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

1313 Sherman Street, Room 215
Denver, CO 80203

October 23, 2019

Jason Burkey
Oldcastle SW Group, Inc., dba United Companies of Mesa County
2273 River Road
Grand Junction, CO 81502

RE: Sievers Pit, Permit No. M-1977-098, Technical Revision (TR-4) Approval

Dear Mr. Burkey:

On October 23, 2019 the Division of Reclamation, Mining, and Safety (Division) approved the Technical Revision request (TR-4) submitted on August 6, 2019, addressing the following:

Revise Mining Plan to allow for entire the 122.9 acre mining area to be affected.

The terms of the TR-4 approved by the Division are hereby incorporated into Permit No. M-1977-098. All other conditions and requirements of the permit remain in full force and effect.

The estimated liability amount of *$794,357* exceeds the *$ 432,580* Financial Warranty currently held for this site. If you have not already done so, please submit additional bond in the amount of *$ 361,777.* Please review the enclosed figures as soon as possible and contact our office if any calculation errors are noted. The revision will not be final until the bond is approved by the Division.

If you require additional information, or have questions or concerns, please feel free to contact me. Amy Yeldell at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203. Direct contact can be made by phone at 303-866-3567 Ext 8183 or via email at amy.yeldell@ state.co.us

Sincerely,

Amy Yeldell

Amy Yeldell
Environmental Protection Specialist

Cc: Travis Marshall, Senior EPS, Grand Junction DRMS

COST SUMMARY WORK

Task description: **TR-4 Update**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: ACY State: Colorado Abbreviation: None
Date: 10/11/2019 County: Garfield Filename: M098-ACY
User: ACY

Agency or organization name: Deep End Solutions

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Demo onsite structures	DEMOLISH	1	40.00	$67,106
02a	Rip asphalt road and cement parking area/pads	RIPPER	4	1.76	$2,061
02b	Remove/haul apshalt/cement to excavated pit	SCRAPER1	2	2.35	$7,297
03a	Highwall reduction	DOZER	4	26.27	$28,222
04a	Rip pit floor	RIPPER	4	36.24	$42,262
05a	Transport topsoil	SCRAPER1	2	82.70	$256,277
05b	Distribute topsoil/finish grading	DOZER	4	12.84	$13,796
06a	Reveg slopes-22.1 ac	REVEGE	1	28.00	$37,696
06b	Reveg pit floor - 100.8 ac	REVEGE	1	126.00	$163,694
07a	Initial Mob	MOBILIZE	1	2.68	$11,691
07b	Secondary Mob	MOBILIZE	1	2.68	$1,453
			SUBTOTALS:	**361.52**	**$631,555**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$12,757
Performance bond:	1.05	Total =	$6,631
Job superintendent:	180.76	Total =	$12,543
Profit:	10.00	Total =	$63,156
		TOTAL O & P =	$95,087
		CONTRACT AMOUNT (direct + O & P) =	$726,642

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.25	Total =	$30,882
Reclamation management and/or administration:	5.00		$36,332
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$162,802
		TOTAL BOND AMOUNT (direct + indirect) =	**$794,357**

DEMOLITION WORK

Task description: **Demo onsite structures**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: 01A State: Colorado Abbreviation: None
Date: 10/11/2019 County: Garfield Filename: M098-01a
User: ACY

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 86.60 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Shop Buildings	200'L x 50'W x 20'H	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 50 ft. push	200,000.00	CF	$0.18	$35,600.00
Office Building #1	80'L x 40'W x 15'H	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	48,000.00	CF	$0.19	$9,024.00
Office Building #2	55'W x 75'L x 15'H	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	61,875.00	CF	$0.19	$11,632.50
Shop Pad/Appron Cement	Approx 18,400sqft	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 50 ft. push	18,400.00	SF	$1.15	$21,233.60

Job Hours: **40.00** **Subtotal (unadjusted)**: **$77,490.10** **Total Cost (adjusted for location)**: **$67,106.43**

BULLDOZER RIPPING WORK

Task description: **Rip asphalt road and cement parking area/pads**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: 02A State: Colorado Abbreviation: None
Date: 10/11/2019 County: Garfield Filename: M098-02a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$121.49	NA
Operating Cost/Hour:	$105.84	100
Ripper Ownership Cost/Hour:	$13.94	NA
Ripper Operating Cost/Hour:	$8.96	100
Operator Cost/Hour:	$41.24	NA
Total Unit Cost/Hour:	$291.46	
Total Fleet Cost/Hour:	**$1,165.85**	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 3.79 acres Rip Depth (ft): 1.00 Volume: 6,115 BCY or CCY

Source of estimated quantity: 3.39 ac of asphalt roads, 0.4 ac of cmt pads

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	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:	0.646	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	0.646	Acres/hr
Site Altitude:	6,020	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier
Adjusted Hourly Unit Production:	0.54	Acres/hr
Adjusted Hourly Fleet Production:	**2.14**	Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **1.77** Hours

Unit cost: $543.904 Per acre Total job cost: **$2,061**

SCRAPER TEAM WORK

Task description: **Remove/haul apshalt/cement to excavated pit**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: 02B
Date: 10/11/2019
User: ACY

State: Colorado
County: Garfield

Abbreviation: None
Filename: M098-02b

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 657G w/push-pull
-Dozer:	Cat D9T - 9SU
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	10	NA	NA	NA
Ownership cost/hour:	$205.66	$121.49	$121.49	NA	NA	NA
Operating cost/hour:	$226.28	$105.84	$10.58	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	NA	NA
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	NA	NA
Operator cost/hour:	$30.86	$41.24	$41.24	NA	NA	NA
Unit Subtotals:	$462.80	$268.57	$173.31	NA	NA	NA
Number of Units:	4	4	1	0	0	0
Group Subtotals:	Work:	$2,925.48	Support:	$173.31	Maint:	$0.00

Total work team cost/hour: **$3,098.79**

MATERIAL QUANTITIES

Initial volume: 6,115 CCY
Loose volume: **6,482** LCY

Swell factor: 1.060

Source of estimated volume: Ripped Volume
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Gravel - Dry
Rated Payload: 104,000 pounds
Payload Capacity: 40.78 LCY

Scraper Bowl (volume) Basis:

Struck Volume: 32.00 LCY
Heaped Volume: 44.00 LCY
Average Volume: 38.00 LCY
Adjusted Capacity: **38.00** LCY

Cycle Time:

Scraper Loading Time: 1.10 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6020 feet

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

Travel Time:

Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	-2.00	5.00	3.00	2883	0.55

Haul Time: **0.55** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	2.00	5.00	7.00	2687	0.50

Return Time: **0.50** minutes

Total Scraper team cycle time: **2.75** minutes
Adjusted for job conditions: 1,376.29 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,376.29 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **2,752.58** LCY/Hour

Unadjusted unit production/hour: 1,658.18 LCY/Hour
Optimal Number of Scrapers per push dozer: ____

JOB TIME AND COST

Fleet size: 2 Team(s) Total job time: **2.35** Hours

Unit cost: $1.126 /LCY Total job cost: **$7,297**

BULLDOZER WORK

Task description: **Highwall reduction**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: 03A State: Colorado Abbreviation: None
Date: 10/11/2019 County: Garfield Filename: M098-03a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$121.49	NA
Operating Cost/Hour:	$105.84	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.24	NA

Total unit Cost/Hour: $268.57
Total Fleet Cost/Hour: **$1,074.27**

MATERIAL QUANTITIES

Initial Volume: 62,222
Swell factor: 1.124
Loose volume: **69,913** LCY

Source of estimated volume: TR-4: 700 LF to a 3:1 cut/fill
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 60 feet
Unadjusted hourly production: 1,872.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,020 feet

Material weight: 2,900 lbs/LCY

Weight description: Sand and gravel - Dry

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	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: 665.31 LCY/hr
Adjusted fleet production: **2661.24** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.404/LCY

Total job time: **26.27** Hours
Total job cost: **$28,222**

BULLDOZER RIPPING WORK

Task description: **Rip pit floor**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: 04A State: Colorado Abbreviation: None
Date: 10/11/2019 County: Garfield Filename: M098-04a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$121.49	NA
Operating Cost/Hour:	$105.84	100
Ripper Ownership Cost/Hour:	$13.94	NA
Ripper Operating Cost/Hour:	$8.96	100
Operator Cost/Hour:	$41.24	NA
Total Unit Cost/Hour:	$291.46	
Total Fleet Cost/Hour:	**$1,165.85**	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 100.80 acres Rip Depth (ft): 2.00 Volume: 325,248 BCY or CCY

Source of estimated quantity: TR-4 100.8 ac to be flat pit floor

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	0.838	Acres/hr
Site Altitude:	6,020	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier
Adjusted Hourly Unit Production:	0.70	Acres/hr
Adjusted Hourly Fleet Production:	**2.78**	Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **36.25** Hours

Unit cost: $419.259 Per acre Total job cost: **$42,262**

SCRAPER TEAM WORK

Task description: **Transport topsoil**

Site: **Sievers Pit** | Permit Action: TR-4 | Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: 05A | State: Colorado | Abbreviation: None
Date: 10/11/2019 | County: Garfield | Filename: M098-05a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 657G w/push-pull
-Dozer:	Cat D9T - 9SU
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	10	NA	NA	NA
Ownership cost/hour:	$205.66	$121.49	$121.49	NA	NA	NA
Operating cost/hour:	$226.28	$105.84	$10.58	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	NA	NA
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	NA	NA
Operator cost/hour:	$30.86	$41.24	$41.24	NA	NA	NA
Unit Subtotals:	$462.80	$268.57	$173.31	NA	NA	NA
Number of Units:	4	4	1	0	0	0
Group Subtotals:	Work:	$2,925.48	Support:	$173.31	Maint:	$0.00

Total work team cost/hour: **$3,098.79**

MATERIAL QUANTITIES

Initial volume: 153,347 CCY | Swell factor: 1.215
Loose volume: **186,317** LCY

Source of estimated volume: 10" for 100.8 ac of flat and 6" for 22.1 ac slopes
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight:	1,600 lbs/LCY	Struck Volume:	32.00	LCY
Material description:	Top Soil	Heaped Volume:	44.00	LCY
Rated Payload:	104,000 pounds	Average Volume:	38.00	LCY
Payload Capacity:	65.00 LCY	Adjusted Capacity:	**38.00**	LCY

Cycle Time:

Scraper Loading Time: 1.10 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6020 feet

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

Travel Time:
Road Condition: Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	0.00	8.00	8.00	1426	0.92

Haul Time: **0.92** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	0.00	8.00	8.00	2428	0.74

Return Time: **0.74** minutes

Total Scraper team cycle time: **3.36** minutes
Adjusted for job conditions: 1,126.43 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,126.43 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **2,252.86** LCY/Hour

Unadjusted unit production/hour: 1,357.14 LCY/Hour
Optimal Number of Scrapers per push dozer: ____

JOB TIME AND COST

Fleet size: 2 Team(s) Total job time: **82.70** Hours

Unit cost: $1.375 /LCY Total job cost: **$256,277**

BULLDOZER WORK

Task description: **Distribute topsoil/finish grading**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: 05B
Date: 10/11/2019
User: ACY
State: Colorado
County: Garfield
Abbreviation: None
Filename: M098-05b

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$121.49	NA
Operating Cost/Hour:	$105.84	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.24	NA

Total unit Cost/Hour: $268.57
Total Fleet Cost/Hour: **$1,074.27**

MATERIAL QUANTITIES

Initial Volume: 93,159
Swell factor: 1.000
Loose volume: **93,159** LCY

Source of estimated volume: Half of transported vol (186,317 LCY)
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 6,020 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(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:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 1,813.55 LCY/hr
Adjusted fleet production: **7254.2** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.148/LCY

Total job time: **12.84** Hours
Total job cost: **$13,796**

REVEGETATION WORK

Task description: **Reveg slopes-22.1 ac**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #:	06A	State:	Colorado	Abbreviation:	None
Date:	10/11/2019	County:	Garfield	Filename:	M098-06a
User:	ACY				

Agency or organization name: DRMS

FERTILIZING

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
6-24-24, 10-20-10, 15-15-15	200.00	pound	$0.27	$53.00
			Total Fertilizer Materials Cost/Acre	**$53.00**

Application

Description	**Cost /Acre**
Tractor towed spreader (MEANS 32 01 90.13 0120)	$36.15
Total Fertilizer Application Cost/Acre	**$36.15**

TILLING

Description	**Cost /Acre**
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$101.93
Total Tilling Cost/Acre	**$101.93**

SEEDING

Seed Mix	**Rate – PLS LBS / Acre**	**Seeds per SQ. FT**	**Cost /Acre**
Sand Dropseed	0.10	11.94	$0.98
Smooth Brome - Manchar	2.00	6.66	$6.65
Pubescent Wheatgrass - Luna	11.00	22.73	$37.40
Streambank Wheatgrass - Sodar	11.00	35.86	$62.70
Totals Seed Mix	24.10	77.18	**$107.73**

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
Herbicide - Curtail @ 4.0 pt/ac	1.00	ACRE	$6.25	$6.25
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$295.00	$590.00
Total Mulch Materials Cost/Acre				**$596.25**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$70.17
Power mulcher (MEANS 32 91 13.16 0350)	$95.83
Weed spray, truck, non-aquatic area, nox. [DMG]	$71.50
Total Mulch Application Cost/Acre	**$237.50**

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: 22.1
Estimated Failure Rate: 25%
*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MULCHING

Cost /Acre: $1,364.56
Cost /Acre*: $1,364.56

Initial Job Cost: **$30,156.78**
Reseeding Job Cost: **$7,539.19**
Total Job Cost: **$37,696**
Job Hours: **28.00**

REVEGETATION WORK

Task description: **Reveg pit floor - 100.8 ac**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: 06B State: Colorado Abbreviation: None
Date: 10/11/2019 County: Garfield Filename: M098-06b
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
6-24-24, 10-20-10, 15-15-15	200.00	pound	$0.27	$53.00
			Total Fertilizer Materials Cost/Acre	**$53.00**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$36.15
Total Fertilizer Application Cost/Acre	**$36.15**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$101.93
Total Tilling Cost/Acre	**$101.93**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Crested Wheatgrass - Fairway	1.00	4.59	$4.03
Kentucky Bluegrass - Lato	0.10	4.94	$0.34
Red Clover - Medium	0.20	1.24	$2.67
Smooth Brome - Manchar	1.50	4.99	$4.99
Western Wheatgrass - Native	5.00	12.63	$30.00
Timothy - Climax	0.20	5.74	$0.32
Totals Seed Mix	8.00	34.13	**$42.33**

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
Herbicide - Curtail @ 4.0 pt/ac	1.00	ACRE	$6.25	$6.25
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$295.00	$590.00
Total Mulch Materials Cost/Acre				**$596.25**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$70.17
Power mulcher (MEANS 32 91 13.16 0350)	$95.83
Weed spray, truck, non-aquatic area, nox. [DMG]	$71.50
Total Mulch Application Cost/Acre	**$237.50**

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: 100.8

Estimated Failure Rate: 25%

*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MULCHING

Cost /Acre: $1,299.16

Cost /Acre*: $1,299.16

Initial Job Cost: **$130,955.33**

Reseeding Job Cost: **$32,738.83**

Total Job Cost: **$163,694**

Job Hours: **126.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Initial Mob**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: 07A State: Colorado Abbreviation: None
Date: 10/11/2019 County: Garfield Filename: M098-07a
User: ACY

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:	$17.20	$29.63	$38.69
Operating Cost/Hour:	$26.56	$47.02	$55.69
Operator Cost/Hour:	$23.63	$23.63	$23.63
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$67.39	$123.81	$141.54

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 D9T - 9SU	66.13	$135.43	$141.54	4	$1,107.88	$566.16	$1,000.00
Cat 657G w/push-pull	80.25	$205.66	$141.54	4	$1,388.80	$566.16	$1,000.00
Drill/Broadcast Seeder with Tractor	25.00	$18.15	$67.39	1	$85.54	$67.39	$250.00
Power Mulcher (Bowie LD-90)	6.00	$9.74	$67.39	1	$77.13	$67.39	$250.00
				Subtotals:	**$2,659.35**	**$1,267.10**	**$2,500.00**

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	$76.23	1	$76.23	$76.23
		Subtotals:	**$76.23**	**$76.23**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GLENWOOD SPRINGS, CO	
Total one-way travel distance:	6.00	miles
Average Travel Speed:	35.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$11,664.91	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$26.14	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.17	0.17
Return Time (Hours):	0.17	0.17
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.34	0.34

JOB TIME AND COST

Total job time:	**2.69**	Hours
Total job cost:	**$11,691**	

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Secondary Mob**

Site: **Sievers Pit** Permit Action: TR-4 Permit/Job#: M1977098

PROJECT IDENTIFICATION

Task #: 07B State: Colorado Abbreviation: None
Date: 10/11/2019 County: Garfield Filename: M098-07b
User: ACY

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:	$17.20	$29.63	$38.69
Operating Cost/Hour:	$26.56	$47.02	$55.69
Operator Cost/Hour:	$23.63	$23.63	$23.63
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$67.39	$123.81	$141.54

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
Drill/Broadcast Seeder with Tractor	25.00	$18.15	$67.39	1	$85.54	$67.39	$250.00
Power Mulcher (Bowie LD-90)	6.00	$9.74	$67.39	1	$77.13	$67.39	$250.00
				Subtotals:	**$162.67**	**$134.78**	**$500.00**

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	$76.23	1	$76.23	$76.23
		Subtotals:	**$76.23**	**$76.23**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GLENWOOD SPRINGS, CO	
Total one-way travel distance:	6.00	miles
Average Travel Speed:	35.00	mph
Total Non-Roadable Mob/Demob Cost * ‘* two round trips with haul rig:	$1,427.32	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$26.14	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.17	0.17
Return Time (Hours):	0.17	0.17
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.34	0.34

JOB TIME AND COST

Total job time: **2.69** Hours

Total job cost: **$1,453**

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

1313 Sherman Street, Room 215
Denver, CO 80203

October 11, 2019

RE: Sievers Pit, Permit No. M-1977-098, TR-4 Reclamation Cost Estimate

Dear Mr. Burkey:

This reclamation cost update was in response a site inspection conducted on June 25, 2019 and TR-4 submitted on August 6, 2019. The last Surety Increase (SI-5) was in 2017. Since then there have been significant updates to the CIRCES estimating software. Note that it is Division policy to periodically update its costs to ensure that the Financial Warranty adequately, reflects the actual current cost of fulfilling the requirements of the approved reclamation plan.

Below is a table summarizing input values that have been updated with this calculation (TR-4) as compared to the previous (SI-5). Text in red are input values specifically pulled from TR-4. This table does not account for price changes resulting from inflation or other RS Means cost changes. Bond calculations are based on a combination of field observations and worst case scenario based on the approved reclamation permit.

Task	Form Used	Justification
01a	Demo	Push/haul distances for disposal of offices on site updated from 50 ft. to 10,000 ft. max (actuals range from 430 to 600 ft.
	Demo	Apron concrete around shop accounted for, demo are updated from 10,000 sq. ft. to approx. 18,400 sq. ft. based on Google Earth aerial imagery
02a	Ripper	Pads are more realistically 8" + thick not 6". Volume updated from 3,057 to 6,115 CCY. Updated fleet to 4x D9 Dozers (scrapper task use)
02b	Scrapper	Switched to scrapper since already mobilized (4x 657 G w/ push/pull D9 Dozers). Volume updated from 3,057 to 6,115 CCY to reflected ripped amount. Updated grade to -2 downhill since office area is above pit.
03a	Dozer	TR-4 knock down highwall, 700 LF to 3H:1V is 62,222 CY

		Updated grade to 0 since dozing up/down and highwall push would be 60 ft. for length of highwall Updated fleet to 4x D9 Dozers (scrapper task use)
04a	Ripper	TR-4 estimates pit floor to be 100.8 ac Updated fleet to 4x D9 Dozers (scrapper task use)
05a	Scrapper	Topsoil 153,347 CCY (10" for 100.8 ac of flat is 135,520 CY and 6" for 22.1 ac of slopes is 17,827.33) Switched to 4x 657 G w/ push/pull D9 Dozers Updated road condition to Soft, rutted 8.0, rather than Very soft, muddy 20.0
05b	Dozer	Updated volume spread to reflect actual LCY volume transported 49,072 to 93,159 LCY. Total of 186,317 LCY transported
06a &b	Reveg	TR-4 22.1 slopes and 100.8 flat Switched from chisel to disk plow. Added power mulcher Updated hours to reflect addition workload
07a&b	Mob	Updated fleets bases on tasks above. No loader, 4 x scrapper teams, added power mulcher
Indirect		Decrease job/superintendent hour with more efficient use of equipment

Please feel free to contact me with any further questions. Amy Yeldell at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203. Direct contact can be made by phone at 303-866-3567 Ext 8183 or via email at amy.yeldell@state.co.us

Sincerely,

Amy Yeldell
Environmental Protection Specialist

Ec:
Travis Marshall, Senior EPS, Grand Junction DRMS