORADO

Division of Reclamation,
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215
Denver, Colorado 80203

December 10, 2018

Daniel Robinson
Robinson Sons Inc.
1228 East 7th Street
Trinidad, CO 81082

**Re: Robinson Sons Gravel Pit No. 1, Permit No. M-2008-076
Amendment Application (Revision No. AM-01), Adequacy Review No. 2**

Mr. Robinson:

The Division of Reclamation, Mining and Safety (Division) has completed its second adequacy review of the materials submitted for the above referenced amendment application. All comment and review periods for the application began on September 24, 2018, when the application was called complete for filing purposes. The decision date for the application is set for **December 24, 2018**.

After reviewing the adequacy response submitted on November 30, 2018, the Division has identified adequacy items requiring clarification or additional information. These items are identified below under their respective exhibit heading, and are numbered sequentially. The item numbers referenced in this letter correlate with the Division's adequacy items identified in the letter dated October 4, 2018.

Exhibit G – Water Information (Rule 6.4.7):

- 1) The operator's response to item no. 16 commits to not conducting activities in the creek disturbance areas until appropriate permits from the Division of Water Resources (DWR) and/or the U.S. Army Corps of Engineers (USACE) are acquired. Please commit to providing the Division with a copy of any determination(s) made by DWR or USACE for this site.

Exhibit L – Reclamation Costs (Rule 6.4.12):

- 2) The operator's response to item no. 25 states that all equipment needed for demolition of the scale and scale house is located on site. The operator submitted a similar response to item no. 26 stating that mobilization and demobilization costs are estimated at zero, as the applicant has all of the necessary equipment present on site. Please be advised, Rule 6.4.12(1) requires the information provided by the operator (for calculating the costs of reclamation) to be sufficient to calculate the costs that would be incurred by the state. The bond estimate provided by the operator does not fully satisfy this Rule.

The Division has calculated a bond amount for the proposed operation (see enclosed estimate), which includes costs the state would incur if it had to complete reclamation of the site. Please



note, while the operator intends to first consult with DWR and USACE prior to conducting any mitigation or reclamation activities in the creek disturbance areas, the bond estimate must include costs for these tasks at this time. If the mitigation or reclamation plan for these areas needs to be revised in the future after consultation with other agencies, the operator can submit a Technical Revision to revise the reclamation plan accordingly. Please review the Division's bond estimate and provide any comments you might have by the deadline given at the end of this letter.

Exhibit S – Permanent Man-Made Structures (Rule 6.4.19):

- 3) The operator's response to item no. 29 provides a list of permanent, man-made structures located on and within 200 feet of the affected area, and their respective owners. Under section (e) of this list, the operator includes fences with various owners depending on the neighboring property owner. However, on the revised Exhibit C-1 map submitted, only one owner (Robinson) is identified for fences located within 200 feet of the affected area. Pursuant to Rule 6.4.3(g), the Exhibit C map must show the owner's name for all permanent, man-made structures located on and within 200 feet of the affected land. Therefore, please revise the Exhibit C-1 map to include all structure owners, including for any fences located within 200 feet of the proposed affected area.
- 4) The operator's response to item no. 30 states that structure agreements have been sent out to all structure owners via Certified Mail in accordance with Rule 6.4.19(a) and (c). Please provide the return receipts for Certified Mailing and copies of the structure agreements that were mailed to all structure owners. Please be advised, the Division cannot accept an engineering evaluation to demonstrate structures will not be damaged by activities occurring at the mining operation until the operator has demonstrated agreements were attempted for all structure owners.

Geotechnical Stability Exhibit:

- 5) The operator's response to item no. 33 states that mining will be kept at least 30 feet from gas lines and 10 feet from power poles. However, the Exhibit C-2 map shows a minimum 25 foot setback from gas lines and a minimum 20 foot setback from power poles. Please explain and/or correct these discrepancies. Please be sure the Exhibit C-2 map shows the correct minimum setback distances.
- 6) The operator's response to item no. 34 states that vertical highwalls in sand and gravel mining are temporary in nature and therefore are not evaluated for slope stability. Please be advised, pursuant to Rule 6.5(2), the Division may require an operator to provide engineering stability analyses for certain slope configurations as they will occur during operations (not just for proposed final reclaimed slopes). Please provide an engineering stability analysis demonstrating that keeping the proposed 1,000 foot section of vertical highwall a minimum of 25 feet from power poles, 90 feet from gas lines, and 50 feet from all other structures not owned by the operator will be sufficient to not damage these structures. Alternatively, the operator may provide executed structured agreements for these structures pursuant to Rule 6.4.19(a) or (c).



Additional Item(s):

- 7) Pursuant to Rule 1.6.2(1)(c), any changes or additions to the application on file in our office must also be reflected in the public review copy which was placed with the County Clerk and Recorder. Pursuant to Rule 6.4.18, you must provide our office with an affidavit or receipt indicating the date this was done. Please provide an affidavit or receipt demonstrating a copy of the last adequacy response (submitted to the Division on November 30, 2018) was placed with the County Clerk and Recorder.

This concludes the Division's second adequacy review of your amendment application. Please ensure the Division sufficient time to complete its review process by responding to these adequacy issues by December 17, 2018.

If you have any questions, you may call me at (303) 866-3567, ext. 8129, or email me at amy.eschberger@state.co.us.

Sincerely,



Amy Eschberger
Environmental Protection Specialist

Encl: Division's bond estimate
Comment from Office of Archaeology and Historic Preservation, received on 10/22/2018
Comment from Colorado Parks and Wildlife, received on 11/8/2018

Ec: Ben Langenfeld, Greg Lewicki and Associates at: benl@lewicki.biz



COST SUMMARY WORK

Task description: Cost Summary

Site: Robinson Sons Gravel Pit No. 1

Permit Action: AM-01 Bond Estimate

Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 12/10/2018

County: Las Animas

Filename: M076-000

User: AME

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Backfill 1,000 ft vertical highwall to 3H:1V in Area 1	LOADER	1	102.14	\$9,999.00
002	Rip stockpiling/processing areas in Area 1	RIPPER	1	16.27	\$3,665.00
003	Retopsoil 17.14 ac at 8 in depth in Area 1	SCRAPER1	1	35.36	\$27,421.00
004	Revegetate 17.14 ac in Area 1	REVEGE	1	34.00	\$28,377.00
005	Grade 2.12 ac in Area 2	DOZER	1	9.48	\$2,099.00
006	Retopsoil 2.12 ac at 8 in depth in Area 2	SCRAPER1	1	6.89	\$5,340.00
007	Revegetate 2.12 ac in Area 2	REVEGE	1	4.00	\$3,510.00
008	Demolition of scale and scale house	DEMOLISH	1	10.00	\$3,192.98
009	Haul overburden to backfill creek pits 2 ft above GW	TRUCK1	1	57.72	\$36,134.00
010	Grade disturbed slopes in creek area to 3H:1V	DOZER	1	3.68	\$813.00
011	Haul topsoil to creek areas, spread at 8 in depth	TRUCK1	1	37.03	\$23,183.00
012	Revegetate 6.74 ac creek areas	REVEGE	1	14.00	\$11,159.00
013	Mobilization/Demobilization of Equipment	MOBILIZE	1	14.04	\$27,046.00
<u>SUBTOTALS:</u>				344.61	\$181,939

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$3,675.17

Performance bond: 1.05

Total = \$1,910.36

Job superintendent: 0.00

Total = \$0.00

Profit: 10.00

Total = \$18,193.90

TOTAL O & P = \$23,779.43

CONTRACT AMOUNT (direct + O & P) = \$205,718.43

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 500.00

Total = 500.00

Engineering work and/or contract/bid preparation: 0.00

Total = \$0.00

Reclamation management and/or administration: 5.00

\$10,285.92

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$34,565.35

TOTAL BOND AMOUNT (direct + indirect) = \$216,504.35

WHEEL LOADER – LOAD AND CARRY WORKTask description: Backfill 1,000 ft vertical highwall to 3H:1V in Area 1Site: Robinson Sons Gravel Pit No. 1 Permit Action: AM-01 Bond Estimate Permit/Job#: M2008076**PROJECT IDENTIFICATION**

Task #: 001 State: Colorado Abbreviation: None
 Date: 12/10/2018 County: Las Animas Filename: M076-001
 User: AME

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: CAT 950H Horsepower: 197
 Attachment 1: ROPS Cab Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$26.14	NA
Operating Cost/Hour:	\$30.84	100
Operator Cost/Hour:	\$40.90	NA
Total Unit Cost/Hour:	\$97.89	
Total Fleet Cost/Hour:	\$97.89	

MATERIAL QUANTITIES

Initial volume: 18,000 CCY Swell factor: 1.125
 Loose volume: 20,250 LCY

Source of estimated volume: 1,000' L x 18 ft H from vertical to 3H:1V
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTIONLoader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): 0.500 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 Basic Cycle Time:		0.400	minutes

Rolling Resistance – Road Conditions

Haul: Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0
 Return: Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	350	2.00	8.00	10.00	0.4723	(Cat HB)
Return Route:	350	-2.00	8.00	6.00	0.3158	(Cat HB)

Total Travel Time: 0.7881 minutes
 Total Cycle Time: 1.1881 minutes

Load Bucket Capacity

Rated Capacity: 4.30 LCY (heaped)
 Bucket Fill Factor: 1.100 Other - rock/dirt mixtures (100-120%) 1.100
 Adjusted Capacity: 4.73 LCY

Job Condition Correction Factors

Site Altitude: 6990 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Unadjusted Hourly Unit Production: 238.86 LCY/Hour
 Adjusted Hourly Unit Production: 198.26 LCY/Hour
 Adjusted Hourly Fleet Production: 198.26 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: 102.14 Hours
 Unit cost: \$0.494 /LCY Total job cost: \$9,999

BULLDOZER RIPPING WORK

Task description: Rip stockpiling/processing areas in Area 1

Site: Robinson Sons Gravel Pit No. 1 Permit Action: AM-01 Bond Estimate Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 12/10/2018 County: Las Animas Filename: M076-002
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper Ownership Cost/Hour:	\$8.93	NA
Ripper Operating Cost/Hour:	\$7.78	100
Operator Cost/Hour:	\$41.52	NA
Total Unit Cost/Hour:	\$225.20	
Total Fleet Cost/Hour:	\$225.20	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 10.80 acres Rip Depth (ft): 2.00 Volume: 34,848 BCY or CCY

Source of estimated quantity: DRMS estimate 3.4 ac OB pile + 7.4 ac pit floor and piles

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.56 mph
Average Ripping Width: 7.08 degrees
Average Ripping Length: 300.00 feet
Average Dozer Speed: 88.00 feet
Average Maneuver Time: 0.25 feet
Production per unit area: 0.800 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.800 Acres/hr
Site Altitude: 6,990 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.66 Acres/hr
Adjusted Hourly Fleet Production: **0.66** Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **16.27** Hours

Unit cost: \$339.348 Per acre Total job cost: **\$3,665**

SCRAPER TEAM WORKTask description: **Retopsoil 17.14 ac at 8 in depth in Area 1**Site: **Robinson Sons Gravel Pit No. 1**Permit Action: AM-01 Bond EstimatePermit/Job#: M2008076**PROJECT IDENTIFICATION**Task #: 003State: ColoradoAbbreviation: NoneDate: 12/10/2018County: Las AnimasFilename: M076-003User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	100	NA	100	100
Ownership cost/hour:	\$155.61	NA	\$93.62	NA	\$77.19	\$12.39
Operating cost/hour:	\$166.86	NA	\$73.35	NA	\$63.34	\$26.02
%Utilization-ripper:	NA	NA	NA	NA	50	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$4.07	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$1.77	\$0.00
Operator cost/hour:	\$31.05	NA	\$41.52	NA	\$28.69	\$0.00
Unit Subtotals:	\$353.51	NA	\$208.49	NA	\$175.05	\$38.41
Number of Units:	1	0	1	0	1	1
Group Subtotals:	Work: \$353.51		Support: \$208.49		Maint: \$175.05	\$38.41

Total work team cost/hour: **\$775.46****MATERIAL QUANTITIES**Initial volume: 18,435

CCY

Swell factor: 1.215Loose volume: **22,399**

LCY

Source of estimated volume: 17.14 ac x 8 in depth, avg 800 ft distanceSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight: 1,600 lbs/LCY
 Material description: Top Soil
 Rated Payload: 81,600 pounds
 Payload Capacity: 51.00 LCY

Struck Volume: 24.00 LCY
 Heaped Volume: 34.00 LCY
 Average Volume: 29.00 LCY
 Adjusted Capacity: **29.00** LCY

Cycle Time:Scraper Loading Time: 0.80 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6990 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	1.00	3.00	4.00	2394	0.49

Haul Time: 0.49 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	-1.00	3.00	2.00	2960	0.39

Return Time: 0.39 minutesTotal Scraper team cycle time: 2.28 minutesAdjusted for job conditions: 633.42 LCY/HourSelected Number of Scrapers: 1 Scraper(s)Adjusted single scraper team (unit) hourly production: 633.42 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 633.42 LCY/HourUnadjusted unit production/hour: 763.16 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 35.36 HoursUnit cost: \$1.224 /LCYTotal job cost: \$27,421

REVEGETATION WORKTask description: Revegetate 17.14 ac in Area 1Site: Robinson Sons Gravel Pit No. 1Permit Action: AM-01 Bond EstimatePermit/Job#: M2008076**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 12/10/2018County: Las AnimasFilename: M076-004User: AMEAgency 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
Chisel plowing {DMG}	\$92.77
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
Total Tilling Cost/Acre	\$286.37

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Native	5.50	16.41	\$57.75
Blue Grama - Native	1.50	24.48	\$22.28
Sideoats Grama - Vaughn	4.50	14.77	\$46.08
Western Wheatgrass - Native	8.00	20.20	\$57.36
Totals Seed Mix	19.50	75.87	\$183.47

Application

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

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Weed spray, hand, non-aquatic area, nox. [DMG]	\$184.32
Total Mulch Application Cost/Acre	\$253.10

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:	17.14	Cost /Acre:	\$1,530.94
Estimated Failure Rate:	30%	Cost /Acre*:	\$415.47
*Selected Replanting Work Items:	SEEDING		
Initial Job Cost:	\$26,240.31		
Reseeding Job Cost:	\$2,136.35		
Total Job Cost:	\$28,377		
Job Hours:	34.00		

BULLDOZER WORKTask description: **Grade 2.12 ac in Area 2**Site: **Robinson Sons Gravel Pit No. 1**Permit Action: **AM-01 Bond Estimate**Permit/Job#: **M2008076****PROJECT IDENTIFICATION**Task #: **005**State: **Colorado**Abbreviation: **None**Date: **12/10/2018**County: **Las Animas**Filename: **M076-005**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:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$8.93	NA
Ripper op. Cost/Hour:	\$3.89	50
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: **\$221.31**Total Fleet Cost/Hour: **\$221.31****MATERIAL QUANTITIES**Initial Volume: **6,840**Swell factor: **1.000**Loose volume: **6,840 LCY**Source of estimated volume: **2.12 ac x 2 ft**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **50 feet**Unadjusted hourly production: **1,400.0 LCY/hr**Materials consistency description: **Loose stockpile 1.2**Average push gradient: **5 %**Average site altitude: **6,990 feet**Material weight: **2,650 lbs/LCY**Weight description: **Decomposed rock - 25% Rock, 75% Earth****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)

Spoil pile:	0.800	(FND-RF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5152

Adjusted unit production: 721.28 LCY/hr

Adjusted fleet production: **721.28** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.307/LCY

Total job time: **9.48** Hours

Total job cost: **\$2,099**

SCRAPER TEAM WORKTask description: **Retopsoil 2.12 ac at 8 in depth in Area 2**Site: **Robinson Sons Gravel Pit No. 1**Permit Action: AM-01 Bond EstimatePermit/Job#: M2008076**PROJECT IDENTIFICATION**Task #: 006State: ColoradoAbbreviation: NoneDate: 12/10/2018County: Las AnimasFilename: M076-006User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	100	NA	100	100
Ownership cost/hour:	\$155.61	NA	\$93.62	NA	\$77.19	\$12.39
Operating cost/hour:	\$166.86	NA	\$73.35	NA	\$63.34	\$26.02
%Utilization-ripper:	NA	NA	NA	NA	50	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$4.07	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$1.77	\$0.00
Operator cost/hour:	\$31.05	NA	\$41.52	NA	\$28.69	\$0.00
Unit Subtotals:	\$353.51	NA	\$208.49	NA	\$175.05	\$38.41
Number of Units:	1	0	1	0	1	1
Group Subtotals:	Work: \$353.51		Support: \$208.49		Maint: \$175.05	\$38.41

Total work team cost/hour: **\$775.46****MATERIAL QUANTITIES**Initial volume: 2,280

CCY

Swell factor: 1.215Loose volume: **2,770**

LCY

Source of estimated volume: 2.12 ac x 8 in depth, avg 2,000 ft distanceSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight: 1,600 lbs/LCY
 Material description: Top Soil
 Rated Payload: 81,600 pounds
 Payload Capacity: 51.00 LCY

Struck Volume: 24.00 LCY
 Heaped Volume: 34.00 LCY
 Average Volume: 29.00 LCY
 Adjusted Capacity: **29.00** LCY

Cycle Time:Scraper Loading Time: 0.80 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6990 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	3.00	3.00	6.00	1477	1.41

Haul Time: 1.41 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	-3.00	3.00	0.00	2965	0.78

Return Time: 0.78 minutesTotal Scraper team cycle time: 3.59 minutesAdjusted for job conditions: 402.28 LCY/HourSelected Number of Scrapers: 1 Scraper(s)Adjusted single scraper team (unit) hourly production: 402.28 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 402.28 LCY/HourUnadjusted unit production/hour: 484.68 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 6.89 HoursUnit cost: \$1.928 /LCYTotal job cost: \$5,340

REVEGETATION WORKTask description: Revegetate 2.12 ac in Area 2Site: Robinson Sons Gravel Pit No. 1Permit Action: AM-01 Bond EstimatePermit/Job#: M2008076**PROJECT IDENTIFICATION**Task #: 007
Date: 12/10/2018
User: AMEState: Colorado
County: Las AnimasAbbreviation: None
Filename: M076-007Agency 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
Chisel plowing {DMG}	\$92.77
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
Total Tilling Cost/Acre	\$286.37

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Native	5.50	16.41	\$57.75
Blue Grama - Native	1.50	24.48	\$22.28
Sideoats Grama - Vaughn	4.50	14.77	\$46.08
Western Wheatgrass - Native	8.00	20.20	\$57.36
Totals Seed Mix	19.50	75.87	\$183.47

Application

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

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Weed spray, hand, non-aquatic area, nox. [DMG]	\$184.32
Total Mulch Application Cost/Acre	\$253.10

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:	2.12	Cost /Acre:	\$1,530.94
Estimated Failure Rate:	30%	Cost /Acre*:	\$415.47
*Selected Replanting Work Items:	SEEDING		
Initial Job Cost:	\$3,245.59		
Reseeding Job Cost:	\$264.24		
Total Job Cost:	\$3,510		
Job Hours:	4.00		

DEMOLITION WORK

Task description: Demolition of scale and scale house

Site: Robinson Sons Gravel Pit No. 1

Permit Action: AM-01 Bond Estimate

Permit/Job#: M2008076

PROJECT IDENTIFICATION

Task #: 008

State: Colorado

Abbreviation: None

Date: 12/10/2018

County: Las Animas

Filename: M076-008

User: AME

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 91.50 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Truck Scale Demo	1,100 SF	Floor, concrete, demolition only, average reinforcing - 12 in. thick	1,100.00	SF	\$1.59	\$1,749.00
Scale House Demo	160 SF x 8 F	Demo. only, small or single buildings (single story) - Wood structures	1,280.00	CF	\$0.18	\$225.28
Loading and Off-site Disposal	40.7 CY + 47.4 CY	Loading and 2 mile haul, no salvage - Machine loading	88.10	CY	\$17.20	\$1,515.32

Job Hours: 10.00

Subtotal
(unadjusted): \$3,489.60

Total Cost
(adjusted for location): \$3,192.98

TRUCK/LOADER TEAM WORKTask description: **Haul overburden to backfill creek pits 2 ft above GW**Site: **Robinson Sons Gravel Pit No. 1**Permit Action: **AM-01 Bond Estimate**Permit/Job#: **M2008076****PROJECT IDENTIFICATION**Task #: **009**
Date: **12/10/2018**
User: **AME**State: **Colorado**
County: **Las Animas**Abbreviation: **None**
Filename: **M076-009**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Shift basis: **1 per day**

Equipment Description	
Truck Loader Team -Truck:	Generic 8-10 cy, 6x4
-Loader:	CAT 950H
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	100
Ownership cost/hour:	\$15.87	\$26.14	NA	\$93.62	\$77.19	\$12.39
Operating cost/hour:	\$40.15	\$30.84	NA	\$73.35	\$63.34	\$26.02
%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:	\$0.00	\$40.90	NA	\$41.52	\$28.69	\$0.00
Unit Subtotals:	\$56.02	\$97.89	NA	\$208.49	\$169.22	\$38.41
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work: \$209.93		Support: \$208.49		Maint: \$207.63	

Total work team cost/hour: **\$626.05****MATERIAL QUANTITIES**Initial volume: **10,164** CCY Swell factor: **1.125**
Loose volume: **11,435** LCYSource of estimated volume: **1.4 ac(N side) + 0.7 ac(S side), 3 ft depth (bf GW in pits)**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: **2,650** Pounds/LCY
Description: **Decomposed rock - 25% Rock, 75% Earth**
Rated Payload: **27,280** Pounds
Payload Capacity: **10.29** LCY

Truck Bed (volume) Basis:

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

Final Truck Volume Based on Number of Loader Passes: 9.46 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	4.730	LCY

Job Condition Corrections:

Site Altitude (ft.): 6990 feet

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

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 2 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: 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): 0.500 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:		0.400	minutes
Net Load Time per Truck:		0.500	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.500	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Maneuver and Dump Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3600.00	2.00	3.00	5.00	2218	1.692

Haul Time: **1.692** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3600.00	-2.00	3.00	1.00	2913	1.264

Return Time: **1.264** minutesTotal Truck Cycle Time: **4.756** minutes

Loading Tool unit

Production 567.60 LCY/Hour Adjusted for job efficiency: 471.11 LCY/Hour
Truck Unit Production 119.34 LCY/Hour Adjusted for job efficiency: 99.06 LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 198.11 LCY/Hour
Adjusted single truck/loader team production: 198.11 LCY/Hour
Adjusted multiple truck/loader team production: **198.11** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **57.72** Hours

Unit cost: \$3.160 /LCY Total job cost: **\$36,134**

BULLDOZER WORKTask description: **Grade disturbed slopes in creek area to 3H:1V**Site: **Robinson Sons Gravel Pit No. 1**Permit Action: AM-01 Bond EstimatePermit/Job#: M2008076**PROJECT IDENTIFICATION**Task #: 010State: ColoradoAbbreviation: NoneDate: 12/10/2018County: Las AnimasFilename: M076-010User: AMEAgency 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:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$93.62</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$73.35</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$8.93</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$3.89</u>	<u>50</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>

Total unit Cost/Hour: \$221.31
 Total Fleet Cost/Hour: **\$221.31**

MATERIAL QUANTITIES

Initial Volume: 1,875
 Swell factor: 1.250
 Loose volume: **2,344 LCY**

Source of estimated volume: Approx 800 ft L (N side) + 550 ft L (S side), avg 10 ft H
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
 Unadjusted hourly production: 1,400.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %
 Average site altitude: 6,990 feet

Material weight: 2,650 lbs/LCYWeight description: Decomposed rock - 25% Rock, 75% Earth**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>0.900</u>	<u>(CAT HB))</u>
Dozing method:	<u>1.200</u>	<u>(SLOT)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>
Job efficiency:	<u>0.830</u>	<u>(1 SHIFT/DAY)</u>

Spoil pile:	0.700	(FND-MF)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4555

Adjusted unit production: 637.70 LCY/hr

Adjusted fleet production: **637.7** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.347/LCY

Total job time: **3.68** Hours

Total job cost: **\$813**

TRUCK/LOADER TEAM WORKTask description: **Haul topsoil to creek areas, spread at 8 in depth**Site: **Robinson Sons Gravel Pit No. 1**Permit Action: **AM-01 Bond Estimate**Permit/Job#: **M2008076****PROJECT IDENTIFICATION**Task #: **011**
Date: **12/10/2018**
User: **AME**State: **Colorado**
County: **Las Animas**Abbreviation: **None**
Filename: **M076-011**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Shift basis: **1 per day**

Equipment Description	
Truck Loader Team -Truck:	Generic 8-10 cy, 6x4
-Loader:	CAT 950H
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	100
Ownership cost/hour:	\$15.87	\$26.14	NA	\$93.62	\$77.19	\$12.39
Operating cost/hour:	\$40.15	\$30.84	NA	\$73.35	\$63.34	\$26.02
%Utilization-ripper:	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:	\$0.00	\$40.90	NA	\$41.52	\$28.69	\$0.00
Unit Subtotals:	\$56.02	\$97.89	NA	\$208.49	\$169.22	\$38.41
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work: \$209.93		Support: \$208.49		Maint: \$207.63	

Total work team cost/hour: **\$626.05****MATERIAL QUANTITIES**Initial volume: **7,250** CCY Swell factor: **1.215**
Loose volume: **8,809** LCYSource of estimated volume: **6.74 ac x 8 in depth, topsoil from Area 1**
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: **27,280** Pounds
Payload Capacity: **17.05** LCY

Truck Bed (volume) Basis:

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

Final Truck Volume Based on Number of Loader Passes: **9.46** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	4.730	LCY

Job Condition Corrections:

Site Altitude (ft.): 6990 feet

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

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 2 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: 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): 0.500 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:		0.400	minutes
Net Load Time per Truck:		0.500	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.500	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Maneuver and Dump Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2600.00	2.00	3.00	5.00	2218	1.241

Haul Time: **1.241** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2600.00	-2.00	3.00	1.00	2913	0.920

Return Time: **0.920** minutesTotal Truck Cycle Time: **3.961** minutes

Loading Tool unit

Production 567.60 LCY/Hour Adjusted for job efficiency: 471.11 LCY/Hour
Truck Unit Production 143.30 LCY/Hour Adjusted for job efficiency: 118.94 LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 237.87 LCY/Hour
Adjusted single truck/loader team production: 237.87 LCY/Hour
Adjusted multiple truck/loader team production: **237.87** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **37.03** Hours

Unit cost: \$2.632 /LCY Total job cost: **\$23,183**

REVEGETATION WORKTask description: Revegetate 6.74 ac creek areasSite: Robinson Sons Gravel Pit No. 1Permit Action: AM-01 Bond EstimatePermit/Job#: M2008076**PROJECT IDENTIFICATION**Task #: 012
Date: 12/10/2018
User: AMEState: Colorado
County: Las AnimasAbbreviation: None
Filename: M076-012Agency 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
Chisel plowing {DMG}	\$92.77
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
Total Tilling Cost/Acre	\$286.37

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Native	5.50	16.41	\$57.75
Blue Grama - Native	1.50	24.48	\$22.28
Sideoats Grama - Vaughn	4.50	14.77	\$46.08
Western Wheatgrass - Native	8.00	20.20	\$57.36
Totals Seed Mix	19.50	75.87	\$183.47

Application

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

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Weed spray, hand, non-aquatic area, nox. [DMG]	\$184.32
Total Mulch Application Cost/Acre	\$253.10

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:	6.74	Cost /Acre:	\$1,530.94
Estimated Failure Rate:	30%	Cost /Acre*:	\$415.47
*Selected Replanting Work Items:	SEEDING		
Initial Job Cost:	\$10,318.54		
Reseeding Job Cost:	\$840.08		
Total Job Cost:	\$11,159		
Job Hours:	14.00		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilization/Demobilization of Equipment**Site: **Robinson Sons Gravel Pit No. 1**Permit Action: **AM-01 Bond Estimate**Permit/Job#: **M2008076****PROJECT IDENTIFICATION**Task #: **013**
Date: **12/10/2018**
User: **AME**State: **Colorado**
County: **Las Animas**Abbreviation: **None**
Filename: **M076-013**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 950H	20.13	\$26.14	\$88.67	2	\$229.62	\$177.34	\$500.00
Cat D8T - 8SU	53.08	\$102.55	\$125.45	2	\$456.00	\$250.90	\$750.00
Cat 637G	57.28	\$155.61	\$125.45	2	\$562.12	\$250.90	\$500.00
CAT 16M	28.73	\$77.19	\$117.55	2	\$389.48	\$235.10	\$500.00
Subtotals:					\$1,637.22	\$914.24	\$2,250.00

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Generic 8-10 cy, 6x4	\$85.75	2	\$171.50	\$171.50
Water Tanker, 3,500 Gal.	\$38.41	2	\$76.82	\$76.82
Drill/Broadcast Seeder with Tractor	\$36.08	1	\$36.08	\$36.08

Subtotals: **\$284.40** **\$284.40**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>TRINIDAD</u>	
Total one-way travel distance:	<u>23.00</u>	miles
Average Travel Speed:	<u>45.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$26,754.80</u>
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** two round trips with haul rig:	
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Total Roadable Mob/Demob Cost **	<u>\$290.72</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.51</u>	<u>0.51</u>
Return Time (Hours):	<u>0.51</u>	<u>0.51</u>
Loading Time (Hours):	<u>3.00</u>	<u>NA</u>
Unloading Time (Hours):	<u>3.00</u>	<u>NA</u>
Subtotals:	<u>7.02</u>	<u>1.02</u>

JOB TIME AND COST

Total job time:	<u>14.04</u>	Hours
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Total job cost:	<u>\$27,046</u>
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OFFICE of ARCHAEOLOGY and HISTORIC PRESERVATION

RECEIVED

OCT 22 2018

DIVISION OF RECLAMATION
MINING AND SAFETY

OCT 17 2018

Scottie Tate
Environmental Protection Specialist
Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, Colorado 80203

Re: Notice of 112 Construction Materials Reclamation Permit Amendment Application Consideration Robinson Sons Gravel Pit
No. 1, Permit No. M-2008-076 -AM01 (HC #53676)


Dear Scottie Tate:

We received your correspondence dated October 4, 2018 and received by our office on October 11, 2018 initiating consultation with our office. Our comments are provided in accordance with the Colorado State Register Act (Colorado Revised Statute (CRS) 24-80.1).

A search of the Colorado Cultural Resource Inventory database indicated that no cultural resource inventories have been conducted in the proposed permit area, and no historic properties have been recorded therein. Please keep in mind that our files contain incomplete information for this area, as most of Colorado has not yet been inventoried for cultural resources. As a result, there is the possibility that as yet unidentified cultural resources exist within the proposed permit area. Should human remains be discovered during mining activities, the requirements under State law CRS 24-80 part 13 apply and must be followed.

Thank you for the opportunity to comment. If we may be of further assistance, please contact Todd McMahon, Staff Archaeologist at (303) 866-4607/ todd.mcmahon@state.co.us

Sincerely,


Steve Turner, AIA
State Historic Preservation Officer
ST/TCM



COLORADO

Parks and Wildlife

Department of Natural Resources

Pueblo Service Center
600 Pueblo Reservoir Road
Pueblo, CO 81005
P 719-561-5300 | F 719-561-5321

November 8, 2019

Amy Eschberger
Environmental Protection Specialist
Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

Amy Eschberger,

Thank you for the opportunity to comment on the proposal from Robinson Sons Gravel Pit No. 1, Permit No. M-2008-076-AM01. This permit is an amendment to expand the permit boundary significantly from 78 permitted acres to 180.6 acres which is an acceptable revision pending appropriate reclamation procedure. Robinson Sons propose to have up to 25 acres disturbed at any one time which include haul roads acreage.

Reclamation will start when mining is complete in an area as they move to a new area of disturbance. This strategy reflects Colorado Parks and Wildlife recommendations of segmented or phased mining strategies and CPW appreciates that consideration. If reclamation is properly allocated and successfully completed this will be a valid and conscientious approach to reclamation. However, we must stress that reclamation be completed prior to moving to new sites to avoid inadequate efforts to salvage habitat loss. Smaller acreages impacted would be our preference to avoid large scale, long term habitat degradation.

Review of Exhibit H WILDLIFE INFORMATION (page 27) Although mule deer are a definite species of concern on the property, others listed are scaled quail and pronghorn antelope which are species of concern. Elk, black bear, mountain lion and Merriam turkey occur on the property in various numbers dictated by human and habitat disturbance, food source, weather (winter range) etc. This noted, employees and contractors should be cognizant of wildlife on the property and familiarize themselves with conflict avoidance. CPW website provides a myriad of educational materials on avoiding wildlife conflict and can be found at Colorado Parks and Wildlife (CPW) at www.cpw.state.co.us/.

Additionally, Exhibit H WILDLIFE INFORMATION describes no fishery on site which is indeed correct. However, the impact zone is immediately adjacent to the Purgatoire River which is a viable brown trout fishery. Extreme caution needs to be exercised in regard to potential spills, equipment/vehicle accidents or siltation which might develop at the site and negatively

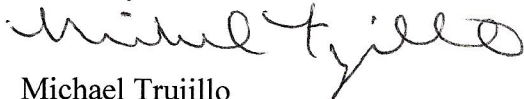


impact the Purgatoire River or Wet Canyon. Wet Canyon discharges in to the Purgatoire River and is the source of vehicular access to the mining area.

As to Seasonal Use listed on Page 27 in Exhibit H WILDLIFE INFORMATION, please review maps and information which can be found on our web page at cpw.state.co.us. Please feel free to contact our local District Wildlife Manager, BOB HOLDER #754 @ 719-680-1410 or bob.holder@state.co.us should you experience on site wildlife issues, conflicts or questions.

Again, Thank You, for your request and if CPW staff can be of any assistance do not hesitate to contact us.

Sincerely,

A handwritten signature in dark ink, appearing to read "Michael Trujillo". The signature is fluid and cursive, with the first name "Michael" written in a larger, more prominent script than the last name "Trujillo".

Michael Trujillo
Area Wildlife Manager – Area 11
600 Reservoir Road
Pueblo, CO 81005
(719) 561-5303