



COLORADO

Division of Reclamation,
Mining and Safety

Department of Natural Resources
1313 Sherman Street, Room 215
Denver, Colorado 80203

May 12, 2017

Bill Tezak
Colorado Quarries Inc
270 S 15th St
Canon City, CO 81212

Re: Notice of Surety Increase (SI-01); Red Jasper Granite; Permit No. M-1982-200

Dear Bill Tezak:

On April 19, 2017, the Division of Reclamation, Mining and Safety (Division) conducted an inspection of Red Jasper Granite, Permit Number M-1982-200. In accordance with Rule 4.2.1(1) and (2), the Division may review a financial warranty at any time to determine if the amount is sufficient to perform reclamation. The Division currently holds a financial warranty of \$5,000.00. The Division has calculated a reclamation cost estimate for Red Jasper Granite based on the approved mining and reclamation plans and from site observations made on April 19, 2017. The Division calculated the cost to reclaim the affected disturbance to be \$14,886.00. **This is an increase of \$9,886.00 from the current financial warranty held.**

Pursuant to Rule 4.2.1(2), the current Financial Warranty must be amended or replaced to reflect the increase within 60 days from the date of this letter, due **July 11, 2017**.

For questions regarding financial warranties, please contact Barbara Coria, the Division's Financial Assurance Specialist, at (303) 866-3567 x 8148. There are various financial warranty application forms on our website at mining.state.co.us. Operations located on Bureau of Land Management lands have specific forms which are available on the Division's website.

For all other questions, please contact me at 303-866-3567 x8132.

Sincerely,

Elliott R. Russell
Environmental Protection Specialist

Enclosure: Reclamation Cost Estimate M1982200

Cc: Wally Erickson with DRMS
Barbara Coria with DRMS
Stephanie Carter with BLM



COST SUMMARY WORK

Task description: Cost Summary of Reclamation Task

Site: Red Jasper Granite Permit Action: 2017 Cost Estimate
TC-02

Permit/Job#: M1982200

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 5/4/2017 County: Teller Filename: M200-000
User: ERR

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Mobilization/Demobilization of Reclamation Equipment	MOBILIZE	1	7.71	\$4,436.00
002	Non-Roadable Equipment Site Access	MISC	1	1.00	\$139.18
003	Scale N Quarry Highwall	EXCAVATE	1	1.39	\$191.00
004	Consolidate Material Against N Quarry Highwall	DOZER	1	1.99	\$410.00
005	Rip N Quarry Pit Floor and Road	RIPPER	1	0.76	\$158.00
006	Spread Existing Soil Across N Quarry Pad	DOZER	1	0.07	\$15.00
007	Revegetate N Quarry Pad and Road	REVEGE	1	1.00	\$628.00
008	Scale S Quarry Highwall	EXCAVATE	1	4.19	\$574.00
009	Consolidate Material Against S Quarry Highwall	DOZER	1	7.41	\$1,532.00
010	Rip S Quarry Pit Floor	RIPPER	1	3.16	\$654.00
011	Spread Existing Soil Across S Quarry Pad	DOZER	1	0.76	\$156.00
012	Revegetate S Quarry Pad	REVEGE	1	3.00	\$2,598.00
<u>SUBTOTALS:</u>				32.44	\$11,491

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$232.12
Performance bond:	1.05	Total =	\$120.66
Job superintendent:	16.22	Total =	\$1,184.87
Profit:	10.00	Total =	\$1,149.10
		TOTAL O & P =	\$2,686.75
		CONTRACT AMOUNT (direct + O & P) =	\$14,177.75

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	0.00	Total =	0.00
Engineering work and/or contract/bid preparation:	0.00	Total =	\$0.00
Reclamation management and/or administration:	5.00		\$708.89

CONTINGENCY: 0.00 Total = \$0.00

TOTAL INDIRECT COST = \$3,395.64

TOTAL BOND AMOUNT (direct + indirect) = \$14,886.64

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilization/Demobilization of Reclamation Equipment**

Site: **Red Jasper Granite** Permit Action: 2017 Cost Estimate
TC-02 Permit/Job#: M1982200

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
 Date: 5/4/2017 County: Teller Filename: TC02
 User: ERR

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 336D L 10'-6" Stick	32.23	\$46.82	\$117.55	1	\$164.37	\$117.55	\$250.00
Cat D8T - 8SU	53.08	\$91.36	\$125.45	1	\$216.81	\$125.45	\$500.00

Subtotals: **\$381.18** **\$243.00** **\$750.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	\$115.31	1	\$115.31	\$115.31
Power Mulcher (Bowie LD-90)	\$21.31	1	\$21.31	\$21.31

Subtotals: **\$136.62** **\$136.62**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>COLORADO SPRINGS</u>	
Total one-way travel distance:	<u>50.00</u>	miles
Average Travel Speed:	<u>35.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$4,045.73</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$390.34</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>1.43</u>	<u>1.43</u>
Return Time (Hours):	<u>1.43</u>	<u>1.43</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>3.86</u>	<u>2.86</u>

JOB TIME AND COST

Total job time:	<u>7.71</u>	Hours
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Total job cost:	<u>\$4,436</u>
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MISC WORK

Task description: Non-Roadable Equipment Site Access

Site: Red Jasper Granite Permit Action: 2017 Cost Estimate Permit/Job#: M1982200
TC-02

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 5/4/2017 County: Teller Filename: TC02
User: ERR

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 93.10 %

Item Description	Dimensions	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
2 Mile Access Road	3.11 MPH	Cat 336D L 10'-6" Stick	0.64	Hour	\$136.75	\$87.52
2 Mile Access Road	6.6 MPH	Cat D8T - 8SU	0.30	Hour	\$206.59	\$61.98

Job Hours: 1.00 Subtotal (unadjusted): \$149.50 Total Cost (adjusted for location): \$139.18

HYDRAULIC EXCAVATOR WORK

Task description: Scale N Quarry Highwall

Site: Red Jasper Granite Permit Action: 2017 Cost Estimate
TC-02 Permit/Job#: M1982200

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 5/4/2017 County: Teller Filename: TC02
User: ERR

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick Horsepower: 268
Attachment 1: ROPS Cab Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

	Utilization %
Ownership Cost/Hour: <u>\$46.82</u>	<u>NA</u>
Operating Cost/Hour: <u>\$52.14</u>	<u>100</u>
Operator Cost/Hour: <u>\$37.79</u>	<u>NA</u>
Total Unit Cost/Hour: <u>\$136.75</u>	
Total Fleet Cost/Hour: <u>\$136.75</u>	

MATERIAL QUANTITIES

Initial volume: 67 CCY Swell factor: 1.640
Loose volume: 110 LCY

Source of estimated volume: DRMS: 90' long x 20' high x 12" average
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: SEVERE
Secondary Job Condition within Basic Description: SEVERE
Cycle Time Value: 0.445 minutes

Load Bucket Capacity

Rated Capacity: 1.56 LCY (heaped) Bucket Size Class: Small
Bucket Fill Factor: 0.450 Rock - Poorly blasted (40% - 50%) 0.450
Adjusted Capacity: 0.70 LCY

Job Condition Correction Factors

Site Altitude: 8350 feet

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

Unadjusted Hourly Unit Production: 94.65 LCY/Hour
Adjusted Hourly Unit Production: 78.56 LCY/Hour
Adjusted Hourly Fleet Production: 78.56 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: 1.40 Hours
Unit cost: \$1.741 /LCY Total job cost: \$191

BULLDOZER WORKTask description: **Consolidate Material Against N Quarry Highwall**Site: **Red Jasper Granite**Permit Action: 2017 Cost Estimate
TC-02Permit/Job#: M1982200**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 5/4/2017County: TellerFilename: TC02User: ERRAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$83.81	NA
Operating Cost/Hour:	\$66.17	100
Ripper own. Cost/Hour:	\$7.55	NA
Ripper op. Cost/Hour:	\$7.21	100
Operator Cost/Hour:	\$41.85	NA
Total unit Cost/Hour:	\$206.59	
Total Fleet Cost/Hour:	\$206.59	

MATERIAL QUANTITIESInitial Volume: 460Swell factor: 1.320Loose volume: **607 LCY**Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 60 feetUnadjusted hourly
production: 1,246.9 LCY/hrMaterials consistency description: Rock, poorly ripped or blasted 0.6Average push
gradient: 0 %Average site altitude: 8,350 feetMaterial weight: 2,800 lbs/LCYWeight description: Granite - Broken**Job Condition Correction Factor****Source**

Operator Skill:	0.750	(AVG.)
Material consistency:	0.600	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.821	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2453

Adjusted unit production: 305.86 LCY/hr

Adjusted fleet production: **305.86** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.675/LCY

Total job time: **1.99** Hours

Total job cost: **\$410**

BULLDOZER RIPPING WORK

Task description: Rip N Quarry Pit Floor and Road

Site: Red Jasper Granite Permit Action: 2017 Cost Estimate Permit/Job#: M1982200
TC-02

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 5/4/2017 County: Teller Filename: TC02
User: ERR

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$83.81	NA
Operating Cost/Hour:	\$66.17	100
Ripper Ownership Cost/Hour:	\$7.55	NA
Ripper Operating Cost/Hour:	\$7.21	100
Operator Cost/Hour:	\$41.85	NA
Total Unit Cost/Hour:	\$206.59	
Total Fleet Cost/Hour:	\$206.59	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.29 acres Rip Depth (ft): 1.00 Volume: 468 BCY or CCY

Source of estimated quantity: DRMS (.11 acre quarry pad and .18 acre road)

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.56 mph
Average Ripping Width: 7.08 degrees
Average Ripping Length: 25.00 feet
Average Dozer Speed: 88.00 feet
Average Maneuver Time: 0.25 feet
Production per unit area: 0.456 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.456 Acres/hr
Site Altitude: 8,350 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier
Adjusted Hourly Unit Production: 0.38 Acres/hr
Adjusted Hourly Fleet Production: 0.38 Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 0.77 Hours

Unit cost: \$545.268 Per acre Total job cost: \$158

BULLDOZER WORKTask description: Spread Existing Soil Across N Quarry PadSite: Red Jasper GranitePermit Action: 2017 Cost Estimate
TC-02Permit/Job#: M1982200**PROJECT IDENTIFICATION**Task #: 006State: ColoradoAbbreviation: NoneDate: 5/4/2017County: TellerFilename: TC02User: ERRAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$83.81	NA
Operating Cost/Hour:	\$66.17	100
Ripper own. Cost/Hour:	\$7.55	NA
Ripper op. Cost/Hour:	\$7.21	100
Operator Cost/Hour:	\$41.85	NA
Total unit Cost/Hour:	\$206.59	
Total Fleet Cost/Hour:	\$206.59	

MATERIAL QUANTITIESInitial Volume: 30Swell factor: 1.165Loose volume: 35 LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly
production: 1,400.0 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push
gradient: 0 %Average site altitude: 8,350 feetMaterial weight: 2,900 lbs/LCYWeight description: Decomposed rock - 50% Rock, 50% EarthJob Condition Correction FactorSource

Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit
production: 497.56 LCY/hr
Adjusted fleet
production: **497.56** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.415/LCY

Total job time: **0.07** Hours
Total job cost: **\$15**

REVEGETATION WORKTask description: Revegetate N Quarry Pad and RoadSite: Red Jasper Granite Permit Action: 2017 Cost Estimate
TC-02Permit/Job#: M1982200**PROJECT IDENTIFICATION**Task #: 007 State: Colorado Abbreviation: None
Date: 5/4/2017 County: Teller Filename: TC02
User: ERRAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	121.20	pound	\$0.34	\$41.21
Triple superphosphate, 0-46-0	87.00	pound	\$0.43	\$37.41
			Total Fertilizer Materials Cost/Acre	\$78.62

Application

Description	Cost /Acre
Hand spread (MEANS 32 01 90.13 0100)	\$638.15
Total Fertilizer Application Cost/Acre	\$638.15

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arizona Fescue - Redondo	2.00	22.96	\$23.68
Mountain Brome - Bromar	10.00	16.07	\$43.50
Yellow Sweet Clover - Madrid	2.00	11.94	\$5.66
Slender Wheatgrass - Native	4.00	14.60	\$11.28
Mahogany, Mountain	1.16	1.57	\$42.70
Western Wheatgrass - Arriba	6.00	15.15	\$48.48
Totals Seed Mix	25.16	82.29	\$175.30

Application

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

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	\$261.00	\$261.00
Total Mulch Materials Cost/Acre				\$261.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$66.02
Power mulcher (MEANS 32 91 13.16 0350)	\$99.32
Total Mulch Application Cost/Acre	\$165.34

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: 0.29 Cost /Acre: \$1,585.63
 Estimated Failure Rate: 50% Cost /Acre*: \$1,159.29
 *Selected Replanting Work Items: FERTILIZING,SEEDING

Initial Job Cost: **\$459.83**
 Reseeding Job Cost: **\$168.10**
 Total Job Cost: **\$628**
 Job Hours: **1.00**

HYDRAULIC EXCAVATOR WORK

Task description: Scale S Quarry Highwall

Site: Red Jasper Granite Permit Action: 2017 Cost Estimate Permit/Job#: M1982200
TC-02

PROJECT IDENTIFICATION

Task #: 008 State: Colorado Abbreviation: None
Date: 5/4/2017 County: Teller Filename: TC02
User: ERR

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick Horsepower: 268
Attachment 1: ROPS Cab Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

	Utilization %
Ownership Cost/Hour: <u>\$46.82</u>	<u>NA</u>
Operating Cost/Hour: <u>\$52.14</u>	<u>100</u>
Operator Cost/Hour: <u>\$37.79</u>	<u>NA</u>
Total Unit Cost/Hour: <u>\$136.75</u>	
Total Fleet Cost/Hour: <u>\$136.75</u>	

MATERIAL QUANTITIES

Initial volume: 201 CCY Swell factor: 1.640
Loose volume: 330 LCY

Source of estimated volume: DRMS: 110' long x 20' high & 325' long x 10' high. 12" avg.
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: SEVERE
Secondary Job Condition within Basic Description: SEVERE
Cycle Time Value: 0.445 minutes

Load Bucket Capacity

Rated Capacity: 1.56 LCY (heaped) Bucket Size Class: Small
Bucket Fill Factor: 0.450 Rock - Poorly blasted (40% - 50%) 0.450
Adjusted Capacity: 0.70 LCY

Job Condition Correction Factors

Site Altitude: 8350 feet

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

Unadjusted Hourly Unit Production: 94.65 LCY/Hour
Adjusted Hourly Unit Production: 78.56 LCY/Hour
Adjusted Hourly Fleet Production: 78.56 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: 4.20 Hours
Unit cost: \$1.741 /LCY Total job cost: \$574

BULLDOZER WORKTask description: **Consolidate Material Against S Quarry Highwall**Site: **Red Jasper Granite**Permit Action: 2017 Cost Estimate
TC-02Permit/Job#: M1982200**PROJECT IDENTIFICATION**Task #: 009State: ColoradoAbbreviation: NoneDate: 5/4/2017County: TellerFilename: TC02User: ERRAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$83.81	NA
Operating Cost/Hour:	\$66.17	100
Ripper own. Cost/Hour:	\$7.55	NA
Ripper op. Cost/Hour:	\$7.21	100
Operator Cost/Hour:	\$41.85	NA
Total unit Cost/Hour:	\$206.59	
Total Fleet Cost/Hour:	\$206.59	

MATERIAL QUANTITIESInitial Volume: 950Swell factor: 1.320Loose volume: **1,254 LCY**Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 135 feetUnadjusted hourly
production: 689.5 LCY/hrMaterials consistency description: Rock, poorly ripped or blasted 0.6Average push
gradient: 0 %Average site altitude: 8,350 feetMaterial weight: 2,800 lbs/LCYWeight description: Granite - Broken**Job Condition Correction Factor****Source**

Operator Skill:	0.750	(AVG.)
Material consistency:	0.600	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.821	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2453

Adjusted unit
production: 169.13 LCY/hr
Adjusted fleet
production: **169.13** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$1.221/LCY

Total job time: **7.41** Hours
Total job cost: **\$1,532**

BULLDOZER RIPPING WORK

Task description: Rip S Quarry Pit Floor

Site: Red Jasper Granite Permit Action: 2017 Cost Estimate Permit/Job#: M1982200
TC-02

PROJECT IDENTIFICATION

Task #: 010 State: Colorado Abbreviation: None
Date: 5/4/2017 County: Teller Filename: TC02
User: ERR

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$83.81	NA
Operating Cost/Hour:	\$66.17	100
Ripper Ownership Cost/Hour:	\$7.55	NA
Ripper Operating Cost/Hour:	\$7.21	100
Operator Cost/Hour:	\$41.85	NA
Total Unit Cost/Hour:	\$206.59	
Total Fleet Cost/Hour:	\$206.59	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 1.20 acres Rip Depth (ft): 1.00 Volume: 1,936 BCY or CCY

Source of estimated quantity: DRMS

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.56 mph
Average Ripping Width: 7.08 degrees
Average Ripping Length: 25.00 feet
Average Dozer Speed: 88.00 feet
Average Maneuver Time: 0.25 feet
Production per unit area: 0.456 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.456 Acres/hr
Site Altitude: 8,350 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier
Adjusted Hourly Unit Production: 0.38 Acres/hr
Adjusted Hourly Fleet Production: 0.38 Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 3.17 Hours

Unit cost: \$545.268 Per acre Total job cost: \$654

BULLDOZER WORKTask description: Spread Existing Soil Across S Quarry PadSite: Red Jasper GranitePermit Action: 2017 Cost Estimate
TC-02Permit/Job#: M1982200**PROJECT IDENTIFICATION**Task #: 011State: ColoradoAbbreviation: NoneDate: 5/4/2017County: TellerFilename: TC02User: ERRAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$83.81	NA
Operating Cost/Hour:	\$66.17	100
Ripper own. Cost/Hour:	\$7.55	NA
Ripper op. Cost/Hour:	\$7.21	100
Operator Cost/Hour:	\$41.85	NA
Total unit Cost/Hour:	\$206.59	
Total Fleet Cost/Hour:	\$206.59	

MATERIAL QUANTITIESInitial Volume: 323Swell factor: 1.165Loose volume: 376 LCYSource of estimated volume: DRMS: 4" on 1/2 size of pad (.6 acres)Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly
production: 1,400.0 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push
gradient: 0 %Average site altitude: 8,350 feetMaterial weight: 2,900 lbs/LCYWeight description: Decomposed rock - 50% Rock, 50% EarthJob Condition Correction FactorSource

Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit
production: 497.56 LCY/hr
Adjusted fleet
production: **497.56** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.415/LCY

Total job time: **0.76** Hours
Total job cost: **\$156**

REVEGETATION WORKTask description: Revegetate S Quarry Pad

Site: Red Jasper Granite Permit Action: 2017 Cost Estimate Permit/Job#: M1982200
TC-02

PROJECT IDENTIFICATION

Task #: 012 State: Colorado Abbreviation: None
 Date: 5/4/2017 County: Teller Filename: TC02
 User: ERR

Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	121.20	pound	\$0.34	\$41.21
Triple superphosphate, 0-46-0	87.00	pound	\$0.43	\$37.41
			Total Fertilizer Materials Cost/Acre	\$78.62

Application

Description	Cost /Acre
Hand spread (MEANS 32 01 90.13 0100)	\$638.15
Total Fertilizer Application Cost/Acre	\$638.15

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arizona Fescue - Redondo	2.00	22.96	\$23.68
Mountain Brome - Bromar	10.00	16.07	\$43.50
Yellow Sweet Clover - Madrid	2.00	11.94	\$5.66
Slender Wheatgrass - Native	4.00	14.60	\$11.28
Mahogany, Mountain	1.16	1.57	\$42.70
Western Wheatgrass - Arriba	6.00	15.15	\$48.48
Totals Seed Mix	25.16	82.29	\$175.30

Application

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

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	\$261.00	\$261.00
Total Mulch Materials Cost/Acre				\$261.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$66.02
Power mulcher (MEANS 32 91 13.16 0350)	\$99.32
Total Mulch Application Cost/Acre	\$165.34

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: 1.2 Cost /Acre: \$1,585.63
 Estimated Failure Rate: 50% Cost /Acre*: \$1,159.29
 *Selected Replanting Work Items: FERTILIZING,SEEDING

Initial Job Cost: **\$1,902.76**
 Reseeding Job Cost: **\$695.57**
 Total Job Cost: **\$2,598**
 Job Hours: **3.00**