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

October 30, 2023

Mark Gardner
Whitewater Building Materials Corporation
940 S. 10th St.
P.O. Box 1769
Grand Junction, CO 81502

Re: Whitewater Pit 500 - File No. M-1977-129
Whitewater Building Materials Corporation
Technical Revision (TR-6)
TR to address inspection May 9, 2023

Dear Mark Gardner:

On October 30, 2023 the Division of Reclamation, Mining and Safety concluded its review of the Technical Revision application submitted to the Division on July 12, 2023, addressing the following:

This Technical Revision increases the 1) allowed sloping distance, 2) increases the total allowed area of disturbance, 3) revise the Weed Control Plan and 4) make minor changes and update the Reclamation Plan and Reclamation Plan Map for Stages W, Z & 2 areas now designated Stage S.

The decision reached by the Division is: approve. Committed to a 2,000 LF max of 1H: 1V highwall requiring backfill and 5,000 LF of 2H: 1V cut/fill. Total affected lands is 416.47. Maximum disturbance at any time is 250 acres the majority would be lakes. Seeding and topsoil maximum of 50 ac. Bond for Option 2 in Stage S until mined. Max of 35 ac gravel RV parking area. Acreages are based off of TR-6 Option 2 table

The terms of Technical Revision No. 6 approved by the Division are hereby incorporated into Permit No. M-1977-129. All other conditions and requirements of Permit No. M-1977-129 remain in full force and effect.

The revised liability amount exceeds the financial warranty currently held (see below), please submit additional bond or a rider to your existing bond that equals or exceeds the Revised Liability. The revision will not be final until the bond is approved by the Division.

Bond Held:	$287,500.00
Prior Liability:	$287,500.00

Change in Liability:	$286,951.00
Revised Liability:	$574,451.00
Prior Permit Acreage:	430.68
Change in Permit Acreage:	0.00
Revised Permit Acreage:	430.68
Prior Affected Acreage:	430.68
Change in Affected Acreage:	0.00
Revised Affected Acreage:	430.68

If you have any questions, please contact me by telephone at (303) 866-3567 x 8183, or by email at Amy.yeldell@state.co.us.

Sincerely,

Amy C. Yeldell
Environmental Protection Specialist

M-GR-04

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

October 30, 2023

Mark Gardner
Ephemeral Resources, LLC
P.O. Box 1769
Grand Junction, CO 81502

RE: Whitewater Pit 500, Permit No. M-1977-129, Bonding Changes with TR-6

Dear Mr. Gardner:

This reclamation cost update was in response to Technical Revision (TR-6) and the follow up site inspection conducted on August 29, 2023. 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.

The bond was last recalculated in 2009 with TR-4. Below is a table summarizing input values that have been updated based on site conditions. 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 plan.

Assumptions:

- Revised TR-5 seed mix. TR-5 does not clarify which areas area salty vs not salty. Anything within 25 feet of a pond is salty (wetlands), and all other reclamation is non-salty (uplands).
- TR-6 committed to a 2,000 LF max of 1H: 1V highwall requiring backfill and 5,000 LF of 2H: 1V cut/fill
- Total affected lands is 416.47. Maximum disturbance at any time is 250 acres the majority would be lakes. Seeding and topsoil maximum of 50 ac.
- Bond for Option 2 in Stage S until mined. Max of 35 ac gravel RV parking area
- Acreages are based off of TR-6 Option 2 table
- Topsoil is located within Stage 6, Stage 4 Part B, none in south mine, has to be hauled if required.
- Stages are named based off of TR-6 revised map. Stage 4B is included with Stage 3 Part B

Task	Form Used	Description
03a	Pump	Stage 3 Part B Dewater approx. 40 ac

		Current estimated pit/pond
03b	Truck/ loader	Stage 3 Part B Haul Backfill 1:1 backfill 1,600LF @ 20'H from pile in Stage 3 Part B (1100LF truck) = 23,704 CY Combination TR-6 grading max and site conditions
03c	Dozer	Stage 3 Part B Grading slopes = 29,260 CY 2:1 cut/fill 3,000 LF @ 20'H = 5,556 CY Plus grading transported backfill vol 23,704 CY
03d	Ripper	Stage 3 Part B Rip stockpiled area, 4 ac overburden/topsoil, stripped areas, and CW stockpile area = 12 ac
03e	Truck/ loader	Stage 3 Part B Apply topsoil to affected lands, 21.99 ac ac @ 9" = 26,607 CY Pit will become inundated. Current unreclaimed shore line approx. 5800 LF x 75'W = 9.99 ac Plus stockpile areas above water 12 ac Topsoil source is berm in phase avg. 1100 LF to placement
03f	Reveg	Stage 3 Part B Reveg Salty Mix = 3.33 ac affected lands = 21.99 ac Pit will become inundated. Shore line – 5800 LF * 25'W = 3.33 ac
03g	Reveg	Stage 3 Part B Reveg Non-Salty Mix = 18.66 ac 21.99 ac –3.33c = 18.66
04f	Reveg	Stage 4 Part A Reveg Salty Mix - 3.44 ac Affected lands = 8.66 ac Pit will become inundated. Shore line – 6,000 LF * 25'W = 3.44 ac Per TR-6 remaining items
04g	Reveg	Stage 4 Part A Reveg Non-Salty Mix = 5.22 8.66 ac – 3.44 ac = 5.22 ac
06c	Dozer	Stage 6 Grading stockpiles flat = 13,230 CY 2000LF of 5' berms = 9260 CY 700 LF @ 35'H of 2H: 1V stockpile to 3H: 1V cut/fill = 3970 CY Site conditions

06d	Ripper	Stage 6 Ripping affected lands = 9.3 ac
06e	Truck/ loader	Stage 6 Apply topsoil to affected lands, 9.3 ac @ 9" = 11,253 CY Topsoil hauled from north of raw material stockpile stage 6, avg 700 LF to placement
06g	Reveg	Stage 6 Reveg affected lands = 9.3 ac in Salty Mix- No pond/shore areas Non-Salty Mix = 9.3 ac
S2	Reveg	Phase S-Opt 2 Secondary failure seeding of reclaimed = 8.9 Salty Mix-areas adjacent to ponds 50% of 16.38 ac previously reclaimed per TR-6
X01	Mob	Initial Mobilization
X02	Mob	Secondary Mobilization reveg equipment only

The changes requested under TR6 and inflation will result in a total required bond amount of **$574,451**, which is an increase of $286,951 over the $287,500 currently held.

Please feel free to contact me with any further questions. Amy Yeldell at the Division of Reclamation, Mining and Safety, Rm 215, 1001 E 62nd Ave, Denver CO 80216. 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

Ec:
Travis Marshall, Senior EPS, Grand Junction DRMS

COST SUMMARY WORK

Task description: **TR-6 Bond update**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: ACY State: Colorado Abbreviation: None
Date: 8/29/2023 County: Mesa Filename: M129-ACY
User: ACY

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
03a	Stage 3 Part B Dewater Pit	PUMPING	1	1,476.73	$72,788
03b	Stage 3 Part B Haul Backfill	TRUCK1	1	53.02	$43,129
03c	Stage 3 Part B Grading slopes	DOZER	2	28.58	$24,310
03d	Stage 3 Part B Rip stockpiled areas	RIPPER	2	9.35	$8,357
03e	Stage 3 Part B Apply Topsoil	TRUCK1	1	57.26	$101,238
03f	Stage 3 Part B Reveg Salty Mix	REVEGE	1	5.00	$9,294
03g	Stage 3 Part B Reveg Non-Salty Mix	REVEGE	1	28.00	$53,421
04f	Stage 4 Part A Reveg Salty	REVEGE	1	5.00	$9,601
04g	Stage 4 Part A Reveg Non-Salty	REVEGE	1	8.00	$14,944
06c	Stage 6 Grading slopes and slopes	DOZER	2	18.43	$15,674
06d	Stage 6 Rip affected lands	RIPPER	2	7.24	$6,477
06e	Stage 6 Apply Topsoil	TRUCK1	1	26.94	$42,121
06g	Stage 6 Reveg Non-Salty	REVEGE	1	14.00	$26,625
S2	Phase S - Opt 2 Secondary failure seeding of reclaimed	REVEGE	1	9.00	$16,560
X01	Initial Mobilization	MOBILIZE	1	2.53	$10,505
X02	Secondary Mobilization	MOBILIZE	1	2.53	$1,527
		SUBTOTALS:		**1751.61**	**$456,571**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$9,223
Performance bond:	1.05	Total =	$4,794
Job superintendent:	140.00	Total =	$9,111
Profit:	10.00	Total =	$45,657
		TOTAL O & P =	$68,785
		CONTRACT AMOUNT (direct + O & P) =	$525,356

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.25	Total =	$22,328
Reclamation management and/or administration:	5.00		$26,268
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$117,880
		TOTAL BOND AMOUNT (direct + indirect) =	**$574,451**

PUMPING WORK

Task description: **Stage 3 Part B Dewater Pit**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 03A State: Colorado Abbreviation: None
Date: 8/29/2023 County: Mesa Filename: M129-03a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Submersible pump - 460v, 8 in.	1
Attachment 1:	Suction hose - 6 in. diam., 25 ft.	1
Attachment 2:	Discharge hose - 6 in. D., 25 ft.	4
Labor Unit 1:	Pump operator	1

Horsepower: 95
Shift Basis: 1 per day
Weight: 0.70
(US Tons)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$17.02	NA
Operating Cost/Hour:	$4.04	100
Operator Cost/Hour:	$28.23	NA
Total Unit Cost/Hour:	$49.29	

Total Fleet Cost/Hour: $49.29

PUMPING QUANTITIES

Initial Pond Volume: 800.00
Final Pond Volume: **260,680,464.00** gallons
Total Pond Inflow Surface Area: 22,000 Sq. ft.
Total Pond Inflow Volume per Hour: 3,867.60 gallons

Conversion factor: 325850.5800
Unit inflow rate in gph/sq. ft.: 0.1758

Source of estimated volume: Anticipated 40 ac pond 20'D

PUMPING TIME

Maximum Pump Capacity:	170,000	gph/pump
Estimated Suction Head:	10	feet
Estimated Discharge Head:	15	feet
Total Head:	25	feet
CPB Pump Capacity:	165,600	gph/pump
Site Altitude:	4,600	feet

Adjusted Pumping Capacity:	165,600	gph
Initial Unadjusted Pumping Time:	1,574.16	hours
Inflow during Initial Pumping:	6,088,211	gallons
Net Unadjusted Pumping Time:	1,610.92	Hours
Altitude Adjustment Factor:	1.0000	(3% rule)
Pump Efficiency Factor:	0.9167	(55 min./hr.)
Total Adjusted Pumping Time:	1,476.73	hours

JOB TIME AND COST

Total job time: **1,476.73** Hours

Unit cost: $0.000273 /Gallon Total job cost: **$72,788**

TRUCK/LOADER TEAM WORK

Task description: **Stage 3 Part B Haul Backfill**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 03B State: Colorado Abbreviation: None
Date: 8/29/2023 County: Mesa Filename: M129-03b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 972H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 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	NA	50	0
Ownership cost/hour:	$108.06	$57.78	NA	NA	$149.33	$11.35
Operating cost/hour:	$71.88	$56.23	NA	NA	$46.40	$0.00
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	NA	$0.00	$0.00
Operator cost/hour:	$24.82	$35.97	NA	NA	$46.87	$0.00
Unit Subtotals:	$204.76	$149.98	NA	NA	$242.60	$11.35
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work:	$559.50	Support:	$0.00	Maint:	$253.95

Total work team cost/hour: **$813.45**

MATERIAL QUANTITIES

Initial volume: 23,704 CCY Swell factor: 1.090
Loose volume: **25,837** LCY

Source of estimated volume: 1:1 backfill 1,600LF @ 20'H
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: 2,400 Pounds/LCY
Description: Clay and gravel - Dry
Rated Payload: 62,000 Pounds
Payload Capacity: 25.83 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **18.48** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.600	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**6.160**	LCY

Job Condition Corrections: Site Altitude (ft.): 4600 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: 3 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): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.465**	minutes
	Net Load Time per Truck:	**1.030**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.030	Minutes	Adjusted for site altitude:	1.030	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1100.00	-5.00	4.00	-1.00	3080	0.425

Haul Time: **0.425** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1100.00	5.00	4.00	9.00	1700	0.722

Return Time: **0.722** minutes
Total Truck Cycle Time: **3.777** minutes

Loading Tool unit Production 680.25 LCY/Hour Adjusted for job efficiency: 564.60 LCY/Hour

Truck Unit Production 293.57 LCY/Hour Adjusted for job efficiency: 243.66 LCY/Hour

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

Adjusted hourly truck team production: 487.32 LCY/Hour
Adjusted single truck/loader team production: 487.32 LCY/Hour
Adjusted multiple truck/loader team production: **487.32** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **53.02** Hours

Unit cost: $1.669 /LCY Total job cost: **$43,129**

BULLDOZER WORK

Task description: **Stage 3 Part B Grading slopes**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 03C State: Colorado Abbreviation: None
Date: 8/29/2023 County: Mesa Filename: M129-03c
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$241.38	NA
Operating Cost/Hour:	$143.92	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: $425.34
Total Fleet Cost/Hour: **$850.67**

MATERIAL QUANTITIES

Initial Volume: 29,260
Swell factor: 1.090
Loose volume: **31,893** LCY

Source of estimated volume: 2:1 cut/fill 3,000 LF @ 20'H and transported backfill
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 70 feet
Unadjusted hourly production: 1,093.7 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: -20 %
Average site altitude: 4,600 feet

Material weight: 2,400 lbs/LCY

Weight description: Clay and gravel - Dry

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:	0.600	(FND-SF)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.958	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5102

Adjusted unit production: 558.01 LCY/hr
Adjusted fleet production: **1116.02** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.762/LCY

Total job time: **28.58** Hours
Total job cost: **$24,310**

BULLDOZER RIPPING WORK

Task description: **Stage 3 Part B Rip stockpiled areas**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 03D State: Colorado Abbreviation: None
Date: 8/29/2023 County: Mesa Filename: M129-03d
User: ACY

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:	$241.38	NA
Operating Cost/Hour:	$143.92	100
Ripper Ownership Cost/Hour:	$14.11	NA
Ripper Operating Cost/Hour:	$7.45	100
Operator Cost/Hour:	$40.04	NA
Total Unit Cost/Hour:	$446.90	

Total Fleet Cost/Hour: **$893.79**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 12.00 acres Rip Depth (ft): 2.00 Volume: 38,720 BCY or CCY

Source of estimated quantity: Stockpiles and stripped areas

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	feet/pass
Average Ripping Width:	7.08	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:	0.773	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.773 Acres/hr

Site Altitude:	4,600	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.64 Acres/hr
Adjusted Hourly Fleet Production: **1.28** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **9.35** Hours

Unit cost: $696.428 Per acre Total job cost: **$8,357**

TRUCK/LOADER TEAM WORK

Task description: **Stage 3 Part B Apply Topsoil**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 03E State: Colorado Abbreviation: None
Date: 8/31/2023 County: Mesa Filename: M129-03e
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 972H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	30	100	50	0
Ownership cost/hour:	$108.06	$57.78	$241.38	$241.38	$149.33	$11.35
Operating cost/hour:	$71.88	$56.23	$43.18	$143.92	$46.40	$0.00
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	$0.00	$0.00	$0.00
Operator cost/hour:	$24.82	$35.97	$40.04	$40.04	$46.87	$0.00
Unit Subtotals:	$204.76	$149.98	$324.59	$425.34	$242.60	$11.35
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work:	$764.26	Support:	$749.93	Maint:	$253.95

Total work team cost/hour: **$1,768.14**

MATERIAL QUANTITIES

Initial volume: 26,607 CCY Swell factor: 1.215
Loose volume: **32,328** LCY

Source of estimated volume: 21.99 ac ac @ 9”
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: 62,000 Pounds
Payload Capacity: 38.75 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **18.48** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.600	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**6.160**	LCY

Job Condition Corrections: Site Altitude (ft.): 4600 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: 3 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): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.465**	minutes
	Net Load Time per Truck:	**1.030**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.030	Minutes	Adjusted for site altitude:	1.030	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1100.00	0.00	4.00	4.00	1774	0.810

Haul Time: **0.810** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1100.00	5.00	4.00	9.00	1700	0.722

Return Time: **0.722** minutes
Total Truck Cycle Time: **4.162** minutes

Loading Tool unit Production 680.25 LCY/Hour Adjusted for job efficiency: 564.60 LCY/Hour

Truck Unit Production 266.41 LCY/Hour Adjusted for job efficiency: 221.12 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 663.36 LCY/Hour
Adjusted single truck/loader team production: 564.60 LCY/Hour
Adjusted multiple truck/loader team production: **564.60** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **57.26** Hours

Unit cost: $3.132 /LCY Total job cost: **$101,238**

REVEGETATION WORK

Task description: **Stage 3 Part B Reveg Salty Mix**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 03F State: Colorado Abbreviation: None
Date: 8/31/2023 County: Mesa Filename: M129-03f
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	$0.62	$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	$0.69	$69.00
			Total Fertilizer Materials Cost/Acre	**$143.80**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$41.82
Total Fertilizer Application Cost/Acre	**$41.82**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$112.82
Total Tilling Cost/Acre	**$112.82**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.50	19.51	$14.24
Saltbush, Four Wing - Dewinged	1.00	1.61	$18.50
Saltgrass, Inland	4.00	55.45	$171.20
Spike Muhly	0.60	22.04	$5.82
Totals Seed Mix	6.10	98.61	**$209.76**

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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	$4.01	$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	$3.75	$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	$429.79	$644.68
Total Mulch Materials Cost/Acre				**$652.44**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$74.46
Power mulcher (MEANS 32 91 13.16 0350)	$147.67
Weed spray, hand, aquatic area, nox. [DMG]	$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	$62.72
Total Mulch Application Cost/Acre	**$468.01**

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: 3.33 Cost /Acre: $1,860.65
Estimated Failure Rate: 50% Cost /Acre*: $1,860.65
*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MULCHING

Initial Job Cost: **$6,195.96**
Reseeding Job Cost: **$3,097.98**
Total Job Cost: **$9,294**
Job Hours: **5.00**

REVEGETATION WORK

Task description: **Stage 3 Part B Reveg Non-Salty Mix**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 03G State: Colorado Abbreviation: None
Date: 8/31/2023 County: Mesa Filename: M129-03g
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	$0.62	$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	$0.69	$69.00
			Total Fertilizer Materials Cost/Acre	**$143.80**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$41.82
Total Fertilizer Application Cost/Acre	**$41.82**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$112.82
Total Tilling Cost/Acre	**$112.82**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Bluebunch Wheatgrass - Secar	9.50	30.53	$103.31
Crested Wheatgrass - Ephraim	3.00	13.77	$12.98
Galleta	4.00	14.60	$89.40
Western Wheatgrass - Arriba	8.00	20.20	$52.00
Totals Seed Mix	24.50	79.11	**$257.69**

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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	$4.01	$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	$3.75	$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	$429.79	$644.68
Total Mulch Materials Cost/Acre				**$652.44**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$74.46
Power mulcher (MEANS 32 91 13.16 0350)	$147.67
Weed spray, hand, aquatic area, nox. [DMG]	$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	$62.72
Total Mulch Application Cost/Acre	**$468.01**

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: 18.66 Cost /Acre: $1,908.58
Estimated Failure Rate: 50% Cost /Acre*: $1,908.58
*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MULCHING

Initial Job Cost: **$35,614.10**
Reseeding Job Cost: **$17,807.05**
Total Job Cost: **$53,421**
Job Hours: **28.00**

REVEGETATION WORK

Task description: **Stage 4 Part A Reveg Salty**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 04F State: Colorado Abbreviation: None
Date: 8/31/2023 County: Mesa Filename: M129-04f
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	$0.62	$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	$0.69	$69.00
			Total Fertilizer Materials Cost/Acre	**$143.80**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$41.82
Total Fertilizer Application Cost/Acre	**$41.82**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$112.82
Total Tilling Cost/Acre	**$112.82**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.50	19.51	$14.24
Saltbush, Four Wing - Dewinged	1.00	1.61	$18.50
Saltgrass, Inland	4.00	55.45	$171.20
Spike Muhly	0.60	22.04	$5.82
Totals Seed Mix	6.10	98.61	**$209.76**

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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	$4.01	$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	$3.75	$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	$429.79	$644.68
Total Mulch Materials Cost/Acre				**$652.44**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$74.46
Power mulcher (MEANS 32 91 13.16 0350)	$147.67
Weed spray, hand, aquatic area, nox. [DMG]	$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	$62.72
Total Mulch Application Cost/Acre	**$468.01**

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:	3.44	Cost /Acre:	$1,860.65
Estimated Failure Rate:	50%	Cost /Acre*:	$1,860.65
*Selected Replanting Work Items:	FERTILIZING,TILLING,SEEDING,MULCHING		

Initial Job Cost:	**$6,400.64**
Reseeding Job Cost:	**$3,200.32**
Total Job Cost:	**$9,601**
Job Hours:	**5.00**

REVEGETATION WORK

Task description: **Stage 4 Part A Reveg Non-Salty**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 04G State: Colorado Abbreviation: None
Date: 8/31/2023 County: Mesa Filename: M129-04g
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	$0.62	$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	$0.69	$69.00
			Total Fertilizer Materials Cost/Acre	**$143.80**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$41.82
Total Fertilizer Application Cost/Acre	**$41.82**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$112.82
Total Tilling Cost/Acre	**$112.82**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Bluebunch Wheatgrass - Secar	9.50	30.53	$103.31
Crested Wheatgrass - Ephraim	3.00	13.77	$12.98
Galleta	4.00	14.60	$89.40
Western Wheatgrass - Arriba	8.00	20.20	$52.00
Totals Seed Mix	24.50	79.11	**$257.69**

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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	$4.01	$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	$3.75	$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	$429.79	$644.68
Total Mulch Materials Cost/Acre				**$652.44**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$74.46
Power mulcher (MEANS 32 91 13.16 0350)	$147.67
Weed spray, hand, aquatic area, nox. [DMG]	$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	$62.72
Total Mulch Application Cost/Acre	**$468.01**

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:	5.22	Cost /Acre:	$1,908.58
Estimated Failure Rate:	50%	Cost /Acre*:	$1,908.58
*Selected Replanting Work Items:	FERTILIZING,TILLING,SEEDING,MULCHING		

Initial Job Cost:	**$9,962.79**
Reseeding Job Cost:	**$4,981.39**
Total Job Cost:	**$14,944**
Job Hours:	**8.00**

BULLDOZER WORK

Task description: **Stage 6 Grading slopes and slopes**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #:	06C	State:	Colorado	Abbreviation:	None
Date:	8/31/2023	County:	Mesa	Filename:	M129-06c
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU
Horsepower:	310
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$241.38	NA
Operating Cost/Hour:	$143.92	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: $425.34
Total Fleet Cost/Hour: **$850.67**

MATERIAL QUANTITIES

Initial Volume:	13,230
Swell factor:	1.090
Loose volume:	**14,421** LCY

Source of estimated volume: 2000LF of 5' berms and 700 LF @ 35'H of 2H: 1V
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 70 feet
Unadjusted hourly production: 1,093.7 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 0 %
Average site altitude: 4,600 feet

Material weight: 2,400 lbs/LCY

Weight description: Clay and gravel - Dry

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:	0.600	(FND-SF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.958	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3578

Adjusted unit production: 391.33 LCY/hr
Adjusted fleet production: **782.66** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $1.087/LCY

Total job time: **18.43** Hours
Total job cost: **$15,674**

BULLDOZER RIPPING WORK

Task description: **Stage 6 Rip affected lands**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 06D State: Colorado Abbreviation: None
Date: 8/31/2023 County: Mesa Filename: M129-06d
User: ACY

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:	$241.38	NA
Operating Cost/Hour:	$143.92	100
Ripper Ownership Cost/Hour:	$14.11	NA
Ripper Operating Cost/Hour:	$7.45	100
Operator Cost/Hour:	$40.04	NA
Total Unit Cost/Hour:	$446.90	

Total Fleet Cost/Hour: **$893.79**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 9.30 acres Rip Depth (ft): 2.00 Volume: 30,008 BCY or CCY

Source of estimated quantity: Affected areas

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	feet/pass
Average Ripping Width:	7.08	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:	0.773	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.773 Acres/hr

Site Altitude:	4,600	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.64 Acres/hr
Adjusted Hourly Fleet Production: **1.28** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **7.25** Hours

Unit cost: $696.428 Per acre Total job cost: **$6,477**

TRUCK/LOADER TEAM WORK

Task description: **Stage 6 Apply Topsoil**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 06E State: Colorado Abbreviation: None
Date: 8/31/2023 County: Mesa Filename: M129-06e
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 972H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	30	100	50	0
Ownership cost/hour:	$108.06	$57.78	$241.38	$241.38	$149.33	$11.35
Operating cost/hour:	$71.88	$56.23	$43.18	$143.92	$46.40	$0.00
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	$0.00	$0.00	$0.00
Operator cost/hour:	$24.82	$35.97	$40.04	$40.04	$46.87	$0.00
Unit Subtotals:	$204.76	$149.98	$324.59	$425.34	$242.60	$11.35
Number of Units:	2	1	1	1	1	1
Group Subtotals:	Work:	$559.50	Support:	$749.93	Maint:	$253.95

Total work team cost/hour: **$1,563.38**

MATERIAL QUANTITIES

Initial volume: 11,253 CCY Swell factor: 1.215
Loose volume: **13,672** LCY

Source of estimated volume: 9.3 ac @ 9”
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: 62,000 Pounds
Payload Capacity: 38.75 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **18.48** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.600	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**6.160**	LCY

Job Condition Corrections: Site Altitude (ft.): 4600 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: 3 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): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.465**	minutes
	Net Load Time per Truck:	**1.030**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.030	Minutes	Adjusted for site altitude:	1.030	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	0.00	4.00	4.00	1774	0.584

Haul Time: **0.584** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	0.00	4.00	4.00	2855	0.413

Return Time: **0.413** minutes
Total Truck Cycle Time: **3.627** minutes

Loading Tool unit Production 680.25 LCY/Hour Adjusted for job efficiency: 564.60 LCY/Hour

Truck Unit Production 305.71 LCY/Hour Adjusted for job efficiency: 253.74 LCY/Hour

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

Adjusted hourly truck team production: 507.47 LCY/Hour
Adjusted single truck/loader team production: 507.47 LCY/Hour
Adjusted multiple truck/loader team production: **507.47** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **26.94** Hours

Unit cost: $3.081 /LCY Total job cost: **$42,121**

REVEGETATION WORK

Task description: **Stage 6 Reveg Non-Salty**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: 06G State: Colorado Abbreviation: None
Date: 8/31/2023 County: Mesa Filename: M129-06g
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	$0.62	$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	$0.69	$69.00
			Total Fertilizer Materials Cost/Acre	**$143.80**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$41.82
Total Fertilizer Application Cost/Acre	**$41.82**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$112.82
Total Tilling Cost/Acre	**$112.82**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Bluebunch Wheatgrass - Secar	9.50	30.53	$103.31
Crested Wheatgrass - Ephraim	3.00	13.77	$12.98
Galleta	4.00	14.60	$89.40
Western Wheatgrass - Arriba	8.00	20.20	$52.00
Totals Seed Mix	24.50	79.11	**$257.69**

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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	$4.01	$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	$3.75	$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	$429.79	$644.68
Total Mulch Materials Cost/Acre				**$652.44**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$74.46
Power mulcher (MEANS 32 91 13.16 0350)	$147.67
Weed spray, hand, aquatic area, nox. [DMG]	$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	$62.72
Total Mulch Application Cost/Acre	**$468.01**

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:	9.3	Cost /Acre:	$1,908.58
Estimated Failure Rate:	50%	Cost /Acre*:	$1,908.58
*Selected Replanting Work Items:	FERTILIZING,TILLING,SEEDING,MULCHING		

Initial Job Cost:	**$17,749.79**
Reseeding Job Cost:	**$8,874.90**
Total Job Cost:	**$26,625**
Job Hours:	**14.00**

REVEGETATION WORK

Task description: **Phase S - Opt 2 Secondary failure seeding of reclaimed**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: S2 State: Colorado Abbreviation: None
Date: 8/29/2023 County: Mesa Filename: M129-S2
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	$0.62	$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	$0.69	$69.00
			Total Fertilizer Materials Cost/Acre	**$143.80**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$41.82
Total Fertilizer Application Cost/Acre	**$41.82**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$112.82
Total Tilling Cost/Acre	**$112.82**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.50	19.51	$14.24
Saltbush, Four Wing - Dewinged	1.00	1.61	$18.50
Saltgrass, Inland	4.00	55.45	$171.20
Spike Muhly	0.60	22.04	$5.82
Totals Seed Mix	6.10	98.61	**$209.76**

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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	$4.01	$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	$3.75	$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	$429.79	$644.68
Total Mulch Materials Cost/Acre				**$652.44**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$74.46
Power mulcher (MEANS 32 91 13.16 0350)	$147.67
Weed spray, hand, aquatic area, nox. [DMG]	$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	$62.72
Total Mulch Application Cost/Acre	**$468.01**

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: 8.9
Estimated Failure Rate: 0%
*Selected Replanting Work Items: NONE

Cost /Acre: $1,860.65
Cost /Acre*: $0.00

Initial Job Cost: **$16,559.79**
Reseeding Job Cost: **$0.00**
Total Job Cost: **$16,560**
Job Hours: **9.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Initial Mobilization**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: X01 State: Colorado Abbreviation: None
Date: 8/31/2023 County: Mesa Filename: M129-X01
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:	$20.26	$36.04	$47.05
Operating Cost/Hour:	$39.51	$76.08	$82.85
Operator Cost/Hour:	$22.52	$22.52	$22.52
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$82.29	$158.17	$175.95

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
Submersible pump - 460v, 8 in.	0.70	$15.28	$82.29	1	$97.57	$82.29	$250.00
CAT 972H	28.00	$57.78	$158.17	1	$215.95	$158.17	$250.00
Cat 730	25.19	$108.06	$82.29	3	$571.05	$246.87	$750.00
CAT 14M	23.57	$149.33	$82.29	1	$231.62	$82.29	$250.00
Water Tanker, 2,500 Gal.	5.25	$11.35	$82.29	1	$93.64	$82.29	$250.00
Cat D8T - 8SU	53.08	$255.49	$175.95	2	$862.88	$351.90	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$6.73	$82.29	1	$89.02	$82.29	$250.00
Power Mulcher (Bowie LD-90)	6.00	$25.94	$82.29	1	$108.23	$82.29	$250.00
Subtotals:					**$2,269.96**	**$1,168.39**	**$2,500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Flatbed Truck, 4x2, 30K GVW	$92.68	1	$92.68	$92.68
Light Duty Pickup, 4x4, 3/4 T.	$44.06	2	$88.12	$88.12

Subtotals:	**$180.80**	**$180.80**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GRAND JUNCTION	
Total one-way travel distance:	6.00	miles
Average Travel Speed:	45.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$10,456.81	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$48.21	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.13	0.13
Return Time (Hours):	0.13	0.13
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.27	0.27

JOB TIME AND COST

Total job time:	**2.53**	Hours
Total job cost:	**$10,505**	

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Secondary Mobilization**

Site: **Whitewater Pit 500** Permit Action: TR-6 Permit/Job#: M1977129

PROJECT IDENTIFICATION

Task #: X02 State: Colorado Abbreviation: None
Date: 8/31/2023 County: Mesa Filename: M129-X02
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:	$20.26	$36.04	$47.05
Operating Cost/Hour:	$39.51	$76.08	$82.85
Operator Cost/Hour:	$22.52	$22.52	$22.52
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$82.29	$158.17	$175.95

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	$6.73	$82.29	1	$89.02	$82.29	$250.00
Power Mulcher (Bowie LD-90)	6.00	$25.94	$82.29	1	$108.23	$82.29	$250.00
Subtotals:					**$197.25**	**$164.58**	**$500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Flatbed Truck, 4x2, 30K GVW	$92.68	1	$92.68	$92.68
Light Duty Pickup, 4x4, 3/4 T.	$44.06	1	$44.06	$44.06
Subtotals:			**$136.74**	**$136.74**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GRAND JUNCTION	
Total one-way travel distance:	6.00	miles
Average Travel Speed:	45.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$1,490.99
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$36.46

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.13	0.13
Return Time (Hours):	0.13	0.13
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.27	0.27

JOB TIME AND COST

Total job time:	**2.53**	Hours
Total job cost:	**$1,527**	