COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

May 15, 2023

Justyn Hamilton
LJS, LLC
P.O. Box 7812
Loveland, CO 80537

RE: Division's Financial Warranty Cost Estimates for Brownstone Quarry (M1997-065)

Dear Mr. Hamilton,

On April 27, 2023 the Division performed an inspection as part of the Division's Routine Monitoring Program of the Brownstone Quarry. As part of the inspection the financial warranty for the mine was calculated. The Division used observations made during the inspection, and permit file information during the cost estimate calculations.

A copy of the mine's reclamation cost estimate is attached for your review. The Division will allow 14 days or until **May 29, 2023** to review and comment on the reclamation cost estimate prior to issuing a surety increase notice for the Brownstone Quarry. Once the surety increase is issued by the Division, the Operator will have 60 days to provide the additional financial warranty.

If you need additional information or have any questions, please contact me by telephone at **303-866-3567 x8114**, or by email at patrick.lennberg@state.co.us.

Sincerely,

Patrick Lennberg
Environmental Protection Specialist

Attachment: Reclamation Cost Estimate

cc: Jared Ebert, DRMS

ec: Justyn Hamilton, LJS, LLC, justyn.hamilton@gmail.com

Attachments

COST SUMMARY WORK

Task description: **Cost Summary**

Site: **Brownstone Quarry** Permit Action: 2023 Insp Permit/Job#: M1997065

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 5/12/2023 County: Larimer Filename: 000
User: JPL

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Structural Demolition	DEMOLISH	1	40.00	$9,309
002	Haul Upper Overburden Pile to Upper Pit	TRUCK1	2	154.10	$128,914
003	Replace Overburden from Lower Stockpile	DOZER	2	47.77	$20,267
004	Replacing topsoil over disturbed area(s)	DOZER	1	7.36	$1,562
005	Rip Storage/Building Area	RIPPER	2	4.95	$2,235
006	Rip Stockpile Areas/Haul Road	RIPPER	2	3.30	$1,490
007	Revegetate Affected Areas	REVEGE	1	40.00	$50,913
008	Mobilization/Demobilization	MOBILIZE	1	9.77	$7,606
		SUBTOTALS:		**307.25**	**$222,296**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$4,490
Performance bond:	1.05	Total =	$2,334
Job superintendent:	153.62	Total =	$11,541
Profit:	10.00	Total =	$22,230
		TOTAL O & P =	$40,596
		CONTRACT AMOUNT (direct + O & P) =	$262,892

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	6.59	Total =	$17,325
Reclamation management and/or administration:	5.00		$13,145
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$71,565
		TOTAL BOND AMOUNT (direct + indirect) =	**$293,861**

DEMOLITION WORK

Task description: **Structural Demolition**

Site: **Brownstone Quarry** Permit Action: 2023 Insp Permit/Job#: M1997065

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 5/12/2023 County: Larimer Filename: 001
User: JPL

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 93.00 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Wire Saw Building	25'x25'x12'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	7,500.00	CF	$0.36	$2,730.00
Gang Saw Building	40' x20'x 20'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	16,000.00	CF	$0.36	$5,824.00
Trailer	15'x10'x12'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	1,800.00	CF	$0.36	$655.20
Truck Scale	40'x10'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	400.00	CF	$0.36	$145.60
Office	10'x10'x8'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	1,800.00	CF	$0.36	$655.20

Job Hours: 40.00 **Subtotal (unadjusted): $10,010.00** **Total Cost (adjusted for location): $9,309.30**

TRUCK/LOADER TEAM WORK

Task description: **Haul Upper Overburden Pile to Upper Pit**

Site: **Brownstone Quarry** Permit Action: 2023 Insp Permit/Job#: M1997065

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 5/12/2023 County: Larimer Filename: 002
User: JPL

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 12-18 cy, 6x4
-Loader:	CAT 938H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D7R DS XR Series II
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	75	NA	NA
Ownership cost/hour:	$24.21	$40.85	NA	$92.78	NA	NA
Operating cost/hour:	$57.28	$32.69	NA	$59.50	NA	NA
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	NA	NA
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	NA	NA
Operator cost/hour:	$24.82	$35.97	NA	$40.04	NA	NA
Unit Subtotals:	$106.31	$109.51	NA	$192.31	NA	NA
Number of Units:	4	2	0	1	0	0
Group Subtotals:	Work:	$644.26	Support:	$192.31	Maint:	$0.00

Total work team cost/hour: **$836.57**

MATERIAL QUANTITIES

Initial volume: 95,926 CCY Swell factor: 1.000
Loose volume: **95,926** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
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: 2,550 Pounds/LCY
Description: Sandstone
Rated Payload: 50,300 Pounds

Payload Capacity: 19.73 LCY

Truck Bed (volume) Basis:

Struck Volume:	12.00	LCY
Heaped Volume:	18.00	LCY
Average Volume:	15.00	LCY
Adjusted Volume:	18.00	LCY

Final Truck Volume Based on Number of Loader Passes: **17.06** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	3.900	LCY (heaped)
Bucket Fill Factor:	0.875	Loose material - 1" and over (85 - 90%) 0.875
Adjusted Capacity:	**3.413**	LCY

Job Condition Corrections: Site Altitude (ft.): 5300 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: 5 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): 0.483 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material 6" and over diameter 0.03	0.030	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Independently owned trucks 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:	0.050	minutes
	Adjusted Loader Cycle Time:	**0.533**	minutes
	Net Load Time per Truck:	**2.230**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	2.230	Minutes	Adjusted for site altitude:	2.230	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Hard, smooth, stabilized, surfaced, watered, maintained 2.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	-10.00	2.00	-8.00	1749	0.318
2	500.00	5.00	2.00	7.00	1568	0.324

Haul Time: **0.642** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	-5.00	2.00	-3.00	2938	0.228
2	400.00	10.00	2.00	12.00	1440	0.337

Return Time: **0.565** minutes
Total Truck Cycle Time: **4.837** minutes

Loading Tool unit Production 375.00 LCY/Hour Adjusted for job efficiency: 311.25 LCY/Hour

Truck Unit Production 211.65 LCY/Hour Adjusted for job efficiency: 175.67 LCY/Hour

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

Adjusted hourly truck team production: 351.34 LCY/Hour
Adjusted single truck/loader team production: 311.25 LCY/Hour
Adjusted multiple truck/loader team production: **622.50** LCY/Hour

JOB TIME AND COST

Fleet size: 2 Team(s) Total job time: **154.10** Hours

Unit cost: $1.344 /LCY Total job cost: **$128,914**

BULLDOZER WORK

Task description: **Replace Overburden from Lower Stockpile**

Site: **Brownstone Quarry** Permit Action: 2023 Insp Permit/Job#: M1997065

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 5/12/2023 County: Larimer Filename: 003
User: JPL

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II
Horsepower: 240
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$92.78	NA
Operating Cost/Hour:	$79.33	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $212.15
Total Fleet Cost/Hour: **$424.29**

MATERIAL QUANTITIES

Initial Volume: 15,000
Swell factor: 1.000
Loose volume: **15,000** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 410.8 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 10 %
Average site altitude: 5,400 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)

Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3822

Adjusted unit production: 157.01 LCY/hr

Adjusted fleet production: **314.02** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $1.351/LCY

Total job time: **47.77** Hours
Total job cost: **$20,267**

BULLDOZER WORK

Task description: **Replacing topsoil over disturbed area(s)**

Site: **Brownstone Quarry** Permit Action: 2023 Insp Permit/Job#: M1997065

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
Date: 5/12/2023 County: Larimer Filename: 004
User: JPL

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II
Horsepower: 240
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$92.78	NA
Operating Cost/Hour:	$79.33	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $212.15
Total Fleet Cost/Hour: **$212.15**

MATERIAL QUANTITIES

Initial Volume: 2,200
Swell factor: 1.000
Loose volume: **2,200** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 410.8 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 5 %
Average site altitude: 5,400 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)

Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7275

Adjusted unit production: 298.86 LCY/hr

Adjusted fleet production: **298.86** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.710/LCY

Total job time: **7.36** Hours
Total job cost: **$1,562**

BULLDOZER RIPPING WORK

Task description: **Rip Storage/Building Area**

Site: **Brownstone Quarry** Permit Action: 2023 Insp Permit/Job#: M1997065

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 5/12/2023 County: Larimer Filename: 005
User: JPL

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II Horsepower: 240
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$92.78	NA
Operating Cost/Hour:	$79.33	100
Ripper Ownership Cost/Hour:	$8.37	NA
Ripper Operating Cost/Hour:	$4.99	100
Operator Cost/Hour:	$40.04	NA
Total Unit Cost/Hour:	$225.51	
Total Fleet Cost/Hour:	**$451.01**	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 4.50 acres Rip Depth (ft): 2.00 Volume: 14,520 BCY or CCY

Source of estimated quantity: DRMS Estimate

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.45	feet/pass
Average Ripping Width:	6.50	feet/pass
Average Ripping Length:	50.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.547	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.547 Acres/hr

Site Altitude:	5,400	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.45 Acres/hr
Adjusted Hourly Fleet Production: **0.91** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **4.95** Hours

Unit cost: $496.582 Per acre Total job cost: **$2,235**

BULLDOZER RIPPING WORK

Task description: **Rip Stockpile Areas/Haul Road**

Site: **Brownstone Quarry** Permit Action: 2023 Insp Permit/Job#: M1997065

PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None
Date: 5/12/2023 County: Larimer Filename: 006
User: JPL

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II Horsepower: 240
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$92.78	NA
Operating Cost/Hour:	$79.33	100
Ripper Ownership Cost/Hour:	$8.37	NA
Ripper Operating Cost/Hour:	$4.99	100
Operator Cost/Hour:	$40.04	NA
Total Unit Cost/Hour:	$225.51	
Total Fleet Cost/Hour:	**$451.01**	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 3.00 acres Rip Depth (ft): 2.00 Volume: 9,680 BCY or CCY

Source of estimated quantity: DRMS Estimate

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.45	feet/pass
Average Ripping Width:	6.50	feet/pass
Average Ripping Length:	50.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.547	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.547 Acres/hr

Site Altitude:	5,400	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.45 Acres/hr
Adjusted Hourly Fleet Production: **0.91** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **3.30** Hours

Unit cost: $496.582 Per acre Total job cost: **$1,490**

REVEGETATION WORK

Task description: **Revegetate Affected Areas**

Site: **Brownstone Quarry** Permit Action: 2023 Insp Permit/Job#: M1997065

PROJECT IDENTIFICATION

Task #: 007 State: Colorado Abbreviation: None
Date: 5/12/2023 County: Larimer Filename: 007
User: JPL

Agency or organization name: DRMS

FERTILIZING

Materials

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

Application

Description	Cost /Acre
	$
Total Fertilizer Application Cost/Acre	**$0.00**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$117.18
Total Tilling Cost/Acre	**$117.18**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indiangrass - Cheyenne	1.00	3.05	$11.30
Big Bluestem - Native	2.20	6.57	$26.00
Blue Grama - Native	0.15	2.45	$2.06
Little Bluestem - Native	0.70	4.18	$9.50
Sideoats Grama - Vaughn	0.90	2.95	$7.54
Chokecherry	0.50	0.03	$14.50
Sandberg Bluegrass - VNS	0.10	2.12	$0.84
Mahogany, Mountain	0.50	0.68	$18.40
Western Wheatgrass - Native	1.60	4.04	$9.60
Flax, Lewis Blue	0.10	0.66	$1.65

Gayfeather, Dotted	0.10	0.31	$15.00
Sumac, Skunkbrush	1.00	0.47	$21.00
Winter Fat	0.50	1.27	$10.25
Penstemon, Four Corners	0.10	1.95	$3.78
Totals Seed Mix	9.45	30.74	**$151.41**

Application

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	$421.36	$842.72
Total Mulch Materials Cost/Acre				**$842.72**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$73.00
Total Mulch Application Cost/Acre	**$73.00**

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: 35
Estimated Failure Rate: 10%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,416.31
Cost /Acre*: $383.41

Initial Job Cost: **$49,570.85**
Reseeding Job Cost: **$1,341.94**
Total Job Cost: **$50,913**
Job Hours: **40.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization/Demobilization**

Site: **Brownstone Quarry** Permit Action: 2023 Insp Permit/Job#: M1997065

PROJECT IDENTIFICATION

Task #: 008 State: Colorado Abbreviation: None
Date: 5/12/2023 County: Larimer Filename: 008
User: JPL

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:	$15.25	$23.06	$37.58
Operating Cost/Hour:	$25.26	$30.83	$51.41
Operator Cost/Hour:	$27.71	$27.71	$27.71
Helper Cost/Hour:	$0.00	$20.22	$20.22
Total Unit Cost/Hour:	$68.22	$101.82	$136.92

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 D7R DS XR Series II	32.01	$92.78	$101.82	2	$389.20	$203.64	$250.00
CAT 938H	16.34	$40.85	$68.22	2	$218.14	$136.44	$500.00
Subtotals:					**$607.34**	**$340.08**	**$750.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 2,500 Gal.	$30.60	1	$30.60	$30.60
Generic 12-18 cy, 6x4	$106.31	4	$425.24	$425.24
Subtotals:			**$455.84**	**$455.84**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	FORT COLLINS	
Total one-way travel distance:	20.00	miles
Average Travel Speed:	45.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$7,200.87
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$405.19

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.44	0.44
Return Time (Hours):	0.44	0.44
Loading Time (Hours):	2.00	NA
Unloading Time (Hours):	2.00	NA
Subtotals:	4.89	0.89

JOB TIME AND COST

Total job time:	**9.78**	Hours
Total job cost:	**$7,606**	